ENTERPRISE RISK MANAGEMENT:

DEVELOPING A STRATEGIC ERM ALIGNMENT FRAMEWORK - FINANCE SECTOR

A Thesis submitted for the degree of Doctor of Philosophy

By

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Dedication

To my loving husband Brian for his considerable support, understanding and everlasting love throughout the journey to complete this thesis.

Podziękowania dla Rodziców za nieprzemierzone wsparcie, wyrozumiałość i zrozumienie.

To my friends for being true friends.

Declaration

I hereby declare that the materials contained in this thesis have not been previously submitted for a degree in this or any other university. I further declare that this thesis is solely based on my own research.

I declare that all information in this research has been obtained and presented in accordance with academic rules and ethical conduct.

Joanna L. Keith

List of Journal Articles and Conference Papers

ALTHONAYAN, A., KEITH, J. and MISIURA, A., 2011a. Aligning Enterprise Risk Management With Business Strategy and Information Systems, *EMCIS2011: Aligning Enterprise Risk Management With Business Strategy and Information Systems* 2011a, European, Mediterranean, and Middle-Eastern Conference on Information Systems.

ALTHONAYAN, A., KEITH, J. and MISIURA, A., 2011b. *Aligning ERM with Corporate and Business Strategies.* Birmingham: British Academy of Management.

ALTHONAYAN, A. and KEITH, J AND KILLACKEY, H., 2012a. ERM Culture to Enhance Competitive Advantage, *SOA ERM Symposium* 2012a, Society of Actuaries.

ALTHONAYAN, A., KEITH, J. and KILLACKEY, H., 2012b. Shifting into an ERM culture. How to Sustain an Enterprise Risk Management Program and Maintain Competitive Advantage. *The RMA Journal*, October (2012)

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Abstract

This thesis investigates the evolutionary process of risk management practices associated with the implementation of enterprise risk management (ERM) across the finance sector. Despite the increasing number of ERM adoptions in the finance industry in recent years, ERM was still at an early stage of development and further research is recommended.

The literature review identifies a gap in the ERM literature, prompting the development of a theoretical framework to investigate key organisational factors critical to effective implementation of the strategic framework. A strategic ERM Alignment Framework was developed to address key shortcomings of existing ERM practices in the industry and to provide practical guidance to academics and practitioners.

The research was conducted as a two-stage empirical study in the finance sector, employing sequential mixed methods of data collection and analysis: a series of 35 semi-structured qualitative interviews with senior enterprise risk managers representing a variety of financial organisations, followed by a quantitative questionnaire survey of 115 finance industry professionals.

The literature supports the industry view of continuous internal and external pressures towards ERM implementation across financial organisations. The research findings confirm that ERM is perceived to have slowly transformed from a process of compliance to a strategic tool and become a source of value creation and competitive advantage. The study also shows that aligning ERM with core organisational strategies and enterprise risk culture have been the underlying factors driving a strategic ERM framework sustainable over time. Inadequate senior management support for ERM and an insufficiently dynamic enterprise risk culture are identified as the greatest challenges to ERM sustainability. Major benefits of ERM are revealed as well informed risk-adjusted decision making and a strategic enterprise-wide view of key risks.

The main contribution to knowledge of this research is the development of a strategic ERM Alignment Framework for the finance sector and practical guidelines for its effective implementation. Specifically, this research offers academics and finance industry practitioners a better understanding of organisational factors critical to the implementation of a strategic ERM Alignment Framework, supported by empirical evidence.

Key limitation of the research was identified as the complexity of the ERM Alignment Framework that can be mitigated by undertaking future research to simplify the framework following its practical application.

The researcher recommends that future research should focus on intangible elements and qualities of ERM that are important to the Alignment Framework, such as developing a strong and consistent enterprise risk culture, or investigating how the framework can add value to the organisation.

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Abbreviations

AICPA	American Institute of Certified Public Accountants
APQC	American Productivity and Quality Center
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BOD	Board of directors
BRC	Board Risk Committee
BSC	Balanced Scorecard
BSI	British Standards Institute
CCR	Counterparty credit risk
CEB	Corporate Executive Board
CDO	Collateralised Debt Obligation
CEO	Chief executive officer
CFO	Chief financial officer
CORR	Correlation
COSO	Committee of Sponsoring Organisations of the Treadway Commission
CRO	Chief Risk officer
df	Degree of freedom
E&Y	Ernst & Young
EIU	Economist Intelligence Unit
EMEA	Europe, Middle East and Africa
ERM	Enterprise Risk Management
FERMA	Federation of European Risk Management Associations
GARP	Global Association of Risk Professionals
GE	General Electrics
GFC	Global financial crisis
HAA	Holistic Alignment Approach
IA	Internal Audit
IIA	Institute of Internal Auditors
IMA	Institute of Management Accounting
IMF	International Monetary Fund
IRM	Institute of Risk Management
ISO	International Organization for Standardization
IT	Information technology
KPI	Key performance indicator
KRI	Key risk indicator
LTCM	Long-Term Capital Management
MBS	Mortgage-backed security
PRMIA	Professional Risk Managers' International Association
RIS	Risk Infrastructure System
RIMS	Risk Management Society

RMA	Risk Management Association
S&P	Standard and Poor's
SME	Subject matter expert
SNZ	Standards New Zealand
SSG	Senior Supervisors Group
SOX	Sarbanes-Oxley 404
SVA	Shareholder value added
SPSS	Statistical Package for the Social Sciences
TSE	Toronto Stock Exchange
VaR	Value at risk

1 Chapter One: Introduction

1.1 Background

After the recent Global Financial Crisis (GFC), the new economic reality requires long-term restoration of investors' confidence, regulatory intervention and a revitalised, more dynamic approach to risk management. The recent crisis has raised questions about the performance and resilience to change across financial organisations in the event of adverse market events. Consequently, the highly volatile post-crisis reality requires that financial organisations start to re-evaluate their existing risk management practices and focus on adopting a more effective approach to risk (Aven 2010; Ray and McAuliffe 2010).

Shifting economic conditions, technological advances, emerging markets, geopolitical threats and altered regulatory environments have compelled organisations across various industries to adopt enterprise risk management (ERM). ERM can help to address the risks that organisations face continually. As financial organisations slowly implement ERM, it has begun to emerge as an approach that can help to deliver long-term value, competitive advantage and sustainability.

As risk practitioners and researchers identify key elements that have contributed to the financial crisis, ERM remains at a stage of development that requires further research and understanding to become a driving force for organisational value and effectiveness (Beasley and Frigo 2010). Therefore, this research discusses ERM an innovative and robust approach to managing risk and focuses on developing an ERM alignment framework to provide a set of prescriptive implementation guidelines for the financial industry and scholastic community.

1.2 Key risk management challenges

Historically, traditional 'silo' risk management has focused on managing primarily financial and hazard risks through hedging and insurance, with the emphasis on regulatory compliance (Dickinson 1997a; Hull 2000; Protiviti 2011). However, silo risk management proves insufficient when exposed to high-impact, low-likelihood risk events identified as "black swans" (Taleb 2007). Organisations often misestimate their readiness to properly assess potential organisational risks and to apply knowledge of risk efficiently to solve risk management problems. Many organisations have suffered irrecoverable damage by

overreliance on statistical modelling, which often ignores tail risks, and by misinterpreting risk exposures (D'Arcy 1999; Nocera 2009).

In the last two decades, ERM has developed from an initial inspiration into a more conventional approach, providing a comprehensive overview of the spectrum of existing risks that need to be managed (Charette 2008). The primary purpose of ERM is to align fragmented notions of strategic planning, operations management and internal controls to develop the highest standards of decision making across an organisation (Posner 2005; Charette 2008; Bonisch and Giammarino 2010). Increasingly, ERM has become significant for pursuing risk-bearing strategic opportunities, integrating enterprise-wide best risk practices and creating a risk awareness culture (McKinsey 2010).

Without a doubt, risk has become a driving force in strategic and operational decisions, and should be managed as an element of a "holistic engine" (Cendrowski and Main 2009). Therefore, ERM has become a critical element of a unified risk-based management approach, aiming to set business goals that can increase shareholders' value and at the same time help to better manage the market volatility and major risks that organisations constantly face. According to Charette (2008), ERM as an initiative focuses on a comprehensive integration of four risk categories across the corporate, strategic and operational levels:

- Strategic risks: the firm's vision, direction and change management
- Operational risks: people, processes and technology which drive objective-setting
- Financial risks: financial investments that create shareholders' value
- Hazard risks: products of financial loss/gain.

Figure 1-1 (Anonymous 2001) shows an example of a traditional silo risk management approach, lacking the element of enterprise-wide risk integration. This traditional risk framework assumes no communication between organisational functions and visibly lacks the comprehensive departmental interaction needed to stimulate effectiveness across the corporate structure. The dynamic alignment of various risk disciplines with other key business units would help to identify emerging potential growth opportunities. The alignment could also help to improve the level of communication across the organisation and impact the decision-making process. Silo-based risk approaches are reactive in nature,

and their functions remain largely segregated; each silo has its own tools and applications to assist with specific management and reporting requirements. Potential problems arise because these independent systems do not communicate with one another across business lines (Theil and Ferguson 2003). Defining measures of risks in each business consistently across the organisation is critical (Oldfield and Santomero 1997).

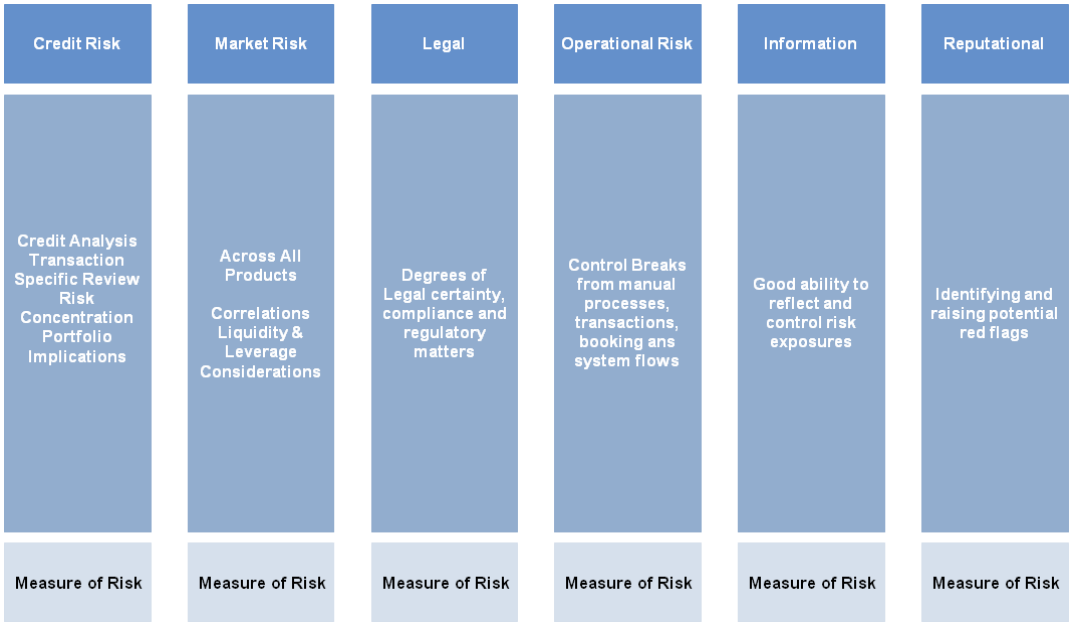


Figure 1-1 Traditional risk framework

Source: Anonymous (2001)

Charette (2008) compares the silo approach to the integrated risk management and discussed managing main enterprise-wide risk categories integral to the organisational structure.

The tendency of corporate executives to approach some organisational risks with ignorance or conflicting agendas often leads to an "unbalanced picture of the current strategic situation", thus exposing the enterprise to market unpredictability (Hampton 2009). Many financial organisations direct risk management functions to identify, assess and manage risks, using various techniques to establish the basis for strategies to align organisational objectives with the risk appetite and tolerance level. Nevertheless, the risk events during the recent GFC have exposed deficiencies in risk management approaches and constraints to organisations' flexibility in dealing with risks (AON 2009; D'Arcy 2009; Institute of Management Accounting [IMA] 2009).

Organisations that have exposure to complex financial instruments bear a high level of risk exposure and potential losses. Such organisations should focus on a comprehensive risk management strategy adapted to maintaining long-term sustainability in the market, protecting well-established reputation and sustaining strong shareholder value, thus securing investors' confidence (Turner and Housing Corporation 2004; Beasley and Frigo 2010).

For example, lack of robust stress testing, inadequate risk aggregation and incorrect assumptions regarding risks to future performance in dealing with complex instruments such as collateralised debt obligations (CDO) or mortgage-backed securities (MBS) can create a cascade of financial implications affecting business performance enterprise-wide. Overly optimistic assumptions around return correlations in extreme market conditions, without a solid understanding of potential financial implications, can make it difficult to detect enterprise-wide risk concentrations that affect the entire risk portfolio and result in incurring severe costs (Gatzert *et al* 2007; Citibank 2007; UBS 2008; Nocera 2009).

Financial organisations use various risk metrics to assess potential risk outcomes; therefore, understanding what the risk appetite is and how it can be measured efficiently becomes critical to effective decision making (Nocera 2009). For example, while value at risk (VaR) is the most widely used risk metric, it has multiple weaknesses, yet organisations may choose either not to acknowledge these limitations or simply to use VaR in isolation, rather than in conjunction with other metrics, which would allow them to see the entire risk map. VaR may be considered a useful supportive risk tool in a stable market environment for fairly liquid securities (i.e. easily sellable in the market), with no extreme price movements and in a relatively short timeline. However, as a primary risk tool in a highly volatile market, VaR often fails in its purpose. Placing excessive quantitative emphasis on the "mechanical" application of model-based indicators and their outputs, rather than qualitative analytical validation and independent review, may be considered inefficient (Dowd 1998; Jorion 2001; Bernanke 2009).

Other potential risk management challenges concern reluctance among financial organisations to invest in enterprise risk infrastructure. The current technological reality for financial organisations is the low capacity for integrating risk analysis, with the consequent limited ability of systems to present a full and consolidated picture of enterprise-wide risks

to the relevant stakeholders. A fragmented risk infrastructure makes it particularly difficult to identify and track overall risk exposures and to report them accurately to the management. ERM can help to reduce costs, enable standardisation and flexibility, as well as improve workflow efficiencies and synergies when supported with the enterprise risk infrastructure, (Bansal 2003; Surowiecki 2005; Abrams *et al* 2007).

Another risk management challenge that has risen to the top of the agenda in recent years is the culture of risk, which Althonoyan *et al* (2012a, p.2) describe as follows: "... the need of organisations to have a strong ERM culture emerged from the shifting role of ERM from being a specific type of risk management handled by a small department or a specialised group of professionals to a process of guiding the achievement of strategic objectives."

Therefore, this research aims to consider key risk management challenges in order to develop a theoretical strategic ERM alignment framework (Chapter 4) to be validated (Chapter 8) with the empirical data analysed and discussed in Chapters 6 and 7.

1.3 Statement of research problem

During the last two decades, risk management has adopted a more comprehensive perspective and now portrays enterprise-wide risk profiles more accurately, thus helping senior managers to understand the full array of risks they face (Protiviti 2011). The lack of effective risk measurement and monitoring, as well as the immaturity of the risk function discussed in Section 1.2, highlights the need for a more strategic ERM alignment with key organisational areas to sharpen the focus on effective ERM implementation (Monahan 2008).

The top concerns for the financial sector in 2013 included the effect that regulatory changes combined with heightened regulatory scrutiny had on markets, global economic conditions that were significantly limiting growth potential, and an unstable political climate in various markets worldwide (AON 2013; RIMS 2013). Consequently, in the current economic climate, there is a strong need for risk management to be included on senior management agendas as a business discipline that is critical for strong governance (Mertzanis 2011). As financial markets become increasingly complex, a well structured risk management portfolio has proved to be of quintessential value. Risk management requires close attention to the macro and micro elements of risk within the corporate

structure, filtering through all the departments to create an integrated model rather than a fragmented one (Hampton 2009). Financial organisations should be prepared to react to risk management needs at all business levels (Beasley *et al* 2003*;* Abrams *et al* 2007; Beasley and Frigo 2010). Gup (2010) also points out that the recent GFC revealed that financial organisations had inadequate risk management, as evidenced by problems they experienced with the models employing economic capital, which were subject to large errors. Gup (2010) also notes that ERM should use a "forward looking building block" approach to aggregate the risks from all lines of business, and be based on expected scenarios instead of recent history.

This section discusses some regulatory reforms relevant to ERM practices across the finance industry. As the present financial turmoil raises concerns about financial stability and the current level of regulation of financial organisations, regulators consider the need for increased supervisory guidance regarding key aspects of risk management. The Basel Committee on Banking Supervision, whose members represent the central banks and regulatory authorities of the G-20 major economies, has worked on enhanced regulation around the management of liquidity risks and better regulatory disclosures to increase transparency, all aimed at strengthening current market discipline.

The Basel I Accord was the first of a series of banking regulations, mainly concerned with credit risk and the introduction of minimum capital requirements for banks (Bank for International Settlements [BIS] 2001). Growing financial innovation and rapidly developing risk management meant that Basel I became seen as outmoded (BIS 1994; Wellink 2007). Therefore, Basel II (2004) provided more comprehensive guidelines and was intended to strengthen the regulation of capital liquidity and adequacy levels needed by banks to withstand market unpredictability and stressed environments. Basel II had three "pillars": minimum capital requirements (addressing risk), supervisory review and market discipline (BIS 2006). Its importance was discussed worldwide before and after the GFC, then in response to the crisis, Basel II was revised to produce Basel III, which further regulates banks' capital requirements, stress testing and market liquidity risk (Wellink 2007). It also establishes new regulatory requirements on liquidity and leverage, requiring banks to hold a minimum common equity of 7%, which includes a countercyclical buffer of 2.5% that is available during times of stress (Balthazar 2006; Economist Intelligence

Unit [EIU] 2011). The focal points of the Basel III framework, according to PWC (2009) are: 1) quality, consistency and transparency (i.e. higher minimum regulatory capital requirements), 2) counterparty credit risk (CCR) (i.e. strengthening capital requirements for CCR for derivatives), 3) leverage ratio (i.e. calculated on internationally harmonised accounting standards) and 4) systemic risk (i.e. developing a policy that would reduce risks related to capital/liquidity surcharge) (Johnston 2006; PWC 2009).

Basel III also addresses liquidity risk, which is perceived to be increasingly important due to its consequential nature; it can be triggered by any risk that an organisation faces (credit, market, concentration, operational or reputational) and which cannot be managed on a standalone basis (BIS 2010). To be able to comprehend liquidity risk fully, it is critical to analyse the relationships among the principal risks that can affect it (Bessis 2002). The industry has managed to push back implementation of the new requirements until 2019, in order to avoid an adverse impact on the economy from reduced lending capacity.

Another essential reform discussed in this section of the thesis is the Walker report (2009), which was published in response to the recent market turmoil across the banking system, presenting a consultative view on creating better corporate governance in order to strengthen the existing regulation. Walker (2009) emphasises the need to redefine of the role of risk management and considers how risk governance can be achieved in line with improved regulation (Deloitte 2009a). The core principles of Walker's (2009) recommendations focus on risk management, disclosure and delinking disproportionate risk-taking from compensation, including the creation of a board risk committee with the power and obligation to present meaningful information about risk in the company's annual report. Walker's proposal adds significant changes to the existing market regulations. Recognising that the financial crisis entails a wholesale failure of risk management, the report advocates fundamental changes to managing risk exposures and developing future risk strategies through corporate culture. This new approach, in the shape of financial reform, is expected to transform the appearance of traditional risk management applied at all organisational levels. When thinking of risk evaluation, it is essential to remember that a strategic decision-making process is ineffective without the ultimate integration of all variables of the risk model (Deloitte 2009a).

Another regulatory reform that may have a significant impact on the oversight and supervision of financial organisations is the Dodd-Frank Act (U.S. Securities and Exchange Commission, 2012), which introduces more stringent regulatory capital requirements, significantly modifies the regulation of over-the-counter derivatives, implements changes to corporate governance and executive compensation practices, incorporates the Volcker Rule, and effects significant modifications to the securitisation market (Markovich 2013). This research study will forgo any in-depth analysis of other financial reforms.

Observing the current reality from the point of view of the financial sector provides further evidence that organisations need to be adequately prepared to face the risks associated with unanticipated market volatility (Abrams *et al* 2007); thus, implementing sustainable ERM processes at all organisational levels is critical. Therefore, this study comprises two parts, dedicated to desk research (Chapters 2 to 5) and field research (Chapters 6 to 8). The desk research was designed to allow the researcher to strengthen her expertise on the research subject by examining key academic and industry-based ERM literature, to identify gaps in the existing ERM literature and to establish the theoretical baseline for a strategic ERM Alignment Framework.

1.4 Research rationale

ERM has rapidly become seen as a vital approach to managing key strategic risks. ERM differs from traditional risk management and while it requires a comprehensive mix of skills, approaches and processes, it has some advantages over other risk management techniques (Bernstein 1996; Kawamoto 2001). ERM development is an explicit linkage of key levels in an organisation and has become an imminent necessity for all major market participants (Kawamoto 2001). According to Berry and Philips (1998), ERM should also focus on increasing confluence of risks and be designed to target the complexity of emergent risk management.

Taking a step forward, this research focuses on demonstrating the significance of the alignment between the expectations of business leaders at a corporate (i.e. strategic) level and the enterprise-wide importance of the ERM process. As a result, in the face of increasingly dynamic market conditions, this study develops the Strategic ERM Alignment Framework, which focuses on the effective strategic management of key enterprise-wide

risks. The framework presented further in this research (Chapter 4) also addresses the key limitations identified in various existing ERM practices. Additionally, it shows how ERM, in balanced alignment with key organisational factors, can enhance business effectiveness, build confidence and reputation in the marketplace and create a unique competitive advantage that adds shareholder value.

The ERM Alignment Framework is considered a strategic risk approach for the financial sector that accommodates both top-down and bottom-up risk management. It also emphasises the importance of developing a strong and consistent enterprise risk culture that supports the embedding of ERM into organisational structure, transferring it into a natural risk environment. The Framework focuses on including risk information in decision making and creating a more strategic view of the organisation's aims. This research also seeks to improve understanding of constantly changing external and internal environments and the influence that various organisational factors can have on ERM adoption. As Liebenberg and Hoyt (2003) noted, continuous monitoring of the changing environment that organisations operate in helps them to re-evaluate the underlying assumptions of the business model as and when necessary, and to align it with their risk strategy.

1.5 Research aims

The main aims of this research are:

1. To develop a strategic ERM alignment framework that addresses key shortcomings of existing ERM practices in the financial industry.
2. To provide practical guidance for implementation of the Strategic ERM Alignment Framework to academia and the finance industry.

1.6 Research objectives

To achieve the above aims, the researcher has defined specific objectives:

1. To investigate the academic and industry-based research literature and to analyse existing ERM approaches in the finance industry.
2. To identify key strengths and weaknesses of the existing ERM approaches and frameworks in the finance sector identified in the literature review.
3. To identify the ERM literature gap.

4. To investigate the role and importance of enterprise risk culture in ERM implementation
5. To validate the Strategic ERM Alignment Framework, its potential benefits and limitations, as part of a field study.

1.7 Research questions

The research addresses the following questions to achieve its aims and objectives:

1. How do financial organisations transition from their traditional silo risk approach to ERM?
2. How did financial organisations change their existing approach to managing risk since the GFC?
3. What are the key organisational factors critical to strategic ERM implementation and how to incorporate those into the Strategic ERM Alignment Framework?
4. How can ERM achieve long-term sustainability, enhance shareholder value and drive competitive advantage?
5. How important is the role of enterprise risk culture in ERM implementation?

1.8 Research contributions

The main contributions resulting from achieving the research aims and objectives can be summarised as follows:

1. The research will be a valuable contribution to theoretical knowledge through the in-depth review of various concepts and themes of ERM. This is achieved through a thorough review of the academic, the industry-based literature, and the researcher's recognition of the impact of external and internal drivers on adoption and implementation of strategic ERM.
2. This research makes a considerable contribution to literature in the development of the Strategic ERM Alignment Framework for the finance industry. Strategic ERM Alignment Framework intends to provide a clear understanding of naturally complex interactions of internal and external factors that can influence every organisation differently, all in the context of effective managing key risks.

3. This research contributes to better understanding of the role and importance of ERM in financial organisations. The researcher aims to highlight key drivers of ERM, in the context of implementation benefits and challenges, and offer prescriptive guidance on how it can be achieved. This is based not only on theoretical and empirical investigation performed by the researcher in scope of this study but also from professional experience in risk management gained in the finance sector over the years. As a result, the research will provide financial industry professionals and scholars with practical recommendations and step by step guidelines on the effective adoption of strategic ERM, in the form of the Strategic ERM Alignment Framework.
4. The methodological approach selected for this research demonstrates the use of multiple methods of data collection and analysis that is considered most suitable for such a highly heterogeneous field as ERM. The majority of ERM research is conducted with the use of either quantitative or qualitative methods. Therefore, this study contributes to the literature by combining the qualitative and quantitative research methods.

1.9 Summary of research methodology

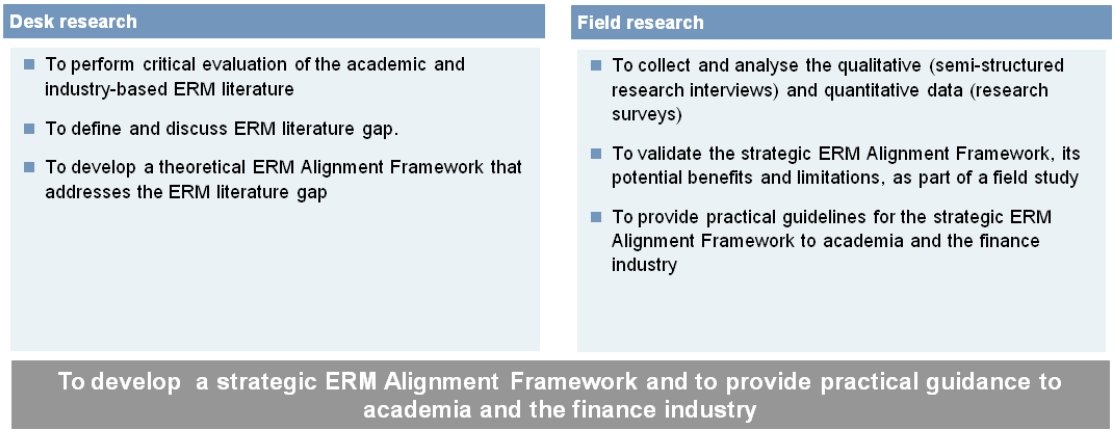
In light of the growing complexity of contemporary management issues, it has become increasingly difficult to identify which of the many emerging paradigms of research methodology is most appropriate (Baker 2001). This section outlines the methodological approach taken in this research that is later discussed in details in Chapter 5. The discussion of research methodology attempts to present some of the specific tools and techniques that can be used in the design of this research and the development of its accurate interpretation (Walliman 2005).

There are two mainstream academic approaches to research: inductive and deductive. Inductive reasoning seeks theoretical generalisation by beginning with specific observations, then identifying patterns, formulating hypotheses and finally drawing conclusions. Inductive type of reasoning usually associated with qualitative methods and is thus broadly applicable to the present research study. Deductive reasoning, by contrast, takes a top-down approach, where the researcher starts with a theory, narrows it down to a specific hypothesis and then collects observations on the basis of which to accept or reject

the hypothesis and so to confirm or contest the original theory. Deductive research typically uses quantitative methods (Patton 2002). Inductive and deductive research and the associated methods are discussed in detail in Section 5.3.

The present research is of a qualitative undercurrent concerned with the motivations of human behaviour and the reasons for it – asking "what", "how" and "why" questions about human actions and taking a naturalistic approach to the subject matter (Creswell 1998; 2003). However, as this research adopts mixed methods, it also has a quantitative element, as outlined below.

Table 1-1 Research methodology



Source: Researcher

Table 1-1 illustrates the respective focus of desk and field research. The desk research focused on collating published analyses from a variety of academic and industry-based journal articles, books and professional accounts and establishing a critical baseline for the development of a theoretical Strategic ERM alignment framework through an in-depth literature review. The field research involved conducting an empirical investigation of the verbal material collected from the qualitative research and written data from the quantitative study (Walonick 1993). This empirical phase was performed in collaboration with relevant financial and risk professionals in the finance industry, data being gathered by means of qualitative semi-structured interviews and quantitative surveys. The researcher thus adopted mixed methods of data collection and analysis.

The research findings reported in Chapters 6 and 7 are linked with the conclusions of the literature review of existing academic and industry research contributions, surveys and case studies to identify best practice in ERM. Qualitative data is further examined for

emerging themes, aspects of ERM and insights that would indicate future developments and research recommendations. Quantitative data is investigated to assign rankings and weight to the qualitative responses. The research findings are limited by the literature review (Chapters 2 and 3), and the empirical data obtained from research interviews and surveys conducted by the researcher (Chapters 6 and 7).

1.10 Thesis Outline

This thesis is presented in two main parts, reflecting the distinction discussed above between theoretical (desk) and practical (field) research; it consists of nine chapters including this one. Figure 1-2 outlines the structure of the thesis.

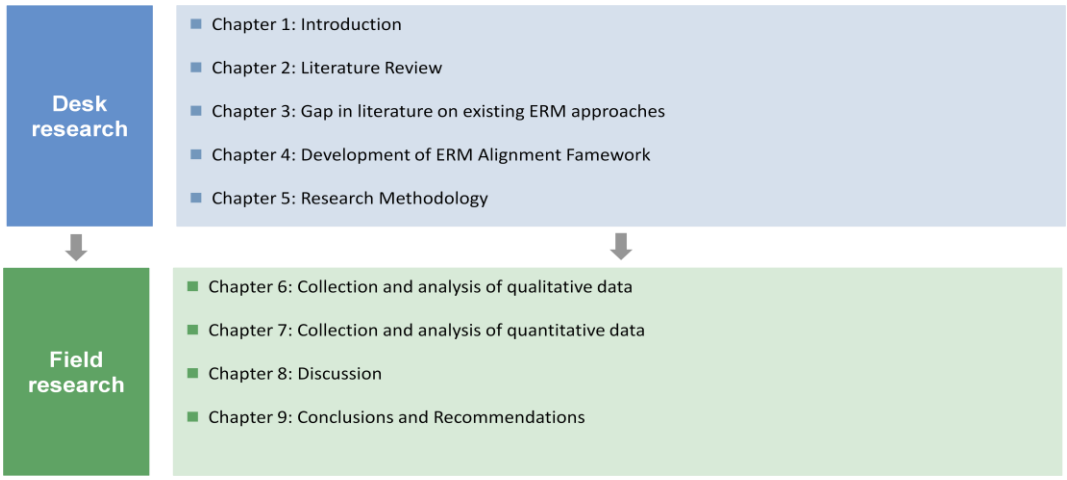


Figure 1-2 Structure of the thesis

Source: Researcher

Part I consists of five theoretical chapters. Chapter 1 is an introduction to the thesis focusing on key risk management challenges, plus the aim, objectives and contributions of the research. It concludes with an outline of the research methodology and the structure of the thesis.

Chapter 2 defines and explains the concept of traditional risk management and its evolution into enterprise risk management over time. Relevant academic and industry-based research is presented and analysed as a part of the literature review, including key ERM approaches, surveys and case studies across various industries, specifically in the financial industry.

Chapter 3 evaluates the existing ERM research literature, using a four-quadrant framework to highlight a gap in the literature and to identify potential research opportunities. This chapter also shows the influence that the literature gap exerted on the development of the Strategic ERM Alignment Framework proposed in this work.

Chapter 4 presents the proposed theoretical Strategic ERM Alignment Framework, developed on the basis of the review of literature (Chapter 2) and an assessment of its shortcomings (Chapter 3), the aim being to generate long-term sustainable value for financial organisations.

Chapter 5 presents the research methodology, describing the research process, discussing the problems associated with identifying the most appropriate research methods, outlining the research design, considering data access and explaining the collection and analysis procedures.

Part II is devoted to the field research and consists of chapters of an empirical nature. Chapter 6 documents the qualitative research, reporting the collection and analysis of data from research interviews conducted with the participation of key senior ERM practitioners in the financial industry.

Chapter 7 discusses the quantitative research, focusing on the collection and analysis of data obtained by means of surveys. The findings stated in Chapters 6 and 7 are linked back to the conclusions of the literature review and aligned with the researcher's professional experience.

Chapter 8 validates the Strategic ERM Alignment Framework, based on the findings of the mixed methods data analysis.

Chapter 9 summarises the research, draws conclusions, discusses the contributions of the study and its limitations, and makes recommendations for future research.

2 Chapter Two: Literature review

2.1 Introduction

Since ERM is a relatively new concept and most academic ERM research has been published during the last two decades, the literature review presented in this chapter focuses on publications from the mid-1990s to the present. Both growing industry interest and the availability of ERM-related data have progressively surpassed the extent of academic research in recent years. Therefore, the scope of this study was extended beyond academic resources to industry journals, case studies and surveys available on the topic. The value of empirical data, practical ERM application and a depth of risk expertise shared by industry researchers has become significant to the academic literature on ERM (Schneier and Miccolis 1998; Fraser and Henry 2007).

This chapter aims to review key ERM literature contributions published by leading scholars and industry researchers and to discuss the following:

- The evolution of silo risk management into enterprise risk management over the last two decades;
- Key literature on ERM, including existing practices, the alignment of ERM with key organisational factors, challenges and benefits of ERM, value creation and competitive advantage, enterprise risk culture and enterprise risk oversight.

The analysis of the academic and industry-based ERM literature allows key contributions on the research topic to be identified. A comprehensive literature review will establish key shortcomings of ERM to be discussed in Chapter 3, as well as revealing main ERM trends and opportunities for future development.

2.2 The evolution of enterprise risk management

Traditionally, risk management was developed in the insurance sector and perceived mainly as managing insurable risks (Doherty 1985; Teuten 2005). Organisations focused mostly on avoiding risks that could potentially erode their existing assets, instead of learning to embrace calculated risks and turn them into value-adding opportunities (Mills 1998). Kaplan (2009) concludes that risk management should be considered a “third leg of shareholder value creation, along with revenue growth and productivity”. Financial organisations tend to have common corporate objectives of profitability, social

responsibility, growth and solvency (Mehr and Forbes 1973). From the financial point of view, the maximisation of shareholder value is directly linked to profitability (Davenport and Bradley 2000; Dickinson and Hastings 1989; Dickinson 2001; Dickinson 2005; Lam 2003), but shareholders take note of accounting variables such as earnings per share or rate of return from risky investments only if their potential long-term impact on the profit stream is apparent (Rottman 1971). Social responsibility, however, is an increasingly important element of sustainable value creation for financial organisations (Van den Berghe and Louche 2005; Cochran and Wood 1984; Heal 2005; McGuire *et al* 1988; Wade 2003). Consequently, growth is related to shareholder value. From a risk management perspective, a key objective is maintaining solvency. Another is to ensure continued business operations in both normal and stressed environments without incurring unexpected losses due to "risk surprises" (Miller 1992; Stulz 1996; Dickinson 1997b; Kloman 2010).

In the 1960s, Mehr and Hedges (1963), widely acclaimed as the fathers of risk management, enumerated the following steps for the risk management process: 1) identifying loss exposures, 2) measuring loss exposures, 3) evaluating the different methods for handling risk (i.e. risk assumption, transfer and reduction), 4) selecting a method and 5) monitoring results (Mehr and Hedges 1963; Hedges 1974). These steps became the core of the traditional risk management process. At that time, it focused mainly on minimising or reducing the likelihood of unfavourable events or potential losses. When the concept of risk management started to emerge, interest and foreign exchange rates were relatively stable and inflation was not a major concern for most organisations. Financial risks were not perceived as constituting a significant threat to businesses.

At the beginning of the 1970s, some significant economic changes occurred and along with hazard risks, financial risks emerged as a significant source of uncertainty. The Bretton Woods agreement in 1972 introduced exchange rate instability for nearly three decades, negatively affecting the balance sheets (and business performance) of organisations involved in international trade (International Monetary Fund [IMF] 2014). Additionally, rising oil prices and falling overall production levels caused a global domino effect, leading to volatility and the destabilisation of interest rates (D'Arcy 2001). Risk management became a tool for protecting insurers from potential financial losses, earnings

volatility and negative surprises. It was intended to provide good insight for those wishing to strengthen existing controls and ensure regulatory compliance in the event of financial, geopolitical or climatic uncertainties (Doherty 1985; Dickinson 2001).

At the start of the new millennium, however, increasingly complex risks started to emerge and risk management began the slow transformation from a compliance-driven risk governance model to a finance-driven shareholder value model (Dickinson 2001; 2005; Lam 2003; Power 2003). Furthermore, Nocco and Stulz (2006) state that over two decades, risk management evolved from a corporate treasury management function into enterprise-wide risk management, extending its scope to include types other than compliance, insurance and financial risks. The literature further confirms that ERM needs an interdisciplinary focus but is still mostly handled as a single discipline subject: "ERM is not a single thing, conceptually or practically" (Power 2009, p. 849).

Figure 2-1 shows this evolution, beginning with traditional risk management in the 1970s and 1980s, which focused mainly on financial and hazard risks, while approaching risk from an enterprise-wide perspective began to be considered only in the 1990s. This evolution can be seen to parallel changes over the years in the types of risks that organisations face. A number of studies, for example, by James Lam & Associates (2005), and Deloitte Research (2005) have found that approximately 60 percent of (public sector) market value decline was caused by strategic risks, followed by operational risks (approximately 30 percent), leaving only 10 percent for financial risks.

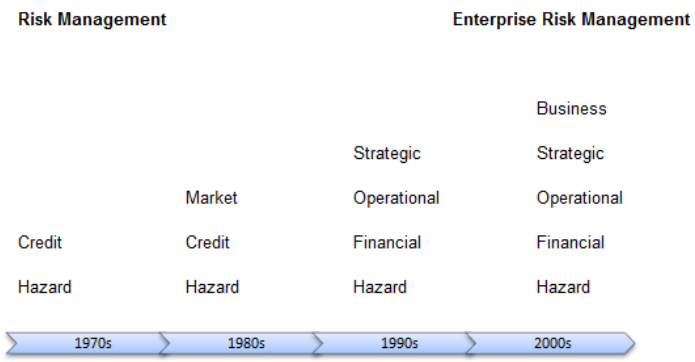


Figure 2-1 Evolution of risk management

Source: Adopted from IMA (2006)

After the dramatic changes to the economic landscape associated with the global financial crisis, its ramifications further increased the intensity around risk management worldwide (Smith and Fischbacher 2009). In the face of regulatory and governance challenges, growing pressure from shareholders and global market competition, the natural evolution of traditional risk management into ERM appeared to offer a longer-term risk solution. Indeed, according to Chapman (2006, p.38), ERM had already begun to be adopted as "a response to the sense of inadequacy in using a silo-based approach to manage increasingly interdependent risks". As a business discipline, ERM has been practiced by pioneering organisations for more than a decade. Its broad acceptance across different industries has helped it develop as an indispensable tool for achieving competitive business results (Fox 2012), even if few organisations still fully consider risk in their business strategies (Tysiac 2012).

At the start of the 2000s, ERM began to emerge as a new risk management standard to gradually change the inefficient silo style, aiming to provide more enterprise-wide consistency. Along with the evolution of risk management, the definition of ERM has also changed. Labelled as a "system of concepts", ERM has grown in importance since the mid-1990s (Power 2009). As defined by a vast body of guidance, ERM can arguably be viewed as simple and should therefore relate its risk management and mitigation processes explicitly to organisational objectives. Thus, organisations should identify all material risks hindering the achievement of their objectives, design controls and mitigations to prevent deviations from their target risk appetite, and monitor this entire process, making necessary adjustments. Power (2009) compares this model to a thermostat which adjusts to changes in the environment, depending on a "target temperature". However, ERM is anything but simple. In theory, adopting ERM would allow more proactive and integrated risk management, leading towards gaining a competitive advantage. In practise, ERM is "conceptually straightforward [but] its implementation is not" (Nocco and Stulz 2006, p.8).

Table 2-1 illustrates a fundamental transformation since the 1990s in the description, attributes and outcomes of risk. This summary of definitions over the last two decades confirms the need for constant development of risk management, particularly in financial organisations that are exposed to high market volatility.

Table 2-1 Definitions of ERM

Table 2-1: **ERM DEFINITIONS (1990s-Present)**				
Year	**Author/ Source**	**ERM Definition**	**Key ERM Attributes**	**Potential benefits/outcomes**
1992	Committee of Sponsoring Organizations of the Treadway Commission (COSO) - Internal Control - Integrated Framework	"a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: Effectiveness and efficiency of operations; Reliability of financial reporting; Compliance with applicable laws and regulations" (COSO 1992)	Control environment Risk assessment Control activities Information and communication Monitoring	1) The control environment—the tone of the organization that top management takes seriously in terms of its control responsibilities 2) Risk assessment—the identification and analysis of relevant risks to achievement of corporate objectives 3) Control activities—the policies and procedures that ensure that management directives are carried out 4) Information and communication–the information about internal and external events, activities, and conditions necessary to informed business decision making and external reporting 5) Monitoring—assessing the quality of the system's performance over time
2000	Lam	"an integrated framework for managing credit risk, market risk, operational risk, economic capital, and risk transfer in order to maximize firm value" (Lam 2000).	Corporate governance Line management Portfolio management Risk transfer Risk analytics Data and technology resources Stakeholder management	1) Stabilisation of credit, market and operational risk by appointing a Chief risk officer and creating an ERM committee 2) Establishing an integrated risk management framework to measure and manage all aspects of risks 3) Optimising the return on risk management investments by linking risk management processes and risk transfer strategies 4) Leveraging risk management to make better business decisions
2002	Institute of Risk Management (IRM)	"Risk management is a central part of any organisation's strategic management. It is the process whereby organisations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities" (IRM 2002)	The organisation's strategic objectives Risk assessment Risk reporting Decision Risk treatment Residual risk reporting Monitoring	Risk management protects and adds value to the organisation and its stakeholders through supporting the organisation's objectives, by: 1) Providing a framework for an organisation that enables future activity to take place in a consistent and controlled manner 2) Improving decision making, planning and prioritisation by comprehensive and structured understanding of business activity, volatility and project opportunity/threat 3) Contributing to more efficient use/allocation of capital and resources within the organisation 4) Reducing volatility in the nonessential areas of the business 5) Protecting and enhancing assets and company image 6) Developing and supporting people and the organisation's knowledge base 7) Optimising operational efficiency
2003	ERM Committee of Casualty Actuarial Society (CAS) - Overview of Enterprise Risk Management	"… the discipline by which an organization in any industry assesses, controls, exploits, finances and monitors risk from all sources for the purposes of increasing the organization's short- and long-term value to its stakeholders" (ERM Committee of Casualty Actuarial Society 2003).	Strategic risk Operational risk Financial risk Hazard risk	1) Establishing context: Includes an understanding of the current conditions in which the organization operates on an internal, external and risk management context. 2) Identifying risks: Includes the documentation of material threats to the organization's achievement of its objectives and the representation of areas that it may exploit for competitive advantage. 3) Analyzing/quantifying risks: Includes the calibration and, if possible, creation of probability distributions of outcomes for each material risk. 4) Integrating risks: Includes the aggregation of all risk distributions, reflecting correlations and portfolio effects, and the formulation of the results in terms of impact on the organization's key performance metrics. 5) Assessing/prioritizing risks: Includes the determination of the contribution of each risk to the aggregate risk profile, and appropriate prioritization. 6) Treating/exploiting risks: Includes the development of strategies to control and exploit various risks. 7) Monitoring and reviewing: Includes continual measurement and monitoring of the risk environment and performance of risk management strategies.

Table 2-1: **ERM DEFINITIONS (1990s-Present)**				
Year	**Author/ Source**	**ERM Definition**	**Key ERM Attributes**	**Potential benefits/outcomes**
2004	Committee of Sponsoring Organizations of the Treadway Commission (COSO)	"a structured and disciplined approach: It aligns strategy, processes, technology, and knowledge with the purpose of evaluating and managing the uncertainties the enterprise faces as it creates value. … It is a truly holistic, integrated, forward-looking, and process-oriented approach to managing all key business risks and opportunities—not just financial ones—with the intent of maximizing shareholder value as a whole." (COSO 2004)	Internal environment Objective setting Event identification Risk assessment Risk response Control activities Information and communication monitoring	**Strategy** - high-level goals, aligned with and supporting the organization's mission **Operations** - effective and efficient use of resources **Financial reporting** - reliability of operational and financial reporting **Compliance** - with applicable laws and regulations
2004	Standards Australia/ Standards New Zealand - AS/NZS 4360:2004	"Risk Management is the culture, processes and structures that are directed towards realizing potential opportunities whilst managing adverse effects." (Standards New Zealand 2004)	Establish the context Risk identification Risk assessment Risk treatment Risk monitoring and review	1) Fewer surprises 2) Exploitation of opportunities 3) Improved planning, performance and effectiveness 4) Economy and efficiency 5) Improved stakeholder relationships 6) Improved information for decision making 7) Enhanced reputation 8) Director protection 9) Accountability, assurance and governance 10) Personal wellbeing
2008	British Standards - BS31100: 2008	"British Standard BS 31100 describes the risk management framework as a set of components that provide the foundations and organizational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management processes throughout the organization. The foundations include the objectives, a mandate and commitment to managing risk (strategy); the organizational arrangements include plans, relationships, accountabilities, resources, processes and activities (architecture). The risk management framework is embedded within the organization's overall strategic and operational policies and practices (protocols)" (BSI 2008).	"BS 31100 gives practical and specific recommendations on how to put the key principles of effective risk management aligned with ICO31000, into place in your organisation" (British Standards Institute 2008)	BS 31100 describes risk management as the systematic application of management policies, procedures and practices to the tasks of communicating, consulting, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk. However, it could be argued that the setting of policies, procedures and practices, together with the tasks of communicating, consulting and establishing that context are actually part of the risk management framework, rather than the risk management process itself.
2009	International Standard Organisation - ISO31000: 2009	"ISO 31000:2009 provides generic guidelines for the design, implementation and maintenance of risk management processes throughout an organization. This approach to formalizing risk management practices will facilitate broader adoption by companies who require an enterprise risk management standard that accommodates multiple 'silo-centric' management systems." (ISO 2009)	Risk design Risk implementation Risk maintenance	ISO 31000:2009 gives a list in order of preference of how to deal with risk: 1) Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk 2) Accepting or increasing the risk in order to pursue an opportunity 3) Removing the risk source 4) Changing the likelihood 5) Changing the consequences 6) Sharing the risk with another party or parties (including contracts and risk financing) 7) Retaining the risk by informed decision

Table 2-1: **ERM DEFINITIONS (1990s-Present)**				
Year	**Author/ Source**	**ERM Definition**	**Key ERM Attributes**	**Potential benefits/outcomes**
2009	Hampton	"(ERM) is the aggregate risk from three components. The first is business risk, the possibility that the organization will not compete successfully in its operations. The second component of enterprise risk is financial risk, the possibility that an entity will not have adequate funds for its operations. The third component (..) is hazard risk, exposures that can cause loss without the possibility of gain." (Hampton 2009: 18)	Business risk Financial risk Hazard risk	1) To identify, mitigate, avoid, and treat risks 2) To provide stability in creating, distributing, financing, and selling products and services. 3) To add to confidence that the board and chief executive officer (CEO) are meeting fiduciary, community, social, and ethical responsibilities. 4) To help meet regulatory requirements.
2010	Beasley and Frigo	"ERM differs from a traditional risk management approach, frequently referred to as a 'silo' or 'stovepipe' approach, where risks are often managed in isolation. In those environments, risks are managed by business unit leaders with minimal oversight or communication of how particular risk management responses might affect other risk aspects of the enterprise, including strategic risks. ERM seeks to strategically consider the interactive effects of various risk events with the goal of balancing an enterprise's portfolio of risks to be within the stakeholders' appetite for risk. The ultimate objective is to increase the likelihood that strategic objectives are realized and value is preserved and enhanced." (Beasley and Frigo 2010)	Business strategy	1) To integrate risk with strategic planning and execution processes and help organisation achieve its core objectives. 2) To increase the likelihood that strategic objectives are realized and value is preserved and enhanced
2013	McNally - COSO - Internal Control - Integrated Framework	"The revised COSO articulates the fundamental concepts underlying the five components in the form of 17 guiding principles and more detailed points of focus. It takes into account environmental changes (i.e. increased globalization, complexity, and regulation, the growing importance of technology, and increased expectations for better governance oversight and fraud prevention). It expands the operations objective from 'effective and efficient use of the entity's resources' to 'effectiveness and efficiency of the entity's operations, including operational and financial performance goals, and safeguarding assets against loss'." (McNally 2013)	Control environment Risk assessment Control activities Information & communication monitoring activities	Key ERM framework changes: 1) Reporting objective (a broader view considering changes in reporting information both within & outside the organization) 2) Principles and points of focus (focus on 17 principles) 3) Accountability for internal controls (increased accountability and competence) 4) Fraud risk consideration (fraud assessed as part of internal control) 5) IT controls 6) Effective governance (improved corporate governance and organizational oversight) 7) Professional judgment 8) Compliance and operational objectives 9) Supplemental guidance on external financial reporting (guidance on how the 17 principles can be applied to external financial reporting) 10) Expanded relationships and globalization

Source: Researcher

Until the early 2000s, most researchers focused primarily on the similarities between risk management, internal audit and corporate governance (Committee of Sponsoring Organizations of the Treadway Commission 1992; Committee on the Financial Aspects of Corporate Governance 1992; Spira 2002; Spira and Page 2004; Carpenter 2004; Beasley *et al* 2008a). Internal control was considered an essential mechanism for delivering

accountability and monitoring business operations enterprise-wide. The Cadbury Committee on the Financial Aspects of Corporate Governance was set up in 1991 in response to public concerns about the low level of confidence in financial reporting. Its report was considered a breakthrough in thinking on corporate governance and was "designed to achieve the necessary high standards of corporate behaviour" (Committee on the Financial Aspects of Corporate Governance 1992, p.10). Chapman (2011) tracks later developments in corporate governance through to the UK Corporate Governance Code 2010.

At the end of the 1990s, the Turnbull Guidance (1999) was published in the UK, presenting a broader definition of internal controls than the Cadbury Committee and offering more practical advice on components of good risk management and internal control to add value to the entire organisation (i.e. internal control embedded in the business processes and aligned with organisational objectives) (Turnbull Working Party 1999). Turnbull (1999) provided guidance around the adoption of an effective risk-based approach and establishing a more robust internal control system. The guidance also described the benefits of implementing risk management by directing the focus onto the management; this was aimed at seizing emerging opportunities and minimising downside risk (Chapman 2006).

In the early 2000s, Lam (2000; 2003) began to be considered one of the pioneers of ERM development. One of his first publications addressed the importance of breaking down silo risk management. Lam (2000) was inspired by accounts of risk management failures such as case studies of financial organisations including Barings, Kidder and Long-Term Capital Management (LTCM), which he saw as "wake-up calls" for the finance industry. Lam (2000) also became one of the first risk professionals to recognise the important role of the chief risk officer (CRO) in driving the progress of ERM. According to Lam (2000), ERM should address seven critical risk management issues: 1) corporate governance, 2) line management, 3) portfolio management, 4) risk transfer, 5) risk analytics, 6) data and technology resources, and 6) stakeholder management. Continuing this research thread, Lam (2003) discusses crucial underlying concepts by reviewing the core elements of the ERM framework and revisiting the current state of ERM practices, future trends and challenges. He also discusses the complementary nature of audit and risk management,

while distinguishing explicitly between their purposes. To reinforce the power of successful ERM, Lam (2003) presents a case study of General Electrics (GE) Capital, which embarked on a two-year ERM journey and focused on: 1) establishing risk policies and systems, 2) building a strong risk culture, 3) capturing a 25% market share with zero policy violations, 4) generating increased shareholder value and 5) being perceived as following best practice. In order to demonstrate which organisational areas needed restructuring, they were labelled respectively as "silo risk management", "integrated risk management" or "enterprise risk management". This approach turned out to be effective in indentifying the strengths and gaps to improve the value-adding capacity of each of these areas.

In a similar study set in the financial sector, Banham (2004) analysed the case of Capital Financial Corp, a Virginia-based financial services organisation with $71 billion in managed assets, an example of an ERM approach where the risk strategy started to focus on generating value. In this case, Capital One (Banham 2004) concentrated on determining the scope of key risks, quantifying them and understanding the intricate correlations among them, with the ultimate aim of avoiding the undervaluing of potential risks. Banham (2004) found that ERM had transformed Capital One into an organisation praised for its proactive approach to risk. In practice, a CRO was made responsible for the ERM team, for defining risk methodologies and for setting uniform enterprise-wide risk reporting standards. The CRO was also in charge of enabling the communication between the business groups and the ERM team, which was supported by internal audit to ensure that the risk management process worked as intended throughout the company. Both case studies provide valuable examples of practical guidelines on how to address and overcome potential challenges in order to benefit from ERM.

With time, as the internal and external environment has gone through continuous changes that shape the way the organisations identify and manage risks, a number of risk standards and frameworks have undergone significant transformation. ERM frameworks tend to differ significantly from one organisation to another, in response to the corporate structure, strategic direction and business objectives specific to each (Mikes 2009a). Therefore, financial organisations should look at how to mould ERM around their organisational culture, management philosophy, capabilities, needs, industry and size, rather than trying

to impose a pre-determined ERM approach. Consequently, this section presents some globally acclaimed risk frameworks and standards such as COSO (1992; 2004; 2013), the Australia/New Zealand Standard 4360—Risk Management (Standards New Zealand 2004) and ISO 31000:2009 (International Organization for Standardization [ISO] 2009).

Along with the development of various UK risk standards and codes of conduct, the main accounting and finance associations in the United States, concerned about fraudulent financial reporting in the mid-1980s, created a coalition called the Committee of Sponsoring Organizations of the Treadway Commission (COSO), which in 1992 published guidance on internal control (Power 2009). This provided the conceptual building blocks for the COSO (2004) ERM framework, reflecting the direct influence of an accounting conception of internal control. Despite being strongly influenced by accounting and auditing norms of control, the ERM model has become a worldwide template for best practice (Samed-Kahn 2005; Moeller 2007; Power 2007).

The COSO (2004) framework became recognised as a process "applied in strategy setting across the enterprise" and "designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite to provide reasonable assurance regarding the achievement of entity objectives" (COSO 2004, p.2). By this definition, ERM does not work well if restricted to a silo structure, but should be influenced by multiple groups of stakeholders, as it is used not only to protect the organisation from loss but to preserve and enhance shareholder value (Branson 2010). Therefore, the ERM Framework (2004) is clearly distinct from the Internal Control Framework (1992) and is perceived as "a more robust conceptualisation" of risk approach than its predecessor. For example, "strategic" was added as fourth ERM objective and thus "objective setting" became a new component of ERM. The COSO (2004) ERM Framework emphasises that internal control is part of ERM. The internal environment designates the tone of the organisation, its risk appetite and oversight by the board of directors (BOD). It focuses on the need for organisations to set objectives at the strategic level and therefore recognise key risks and opportunities that can affect the enterprise. In practice, however, the link between a firm's increased risk management effectiveness and better business performance is questionable and yet not supported by any empirical foundation (Paape and Speklé 2012). Leech (2012) also notes

that the COSO (2004) framework does not consider defining and communicating objectives to be a part of an integrated control framework.

Since 1992, the world has undergone profound changes in business and operating environments. The complexity and pace of changes in internal and external environments have intensified, technology has evolved and business performance, business processes and decision making have required continuous improvement in business and risk intelligence (McNally 2013). Therefore, in 2013, in the spirit of continuous improvement, COSO released an updated version of its Internal Control—Integrated Framework, aimed at reviewing, refreshing and modernising the original framework and ensuring its continued relevance. The COSO (McNally 2013) Framework develops principles within each of the five fundamental components of internal control: control environment, risk assessment, control activities, information and communication, and monitoring activities. It assumes that managers can diagnose issues more quickly and efficiently, assert effectiveness regarding internal controls and help to avoid material weaknesses or significant deficiencies across their organisations (McNally 2013). Figure 2-2 illustrates how the COSO Integrated Framework has changed over the past two decades.

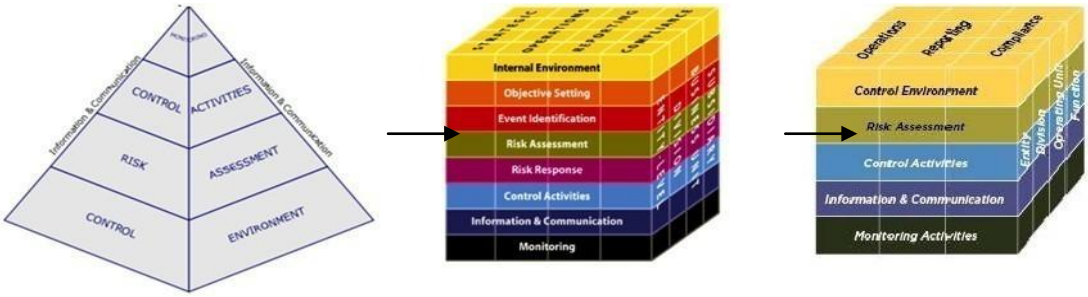


Figure 2-2 Evolution of the COSO ERM "Rubik" cube 1992–2004–2013

Source: COSO (1992; 2004; 2013)

Regardless of successive revisions of the COSO framework, questions have continued to be raised as to its methodological robustness and whether it rests on an outdated linear representation of control, according to Bonisch (2012), who asserts that the 2013 Framework represents idealistic assumptions about the depth of insight that practitioners seek. One of its alleged material weaknesses is that it fails to address the combination of various attributes that operate simultaneously, interactively and often unpredictably (The Internal Auditor 2013).

One of the risk frameworks competing with the widely established COSO ERM Framework is ISO 31000:2009 (Figure 2-3), which offers a set of standard operating principles and implementation guidelines on risk management. The International Organization for Standardization (ISO) is one of the world's largest developers of standards and its ISO 31000 (2009) framework can be classified as principle-based rather than prescriptive. Unlike COSO, it does not provide a detailed framework, nor does it promote uniformity, but is tailored to provide the information that business or governmental organisations need to develop an ERM framework applicable to the specific requirements of each (ISO 2009). The concept of the ISO 31000 (2009) framework is that risk management is well integrated into the corporate decision-making process: management considers risk management in decision making that has an impact on achieving the objectives (Shortreed 2010).

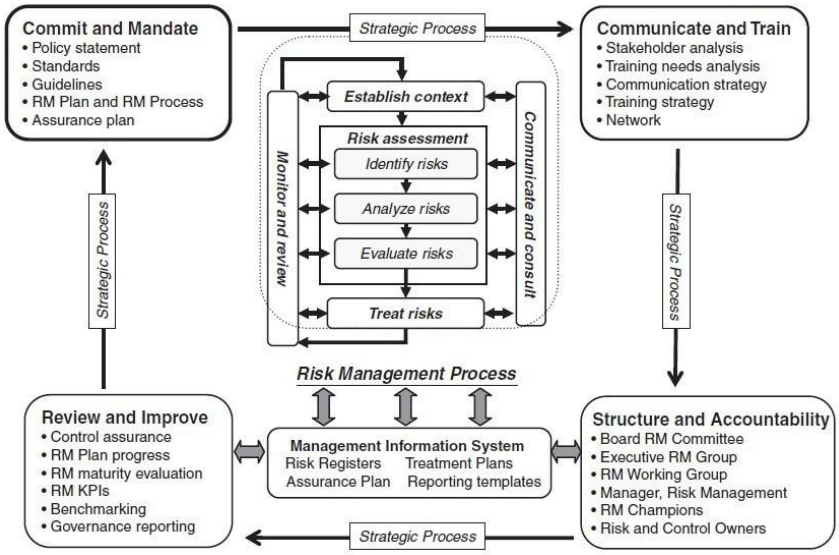


Figure 2-3 The ISO 31000:2009 Risk Management Process

Source: Shortreed (2009)

The ISO 31000:2009 Risk Management Process (Figure 2-3) shows that ISO 31000 (2009) presents a set of risk management tasks supporting management's decision-making anywhere in the organisation. Organisations can relate to the diagram, but it has to be tailored to unique organisational needs before implementation. "Establish context" prepares for a risk management task or decision. Key risks are identified and evaluated as "risk assessment", while "risk treatment" determines how potential positive and negative risk consequences are handled. Subsequently, "monitor and review" examines the risk and

various controls; while “communicate and consult” is designed to involve stakeholders in risk management. “Risk management process” is a key framework component applying to decisions made across the organisation to create value. The main deficiency of ISO 31000, according to Leech (2012) is the fact that it fails to stress the need to start risk assessments with clear and well-defined objectives, and to maintain a dynamic alignment of the identified (and assessed) risks with the respective objectives. As it is, ISO 31000 lacks a clear linkage to the set objectives and fails to address the impact of unclear objectives on the organisation. In practice, this constitutes a fundamental flaw of ERM and means that risks shown on the risk registers and reported to the board may not be directly linked to specific objectives (Leech 2012).

The COSO (2004) and ISO 31000 (2009) demonstrate certain commonalities in enterprise-wide consistency and a rejection of the one-size-fits-all approach, but the generic character of the ISO framework can be challenging for organisations, because defining a specific ERM framework may require a sizable investment in both time and money.

Along with the progression of global risk standards, a joint committee formed in Australia and New Zealand in 1999 published a risk standard called the AS/NZS4360 (Standards New Zealand 2004). The Standard can be applied to any type of organisation and attempts to consider both the upside and downside of risk. However, like ISO 31000, AS/NZS4360 (Standards New Zealand 2004) does not provide uniformity, but merely offers guidance in some organisational areas such as decision making, better risk identification, gaining value, resource allocation, and improved compliance and corporate governance. The Standard’s risk management process is illustrated in Figure 2-4.

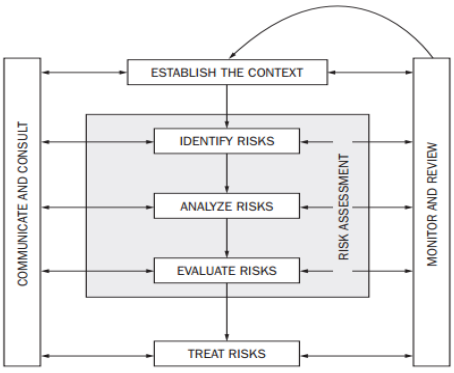


Figure 2-4 Overview of Australia/New Zealand Standard 4360—Risk Management

Source: Standards New Zealand (2004)

The AS/NZS4360 (Standards New Zealand 2004) can be used as a tool in the ERM process, but is inadequate to serve as a strategic risk framework. A significant limitation of this standard is its strong reliance on upon identifying, documenting and then managing individual risks; more complex risks that are difficult to classify on the risk register can be overlooked too easily (Seaton 2012). The critical overview of risk management standards discussed in this section reveals that they lack the strategic alignment of key organisational elements with the way that risks are managed.

To provide empirical evidence of how risk management can evolve, Barton *et al* (2001) compiled case studies of several risk management practices and presented the emerging risk management patterns as the foundation for a new ERM framework. Among these cases, that of the Chase Manhattan Group is considered most relevant to the present research, offering a good example of how to generate shareholders' value through risk management. The organisation recognised the link between risk and value as critical early on and managed to build a good and effective risk foundation. Barton *et al* (2002) continued this research by focusing on the relationship between risk management and internal audit, where ERM adopts a broad risk perspective enterprise-wide, constituting a new risk paradigm. Internal audit departments work alongside risk management, providing valuable expertise and necessary support, thus adding value to the ERM implementation process. Five organisations were investigated to establish the involvement of internal auditors in ERM. The study concludes that internal audit can make a significant contribution to ERM implementation and provide key assistance in value creation through ERM. However, the audit function should remain independent, rather than being a driving force of the ERM initiative (Beasley *et al* 2008a).

Banham (2004) continues the trend of connecting the importance of internal audit with that of risk management, concentrating on the evolution from the traditional risk approach to ERM. He presents empirical data from in-depth interviews and case studies, showing that some organisations have engaged the internal audit as a supporting function responsible for providing risk evaluation to management, rather than a designated risk management function:

> "I don't believe ERM needs to be a separate process with a separate group running it. Risk management should be 'integrated into everyone's normal strategic planning, literally imbedded in everybody's job description'. Then

> internal audit could reinforce both the governance and internal control issues to make sure processes were in place to adequately safeguard assets." (Banham 2004, p.4).

Empirically, it has become evident that risk management has undergone a significant transition, from when it was viewed as a way to mitigate negative impacts of risk on business performance, to being considered a process integral to accomplishing strategic objectives. Figure 2-5 lists the key attributes of both approaches.

Traditional risk management	Enterprise risk management
Risk as individual hazards	Risk in the context of business strategy
Risk identification and assessment	Risk portfolio development
Focus on discrete risks	Focus on critical risks
Risk mitigation	Risk optimization
Risk limits	Risk strategy
Risks with no owners	Defined risk responsibilities
Haphazard risk quantification	Monitoring and measuring of risks
"Risk is not my responsibility	"Risk is everyone's responsibility"

Figure 2-5 Differences between traditional risk management and ERM

Source: Banham (2004)

As Banham (2004) explains further:

> "Risk management is very broad and comprehensive whereas internal audit is episodic and deep. When you think about risk management, it is global and real-time, anticipating future exposures and developing contingency plans and strategies to deal with them. Audit works on an annual cycle that is not necessarily real-time or anticipatory. Auditors go deep in terms of looking at policies and procedures; audit should check risk management to ensure it is being performed appropriately, and compliance; however risk management should do the actual identification, monitoring and mitigation." (Banham 2004, p.7).

Power (2004) represents an interesting shift from a traditional risk model driven by compliance and audit guidelines, analysing the importance of the internal control emphasising risk communication towards developing "intelligent risk management". This author identifies "the risk management of everything" as a necessity in a world marked by financial volatility and emphasises the importance of building a risk-intelligent

organisation, aware of daunting challenges to its current risk infrastructure and operating a "blame-free" risk culture. According to Power (2004), some organisations tend to be absorbed by over-regulation, the wave of recent regulation making it difficult to stay focused on value creation. Risk management needs to become a truly integral element of the business strategy, leading to value creation, and to be embedded dynamically into organisational culture.

Chapman (2006), who considers risk practitioners as those most closely concerned with the emerging concept of ERM and its various dimensions, argues for the interconnectivity of ERM, internal controls and corporate governance, then shifts his attention to continuous development in risk management. His book discusses various definitions, tools, techniques, process inputs and outputs of risk management, illustrating the internal and external influences (i.e. controllable vs. uncontrollable sources of risk) that affect risk and business management. Mikes and Kaplan (2012) also engage in extensive research into the classification and management of risks according to the particular nature of those risks.

While business practitioners consider ERM a tool than can provide a high level of risk intelligence and integrate it into an organisation, Bugalla *et al* (2010) perceive it as a discipline that derives its strength from multiple approaches. Similarly to Liebenberg and Hoyt (2003), these authors assert that ERM initiation can start with the establishment of a risk committee or the appointment of a CRO; high-level support is necessary for ERM to be continuously developed. Bugalla *et al* (2010) also compare ERM to a tree that has its roots in traditional risk management and has blossomed into a more comprehensive approach. While growing into a tree-like structure, ERM has developed branches, each representing a distinct approach developed under three assumptions: that ERM has no standard definition, that subjectivity around ERM can skew its potential benefits and that each ERM framework is by nature distinct and depends on where in the enterprise it was developed. The elements of the tree represent the stages of ERM development. For example, the lowest branches stand for early stages of ERM integration (the late 1990s), the fruit symbolises risk categories and other branches characterise the results of consequent financial collapses (e.g. Enron) and indicate further risk advances such as SOX, the COSO ERM framework and the Governance, Risk, Compliance framework. Recently sprouted branches represent the upside of risk, i.e. unique market opportunities

which can be achieved by aligning various risk perceptions and appetites in the context of business objectives and which can lead to the creation of competitive advantage. The prevailing challenge is not to let any of the branches become too dominant. The complex nature of ERM also requires strong leadership to bring the organisation together. Although ERM has grown and thrived in the recent economic climate, many emerging challenges remain to be considered (Bugalla *et al* 2010; Bugalla *et al* 2012).

Continuing down the evolutionary risk path over the two decades, there has been little research into operational risk management and its relation to organisational reputation, which leads Eccles *et al* (2007), researchers concerned with reputational damage to organisations, to highlight the need for further research in this area as one of ERM's shortcomings.

The Basel II Accord (BIS 2006, p.3) defines operational risk as "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events". It regulates capital requirements for large international banks and introduces some definitions of operational risk, but fails to elaborate on either strategic or reputational risks (i.e. strategic risks related to the risk of a loss arising from poor strategic business decisions).

Potential reputational damage (as a result of poor risk management) has slowly become one of the top organisational priorities, but remains an undervalued subject related to risk (Power 2005b). According to Eccles *et al* (2007), reputation creates a unique value for most organisations and often becomes a distinctive source of competitive advantage. Enterprises with a good industry reputation are seen as having the potential to achieve higher earnings and profits, to obtain capital at lower cost and to attract good quality people. In order to sustain a good reputational image, it is critical to implement a proactive risk approach to protect the organisation and manage potential threats and risks effectively (Benyon 2010). Moreover, in order to bridge the gaps around measuring reputational risk, regulators have worked towards new industry standards to help in establishing solid risk management practices (Eccles *et al* 2007). Lack of common standards for managing reputational risk creates chaos, even among mature financial organisations. ERM in most enterprises is over-focused on managing financial and hazard risks from unexpected market events, while tending to overlook the importance of the potential impact of

damaged reputation or operational risks. Informal and ad hoc reputational risk management (or reactive crisis management) has become ineffective in the process of managing risks (Eccles *et al* 2007; Belluz 2010). Therefore, managing organisational reputation should be an integral part of ERM. As Benyon (2010) explains:

> "Operational risk techniques should be used more prominently within the models used for managing other risk types. Operational risk's role should come to the fore within a broader enterprise-wide risk management framework (ERM) rather than current tendencies for risk management to consult the op risk function as a secondary consideration or an afterthought. There is no market risk, no credit risk, just one huge operational risk, which is that you mismanage your credit and market risk exposure, adding that banks' existing focus on high-frequency, low-severity risks had contributed to under-capitalisation of the industry as it entered the financial crisis. Increased exposure to tail risks, so-called 'black swans', should be an increased focus. One black swan causes another and firms would need to restore the basis of capital efficacy with their risk management. Doing this will require corporate governance to be aligned with the firm's risk appetite." (Benyon 2010, p.2)

The world has changed irrevocably (Anderson 2008) and with it risk management has been developing in financial organisations for the last two decades (Power 2009; Mikes 2009b), accelerated by regulators' and market participants' ambition to understand and reduce uncertainty. From little or no recognition of how important ERM initiatives can be for their organisation, there was an awakening of realisation that ERM can generate value much greater than meeting the regulatory and compliance requirements. Senior management became aware of ERM's potential to create a competitive market advantage, so while leveraging ERM qualities, organisations have also started to view risk in alignment with strategic planning. Managers have realised that unless risk is well understood as part of an alignment with strategic objectives to identify potential downsides along with future market opportunities, its voice will be lost in the organisational structure, and therefore become obsolete (Simons 1999; Frigo and Anderson 2011). ERM can protect organisations from the impact of negative risks, uncover opportunities for calculated risk taking and enhance the perceptions of stakeholders (Mikes 2009a; 2011). When executed with consistency, it can also create sustainable value for shareholders (Smithson and Simkins 2005; Nocco and Stulz 2006).

Literature on the evolution of risk management into ERM discussed in this section shows that the view of enterprise risk has become a "crucial component of contemporary corporate governance reforms" (Mikes and Kaplan 2013). It reveals the increased focus on ERM that has been driven by pressure from shareholders, regulators and credit agencies (who are introducing ERM as part of their review of credit ratings) in recent years. Subsequent sections of this chapter discuss in detail some recent key contributions to the academic and industry literature covering other aspects of ERM relevant to this research. Compared to the industry literature, academic studies of ERM have developed at a slower pace (Simkins 2008). The researcher therefore determined that research findings based on a broad body of empirical data from surveys and case studies by industry practitioners would be equally significant for this research and need to be incorporated to complement the academic literature. The industry literature is discussed in Section 2.5.

2.3 Key contributions to the academic literature

The researcher has investigated a variety of approximately 200 academic and practical journals, including reports, surveys and case studies. The selection process was based on the relevance of the literature to the research topic supported with empirical data. Therefore, the researcher selected 60 considered relevant to this research. The journals cover a period from the mid-1990s that the researcher considered an important juncture in the evolution of risk management when practice had undergone a significant transformation from the traditional silo approach to ERM. Arguably, the mid-1990s can also be perceived as the period of "incubation" (Turner 1976) for the present crisis and therefore a turning point for risk management.

This section presents contributions to the literature by leading researchers relevant to this research and considered instrumental to ERM, characterised according to: 1) researcher and year, 2) research type, 3) key research focus, and 4) quadrant[1].

Key contributions to the academic literature are listed in Table 2-2, which summarises key academic research since the mid- 1990s.

[1] Four Quadrants Framework is explained in details in Chapter 3, Section 3.1

Table 2-2 Academic Research Contributions

Table 2-2: **ACADEMIC RESEARCH LITERATURE (1990s-Present)**					
Year	**Authors**	**Key Focus**	**Research Discussion**	**Research Type[2]**	**Quad -rant**
1998	Schneier and Miccolis	The evolution of ERM	Research presents an "ERM guide" with main focus on: risk scanning (i.e. identification and assessment) and risk shaping (mitigation and financing).	T	II
1999	Power	Risk and audit	Risk management perceived as part of audit/compliance.	T	I
2000	Lam	ERM and CRO	The importance of breaking down silo risk management and ERM's evolution supported by the CRO.	E (Case study)	II
2002	Archer	ERM and culture	The role of risk awareness and introducing a Risk Coordinator into an organisation.	T	III
2001	Barton, Shenkir and Walker	Risk management practices	Case study analysis of several risk management practices and emerging risk management patterns that can be a foundation for ERM approach.	E (Case study)	III
2002	Barton, Shenkir and Walker	Risk and audit	Review of five organisations' internal audit functions reveals that internal audit (IA) provides expertise relevant to ERM value not available elsewhere in organisations. Focus on risk based issues is increased by IA that starts to be more involved in ERM initiatives.	E (Case study)	II
2003	Bansal	ERM and technology	Challenges of risk transparency and fragmented risk infrastructure in financial organisations.	T	II
2004	Banham	ERM adoption & implementation	ERM is a strategy to manage a plethora of risks in a centralised way to break down the silo risk approach, and work in a centralised way under a CRO or ERM committee.	E (Survey + Case study)	III
	Power	The evolution of ERM	Emergence of a non-compliance/audit driven risk management; increased focus on integration risk and business strategy in a better risk culture.	T	II
	Spira and Page	Risk management, corporate governance and internal control	Alignment of risk management and internal audit; development of corporate governance.	T	I
2005	Aabo, Fraser, Simkins	ERM implementation	The process of ERM implementation at Hydro One including the rise and evolution of the CRO.	E (Case study)	IV
	Bowling and Rieger	ERM process; ERM implementation	Research based on the assumptions of the COSO ERM focuses on the evolution of ERM from theoretical concept into a practical framework in financial organisations.	T	II
	Smithson and Simkins	Value adding ERM	Correlation between financial risks, hedging activity and the value-relevance of a firm's overall or enterprise-wide risk management practices across financial industry.	E (Case study)	III
2006	Chapman	ERM adoption	Interconnectivity of ERM, organisational strategy, internal controls and corporate governance propagated to risk practitioners	T	III
	Gates	ERM and strategy	Incorporating strategic risks into ERM, various obstacles to ERM, and its key benefits.	E (Survey + Case study)	II
	Mestchian and Cokins	ERM and strategy	Balanced scorecards, key performance indicators (KPIs), key risk indicators (KRIs) and the benefits of risk and performance management.	T	III
	Nocco and Stulz	ERM benefits	ERM as a strategic initiative that can generate a competitive advantage is realised as a path to progress.	E	III
2007	Adams and Campbell	ERM challenges	The development of COSO-based risk management tool "Capability Maturity Model.	T	II
	Berley	Value adding ERM	Value-creating potential of ERM alongside strategic planning, and the importance of aligning ERM with businesses enterprise-wide.	T	III
	Chapman	Value adding ERM	Importance of ERM as a value creation and competitive imperative.	T	II
	Eccles *et al*	Operational risk	Relationship between ERM, operational risk and reputational image.	T	II
	Francis and Richards	ERM and strategy	ERM as a strategic initiative that can generate a competitive advantage is realised as a path to progress.	T	III
	Fraser and Simkins	ERM challenges	Common challenges and misconceptions identified and analysed to avoid ERM implementation pitfalls.	E (Interviews)	III
	Lam	ERM Challenges	Five key challenges faced by Asian banks identified re risk management, and specific recommendations made on how to handle these.	E (Survey + Case study)	III

[2] E = empirical; T = theoretical

Table 2-2: **ACADEMIC RESEARCH LITERATURE (1990s-Present)**

Year	Authors	Key Focus	Research Discussion	Research Type[2]	Quad-rant
	Martin and Power	ERM challenges	Gap between ERM theory and action identified; 'top-down ' and 'bottom-up' ERM approach discussed.	T	II
	Mikes	ERM frameworks	Review of existing ERM frameworks in the financial industry - 'best practice'.	E (Case study)	III
	Rao and Dev	Value adding ERM	ERM seen as a part of strategic partnership to generate revenue, performance measurement, analytics-based decision making, corporate governance, and incentive compensation to enhance shareholders' value.	T	III
	Rasmussen *et al*	ERM challenges	Focus on business drivers to overcome ERM challenges; ERM implementation guidelines recommended.	T	II
	Schanfield and Helming	ERM challenges	Research outlines key ERM implementation challenges.	T	III
2008	Barton, Shenkir and Walker (b)	ERM challenges	Research aims to provide practical advice on how to implement ERM effectively.	T	III
	Buehler, Freeman and Hulme	ERM and strategy	Five-step risk management approach as a foundation to a more robust ERM.	T	I
	Burnes	ERM challenges	Key ERM 'myths'.	T	I
	Frigo	ERM and strategy	Importance of aligning ERM and business strategy, aiming at creating and protecting shareholders' value.	T	II
	Killackey	ERM and strategy	Links between ERM, balanced scorecard, and the impact of creating an enterprise-wide alignment of ERM and corporate strategy.	T	II
	Mikes	ERM implementation	Case studies of two banks representing the 'risk management mix' that points towards different calculative cultures.	E (Case study)	III
	Simkins	ERM challenges	Current ERM initiatives and issues via ERM stories and experiences shared by panellists.	E (Interviews)	II
	Paladino	ERM and strategy	Research on the strategic risk management integrating the strategic planning and ERM.	T	III
2009	Fox	ERM adoption	Five-step approach recommended for effective ERM adoption.	T	II
	Hettinger	ERM and CRO	The meaning and importance of the CRO.	T	I
	Hofmann	ERM and strategy	ERM as a tool to align risk and strategy across the organisation.	T	I
	Kaplan	ERM and strategy	How can risk management be better integrated into strategy execution? A 3-level hierarchy of risk and the risk scorecard are introduced.	T	II
	Killackey	ERM and strategy	The importance of aligning ERM with the organisational strategy.	T	III
	Mikes	ERM and CRO	Evolution of the CRO role and the value it creates for the organisation.	T	I
	Moody	Risk management failures	The need for a proactive risk management approach integrated into strategic planning efforts enterprise-wide, and into corporate culture.	T	III
	Power	ERM adoption	Risk management of everything turning into risk management of nothing. The impoverished risk appetite that contributed to the financial crisis.	T	I
	Stulz	Risk management failures	Key reasons for risk management failures.	T	I
2010	Allan, Cantle and Yin	The evolution of ERM	Presenting risk management in the context of risk DNA compared to phylogenetic approach. Risk classification and how emerging risks may evolve and adapt. Issues with data quality in the risk arena, computational efficiency of large risk matrixes, validation and interpretation of complex risk decision trees.	E (Case study)	III
	Archer *et al*	ERM adoption & implementation	Importance of stimulating a dialogue between boards and business leaders to create an effective alliance resulting in proactive risk management.	E (Case study)	IV
	Arena, Arnaboldi and Azzone	ERM adoption & implementation	Identifies 3 requirements of successful ERM implementation: 1) creating an organisational space for ERM, 2) ERM owner, and 3) conceptualising ERM risks.	E (Case study)	IV
	Beasley and Frigo	ERM and strategy	Linking strategy and ERM to generate value and stimulate steady growth. The application of KRIs to address the strategic risks.	T	II

Table 2-2: **ACADEMIC RESEARCH LITERATURE (1990s-Present)**					
Year	**Authors**	**Key Focus**	**Research Discussion**	**Research Type[2]**	**Quad -rant**
	Beasley Branson and Hancock	ERM and KRIs	Developing and utilising strategic KRIs to ensure increased risk awareness enterprise-wide, and the improved ERM process.	T	III
	Brooks	ERM culture	The role, definition and importance of risk culture; some guidance on how to create risk culture.	T	I
	Bugalla and Kugler	ERM adoption & implementation	Upside risk: ERM helps to explore potential market opportunities, and to align the upside of risk and the business objectives.	E (Case study)	I
	Cokins	ERM and strategy	Risk-based performance framework which aligns risk and business performance and aims at maximising shareholder value.	T	II
	Friedman	ERM and strategy	Differences between strategic risk management and ERM, and their potential benefits	T	I
	Frigo and Ramaswamy	Value adding ERM	Organisations explore different ways to create shareholder value and generate profits, ERM being one of them.	E (Interview)	III
	Hull	ERM process	Analysis of quantitative risk management techniques (scenario analysis and stress tests).	T	I
	Hwang	ERM and KRIs	Divergent perspective on KRIs - importance, role, value and challenges.	T	II
	Jaffer	ERM benefits	Integrating risk and strategy to drive competitive advantage.	E (Case study)	III
	Lam	The evolution of ERM	Possible ERM development and risk predictions for the future.	T	III
	Rizzi	ERM and strategy	Moving from a control-based framework towards a holistic alignment where risk is linked to strategy, value generation and decision-making.	T	III
	Sabatini and Ingram	Value adding ERM	Link between hedging activity and ERM as a source of potential value.	T	I
	Sears	The evolution of ERM	Arguments supporting the importance of psychological aspects of risks evaluation and its lack potentially creating a "neurotic" environment for risk management.	T	II
	Wade	ERM and strategy	Concerns about risk management still not being involved in strategic planning or decision making.	E (Case study)	II
2011	Ashby	The evolution of ERM	The primary cause of the crisis identified as weak risk management that stemmed from human and/or organisational deficiencies in: risk perception, risk communication and comprehension, and risk culture.	E (Interviews)	III
	Frigo and Anderson	ERM adoption & implementation	Simplified but descriptive instructions for launching ERM based on COSO framework. Key success drivers, initial action steps and objectives.	T	III
	Govindarajan	Risk appetite	Various concepts related to the topic of corporate risk appetite and its articulation in strategy formulation aligned with corporate governance.	T	II
	Mikes	ERM adoption	A variety of "calculative cultures" that determine risk measurement (culture of quantitative enthusiasm vs. quantitative scepticism) and influence decision making.	E - Interviews + case study	III
	Power	ERM adoption & implementation	Practical guidance on how to ask "smart" questions that lead to constructive answers and effective actions.	T	II
2012	Ashby, Power and Palermo	ERM culture	Various risk cultures across financial organisations as part of ERM process.	E (Interviews)	III
	Leech	The evolution of ERM	Analysis of key reasons for ERM failures and immature start of ERM maturity.	T	II
2013	Mikes and Kaplan	ERM adoption & implementation	A contingency framework for ERM with three categories of risks: preventable, strategic and external	E - Interviews + case study	IV

Source: Researcher

Despite its increased significance in practice, ERM-related issues have drawn relatively little research attention (Paape and Speklé 2012). Academic research into how to achieve or measure the benefits of ERM (i.e. value-added or competitive advantage), the extent and direction of ERM implementation, risk culture or board level oversight can be perceived as

incipient, having begun to materialise only gradually in recent years (Shimpi and Lowe 2006).

Academic ERM literature has developed slowly focused on specific aspects of ERM that relate to this transformation and to the failures of various risk approaches, rather than on ERM as a strategic approach to risk. In order to conceptualise better all key aspects of ERM, each section of the literature review in this chapter addresses a specific aspect of ERM research. The analysis of the literature according to research type (i.e. theoretical versus empirical) and quadrant is discussed in Chapter 3.

2.3.1 Key challenges to ERM

As the concept of ERM has evolved, the global downturn has further underlined the importance of efficient ERM implementation and overcoming challenges associated with the process. ERM challenges have gradually become one of the most important and most commonly researched aspects of the field. This subsection introduces key challenges to ERM discussed by various researchers.

Given the fact ERM is a relatively new area, it is perhaps natural that it has no universal and widely accepted definition. An array of various definitions of ERM may cause some level of confusion as to what it means in practice. Each definition is related to a particular set of objectives, strategies and implementation plans. Organisations wonder if they understand ERM and whether they know what is the starting point for its implementation. This adequate level of understanding of the "right definition of ERM" and of how to implement it successfully in order to sustain its benefits in the long term is one of the first challenges facing financial organisations (Locklear 2012). Grobstein (2010, p.3) notes that "the task is not to get [ERM] right but to get it less wrong, not to disprove existing understandings but to recognize their context-dependence, not to discover what is, but to construct from conflicting understandings previously unconceived alternative understandings." Lam (2003) addresses challenges to ERM and the "predictions" that can support its future evolution. After revisiting the current state of ERM, he discusses core elements and the need for continuous development (Figure 2-6).

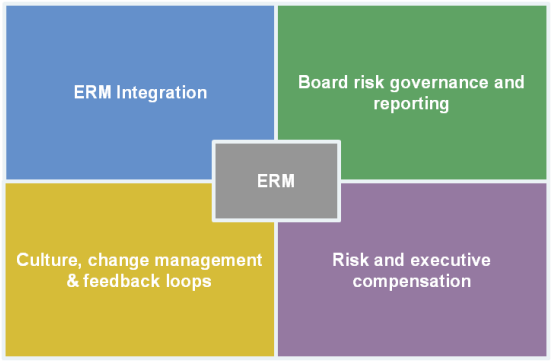


Figure 2-6 Key ERM challenges

Source: Adopted from Lam (2003)

Apart from full ERM integration, the role of the board remains one of the most underleveraged ERM elements, but it is critical for management to be able to ask difficult risk questions and understand the implications of the answers (Lam 2003). Therefore, the board and management should debate risk appetite and risk tolerance before making decisions, and should align ERM with key business processes. Risk-adjusted executive compensation has become yet another key challenge to ERM and an important determinant of employees' behaviour. Thus, one of the underlying drivers of the excessive risk-taking that significantly triggered the global financial crisis has been identified as executive compensation which rewarded short-term earnings growth and appreciation of stock prices. A key emerging priority for many is therefore to design risk-adjusted incentive programmes that motivate employees to achieve long-term earnings growth and effective risk management. New incentive systems incorporate risk-adjusted return metrics, compliance with risk policies and regulations, longer-term vesting schedules and reduced provisions for future unexpected losses. Rao and Dev (2007) also follow the idea of ERM being an innovative way to manage financial organisations, focusing on the correlation of ERM with strategic planning, incentive compensation and the analytical side of core strategies. They consider that the starting point of ERM implementation is forming an alliance between ERM and strategy, to increase revenues and growth, improve business performance and ultimately drive up shareholder value.

A good example and one of the most commonly referenced case studies of successful ERM implementation is that of Hydro One by Aabo, Fraser and Simkins (2005), who describe the main benefits and experiences over a five-year period. Hydro One employed what was

considered a comprehensive approach to risk management and was deemed to be at the forefront of ERM development at that time. Aabo *et al* (2005) summarise the achievements made during these five years as comprising the creation of the Chief Risk Officer position and the strengthening of ERM processes (including defining ERM tools and techniques, e.g. risk heat maps, profiles and ERM implementation steps). Key benefits are listed as: lower cost of debt, risk-adjusted capital allocation and better readiness for unexpected risk events. Hydro One (Aabo *et al* 2005) conducted various risk workshops and trained its people in strategic risk management, to emphasise that risk management was everybody's responsibility. Management stated that the ERM implementation process helped the gradual formation of risk awareness and the establishment of risk culture across the enterprise, thus driving the organisation ahead of its competitors. The value created through ERM had made the business stronger and more effective.

Another good example of academic ERM research based on empirical findings is that of Gates (2006), who explains why organisations make ERM a priority, what challenges companies encounter as they implement it and how ERM affects the organisation's ability to implement its strategy. Based on the research findings, Gates (2006) concludes that ERM efforts in the majority of organisations are still in their infancy. Two-thirds of respondents also reported that the board considered ERM to be "significant" or "highly significant". Organisations which implement ERM often report its major benefits as being improved informational efficiency, better strategic positions within their industry and strengthened corporate governance. Lastly, according to the study, progress in ERM implementation has been challenged by key issues. "Competing priorities" was ranked by respondents as a "very significant challenge," which might reflect the fact that many of the US respondents were heavily engaged in Sarbanes-Oxley 404 (SOX) implementation. This may also explain that "insufficient resources" was seen as the second highest ranked ERM barrier. Finally, "lack of consensus on ERM's benefits" may be a much more significant obstacle than a temporary lack of resources; such a lack of consensus among senior managers may make it hard to persuade people across the organisation of its value (Gates 2006).

Based on executive interviews and conferences over five years, Fraser and Simkins (2007) highlight key misconceptions that can hinder ERM adoption (Table 2-3). Research by

Fraser and Simkins (2007) aim to help organisations direct their efforts towards effective ERM implementation, avoiding common hazards and unexpected "high impact" risk events. They believe that successful ERM implementation can also be achieved through management buy-in and executive commitment, followed by debates around setting risk tolerances and business objectives. Equally important is ERM that helps address key strategic risks aligned with the objectives, within the boundaries of the risk appetite.

Table 2-3 Key ERM Misconceptions

Area	ERM Misconception	Clarification
ERM	Underestimating the immeasurable risk	ERM should focus on key risks excluded from risk measurement due to their uniqueness).
	Risk management is managed best in isolation	All employees involved in ERM should understand key organisational objectives and ERM's role in their execution. Management should assume the setting of objectives and risk tolerances as parallel initiatives.
	Risk tolerance is the same as risk appetite	These terms are not synonymous and it is critical to understand both meanings
	De-centralised risk management	ERM helps address key risks comprehensively and achieves what silo risk management overlooks
	One skill set is enough	To yield maximum effectiveness, ERM requires diverse expertise from other business disciplines, so should not be confined to one function
	ERM is a project	It should not be perceived as an independent corporate project, but a management initiative in organisational planning
	All risks are equally important to be managed	If ERM is turned into a process-driven initiative, it loses its strategic direction and potential effectiveness. It should therefore focus on key risks that can significantly impede business performance
	Managing upside risk?	Considering the upside risk is critical in ERM implementation
	ERM has no discernible effect on financial markets or firm value	ERM has a significant value creation potential, which may not be immediately obvious

Source: Fraser and Simkins (2007)

Addressing ERM challenges related to establishing a risk framework, Mikes (2005) examines the case studies based on specific risk frameworks deployed by two banks, BWT and Fraser Bank, and discusses the key challenges that they had to overcome in the process. She discusses the variations of ERM practiced by these banks, arguing that no single approach fits all cases; in order for ERM to be effective, it should be customised to each organisation's unique needs. The evolution of ERM in the financial sector, according to Mikes (2005), has revolved around the development of four main risk management types: silo risk management, integrated risk management, risk and value management, and strategic risk management. The study shows that each organisation adapted a different risk framework that fitted the business model best, achieving the desired effectiveness

nonetheless. BWT (Mikes, 2005) reflected the risk-based internal control approach, while Fraser Bank represented a mix of risk practices focused primarily on increasing shareholder value. Mikes (2005) distinguishes BWT's "value-based" risk framework, which assumes that risk is managed in silos, but appears to be aligned with the strategic planning efforts and performance management in a controlled environment, from Fraser Bank's "strategic ERM", which is of a more pragmatic nature, where risks are quantified by risk officers based on a high level of risk expertise. These case studies offer empirical confirmation that ERM is not "one-size-fits-all".

Lam (2007) contributes a practical approach to ERM implementation by analysing the complex structural, organisational and potential future risk challenges facing banks in the aftermath of the 1997 Asian crisis. In a series of research studies, he identifies five challenges with respect to risk management approaches: 1) people and skills, 2) change management, 3) data and modelling tools, 4) reporting and disclosure, and 5) strategy and execution. Lam (2007) then recommends various methods to help deal with each challenge, these being respectively: 1) CRO as risk expert, risk training and introducing risk-adjusted compensation schemes; 2) setting tone at the top and ERM as a value-added function; 3) data bureau (data quality); 4) integrating KPIs and KRIs, using dashboard reporting and increased risk transparency; 5) ERM roadmap and "low hanging fruit", i.e. maximised value given the cost vs. effort equilibrium.

Similarly to Lam (2000; 2003) and Barton *et al* (2001), Fraser and Simkins (2007) and Burnes (2008) focus on the weaknesses of existing risk management practices, the importance of a link to business performance, shareholder confidence and organisational reputation. As a result, they list ten ERM "myths" to help organisations identify important misperceptions and understand the importance of adopting a strategically focused enterprise risk approach. Key misperceptions regarding risk that are also significant in respect of ERM are summarised as: 1) lack of strategy to standardise data management (i.e. fragmented risk infrastructure can hinder effective enterprise-wide risk management), 2) rigid and centralised risk management (i.e. ERM is not a one-size-fits-all approach), 3) risk management and compliance centred on spreadsheets (i.e. high operational risk), 4) lack of focus on top-down and bottom-up ERM to integrate it into daily business processes across

the organisation and 5) poor planning for the unknown (i.e. organisations should monitor risks for “fat tails” and be prepared to respond to the unexpected).

Rasmussen *et al* (2007) make recommendations for avoiding risk management failures, identifying consistency, efficiency and sustainability as key attributes of business drivers for a successful ERM implementation. According to Rasmussen *et al* (2007), ERM implementation depends on: 1) developing open communication and sharing of risk concepts between management enterprise-wide, 2) creating enterprise-wide awareness of the unique business drivers and their impact on the organisation, and 3) defining clear responsibility regarding risk ownership.

Schanfield and Helming (2008) continue the discussion of major challenges to ERM implementation; for them, achieving best practice in ERM is a challenge in itself. The researchers note that ERM is a multifaceted concept that assimilates many features across the organisation; ERM implementation requires the involvement of key employees who understand key risks. Key challenges outlined by Schanfield and Helming (2008) are: 1) defining risk terminology and selecting the risk framework, 2) formulating, identifying, assessing, evaluating, treating and monitoring key risks, 3) integrating strategy and human resources into ERM, 4) creating a risk-aware culture, 5) deploying technology effectively and 6) support from senior management.

Since ERM has gradually become a critical prerequisite for successful business leadership, Barton *et al* (2008b) also offer practical advice on effective ERM implementation, providing guidance to achieve it: 1) proactive risk management and defined risk philosophy, 2) developing a strategy where risk and organisational objectives are aligned, 3) risk assessment and a flexible risk response, and 4) enterprise risk culture (i.e. clear risk communication and assigned risk ownership).

Similarly, Fox (2009) argues that developing ERM can be an overwhelming task, because of its unique nature, where no one set of parameters suits all organisations. Since every organisation shapes its own goals and objectives, its ERM framework requires a distinct and enterprise-specific customisation. Fox (2009) proposes a five-step approach to initiate ERM: 1) define the mission statement, 2) determine the status of the existing risk management processes, 3) establish a risk identification strategy, 4) begin to develop a risk

assessment and measurement strategy and 5) plan ongoing risk management and risk mitigation.

Bugalla and Kugler (2009) take a different outlook on risk and focus on an overlooked factor which is nonetheless key to ERM implementation: the upside of risk. Considering this allows increased ERM visibility; new risk opportunities are usually discovered by an enterprise-wide collaboration among teams. ERM objectives materialise as having increased value to the organisation by creating an effective organisational alignment of risk management, business strategy and operations. ERM can facilitate the exploration of emerging market opportunities, while realigning the upside of risk with business objectives.

Another potential challenge to ERM is under-appreciating the importance of aligning it with strategic objectives. Frigo and Anderson (2011) identify these key factors hindering ERM implementation: 1) disconnect between risk management and strategy execution, 2) lack of focus on strategic risks in risk assessments, 3) the ad hoc nature of risk management (i.e. lack of consistency and process standardisation), 4) silo risk management, triggering organisational barriers, and 5) lack of value recognition and core risk competencies in risk management.

Deloach (2012a) contributes to the consideration of four critical ERM elements before implementation that can each pose a specific challenge: process, integration, culture and infrastructure. Flexibility relating to all those elements is fundamental, due to the diverse nature and complexity of organisations across industries. Therefore, Deloach (2012a, p.1) asserts that ERM requires: “a process with a clear purpose, reliable inputs, well-designed activities and value-added outputs”. A well articulated risk management approach encourages enterprises to formulate views on what unique processes can facilitate the achievement of their specific business needs. The goals of risk management may differ across financial organisations, from reducing performance volatility and minimising the negative impact of unpredictable events to seeking unique value-creating opportunities, depending on their organisational strategy, but always presenting equally distinctive challenges.

Moody (2012) sees the ERM implementation continuing to lag, along with ERM frameworks and how organisations classify risks as main “roadblocks”. Organisations

struggle with being able to address (or identify) the right risks, while what follows the correct risk categorisation is still one of the most challenging aspects of ERM. The classification of risks and the choice of a risk framework are closely correlated, as organisations rely on identifying and managing risks based on their categorisation. If the risk categorisation is inconsistent, it hinders ERM execution. Mikes and Kaplan (2012) provide a risk taxonomy that classifies risks as preventable (internal), strategic or external, depending on the degree of controllability (i.e. risks that can be managed through a rule-based model or alternative approaches). Regardless of type, risks can trigger a default event that contributes eventually to an organisation's demise. According to Mikes and Kaplan (2012), while internal risks may respond to a principle-based risk approach, strategic risks cannot, because of their level of unpredictability and riskiness.

Key theoretical observations supported by empirical evidence of the case studies on ERM challenges demonstrate that despite the growth and evolution of ERM during the past two decades, relatively few organisations have been successful in implementing it and developing ERM to a fully mature state (Gates 2006; Fraser and Simkins 2007). Moreover, challenges that are yet to be overcome include the lack of a universally accepted practical definition of ERM and the difficulty for any organisation of determining whether it is correctly implementing ERM and how to do so effectively throughout.

2.3.2 Risk management failures

Paradoxically, the growth and evolution of risk management is often stimulated by what tend to be its failures (Mikes 2011). The last two decades of risk management in the finance sector have been marked by multiple corporate failures. These catastrophic events include the failure of Barings Bank in 1995, the Asian banking crisis of 1996 and the Russian bond crisis of 1998, fraud scandals at Enron in 2001 and Allied Irish Bank in 2002, trading losses at Société Générale in 2008 and JP Morgan in 2012, the Madoff Ponzi scheme in 2009 and the collapses of banks and financial organisations (Bear Sterns, Countrywide, Washington Mutual, Lehman Brothers) during the global financial crisis. Each of these may be said to have involved a risk management failure (Mikes 2011). However, Stulz (2009) argues that the large financial losses borne by some financial organisations do not in themselves always constitute a risk management failure; large losses can happen even if risk management is flawless.

Since the GFC, increasing numbers of financial organisations have proved deficient in anticipating and managing risks effectively (Mikes and Kaplan 2013). While most researchers interested in ERM become inquisitive about the failures of risk management approaches at some point, this subsection considers the views of key scholars most relevant to this research (Stulz 2009; Barton *et al* 2010b; Ashby *et al* 2010).

Stulz (2009) dissects past risk management failures and argues that poor risk management has contributed greatly to the GFC, but cannot be blamed solely for the present economic downturn. According to Stulz (2009), risk management has been mandated with identifying and quantifying risks, but it is the senior management that is responsible for taking risks and making business decisions. Stulz (2009) proposes four major categories of reasons for risk management failures: 1) mismanagement of known risks, 2) failure to consider key risks, potential threats or opportunities, 3) failure to communicate the risks to the top and 4) failure to monitor key exposures and manage them effectively with the use of strategic risk indicators.

In the midst of the crisis, COSO (2010a) also re-examined current enterprise risk management practices in attempt to identify areas for further risk development. The aim was to encourage dialogue between senior managers and boards to establish stronger risk management. The report highlights the need for a long-term cultural change through ERM. Increased risk awareness on a senior level is seen as a first step towards realising the full potential of competitive benefits from ERM implementation.

Barton *et al* (2010b) also consider seven major reasons for potential risk management failures: 1) misunderstanding risks related to the trading and hedging of complex derivatives, 2) overreliance on statistical models (e.g. VaR), 3) management's over-focus on high profits, leading to excessive risk taking, 4) weak corporate governance, 5) lack of regulatory focus, 6) fragmented focus on key risks and 7) an asymmetric relationship between the upside and downside of risk.

Finally, Leech (2012) suggests that the root of risk management failures is flawed risk and control management frameworks, methods and tools that are referenced as "ERM herd mentality wrong turns". Leech (2012) highlights this trend as "going down the wrong risk path"; mandating more of the same flawed risk and control management frameworks and methodologies in their existing form is ineffective and cannot deliver the results promised

by their authors. Ashby *et al* (2010) seek to learn lessons from the GFC, starting by understanding its causes. They also recommend that financial organisations use a 5-point plan: risk culture, risk appetite, management, performance and stakeholders. Effective management should balance 'hard' (objective) and 'soft' (subjective) factors such as risk/ financial models and human behaviour. Further examples of case studies and industry-based empirical evidence which reflect the failures of risk management are presented in Sections 2.4 and 2.5.

2.3.3 ERM in the strategic context

The evolution of various approaches to risk is one way in which the economic world adapts to a new order, and introducing an innovative approach to risk and strategy can be a valid starting point for ERM. The integration of risk and strategy has received significant interest in the literature since the GFC. Mestchian and Cokins (2006) strongly support risk-based performance management through strategic value management and performance optimisation, linking KRIs, KPIs and Balanced Scorecard (BSC). The researchers also emphasise the importance of creating shareholder value through an alignment of risk and strategy. According to these authors, key business objectives should create a well-defined organisational risk profile and increase shareholder value. Transforming ERM theory into practice and aligning risk with performance in financial reality then remain real challenges for most.

Frigo (2008) takes ERM a step further, discussing the importance of aligning it with business strategy to create and protect shareholder value. Frigo (2008) asserts the need to align strategic risk management with ERM to ensure a combined impact on shareholder value. This approach can be perceived as an attempt to create a continuous process that employs key risk indicators (KRIs), which are strategic risk metrics, to create a link between business strategy and risk in the context of shareholder value added (SVA). Frigo (2008) believes that connecting ERM with strategy is the key to a new "futuristic" approach to ERM.

Killackey (2008) belongs to a group of researchers who believe in the interaction between ERM and the BSC as a performance measurement tool, identifying ERM a key component of corporate strategy. Killackey (2008) postulates that in order to truly understand the nature of the interconnection of risk and corporate strategy, management needs to start

with well-defined elements of the alignment of ERM and strategy through the BSC. When business objectives are defined, the strategy is formulated to execute organisational goals. Both ERM and corporate strategy require in-depth understanding and wide participation at all organisational levels. By building an alignment, organisations direct business performance and strategic efforts towards achieving an enterprise-wide balance. According to Killackey (2008), the BSC also helps open communication between risk management, business management and senior management, thus stimulating enterprise-wide dialogue on risk. Killackey (2009) pursues the topic of integrating and aligning ERM with organisational strategy, arguing that a considered comprehensive risk approach to managing multiple exposures is essential. The BSC can help identify strategic success measures, but in ERM, it must also link them to risk factors (Brancato 2005).

In the view of Paladino (2008), most organisations face a wide spectrum of complex risks and seek a strategic way to manage them in order to assume a superior competitive position in highly volatile markets. The most effective risk alignment starts with the integration of two mainstream processes that involve achieving long-term strategic objectives through continuous strategic planning and defining ERM (Paladino 2008). Being a strategic initiative, ERM allows a balanced alignment with the strategy setting, while risk processes are combined across multiple business units. Paladino (2008) also argues that risk management provides a solid foundation for risk activities and promotes a culture where "every manager is a risk manager". Within the sphere of responsibility, business managers take ownership of risk events, build upon risk expertise, participate proactively in the alignment of risk resources and assist in creating structured risk management processes within organisations. Risk owners join risk forums, which become an integral element of a learning and knowledge-sharing community. In order to create a dynamic risk culture, regular risk seminars, one-to-one coaching sessions and leadership presentations are performed. A common vocabulary enables risks to be articulated and reinforces the organisation's ability to respond to them. For example, knowledge of risk can be measured by how many risk managers successfully implement innovative risk processes or measures, or by how much value is derived from capitalising on ERM opportunities (Paladino 2008).

In response to rapidly changing reality, Buehler *et al* (2008) propose a five-step approach to better risk management, considered an important step closer to ERM and involving: 1) identifying and understanding major risks, 2) determining which risks are natural, 3) deciding on risk tolerance and appetite, 4) incorporating risk into decision making and 5) aligning corporate governance with risk management. Each of the steps described by Buehler *et al* (2008) presents a different set of challenges.

Kaplan (2009) also explores how risk management can be better integrated into strategy execution by proposing realignment of performance and risk scorecards to obtain the synergic optimisation. Rizzi (2010) takes a more pragmatic approach to relevant aspects of ERM, supporting the arguments with conceptual frameworks and case studies of Long-term Capital Management (LTCM), Goldman Sachs and Berkshire Hathaway. Rizzi (2010) explores reasons for the failure of financial organisations and the destruction of value, taking a proactive view whilst seeking solutions to prevent risk events in the future. The study suggests moving away from a control-based framework towards a holistic alignment, where risk is linked to strategies and stimulates value generation as well as decision-making. It recommends expanding risk measurement into risk management in the context of strategic planning, governance and effective capital management. According to Rizzi (2010), risk models relying heavily on historical data are "fatally flawed" and inappropriate in current market circumstances. In an attempt to bridge the existing gaps, Rizzi (2010) argues that ERM and enterprise resilience can create opportunities to re-align business and risk priorities, ensuring further enhancement of shareholder value. Transparency in risk profiling and setting risk appetite becomes a "strategic value enabler".

Beasley and Frigo (2010) continue research into the alignment of ERM with business strategy, considering the connection between strategy and ERM to be one of the most important topics in the recent economic climate. The link between strategy and ERM can generate value for an organisation and stimulate steady growth. According to Beasley and Frigo (2010), ERM turns management's attention towards strategic risks, and with help of KRIs it can fine-tune the enterprise risk focus. Major challenges in aligning ERM and business strategy into strategic planning uncovered by Beasley and Frigo (2010) are: 1) silo risk management as a barrier to integration of risks, 2) overlooking strategic risks (due to "blind spots" caused by the failure to link ERM and strategy planning), 3) creating a

risk-strategy mindset, 4) optimal balance between performance and risk, and 5) evaluating key strategic business risks that can be turned into value-adding risk opportunities.

Althonayan *et al* (2011a) focus on the lack of ERM alignment in the finance industry, which would have a direct, value-adding impact at a strategic level, and continue the research into developing an ERM alignment. The first approach developed by Althonayan *et al* (2011a), illustrated in Figure 2-7, aims at aligning ERM with business strategy and information systems (IS).

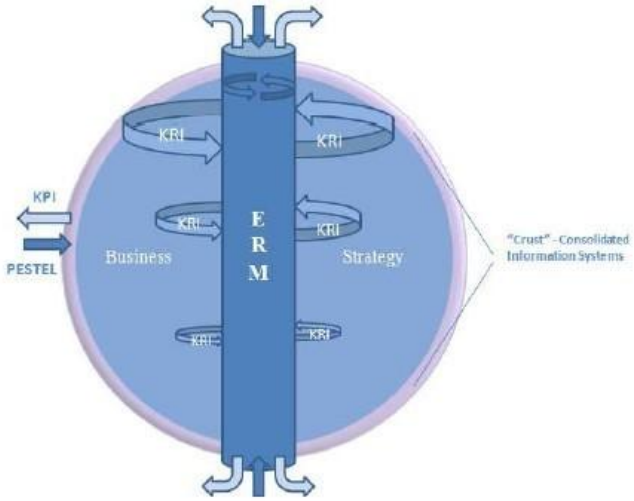


Figure 2-7 ERM Alignment Framework with business strategy and information systems

Source: Althonayan *et al* (2011a)

This framework highlights the importance for financial organisations of adopting enterprise risk architecture to allow data to be captured, stored, manipulated, and reported in a consistent manner (Althonayan *et al* 2011a). Althonayan *et al* (2011b) later refined the model, focusing on the importance of aligning ERM with the corporate and business strategies. The outcome of this research led to the development of the Holistic Alignment Approach (HAA) (2011b). Althonayan *et al* (2011b) explain that the HAA links into the organisation's vision, mission and organisational objectives, aligns with risk culture and focuses on value creation and growth opportunities. The HAA (2011b) also focuses on creating a comprehensive alignment of all three interconnected dimensions: ERM, corporate and business strategies and improving the organisation's ability to meet its strategic objectives. Consequently, it aims to include ERM in setting a strategic direction, to align ERM with key organisational factors and to provide a milieu for risk-adjusted

decision-making within the set risk appetite and risk tolerances in the longer term. The framework demonstrates a new point of view on the alignment of ERM and supports the interconnection of ERM objectives and strategies in a highly dynamic internal and external environment. These two earlier ERM models (Althonayan *et al* 2011a; 2011b) have provided a foundation and valuable resource for the development of the strategic ERM Alignment Framework presented in Chapter 4.

2.3.4 Value creation and competitive advantage via ERM

In pursuit of setting the most effective strategic direction leading to sustainable value-creation and strong competitive advantage, senior leadership has sought an effective risk management solution that can be integrated within strategic planning and execution (Nocco and Stulz 2006). The literature reviewed in Section 2.3 shows that financial organisations must rethink and improve their risk management practices by aligning risk across the strategic dimensions and must adapt to the dynamics of the new environment in order to sustain future growth and continue to create value (Smithson 1998; Belmont 2004; Beasley and Frigo 2007; Manab *et al* 2010; Manab and Ghazali 2013).

The link between risk management and creating shareholder value has also been researched by Shimpi (2005; 2009), who advocates the need for a unified risk framework to consider key risks in the planning process and to enable a comprehensive evaluation process to choose a strategic option that maximises the shareholder's value (SVA). Shimpi argues that while the initial stages of ERM tend to be more about corporate governance and compliance, the framework should be developed into a catalyst for risk management, as it ultimately affects the organisational structure. Shimpi (2005) proposes a strategic risk capital-value framework that illustrates the relationship of risk to capital and describes how value creation can be connected to everyday decisions made by management, especially in financial organisations.

Nocco and Stulz (2006) focus primarily on the potential theoretical and practical interactions among three entities: ERM, shareholder value and competitive advantage. Organisations have now been challenged to see risks in a more holistic way and view exposures as integral elements of a strategic framework. Presenting the case study of the Nationwide insurance company, Nocco and Stulz (2006) argue that ERM is value adding in its ability to facilitate risk quantification and optimisation by management; in other

words, organisations can decide on the best operating strategy and ERM helps to align risk within the corporate culture and to encourage employees to make decisions consistent with this risk culture. Moreover, Nocco and Stulz (2006) highlight the benefits of thinking of ERM in the context of competitive advantage to underline the significance of taking business and strategic risks. Realising that undertaking certain strategic risks generated a considerable competitive advantage, managers at Nationwide realigned its strategic direction and risk management. It became evident that ERM could effectively enable strategic risk management if business and risk managers understood both the risks and opportunities and their potential consequences. Nocco and Stulz (2006) argue that organisations successful in initiating and implementing ERM will effectively create the potential for achieving competitive advantage in the long run. ERM extends across key organisational levels; it can create value through its impact on what Nocco and Stulz (2006) call the macro and micro perspectives.

At a macro level, senior management generates value by quantifying and managing the optimal risk and return trade-off. In the real world, investors concentrate on the flow of market information that will affect the continuity of their operations, cash flow, earnings and stock prices. In order to protect the business plan, senior management reviews the corporate exposure and determines which risks are classified as “core” and have to be monitored. While deciding how to manage risks, management examines the potential for generating competitive advantage. Thinking in terms of competitive advantage fortifies the principle that enterprises are in business to take strategic and business risks. Essentially, ERM enables organisations to focus on reduction of non-core risks while taking strategic risks that create risk opportunities stemming from core businesses. This approach enables continuous access to capital markets as well as carrying out the strategic and business plans (Nocco and Stulz 2006).

At a micro level, however, ERM is adopted as a way of thinking, ingrained into organisational culture across all business units. One of the major challenges of onboarding ERM is to ensure the involvement and support of senior management in making decisions. This is often manifested through risk evaluations, when most profitable investment projects are determined. Management weighs major risks that might reduce returns for the organisation against the impact of projects on total risk incurred at the corporate level. This

makes determining the right level of risk difficult. Management's responsibility is to adopt an ERM framework that does not eliminate or minimise risk, but rather limits the probability of financial distress and maximises the enterprise's value. Thus, financial shortfall can be managed continuously, while the enterprise's portfolio risks are maintained at an optimal level. Conceptually, ERM starts with the management defining the risk appetite, and by establishing the optimal capital levels needed to level the risks (Nocco and Stulz 2006).

Chapman (2007) follows Nocco and Stulz (2006) in his views on ERM as a shareholder value enhancer. Effective risk management means ERM in practice and it can improve the quality of well informed decisions made by management. ERM can therefore protect organisational value in five unique ways: 1) strategic direction, which supports 2) business performance, 3) risk cost management, 4) exploring new opportunities and 5) establishing a sustainable competitive advantage (Figure 2-8).

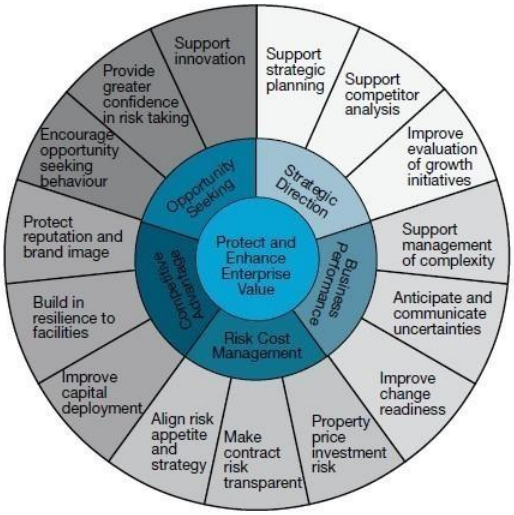


Figure 2-8 ERM as Value Enabler

Source: Chapman (2007)

Consistent with the research of Nocco and Stulz (2006) and Chapman (2006; 2007), Jaffer's (2010) case study findings indicate that risk management and business strategy should be integrated for a more consistent formulation of business objectives along with organisational strategies. This integration can significantly add value and competitive advantage, while reducing costs: "To derive maximum value from risk management

initiatives it is important for organizations to embrace risk management within their culture and not view it as a regulatory imposition" (Jaffer 2010, p.32).

2.3.5 ERM and culture

The need of organisations for a strong enterprise risk culture has become more evident as ERM has shifted from being a specific type of risk management handled by a small department or a specialised group of professionals to a process of guiding the achievement of strategic objectives (Althonayan *et al* 2013). According to the Institute of International Finance [IIF] (2008, p. 9), the "development of a 'risk culture' throughout the firm is perhaps the most fundamental tool for effective risk management".

Organisational failure is often found to be closely correlated with poor risk culture. Following the financial crisis, the Walker report (2009, p. nn) concluded: "The principal emphasis is in many areas on behaviour and culture, and the aim has been to avoid proposals that risk attracting box-ticking conformity as a distraction from and alternative to much more important (though often much more difficult) substantive behavioural change." Moreover, the topic of risk culture remains under-researched; therefore this subsection focuses on presenting the most relevant contributions to the literature (Schneider 1987; Schein 1990; Lam 2003; Buehler *et al* 2008; Kimbrough and Componation 2009; Mikes 2009a; 2009b; 2012; Brooks 2010; Jääskeläinen 2011; Ashby *et al* 2012; Althonayan *et al* 2012a; 2012b; 2013; Adamson 2013).

Academics define risk culture as the organisation's propensity to take risks, as perceived by its managers (Bozeman and Kingsley 1998; Ashby *et al* 2012), whereas practitioners define it as the system of values and behaviours operating throughout an organisation which shapes risk distribution and influences the everyday decisions of employees, even when they are not consciously weighing risks and benefits (KPMG 2011; Ashby *et al* 2012).

As organisations start to think about ERM, they also realise that it can become a source of significant value, contributing to long-term sustainability and competitive advantage (KPMG 2011; Paape and Speklé 2012). The sustainability required to generate long-term organisational value from ERM is a product of organisational culture, which can be a source either of competitive advantage or of long-standing problems (Althonayan *et al* 2013). Lam (2003) considers culture and change management among major challenges

facing organisations. Corporate risk culture is often an overlooked element of ERM, although poor ERM culture can cause a disintegration of the existing risk approach (Kimbrough and Componation 2009; Brooks 2010).

For example, in an organisation with a strong risk culture, employees feel inspired to perform in the absence of formal risk policies and controls. Thus, risk culture is a critical component of ERM structure, because it has a profound impact on human behaviour (Power 2007; Trickey and Walsh 2012). ERM culture should also evolve alongside the business environment to adapt to internal and external influences (e.g. new business leadership, new risk-adjusted incentives, or new risk processes and systems) (Hindson 2013). Canadian banks provide a good example of utilising the potential of ERM culture, thereby promoting proactive change management. Consequently, it becomes equally important to establish effective risk and performance feedback loops to management (i.e. as a part of a bottom-up risk approach) to keep risk information circulated and ensure that everyone is well informed of the ERM status (IRM 2012).

Buehler *et al* (2008) argue that it is quite challenging to incorporate risk thinking into the process of making risk-informed decisions at the organisational level. Highly motivated business leaders should understand the importance of creating a risk culture, a recommendation which Buehler *et al* (2008) support with their proposed dynamic five-step Risk Culture Framework (Figure 2-9).

Figure 2-9 Risk Culture Framework

Source: Buehler *et al* (2008)

The framework begins (1) with understanding key risks, followed (2) by deciding which risks are "natural" (i.e. determining what treatment of key exposures would be most effective and beneficial for the entire organisation). The next step (3) entails a comprehensive review of risk appetite and capacity. To assess risk capacity, a Monte Carlo simulation is usually run to define risk probability distribution. Gravitating towards the extremes of too large a risk appetite or in contrast of holding excess reserves, according to Buehler *et al* (2008), was not uncommon in many organisations in the years before the downturn. By linking risk capacity analysis and risk appetite (4), enterprises can develop a broader understanding of the overall risk position taken.

The final step (5) involves embedding risk in critical business decisions and aligning it with corporate governance, to ensure that the existing infrastructure allows for the monitoring and managing of the risks to which the business is exposed. The most effective approach is to embrace risk for the opportunities it creates. Buehler *et al* (2008) argue that risk vigilance begins with management at all levels and with the board. Establishing an open culture where all risk-related information is simultaneously discussed and challenged among all personnel moderates the effect of surprise.

Mikes (2009a) is another researcher interested in risk culture, and specifically in the role of the Chief Risk Officer (CRO). Mikes (2009a) agrees with Power (2005a), Lam (2000) and Hettinger (2009) that the CRO's role has evolved in recent times. Mikes (2010) first analyses the origins of the role, then argues that success in this function requires the combination of four unique skill sets, i.e. a mix of the compliance guru, the modelling expert, the strategic controller and the strategic advisor. The combined strengths of these roles create a powerful synergy and add value to developing strong risk management. Regardless of the culture created by CROs, management faces key challenges, commonly identified as aggregating key exposures effectively and providing adequate expert judgment to the decision makers. Being under tremendous pressure to accommodate the expectations of various stakeholders, CROs will find that their role undergoes constant development.

Brooks (2010) also asserts that in order to attain successful risk management, organisations should realise the value of a disciplined but rewarding risk-aware culture. Brooks (2010) makes recommendations on "how to create risk culture" and argues that its importance has

become the core of ERM efforts. Without a clearly defined culture, organisations may struggle to achieve an effective ERM framework. Risk culture should therefore be reflected in risk-adjusted decisions which maximise shareholders' value (Chapman 2007). Conversely, a poor risk culture can have a discouraging effect on employees, especially when management takes a "failure intolerant" approach, which can lead to inappropriate risk taking to avoid criticism from management. A key element of risk culture is the rewarding of behaviours consistent with the risk goals that have been set.. Some critical attributes of a strong risk culture can be reflected in strong communication of risk, teamwork, naturally formed risk ownerships and the nurturing of risk awareness across an organisation. Effective risk culture becomes a mindset which should be measured and monitored and should involve corporate governance (Brooks 2010).

The impact of the enterprise risk culture on ERM implementation has clearly been under-addressed in the existing literature. As a consequence, Althonayan *et al* (2012a; 2012b) have explored the area of a relatively new concept of ERM culture and developed a risk framework that focuses specifically on creating an ERM culture, which they consider a pre-requisite to achieving long-term ERM sustainability (Figure 2-10).

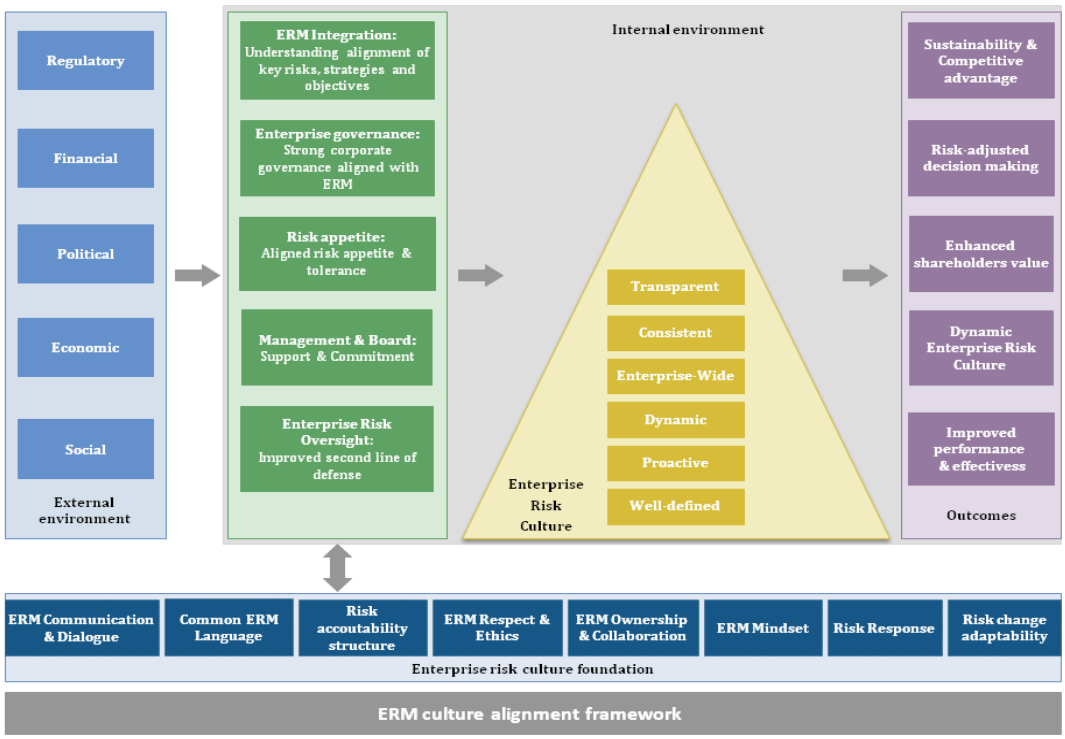


Figure 2-10 ERM Culture Alignment Framework

Source: Althonayan *et al* (2012a)

Althonayan *et al* (2012a; 2012b) focus on how organisations can create value and drive competitive advantage through consistent enterprise risk culture, achieving full ERM potential and long-term sustainability. Their research also investigates the interdependence of ERM and ERM culture, and analyses the consequences of a lack of organisational culture on business performance.

The ERM Culture Alignment Framework consists of four core components: ERM culture inputs, enterprise risk culture, its outputs and the cultural foundation. This approach assumes that these four elements interact dynamically with key focus on achieving organisational consistency and uniform ERM mechanisms that link key business units responsible for active value generation. ERM culture alignment plays a significant role in the development of the theoretical ERM Alignment Framework discussed in Chapter 4, and has been identified as an opportunity for future research.

Thus, the literature review reveals clearly that since the role of ERM has gone through significant changes over the years, there has been increased focus on changing risk culture and embedding it across organisations. Research identifies poor quality or absent risk culture as a major contributor to the financial crisis (Ernst & Young 2011). As evident in the research gap (Chapter 3), culture has become a fundamental component of ERM, but many organisations still manifest significant deficiencies in this area and the pace of cultural change is gradual (KPMG 2011; Adamson 2013). The researcher has been engaged in research on enterprise risk culture and continues to generate contributions to the academic literature on this topic.

2.3.6 Enterprise risk oversight at the board level

Since the GFC, regulators worldwide have focused on the creation of new disclosure regulations concerning how boards should oversee the effectiveness of risk management processes (The Conference Board 2005; Securities and Exchange Commission 2010; Ontario Securities Commission 2010). Consequently, the number of ERM adopters was expected to increase exponentially across various sectors in an attempt to improve risk oversight. Tonello (2007) examined the ERM oversight role of the corporate board, aiming to provide a detailed "road map" for each of the major stages of ERM development and execution. Based on the findings of that study, Barnes and Dublon (2008) conclude that boards need to work with management on: 1) knowing which risks to prioritise and

delegate to respective committees, 2) understanding the enterprise-wide correlation and qualitative aggregation of risks, 3) setting the tone for the culture of embedding risk management in an organisation, and 4) providing real-time reassessment of risks and actions. Maintaining open risk communication between the board and management can promote positive energy within the organisation (Barnes and Dublon 2008).

When a survey by COSO (2010a) found that fewer than 30 percent of respondents described their current stage of ERM implementation as "systematic, robust and repeatable" with regular reporting to the board, while almost 60 percent described their risk tracking as mostly ad hoc and within silos, rather than enterprise-wide, research into board oversight gained traction (Leech 2012).

As ERM aims to "create, protect, and enhance shareholder value," it should be a vital concern of every board overseeing an organisation (Barton *et al* 2001; Berenbeim 2005). Based on a number of interviews, Barton *et al* (2001) conclude that the focus of the boards should be directed to: 1) regular risk discussions, 2) knowing the business and the industry, 3) the skill set of the board members, 4) documenting board risk oversight, 5) ERM training, and 6) the relationship of the board with the C-suite. As weak board oversight of risk has long been a conspicuous problem in modern society, the research shows that in many organisations the board's involvement in ERM is merely "window dressing", with little impact on its effectiveness (Barton *et al* 2008b). Moreover, according to Bates (2009), ensuring that ERM is embedded into the corporate culture must begin in the boardroom and cascade down the organisational hierarchy.

Beasley (2011) and Branson (2010) both highlight the importance of risk oversight and risk discussions in the boardroom and among senior management. While Branson (2010) considers the role of the board across the organisation and the importance of sustaining risk communications between board and management, Beasley (2011) investigates the actual meaning of explicit risk oversight and how it differs from risk management. According to Branson (2010), understanding key risks and their implications enables ERM's effectiveness, helps to manage strategic risks effectively and limits toxic risk exposures that can be otherwise overlooked.

Branson (2010) considers high-level ERM oversight to be one of the most important functions of the board. Beasley (2011), however, believes that the board's main

responsibility is to understand and approve the management's risk management processes and understanding key risks. Furthermore, in order to thoroughly understand risk management, the board should be actively involved in a risk dialogue with the management on the current state of risk management. Beasley (2011) argues that a regular risk dialogue should inspire the board to effectively assess if risk management is dynamic enough to overcome economic uncertainties and if it encompasses an enterprise-wide view of the organisation's key risk exposures. Understanding key risks helps the board to determine correctly which risks can trigger a downside effect while exceeding the risk tolerance, and therefore ensure that information flow about key risks is transparent and sufficient to eliminate silo reporting (Mylrea and Lattimore 2010). Robust risk communication and implementation of measureable strategic indicators helps to manage emerging risk exposures (Beasley 2011). Indeed, the board's role should extend to risk prioritisation oversight, determining which emerging risks threaten the core organisational strategies. The board should also ascertain if the enterprise's culture and leadership receive deserved attention enterprise-wide; in other words, whether the leadership is aligned with the strategy planning and execution stages (Kocourek and Newfrock 2006; Beasley 2011).

Similarly, according to Branson (2010), management should remain responsible for strategic and operational decision making, and participate in regular bottom-up and top-down risk dialogue with the board. Adequate risk education and knowledge of the board are essential to commence risk communication (Branson 2010). Support for ERM should also originate from the board, to allow ERM to become a crucial element of the corporate strategy, culture and value generation. The pressure for the board to develop a "fortress" risk oversight process creates an emerging trend to delegate it to risk committees. Lastly, Beasley (2011) postulates that organisations should develop KRIs along with the KPIs. This would alleviate the reactive nature of KPIs, allowing the organisation to assume a proactive position and so to respond more effectively to unknown risks.

Beasley (2011) highlights key prerequisites for the development of KRIs:

- explicit discussions between board and management about top risk exposures;
- assessing the quality of information received and determining if and why is it sufficient for effective risk oversight;
- evaluating the dynamics of the board's discussion of risk exposures;

- determining if accurate key metrics are delivered to monitor key risks proactively.

The literature shows that the role of board members in ERM and risk oversight is critical for organisations throughout business and industry (Barton *et al* 2008b). They should not only contribute their knowledge and expertise but also oversee the process adopted by senior managers to identify and prioritise risks (Barnes and Dublon 2008). In the event that a major risk is (accidentally or deliberately) excluded from the risk analysis, it may not be included in the decision-making process, seriously weakening the rest of the ERM programme. This is an area of ERM that requires more research, and is recommended for future research opportunities (Chapter 9).

Therefore, as the board approaches ERM from a governance perspective, all members should recognise that certain business or financial risks may create opportunities for dishonesty or personal gain (short-term financial incentives), especially in the finance industry (Tonello, 2007). If the board is familiar with the event identification techniques chosen by senior management and understands their limitations, it will be in a better position to critically analyse their outcomes and provide more effective risk oversight.

2.4 Academic research surveys and case studies

In addition to the academic literature discussed in Section 2.3, this section discusses the empirical evidence provided by academic surveys and case studies conducted since 1999 by various scholars, whose key findings with respect to the present research are summarised in Table 2-4. The final column refers to the quadrants discussed in Chapter 3.

Table 2-4 Summary of academic surveys and case studies

Table 2-4: **ACADEMIC EMPIRICAL RESEARCH LITERATURE (1990s-Present)**				
Authors/ date	**Aspects**	**What Was Examined?**	**Focus/Findings**	**Quad -rant**
Colquitt, Hoyt and Lee (1999)	Evolution of ERM	The objective was to assess the characteristics and extent of integrated risk management. Survey conducted in 1997 and results obtained from 379 risk managers.	Results on the background and training of risk managers. Political risk, exchange rate risk and interest rate risk identified as three most common non-operational risks faced by the risk management department. Role of risk manager evolving and covering a wider spectrum of risks.	I
Kleffner, Lee and McGannon (2003)	ERM Challenges	Survey of 118 Canadian risk and insurance management societies on the impact of the Toronto Stock Exchange (TSE) guidelines on risk management strategy and evolution of risk management discipline.	37% of respondents said that TSE guidelines drive ERM decisions; 51% said that it was encouragement by directors; 61% agreed that risk managers influenced the decision to implement ERM. Factors impeding ERM implementation were: 1) organisational culture 2) overall resistance to change 3) lack of qualified personnel to implement ERM.	III

Table 2-4: **ACADEMIC EMPIRICAL RESEARCH LITERATURE (1990s-Present)**

Authors/ date	**Aspects**	**What Was Examined?**	**Focus/Findings**	**Quad -rant**
Liebenberg and Hoyt (2003)	ERM adoption & implemen-tation	Quantitative study of 26 US firms.	Determinants of ERM adoption identified as: firm size, industry, earnings volatility, stock price volatility, average leverage, average market-book value ratios, financial opacity, average institutional ownership, location of subsidiaries.	II
Banham (2004)	ERM adoption & implementa tion	The survey of over 200 senior finance and risk management executives on current ERM practices.	1) Over 40% of respondents were implementing some form of ERM 2) Nearly 90% of those pursuing ERM were very confident in their ability to manage risk, compared with just 45% of those not using ERM 3) Nearly 85% of participants believed ERM could help improve their companies' price/earnings ratios and cost of capital.	III
Smithson and Simkins (2005)	Value Adding ERM	Survey asked specific questions relating to the relationship of financial risk and the value of the organisation.	Risk management can increase firm's value but the evidence is still limited. It can reduce cash flow volatility that can decrease the likelihood of financial distressed and increase the likelihood of capitalising on valuable investment opportunities.	I
Beasley, Clune and Hermanson (2005)	ERM adoption & implemen-tation	Survey of 175 members of IIA Global Auditing Information Network on the involvement of internal audit in ERM.	CRO presence, more independent BOD, explicit calls from CEO or chief finance officer (CFO) for internal audit involvement in ERM are positively associated with extent of ERM deployment. Results indicate that US firms are not advanced in ERM implementation.	III
McWhorter, Matherly and Frizzell (2006)	ERM and the strategy	IMA conducted a survey on the correlation between risk management and strategic enterprise performance measurement system.	A connection found between performance measurement and risk management, while strategic performance measurement systems improve risk management. As a result, linking risk management to organisational strategy is considered important for decision making.	I
Gates (2006)	ERM and the strategy	271 risk and financial executives participated in a survey to examine the challenges and benefits of ERM implementation, and the question of risk ownership. Case studies of BP, Bristol-Myers Squibb, Terasen, Hydro One analysed.	Concludes that strategic risks have impact on ERM process. ERM benefits were higher (and challenges less complex) in organisations where ERM was fully implemented. Only 16% admitted their organisation had ERM fully integrated into strategic planning.	II
Desender (2007)	ERM and BOD	The link between ERM implementation and board composition studied in 100 randomly selected firms.	Results suggest that board independence in isolation has no significant relation with ERM quality. Firms that have a separate function of the chairman and CEO favour more elaborate ERM and show the highest level of ERM implementation.	III
Fraser, Schoening-Thiessen and Simkins (2008)	ERM challenges	Highlights crucial areas of need on ERM, to encourage and stimulate advances in ERM research and practice.	Some key ERM areas need more research, while some can stimulate further collaboration of academic and business practitioners. ERM challenges encountered by management still not addressed in literature also outlined.	III
Beasley, Pagach and Warr (2008b)	ERM challenges	The link between ERM implementation and characteristics of firms that implement ERM. Empirical evidence of the value and response of the equity market to the hiring of 138 senior risk executives for risk management.	Larger firms and those with higher leverage were more likely to hire CROs. A negative correlation found between hiring the CRO and change in the size of the firm. A lack of case studies on ERM; practitioners request that more be written on the topic.	III
Moody (2009)	ERM challenges	Case study: Countrywide	1) Lack of integration of risk management in high-level strategic decision making 2) Management fails to understand key business objectives and how to link them to risk strategy 3) Lack of a dynamic risk management approach	III
Gates, Nicolas and Walker (2009)	ERM benefits	Which components of ERM framework lead to:1) better decisions and 2) increased profitability?	Good ERM environment, better communication of ERM actions, the number of employees devoted to ERM process and explicit risk tolerance levels all positively influence decision making and increase profitability.	IV
Beasley, Branson and Hancock (2009)	ERM challenges	Cross-industry survey of 701 CFOs and equivalent conducted by North Carolina State University ERM and American Institute of Certified Public Accountants (AICPA).	In 74% of responding organisations, top risk exposures were not reported to the BOD, which indicates ERM immaturity and lack of a top-down enterprise-wide risk oversight. 67% of respondents admitted that their risk oversight process was very immature. Nearly 50% expressed dissatisfaction with the scope of reporting of key risks to senior management.	III

Table 2-4: **ACADEMIC EMPIRICAL RESEARCH LITERATURE (1990s-Present)**				
Authors/ date	**Aspects**	**What Was Examined?**	**Focus/Findings**	**Quad -rant**
Beasley, Branson and Hancock (2010)	ERM and BOD	AICPA and CIMA (2010) conducted a survey (700 senior executives in multiple sectors) to establish what shapes current enterprise risk maturity on a global scale.	Nearly 30% of respondents agreed that organisational level of risk management was immature. Little over 30% saw active involvement of the BOD in risk oversight function. Nearly 60% of directors made 'significant' effort to engage management into risk oversight; however, 44% business leaders failed to see the interconnection between risk oversight and strategy. Most respondents were dissatisfied with current ERM status, but saw the boards and management initiating ERM discussions on top exposures, KRIs and overall risk oversight related topics.	III
Barton, Shenkir and Walker (2010b)	ERM challenges	Collates expertise of authors who have explored the research topic since 1996.	Academic research does not keep pace with corporate interest in ERM. Key challenge is a lack of well-defined variables that measure enterprise-wide ERM implementation. Other ERM concerns are: failure to understand organisational objectives and strategies and how they align with ERM and daily jobs.	III
Pagach and Warr (2011)	ERM adoption & implemen-tation	Quantitative study of 138 US firms	Focus on the characteristics of firms that hire a CRO. These include financial, asset and market perspectives.	I
Paape and Speklé (2012)	ERM adoption & implemen-tation	825 organisations surveyed to determine the extent of ERM implementation and factors associated with cross-sectional differences in level of ERM adoption, plus specific ERM design choices and their effects on perceived ERM effectiveness.	1) Organisations with a CRO and audit committee have more mature ERM systems, 2) The applicability of governance regulation does not appear to influence ERM adoption 3) There is no link between implementing COSO ERM framework and increased risk effectiveness	II
Beasley *et al* (2012)	ERM and BOD	Current state of enterprise risk oversight based on responses from 618 executives, mostly serving in financial leadership roles, representing a variety of industries and firm sizes.	1) About 60% of the boards reviewed and discussed in a specific meeting the top risk exposures facing the organisation 2) There may be opportunities for organisations to strengthen connections between risk oversight and strategic planning 3) The majority (62.6%) communicated key risks on an ad hoc basis at management meetings 4) Nearly 50% of participants agreed that there was no formal enterprise-wide approach to risk oversight, while just over 50% stated that there was no structured process for identifying and reporting risk exposures to the board 5) Over 60% reported that management struggled to report top risk exposures to the BOD regularly	II

Source: Researcher

Not only have research objectives changed since the late 1990s; so too have risk management practices. The interest in ERM implementation among organisations has also been influenced by various internal and external factors; this has been reflected in studies which focus on identifying the factors that determine ERM adoption by various organisations (Athearn 1971; Beck 1992; Banham 1999; Baird 2005). These studies aim to provide detailed responses to the challenges of implementing ERM, to encourage practitioners to learn more and to promote the conduct of further research in crucial areas.

Table 2-4 classifies these contributions according to the aspects of ERM which were of primary focus. Colquitt *et al* (1999) investigated the features and extent of integrated risk management, and the changing role of risk managers. Their focus was on evaluating the extent to which risk managers were involved in managing financial and nonoperational

types of risks facing their organisation. The survey also considered the effect of factors such as the size of the organisation, the industry sector and the background of the risk manager on integrated risk management. Kleffner, Lee and McGannon (2003) studied ERM adoption, concluding that 31 percent of respondents were motivated by risk management and encouragement from the board when adopting ERM. Liebenberg and Hoyt (2003) examined key ERM determinants and measured the effects of financial leverage in organisations which had appointed CROs versus those with no CRO. According to Liebenberg and Hoyt (2003), the main determinants of ERM adoption include firm size, industry, earnings volatility, stock price volatility, average leverage, average market-book value ratios, financial opacity, average institutional ownership and location of subsidiaries. Smithson and Simkins (2005) reviewed thirty years of academic research to determine whether risk management added value, concluding that contrary to the capital asset pricing model, organisations across the financial sector are sensitive to interest rate risk fluctuations. As financial risks are highly correlated with expected returns on stocks and stock prices, Smithson and Simkins (2005) also conclude that managing these risks facilitates the identification of valuable investment opportunities as an important aspect of strategy implementation.

In their paper on ERM determinants, Beasley, Clune and Hermanson (2005) indicate that factors significantly affecting ERM implementation are: the appointment of a CRO, managerial support, types of directors, size of firm and the use of a Big Four auditor. The presence of a CRO, an independent board and explicit calls from the CEO or CFO for internal audit involvement in ERM are positively associated with the extent of ERM deployment, according to the study. Desender (2007) offers a different perspective: that the board of directors and the separation of the CEO and chairing roles are important in determining the characteristics of ERM.

A survey by Manab *et al* (2010) also identifies five factors that drive ERM as a value-added tool: 1) commitment and transparency from top management, 2) drive towards a more systematic management of risks, 3) strong involvement of executive leadership and their support, 4) perception and understanding of continued development of competency in risk education and training, and 5) creating a strong culture.

Beasley, Pagach and Warr (2008b) and Gates, Nicolas and Walker (2009) have taken ERM a step further by examining various aspects associated with value creation capability. These studies represent an important step forward, investigating the assessment of ERM value in the context of its implementation. In particular, Gates, Nicolas and Walker (2009) measured ERM value and assessed how it affected decision making and increased organisational profitability.

More recent research by Beasley *et al* (2009; 2010) focuses on identifying opportunities for ERM improvement in the post-crisis reality. Manab *et al* (2010) are primarily interested in the relationship of ERM to corporate governance and value creation, while a study by Barton *et al* (2010b) addresses the lessons learnt from the field in light of the collective expertise of the researchers, who have explored the research topic since 1996. Their main conclusion concerns the lack of understanding of the objectives and strategies of an organisation and their interconnection to daily enterprise-wide tasks. ERM's compelling nature turns management's attention towards changing the organisational and risk culture so that employees at all levels understand business objectives and core strategies. The survey results indicate that the majority of respondents were dissatisfied with current ERM status, but had started to see the boards and management initiating discussions on risk exposures, recognising that there was room for further improvement in ERM to strengthen risk management processes across enterprises.

Based on the review of literature presented in this section (Table 2-4), the key focus of academic studies has been on the factors that influence ERM adoption (Beasley, Clune and Hermanson 2005; Kleffner, Lee and McGannon 2003; Liebenberg and Hoyt 2003), the effects of ERM adoption on performance (McWhorter *et al* 2006; Beasley *et al* 2008b; Gordon, Loeb and Tseng 2009), the particulars of risk management practices in specific organisational settings (Mikes 2009a; Wahlström 2009; Woods 2009) and value creation capability (Beasley *et al* 2008b; Gates *et al* 2009).

Section 2.5 continues the discussion of ERM from the industry practitioners' perspective and provides data supporting the findings of the academic literature.

2.5 Contributions to the literature made by industry publications

To strengthen the arguments supporting the literature discussed in Section 2.3 and 2.4, this section presents and analyses the relevant industry contributions in the form of surveys and

case studies that validate the findings of academic research. Most of these industry publications can be said to take a more advanced (and empirical) outlook on ERM than that of the academic sources, as further supported by practical ERM implementation and application guidelines experienced in the financial sector. Table 2-5 offers a breakdown of key industry publications since 2003 by researcher, year, topic and key findings.

Table 2-5 Summary industry surveys and case studies

Table 2-5: **INDUSTRY RESEARCH LITERATURE (2003-Present)**			
Authors/ date	**Aspects**	**What was examined?**	**Focus/Findings**
Vedpurisvar (2003)	ERM adoption & implemen-tation	Case study: ABN Amro	1) Poor senior leadership 2) silo risk management 3) lack of good enterprise-wide risk communication 4) little cross-organisational risk interaction 5) risk and strategy not aligned
Deloitte (2004)	The evolution of ERM	100 organisations with the largest losses in equity value from 1994 to 2003 were researched along with their risk management practice.	1) 80% of the enterprises that had suffered the greatest losses were exposed to more than one type of major risk 2) Organisations failed to recognise key risks in time or manage the relationships among various types of risks, and misunderstood the ways in which they were interconnected 3) A number of organisations that believed they had built effective ERM programmes had undervalued the credit risk exposure of their large trading operations, suffered losses, were officially downgraded to below investment grade by rating agencies and in some cases failed to stay in business.
Standard & Poor's (S&P) (2005)	ERM challenges	Since 2004, S&P reviewed 25 global organisations to establish the status of their risk management.	1) ERM increases the robustness of policies, infrastructure and methodologies at a holistic level and is critical to ERM implementation 2) Key attributes in the dimensions examined are: a) level of alignment of risk appetite with the process of defining a dynamic business strategy, b) risk tolerance and management's awareness of risk control, and c) extent of risk communication and disclosure (e.g. sophistication of risk information dissemination)
Towers Perrin (2006)	The evolution of ERM	Corporate ERM practices in the USA	1) 85% of respondents believed there would be greater emphasis on risk management within 5 years 2) Key risk drivers were corporate governance, natural disasters and increased liability issues 3) 63% were concerned about how risk was managed 4) Operational risk is considered one of the most important risks managed today 5) One third adapted ERM or committed to doing so
RMA (2006)	ERM adoption & implemen-tation	Main benefits, challenges and current state of ERM practices in financial sector (in a pre-crisis market).	1) Nearly 40% of respondents admit that ERM is driven by regulatory requirements rather than strategic competitive advantage 2) Nearly 50% agree on main ERM benefits: opportunity to identify/assess risk "in total", consistent risk standards, setting common risk controls and culture 3) 70% think that the primary measure of ERM effectiveness is a favourable regulatory assessment 4) 50% confirm lack of well defined specific ERM roles and responsibilities, and 70% a lack of ERM board committees 5) Nearly 40% confirm that current top ERM challenges are the lack of required data quality and speed of implementation 6) Expected future top ERM challenge: level of senior management buy-in and budget allocations
APQC (2007)	ERM and strategy	APQC established the "Risky Business" consortium to benchmark and report on how "best practice" corporations manage risks.	1) Most participants thought that ERM and strategy planning should be interlinked 2) ERM should evolve as a core business activity and provide support for achieving strategic business objectives 3) Proactive participation of business leadership in strategic planning is key to ERM 4) Most organisations surveyed admitted that ERM was "somehow embedded", rather than "fully embedded" into their strategic planning

Table 2-5: **INDUSTRY RESEARCH LITERATURE (2003-Present)**			
Authors/ date	**Aspects**	**What was examined?**	**Focus/Findings**
KPMG (2007)	The evolution of ERM	Survey of 435 senior executives such as CEOs, CFOs, heads of internal and external audit and risk and compliance management.	1) Most influential internal factors identified as: a) increased risk and controls focus by senior management and board, b) the drive for improved cost management and efficiency, and 3) market and geographic expansion. 2) Top external factors identified as: a) the regulatory environment, b) globalisation, c) reliance on technology, and d) dialogue with external stakeholders 3) Coordination between internal audit and risk managers is increasing (59% of respondents) 4) Response to barriers was to increase communication and awareness through training and promotion
AON (2007)	ERM and culture	Global Risk Management Survey of 320 organizations in 29 countries, focused on shifting management priorities over time.	1) One organisation in ten describes the maturity of ERM as embedded in the business 2) 64% of respondents deem establishing risk culture as a key ERM motivation 3) Nearly 50% consider corporate culture an element of ERM implementation 4) One in four ERM approaches had influenced strategic planning 5) Organisational sustainability, strategic advantage and shareholder value started to emerge as key ERM benefits
Buehler *et al* (2008)	ERM and culture	Case study: Goldman Sachs	Risk culture was based on four key factors: 1) Maintaining strong partnership heritage 2) Risk and quantitative resources to continue intellectual wealth and expertise 3) Risk oversight, organisation and processes 4) Values and business principles
PRMIA (2008)	ERM process	Current risk management practices and key risk challenges.	1) 90% of respondents agree that ERM is integrated into the business model 2) 41% consider the ERM programme "well-defined" 3) 60% confirmed openness to adopt ERM framework
Deloitte (2008)	ERM and strategy; ERM adoption & implemen-tation	Benchmark survey of current ERM perceptions and practices, key benefits, challenges, and implementation guidelines. 151 organisations took part globally.	1) Interest in ERM is growing; 56% of participants confirmed that ERM programmes had been in place for less than two years 2) regulatory compliance as a key driver of ERM, but lack of clarity around the definition of ERM 3) risk not being fully incorporated into core business decision-making processes, such as strategic planning, capital allocation and performance management 4) only 35% of organisations had adopted a specific ERM standard, mostly COSO 5) Top ERM benefits: a) risk-aware culture (34%), b) identifying and managing enterprise-wide risks (29%) and c) integrated management reporting that highlights key risks 6) Key challenges: a) difficulty in measuring and assessing risks, b) time and cost of implementing ERM (47%) and c) lack of understanding of the benefits of the integrated management of risk across the enterprise (i.e. difficulty in proving the business case to stakeholder value, improved earnings, opportunities).
Senior Supervisors Group (2008)	The evolution of ERM	Current risk management practices, offering key observations and recommendations for the future.	1) Risk areas that still need vast improvement are: risk infrastructure, processes and risk practices in general 2) Risk efforts that suffered from procedural and strategic deficiencies are currently being re-assessed. 3) Business strategy, risk appetite and risk-reward equilibrium are top risk considerations post-crisis
Accenture (2009)	ERM and strategy	Relation of value increase to incorporation of ERM into business strategy	1) Importance of integrating enterprise-wide risk management programme into organizational structure 2) Embedding risk culture across the organization and ensuring it is understood enterprise-wide 3) Importance of ERM for competitiveness, given external uncertainty
Deloitte (2009b)	ERM adoption & implemen-tation	Survey of 111 financial institutions around the world.	Some practical guidelines and core principles for developing the risk-intelligent organisation are offered: 1) addressing value preservation and creation across the enterprise, 2) a risk framework defined and supported by set standards (appropriate risk structure, linked to business objectives) and 3) key roles and responsibilities on risk defined and delineated (i.e. coordinated effort on changing the corporate mindset).
EIU (2009)	ERM and culture, ERM process, ERM and BOD	Survey of 364 executives globally (i.e. who have influence over strategic decisions on risk management; nearly 60% C-level or board-level executives) about approach to risk management and corporate governance.	1) Management recognise the need for greater risk expertise, but there is a reluctance to recruit risk expertise, particularly at the top of the organisation (more than 50% don't plan to hire) 2) Majority says that "risk culture" depends on strong direction from the top of the organisation, but an absence of expertise at board level suggests that it will be difficult to embed a greater awareness and understanding of risk in their business. 3) Financial constraints impede investment in risk management; poor data quality and availability and lack of expertise and ineffective tools and technology are main ERM challenges 4) CROs play no role in major strategic initiatives; less than 50% respondents believe that their organisation is effective at linking risk with corporate strategy. 5) Only around one-third of respondents think that their organisation is effective at ensuring information about risk is reaching the right people.

Table 2-5: **INDUSTRY RESEARCH LITERATURE (2003-Present)**			
Authors/ date	**Aspects**	**What was examined?**	**Focus/Findings**
Foster, London and Dewar (2009)	ERM benefits	Cross-sector survey of 250 CFOs, CROs and risk executives on the weaknesses of traditional risk approaches and factors that potentially contributed to the GFC.	1) Integrated ERM approach with cross-functional communication is critical to better decision making. 2) Less than 25% of respondents confirm fully integrated enterprise architecture 3) ERM helps increase risk transparency, link KPIs & KRIs to align business performance and risk management, and allows better data integration (quality, integrity, control) and more effective risk culture 4) Key ERM benefits: improved strategic capital decision, higher business performance, enhanced shareholder value
KPMG (2009)	ERM and BOD	Survey of 500 senior managers involved in risk management from leading banks around the world to identify weaknesses in risk management that contributed to the crisis and actions being taken by the industry to prevent such a catastrophe reoccurring.	1) Under half (45%) of the surveyed banks acknowledge that the boards are short of risk knowledge and experience 2) Nearly 80% of those responsible for risk management are dedicated to instilling a more robust risk culture and feel that greater "tone from the top," along with a more authoritative risk function, are two of the keys to such a transformation. 3) Only 42 percent have made or plan to make fundamental changes to their risk management processes 4) The main areas being addressed are risk governance, risk culture and reporting and measurement of risk; the three key building blocks of a risk infrastructure.
RIMS (2009)	ERM adoption & implemen-tation	Survey of over 1,300 US and Canadian risk managers	1) Key contributors to the GFC were: a) the failure to understand and promote consistent risk behaviours enterprise-wide, b) to develop and reward internal risk management competencies, 3) to facilitate ERM in support of management's decision making, and 4) inefficient financial modelling 2) Organisations should start implementing a mature ERM framework that is supported by senior management and the board 3) Management should link ERM with the process and performance management, and the aim of creating a sustainable ERM
Zubrow (2009)	ERM and culture; ERM and BOD	Case study: JP Morgan	Guidelines on how to create effective risk management: 1) Risk structure and culture involve setting the right tone at the top 2) Provided support from the director-level risk committee to guide the approach to risk management 3) Employed both quantitative risk measures and individual qualitative expertise 4) Practised risk "plumbing", entailing timely exposure, measurement and reporting; documentation and legal agreements; collateral management (robust credit and counterparty exposures management) and "what if" scenarios in response to counterparty risk events. 5) CEO widely acknowledged as the "ultimate chief risk officer of the bank" 6) Formal head of the risk management function reported directly to CEO as part of the executive team with continual access to the company's board
AON (2010)	The evolution of ERM	Survey of 1,000 business professionals from 58 countries	1) Top risks are: a) economic slowdown, b) regulatory/legislative changes, and c) increasing competition 2) Nearly 40% measure their total cost of risk 3) Over 30% report having a CRO
APQC (2010)	ERM benefits; ERM and strategy	Ways to integrate the management of strategic, business, customer, financial, operational and people risk from across the enterprise to mitigate threats and maximise shareholder value.	1) senior management buy-in essential for ERM 2) right data transferable into action 3) "what gets measured gets done" approach 4) strategic programmes in place to align corporate objectives, strategies and ERM 5) value of creating the right risk culture for ERM sustainability 6) "Don't try to boil the ocean" approach replaced by "small steps ERM" approach 7) aligning ERM and strategy to achieve strategic objectives in the long run is critical
COSO (2010)	ERM process	Survey of 460 individuals on risk management practices and individual perceptions of the strengths and weaknesses of COSO's ERM Framework.	1) Almost 60% of respondents say risk tracking is mostly ad hoc or within silos, not enterprise-wide 2) Almost 50% define the level of ERM processes as "very immature" or "somewhat mature" 3) 35% of participants confirm a lack of satisfaction with the nature and extent of reporting to senior executives of KRIs 4) Almost two-thirds note that management formally reports top risk exposures to the board regularly, but risk oversight appears to be unstructured 5) 40% consider ERM cube effective; nearly 30% consider it overcomplicated, too theoretical and providing vague guidance

Table 2-5: **INDUSTRY RESEARCH LITERATURE (2003-Present)**

Authors/ date	**Aspects**	**What was examined?**	**Focus/Findings**
Deloitte (2010)	ERM and BOD	Proxy statement disclosures analysed for approaches to risk oversight across 398 organisations. Continuation of the Risk Intelligent Enterprise study of governance and risk management at BOD level.	1) Nearly 60% of disclosures state that audit committee still holds main risk responsibility 2) Over 50% confirm that compensation committee is accountable for overseeing risk in compensation plans 3) 90% of disclosures define risk ownership; 80% affirm that risk owners report directly to the board 4) Over 30% note that risk oversight aligns with organisation's strategy 5) A little over 10% indicate board's involvement in setting risk appetite, and 5% show board's oversight linked to corporate culture
Grant Thornton (2010)	ERM and culture; ERM and strategy	Survey of 465 respondents across British and Irish organisations, examining the most significant risks organisations are exposed to, risk perceptions, and risk appetite.	1) Poor risk perception of current practices 2) Poor risk culture (respondents struggle to believe they add value to the business or affect decision making); almost 40% note that risk management created a common risk culture 3) Almost 50% admit that strategic risks were not adequately assessed prior to the crisis 4) Only 30% believe that risk management helped minimised financial impact 5) Nearly 70% admit they will change the way risks are viewed post-crisis, given the consequences
Internal Audit Services (2010)	The evolution of ERM	Significant changes made by internal audit to prioritise performance gap in achieving key organisational objectives.	1) Key future audit focus points identified as: risk management (91%), IT risk (83%) and operational risk (81%). 2) Nearly 60% admit that a performance gap once identified can be closed by staff training. 3) Nearly 70% see moving towards risk approach and having standardised procedures in place as key strategies to increase audit's effectiveness
KPMG Audit Committee (2010)	ERM and strategy	Roundtable of over 1200 risk and business executives to discuss the risk and controls related to enterprise growth strategies.	1) A little over 30% admit being happy with the threats to growth strategies posed by top risks (i.e. correctly identified by management as 'on the control radar') 2) Focus on strategic risk and controls considered key function of internal audit. 3) Over 40% agree that top risk threatening the integrity of financial statements was meeting unrealistic business
Towers Watson (2010)	ERM and strategy	Survey of 465 CROs, CFOs and chief actuaries, considered a continuation of the 2008 'Embedding ERM: A Tough Nut to Crack' survey. Aims to gauge success of enterprises in advancing their ERM programmes & reflect the perceived state of ERM implementation two years after the financial crisis began.	1) The majority of respondents indicate that more ERM efforts are needed; nearly 60% are satisfied with ERM process 2) Nearly 60% state that risk appetite statement is documented as critical to ERM success 3) Over 90% agree that ERM programme has resulted in key business changes, and continues to impact the business 4) Experienced ERM professionals are more advanced in integrating ERM in decision-making process and in economic capital modelling, while those less experienced continue on strengthen their ERM frameworks 5) Key challenges identified as: a) risk culture and employee buy-in (nearly 60%), b) data integration and consistency (nearly 50%)
RIMS (2011)	ERM adoption & implemen-tation	Survey of 1,431 risk managers (94% in USA) on progress of ERM adoption and implementation.	1) Over 50% of respondents had implemented ERM, as compared to 36% in a similar survey two years before (directives from BOD and regulatory requirements) 2) Nearly 80% of organisations had adopted or focused on developing an ERM programme 3) Only 17% claimed that ERM was completely integrated within the organisational structure 4) 25% believed that ERM implementation had improved the achievement of the organisation's strategic and operational objectives 5) Protecting value and breaking down silo risk were key value enhancers; 6) Nearly 50% stated that ERM processes were not aligned with any particular ERM framework
McKinsey & Company (2011)	ERM and BOD	Main ERM challenges that boards face in post-crisis environment.	1) Since 2008 BODs have not increased time spent on strategy 2) Key ERM challenges of BOD identified as: a) developing effective strategy, b) knowledge gaps, 3) improving board-level risk oversight 3) Only 25% believe that board's performance is "very good" mostly due to increasing expectations and lack of adequate expertise or time

Table 2-5: **INDUSTRY RESEARCH LITERATURE (2003-Present)**			
Authors/ date	**Aspects**	**What was examined?**	**Focus/Findings**
KPMG (2011)	ERM and strategy; value added by ERM	Survey of nearly 500 enterprises on progress in organisational efforts to elevate risk management to a strategic level.	1) 50% believe that regulations will influence risk management positively 2) Over 40% are not satisfied with the quality of integration of risk management 3) Two-thirds feel that CROs can bring perceptible change in the quality of risk management 4) Proactive and dynamic risk management stimulates long-term value 5) In the context of making risk management a strategic tool, CEOs expect their risk officers to be more market and strategy oriented than focused on operations and processes 6) Organizations have made little or no progress in aligning strategies and risk, i.e. strategies are still developed in isolation rather than on the basis of more holistic view that takes into account multiple scenarios and potential events. 7) The use of economic models and technology is limited.
Ernst & Young (2011)	ERM and culture; ERM challenges	Global survey of IIF member firms using two methods: 1) online quantitative questionnaire distributed to the 60 top firms by asset size; 2) 35 telephone interviews with CROs and senior risk executives of firms serving on the Steering Committee on Implementation of the IIF recommendations regarding improvements in risk management	1) 83% of firms increased board oversight of risk 2) 89% strengthened the role of the CRO 3) Over 90% changed approaches to liquidity risk management and implemented new stress testing (i.e. most firms continue to see significant challenges) 4) Nearly 80% revised compensation schemes but only 40% are close to completion of initial changes 5) Over 90% increased attention on risk culture, but only 23% report a significant shift
EIU (2011)	ERM adoption & implemen-tation	Case studies: Metro Bank and Wells Fargo	<u>Metro Bank:</u> 1) Engaged the enterprise-wide risk management function at all levels 2) Senior risk management professionals with long experience in banking appointed to strategic positions (impact on decision making) 3) Aligning risk appetite statement with ERM <u>Wells Fargo:</u> 1) Fundamental changes to organisational culture along with ERM 2) Rigorous risk process structure to new business opportunities in order to ensure an appropriate risk management structure underlining them.
Marsh (2012)	ERM and culture	Online survey of 100 IRM conference delegates on progress of organisations' risk culture.	1) In circa 60 % of organisations a risk culture is either fully or partially embedded with less than 2% stating that there is no risk culture. In nearly 70% of organisations surveyed, evaluating risk culture improved significantly over a 24 month period 2) The perception of risk management has moved from compliance to value adding; 60 % of respondents state that risk management adds perceptible value 3) Currently only 25 % of organisations surveyed have achieved fully embedded ERM framework applied consistently enterprise-wide
Protiviti (2012)	ERM and culture	Survey of 30 UK insurers; results discussed with CROs and heads of risk.	1) 64% of respondents report no CRO/head of risk on BOD 2) 68% deem risk function a regulatory requirement and necessary control function 3) Only 21% perceive risk management as value-adding management activity 4) Only 14% admit that their risk function is involved in strategy formulation and planning 5) Most respondents do not see risk management framework as mature, "embedded" in the business or aligned with the risk culture
FERMA (2012)	The evolution of ERM	Survey of the evolution of risk management environment since 2010. 809 responses	1) Over 60% consider legal, regulatory and compliance as the main external factors triggering risk management 2) In 75% of companies risk management is either fully embedded in board level decision making or considered at least once a year 3) Over 90% of risk management functions report to top management 4) Nearly 30% of companies with advanced risk management practices reported a growth rate of more than 10% in EBITDA) over five years, compared to 16% for emerging risk management

Table 2-5: **INDUSTRY RESEARCH LITERATURE (2003-Present)**			
Authors/ date	**Aspects**	**What was examined?**	**Focus/Findings**
AON (2013)	The evolution of ERM	Survey of latest risk trends and priorities facing companies around the world. 1,415 respondents	1) Top risks remain the same since 2009: a) economic slowdown, b) regulatory/ legislative changes, c) increasing competition 2) 51% say their risk management department reports to CFO/finance/treasury 3) Nearly 30% report having a CRO as compared with 31 percent and 25 percent in two earlier surveys 4) 42% affirm that BOD considers specific business risks or receives regular updates on key risks and risk management activities 5) The majority consider lowering total cost of risk as a top benefit of investing in risk management; 65% of organizations agree that top benefit of risk management is more informed decisions on risk taking 6) Over 60% of organizations say senior management judgment and experience are critical in risk assessment.
RIMS (2013)	The evolution of ERM	Survey of 1,000 risk professionals on risk manager's role in implementing ERM, programme drivers, value of ERM, expectations and effectiveness, strategies for measuring programme maturity and risk reporting.	1) ERM has gained "critical mass" acceptance: 63% had either partially or fully implemented ERM 2) 56% confirmed risk management team is primarily responsible for directing ERM activities 3) Board directive continued to be the most common driver of ERM programmes 4) Nearly 60% satisfied with "understanding of risk issues among business units" 5) A third of respondents saw the primary value to be increasing risk awareness

Source: Researcher

Industry experts have consistently agreed with scholars that the fragmented nature of silo risk management makes in ineffective, so ERM has gained long-deserved attention. In the early 2000s, KPMG (2001) became one of the most prominent centres of ERM research. Based on case studies of its clients, KPMG's focus shifted onto the emerging ERM concept and to the relevant tools and techniques, concentrating primarily on creating models that would help to generate value from ERM, thus increasing shareholder value. KPMG also saw ERM's potential to create a strategic competitive advantage for organisations, as long as their core objectives were well defined and effectively executed. According to KPMG (2001), ERM and business strategy co-exist and interact when aligned; this alignment helps to capture emerging risk threats and opportunities. It also helps organisations to transition from a reactive compliance-based risk approach to proactive risk evaluation as part of a business strategy, increasing the organisational value and improving business effectiveness as a result. Integrating the concepts of risk and strategy became an area of academic interest only in the late 2000s, when the crisis brought the real need for it into focus. The alignment of risk and strategy has since been developed into an important business differentiation factor. As one of the industry pioneers of ERM, KPMG adopted a visionary and innovative outlook on the subject.

A good example of an organisation that failed to consider the importance of respecting risk appetite and tolerance levels and their alignment with strategy execution is ABN Amro, the

subject of a case study by Vedpurisvar (2003) shortly before its organisational failure. ABN Amro was a well-established bank in the global marketplace with the appearance of strong corporate governance and effective risk management. However, the risk silos reflected in the isolation of credit, market, operational and liquidity risk management, contributing largely to its eventual collapse. Further analysis of ABN Amro's risk practices revealed a lack of integrated risk management in strategy planning, concentration of risk in silos and little enterprise-wide communication between them. While managers made no risk assumptions in taking business decisions, overall cross-organisational interaction was minimal (Vedpurisvar 2003).

Before the GFC, risk management came under particular scrutiny from debt rating agencies such as Standard & Poor's (S&P). Having evaluated existing risk management practices across various organisations, S&P (2005) began to question their robustness and soundness. Its study reviewed twenty-five global organisations to determine what fraction had successfully implemented an effective and comprehensive ERM framework and could therefore claim to employ best risk management practice. The findings reported by S&P (2005) resulted in a shift of the agency's focus towards improving the state of risk management and tightening the collaboration between business and risk management to form a strong alignment of risk appetite and business strategy within an enterprise-wide risk culture (Barnes 2006; Iyer *et al* 2010). The study found that ERM increases the robustness of policies, infrastructure and methodologies at a holistic level and is critical to ERM implementation. ERM policies address risk culture, appetite and strategy, as well as risk control and monitoring, risk disclosure and awareness. ERM infrastructure includes risk technology, operations and risk training. Finally, ERM methodology refers to capital allocation, model vetting and valuation methods (S&P 2005). The next step in evaluating risk practices across industries is to focus on measuring their effectiveness above that of regulatory requirements (Paape and Speklé 2012).

In 2006, the Protiviti consultancy published a few comprehensive papers on ERM in an attempt to offer practical implementation advice to the industry. Protiviti (2006) provides an interesting outlook on what ERM means conceptually and what it entails from the implementation perspective. Protiviti's (2006) research explains why ERM implementation is important and outlines well-defined implementation steps. ERM allows an organisation

to become more anticipatory about market uncertainties and still able to deliver enhanced value to shareholders while facing "risk surprises". With the focus on key ERM success factors, Protiviti (2006) recommends conducting enterprise risk assessment to identify and prioritise key exposures in the context of business strategy, thus creating and articulating clear ERM vision and value. Moreover, risk management should first focus on no more than two top risks, defined as "first priority key risks", and only then consider up to ten "second priority key risks". According to Protiviti (2006), organisations should evaluate their current risk management practice, then design a strategy to advance it, i.e. transform existing risk management into ERM. Operating ERM effectively enables organisations to utilise emerging growth opportunities and advance their risk management capabilities (Protiviti 2006). Towers Perrin (2006) further reveals that over 60 percent of respondents show concern about how risk is managed. At the same time, a study by the Risk Management Association (RMA 2006) focuses on establishing the current state of ERM practices in the financial sector, its main benefits and the major challenges to it. The study shows that nearly 40 percent of respondents admit that ERM is driven by regulatory requirements rather than strategic competitive advantage.

When the GFC occurred, industry researchers joined scholars in focusing on various ERM misconceptions, trying to identify the most effective ways to implement ERM and add maximum value. Thus, the financial industry redirected its focus to the various sets of challenges associated with ERM (Rasmussen *et al* 2007; Chapman 2007; Lam 2007).

Another survey, by KPMG and Economist Intelligence Unit [EIU] (2007), analyses the changing risk environment, barriers and ERM challenges, then presents a vision for the future of ERM. According to the study, the global organisations surveyed sought to make their risk management more strategic, with a focus on creating value. Over 50 percent of respondents attributed increased risk focus to greater scrutiny of risk and controls. The survey also found that changing external factors (regulatory environment, globalisation, technological advances) had contributed to management's adjusting its perspective in assessing and perceiving risk management functions. At the same time, a silo risk approach often caused value degradation by overlooking the problem of duplicated activities overriding one another. One way to improve the response to ERM barriers revealed in the survey's findings is to achieve better communication and awareness through training and

promotion. Senior management can integrate risk management into the organisation's strategic goals as a cost-effective tool. The study concludes by presenting three approaches designed to improve risk management: 1) establishing a high-tech and cost effective risk approach to address potential risk challenges; 2) focusing on three advances in risk oversight, viz. continuous monitoring and auditing, transformation of controls and ERM and 3) improving the way organisations measure and aggregate risks. Although senior managers had started to address the issue of innovative risk management, many still expressed uncertainty about being able to establish a strong enterprise risk culture in the next three years (KPMG and EIU 2007).

In the same year, multiple studies by American Productivity and Quality Center [APQC] (2007), described in Moody's research (2007), elicited respondents' views of the future of ERM. Research participants considered the benefits of aggregating ERM processes and condensing them to less than five years, in order to realise the advantages of ERM sooner. The study found that most participants thought that ERM and strategy planning should be interlinked and that the alignment of ERM and strategy should become a unique quality of ERM programmes. ERM should evolve as a core business activity and provide support for achieving strategic business objectives. By aligning risk management and strategic planning, ERM should be managed holistically through a simultaneously top-down and bottom-up approach. The proactive participation of business leadership in strategic planning is valuable and reinforces a balanced view of risk. Most organisations surveyed admitted that ERM was "somehow embedded", rather than "fully embedded" into their strategic planning. Another issue addressed by the survey and relevant to ERM is the need to improve risk reporting to the board and senior management. Well-organised and consolidated high-level reports help management to understand key exposures discussed during regular meetings. The transparency of risks identified as "high priority" enterprise-wide brings the focus back onto risk and helps to improve the oversight of risk. A robust and automated risk infrastructure streamlines the capture of significant risk data for reporting to management. ERM has proven to be most effective when supported with input from all levels of the organisation, where everyone is considered a risk owner and incorporates risk concepts into his or her daily responsibilities. Risk awareness should be fostered through effective communication and risk education (Moody 2007; APAQ 2007).

In 2008, Professional Risk Managers' International Association (PRMIA) conducted a survey to identify global best practices in ERM, which revealed that participants' main concerns were integrating a well-defined ERM into a business model, defining key ERM success factors and the entire implementation process. As part of a global ERM benchmarking exercise, Deloitte (2008) also launched a study of prevailing risk perceptions. Few respondents felt that organisations were addressing mission-critical concerns effectively; moreover, current risk practices were not seen as robust enough to face market uncertainties. Overall, the lack of a risk-intelligent structure appears to have been major concern (Deloitte 2008). Later in 2008, in response to increasing interest in ERM, Deloitte conducted another study, which focused more closely on challenges to ERM, its benefits and implementation guidelines. It found that the perceived value of ERM was rising and respondents affirmed that there had been an improved understanding of risks and control, an increased ability to communicate critical issues to senior management, an enhanced risk culture and a better balance of risk and rewards. The survey also found that risk management responsibilities were increasingly being incorporated into goals and compensation decisions across organisations (Deloitte 2008). In the midst of the GFC, the Senior Supervisors Group (SSG 2008) investigated current risk management practices and provided key observations and recommendations for the future of risk. Final conclusions highlighted the risk areas still in need of considerable improvement as risk infrastructure, processes and practices. According to SSG (2008), business strategy, risk appetite and risk-reward equilibrium appeared to be at the top of the list of risk considerations for the post-crisis world.

Protiviti (2008) identifies three top priorities in terms of risk management failures and deficiencies that have became key culprits for the failure of financial organisations in recent years: poor governance and tone at the top, excessive risk-taking and an inability to implement effective ERM. Others often overlooked by management are listed as: non-existent, ineffective, or inefficient risk management; adopting a herd mentality; misunderstanding the "if you can't measure it, you can't manage it" mindset; accepting a lack of transparency in high-risk areas; failing to integrate risk management with strategy-setting and performance management; overlooking blind spots in the organisation's culture, and failing to involve the board in a timely manner (Protiviti 2008).

Two extreme case studies of financial organisations that demonstrate the difference between a strong versus weak culture of risk management are Goldman Sachs (Buehler *et al* 2008) and Countrywide (Moody 2009). During the GFC, Goldman Sachs notably managed to avoid large losses, demonstrating that a risk-based culture promotes superior performance. Goldman Sachs stands out from its competitors as an organisation that had gone through a two-decade-long transformation of the financial markets and managed consistently to adopt a new approach to risk (The Economist 2006).

The case study by Moody (2009) of Countrywide, one of the largest home mortgage lenders in the world, found that in theory it had a fair proportion of managers who had appropriate risk expertise. At the time, management as a whole seemed to understand key business objectives and emerging risks. Its declared key focus was on "building a refined business model that can deliver stable earnings growth and shareholder value through a variety of business cycles" (Countrywide Financial Report 2006, p.5)). However, the fatal error that contributed to its collapse was a portfolio overleveraged with risky instruments, a weak risk management framework and a lack of clear alignment between strategy and risk management. For instance, Countrywide made no mention of stress testing of house prices, the main determinant of the mortgage lending business of which it had a large market share. Significant deficiencies in the way the lender was managed and the lack of a robust risk approach that would have helped to address key threats to its business operations and prevent market overconfidence inevitably led to Countrywide's financial collapse (Moody 2009).

Similarly to SSG (2008), the Risk Management Society [RIMS] (2009) survey identifies reasons for risk management failures, finding that the lack of strategic risk frameworks and poor understanding of how to create an effective enterprise-wide risk approach can be considered significant contributors to the downturn. While recognising a conflict between management and risk management as to who was mostly at fault for the financial crisis, the RIMS survey identifies three key contributors to the crisis: the failures to understand and promote consistent risk behaviours enterprise-wide, to develop and reward internal risk management competencies and to facilitate enterprise risk management in support of management's decision making. It also blames inefficient financial modelling (ignorance of tail risks). On the basis of these findings, RIMS (2009) recommends a set of risk

behaviours relevant for the development of a strategic enterprise risk approach. Organisations should start by implementing a mature ERM framework that is supported by senior management and the board; it should ensure that ERM is linked to process and performance management, and aim at the long-term resiliency and sustainability of the business and of risk. The following conclusions can be drawn from the RIMS (2009) research: 1) management understanding of the negative and positive consequences of risk events is critical; 2) management needs to consider risk appetite and tolerance levels; 3) ERM implementation is not sufficient on its own, so management must stay focused on its long-term sustainability, and 4) ERM requires a multi-skill set to drive a successful risk approach.

When the former CRO of JPMorgan Chase, Zubrow (2009), took part in an ERM panel discussion in 2009, he stated: "At JPMorgan Chase, key elements of risk management are structure and culture, incentives, risk strategy and analytics, and 'plumbing'" (Zubrow 2009). According to Zubrow (2009), structure and culture involve setting the right tone at the top regarding ERM and providing support from the director-level risk committee to guide the approach to risk management. Incentives relate to introducing risk-adjusted compensation packages to ensure that the risk management structure is considered in developing organisational strategy and making strategic decisions. Risk strategy and analytics assume that quantitative measures cannot replace independent judgment and individual qualitative expertise. Plumbing, which is considered the key to successful risk management, entails: 1) timely exposure, measurement and reporting, 2) documentation and legal agreements, 3) collateral management (robust credit and counterparty exposures management) and 4) what-if scenarios in response to counterparty risk events.

Finally, in the post-crisis economic reality, more research on practical ERM implementation guidelines has been visible in the financial sector. Since 2009, industry publications have centred on such guidelines and key aspects of ERM essential to its long-term sustainability. Deloitte (2009b) offers some practical guidelines and core principles for developing the risk-intelligent organisation, listing key priorities as: 1) addressing value preservation and creation across the enterprise, 2) a risk framework defined and supported by set standards (appropriate risk structure, linked to business objectives) and 3) key roles and responsibilities on risk defined and delineated (i.e. coordinated effort on changing the

corporate mindset). Other relevant factors, according to Deloitte (2009b), are creating a common risk infrastructure, supporting businesses performing risk roles, offering increased transparency and visibility across the organisation, and having an effective risk agenda overseen by senior management (i.e. business performance and risk management should both be monitored according to a common risk framework). The ERM principles outlined by Deloitte (2009b) are reflected to some extent in the academic literature, which is nevertheless considered lacking clear practical guidelines. Deloitte (2009b) also analyses the GFC and identifies key risk-related factors that severely impacted many financial organisations, identifying the most important ones as: 1) underestimating interactions among multiple complex risks, 2) an overreliance on backward-looking modelling, 3) silo risk management, 4) dismissing evident risk warnings, 5) having a short-term risk outlook and 6) a lack of a strategic risk approach.

Deloitte's summary of key risk management gaps can also be linked to research by Beasley *et al* (2010) and the Institute of Internal Auditors [IIA] (2010). Equally, the IIA (2010) focuses on key aspects driving rapid changes across the global economy and analyses some relevant questions that organisations should ask to develop a culture of risk. The IIA (2010) describes the economy after the crisis as prolific in financial scandals and tainted with excessive risk taking. The corporate culture has been pushed out of balance and risk appetite has been stretched substantially for profits, exceeding the set risk tolerance. In addition, the IIA (2010) contends that it is critical for the board to work closely with management to ensure that decisions are based on pertinent information.

AON (2007; 2010) conducted two consecutive studies that analysed the role of ERM, corporate culture and ERM strategies, as well as investigating what key ERM hallmarks were. AON (2007) considers strategy, resources and culture to be the three core ERM components, significant in fully embedding ERM within the organisational structure. The key research findings are that ERM maturity in only one in ten organisations was described as embedded in the business, that 64 percent of respondents deemed that establishing risk management culture was a key ERM motivation and that 45 percent agreed that corporate culture was critical to ERM implementation. According to AON (2007), organisational sustainability, strategic advantage and shareholder value are perceived as key benefits of ERM. AON (2010) considers the extent to which ERM has affected organisational needs,

objectives, risk culture and shareholders' expectations post-crisis, showing how ERM can be used to restore the balance between risk, opportunity and value, and how the development of ERM had progressed since 2007. The respondents indicated that since 2007 the expectations of superior business performance in most financial organisations had risen. In the light of financial challenges, in addition to improving governance, transparency and decision making, enterprises seek to derive substantial value through ERM, reducing the total cost of risks, strengthening business resiliency and enhancing operational efficiency.

Based on a wealth of practical experience and expert knowledge, the Institute of Risk Management (IRM 2012) describes the outlook for board guidance on risk culture, aiming to offer practical advice to organisations that need a better understanding of risk culture and to present some tools that can be used to drive change. To this end, it proposes a Risk Culture Framework (Figure 2-11) to "analyse, plan and act to influence risk culture within any organisation" (IRM 2012, p.10).

Figure 2-11 IRM Risk Culture Framework

Source: IRM (2012)

The framework depicted in Figure 2-11 aims to simplify complex and interrelated relationships into a high-level approach by considering influences on risk culture as the sum of multiple interactions. The individual's personal predisposition to risk is placed at the lowest level and refers to the ethical standpoint (i.e. behaviours and decision making). Finally, IRM (2012) argues that a successful risk culture should be based on: 1) a

consistent tone from the board and senior management relating to risk taking and avoidance, 2) a commitment to ethical principles, 3) enterprise-wide acceptance of the importance of continuous risk management and 4) clear risk accountability and ownership. The paper concentrates on the effects of a predisposition towards risk and personal ethics in creating behaviour, as well as the role of organisational culture. This study is one of few providing strong guidance on what strong risk culture means and how to establish it.

Following the risk events of the GFC, the Economist Intelligence Unit (EIU 2011) researched risk management in financial services and found that the financial sector was slowly rebounding from the difficulties that it had faced in recent years but that full efficiency had not yet been regained. The EIU (2011) studied the cases of Metro Bank and Wells Fargo. Metro Bank was founded in the wake of the GFC and from the outset sought to engage the enterprise-wide risk management function at all levels of the business. Senior risk management professionals with long experience in banking were appointed to strategic positions to ensure that their influence and expertise would be utilised in the development and decision-making of the bank. In the case of Wells Fargo, the second largest lender in the United States, the changes in risk management in response to the GFC are reported to have been incremental, complementing the solid foundation that was laid well before the crisis. The core of the Wells Fargo risk management approach was found to be an organisational culture that emphasises the importance of robust ERM. Finally, Wells Fargo reportedly applied a rigorous process to new business opportunities in order to ensure the existence of an appropriate underlying risk management structure.

Based on the breadth of data sourced from all academic and industry literature contributions, discussed in this chapter, it is apparent that risk management has gone through significant reforms, initiated mostly by the regulators and followed by senior leadership (Bernanke 2009). The boards of financial institutions have become more demanding of detailed, accurate and contextualised data from risk functions and have begun to devote more time and attention to assessing risk (Francis and Richards 2007). In many financial organisations, the CRO has become an influential figure who can drive significant cultural change if balanced with the right set of skills (Mikes 2009a; 2009b). Research reveals that ERM is becoming critical to decision-making across business lines at a very slow rate. However, further developments in the risk management function are

necessary if the momentum for change is to be maintained. As financial organisations turn their attention from survival to growth and as their risk appetite increases, it is important to anticipate that newly emerging risks will be compounded and present challenges in an increasingly stringent regulatory environment.

2.6 Conclusion

In search of a better understanding of the GFC, the research focuses on the literature on existing ERM practices, key failures in risk management and the reasons for them, the main organisational factors critical to ERM implementation, along with the possible ERM benefits, challenges to ERM, enterprise risk culture and further recommendations for the future development of ERM.

Therefore, this chapter has discussed a wide range of academic and industry-based contributions to the literature from various ERM research perspectives. The majority of the academic literature reviewed in Sections 2.3 and 2.4, of a mostly descriptive rather than prescriptive nature with some examples demonstrating strong empirical foundation, is strongly supported by the industry-based research discussed in Section 2.5.

Academic researchers have followed the evolution of risk management from a silo approach to that of ERM. A large part of the academic literature reviewed revolves around describing key trends in ERM, challenges to implementation and potential benefits, while overlooking the importance of practical implementation guidelines and of know-how derived from experience. There is little research on how to align ERM within strategic planning, how to measure risk appetite accurately, or the value that ERM drives (Hiveley *et al* 2001).

However, industry researchers have been more concerned with achieving a more strategic approach to ERM, focusing on understanding and addressing implementation challenges while providing implementation guidelines, and recognising potential for value-adding benefits and how to achieve them. Industry-based research considers what ERM approaches have worked (or failed) in the past in financial organisations (i.e. based on practical experience in the field), identifies potential issues associated with ERM and focuses on developing a strategic ERM as a result.

Therefore, based on the academic and industrial research findings discussed in this chapter, a clear research gap has emerged. It can be summarised as: 1) lack of a strategic alignment of ERM with key organisational factors; 2) lack of clear ERM implementation guidelines and difficulties in understanding how to embed ERM into the existing organisational processes; 3) insufficient support from senior management; 4) lack of understanding of how to define ERM, what its benefits and its value are (and how to achieve them); 5) lack of a strong enterprise risk culture.

This chapter presented the literature review on ERM in the last two decades, examining the existing ERM approaches both from the academic (Section 2.3 and 2.4) and industry (Section 2.5) perspectives, Chapter 3 will investigate the literature gap in more detail.

3 Chapter Three: Gap in literature on existing ERM approaches

3.1 Introduction

In addition to the academic literature reviewed in Sections 2.3, 2.4 and 2.5 (Chapter 2), this section continues the literature evaluation. Consequently, based on key ERM themes presented in Chapter 2, the researcher identifies key shortcomings of the existing ERM practices and forms ERM literature gap that develops into a baseline for a theoretical strategic ERM alignment framework, discussed in Chapter 4. Strategic ERM Alignment Framework (Chapter 4, Figure 4-1) is based on existing theories presented in the literature derived from specific risk concepts and propositions discussed in Chapter 2, and the literature gap analysed in Chapter 3.

3.2 Literature gap

This section identifies a gap in the literature reviewed throughout Chapter 2, using a tool common in literature evaluation, the Four-Quadrant Framework, to categorise the academic and industry-based contributions to the ERM literature discussed in Chapter 2. The Four-Quadrant Framework creates research categories based on purpose (visionary or implementational) and outcome (descriptive or prescriptive) (Althonayan 2003). Visionary research focuses on a vision of ERM, rather than on the dynamics of the implementation process, whereas implementational research prioritises practical recommendations for that process. Research with either type of purpose can then be descriptive or prescriptive in outcome, yielding four key categories of ERM research in a matrix which can be applied to the findings of the literature review presented in Chapter 2 as follows: I) visionary and descriptive, II) visionary and prescriptive, III) implementational and descriptive, IV) implementational and prescriptive. This framework is often utilised to achieve a clear categorisation of research literature by determining which quadrants each contribution falls into (Table 3-1).

Table 3-1 Literature Evaluation Framework

Research Philosophy			
Research Outcomes		Visionary	Implementational
	Descriptive	**Quadrant I** ***Describes ERM definitions and discusses the links to organisational factors*** ■ Theoretical alignment of ERM with key organisational areas may be discussed ■ Some form of conceptual (theoretical) framework or model may be introduced ■ ERM implementation process unlikely to be discussed ■ Research based on theoretical assumptions supported by the literature discussion	**Quadrant III** ***Describes the process of ERM implementation and discusses some practical guidelines*** ■ ERM implementation and its issues are described and supported by the literature ■ Theoretical ERM framework may be defined and discussed ■ General ERM implementation guidelines and discussions may be considered ■ Research describes empirical examples of ERM implementation based on the existing literature
	Prescriptive	**Quadrant II** ***Provides prescriptive ERM approach and discusses the links to organisational factors*** ■ ERM integration within key organisational areas may be discussed prescriptively ■ Theoretical ERM framework explaining the nature of ERM may be introduced ■ Research may present a basic vision towards ERM implementation process	**Quadrant IV** ***Provides prescriptive ERM approach and discusses the implementation process*** ■ ERM integration within key organisational areas may be discussed as a part of implementation ■ ERM implementation steps, challenges and practical recommendations may be discussed ■ The benefits of ERM implementation based on empirical data (value creation, competitive advantage, decision making) may be examined

Source: Adopted from Althonayan (2003)

Each quadrant allows key shortcomings of the existing risk approaches to be summarised and evaluated, based on the literature. Key academic (Chapter 2, Sections 2.3, 2.4) and industry-based contributions (Chapter 2, Section 2.5) are assigned to their respective quadrants and research type (theoretical or empirical) (Chapter 2, Tables 2-2 and 2-4). This categorisation of academic and industry research aims to elucidate the existing literature gap that has a direct influence on this research. The research will then concentrate on the quadrant of the framework with the least supporting literature identified within it.

Academic ERM literature that surfaced in the early 2000s, when risk became a point of focus for many financial organisations, appears to be mostly theoretical in nature. Silo risk management was the subject of heightened regulatory requirements and improved corporate governance guidelines firmly promulgated by numerous financial regulators (Kleffner *et al* 2003; Simkins and Ramirez 2008; Chapman 2011). In theory, developing a fortress-like ERM framework was seen as a major fiduciary responsibility allocated to senior management and lacked a certain strategic focus (Schneier and Miccolis 1998; Lam

2000). Prevalent research focused on describing risk management practices rather than understanding how they would work in the business environment in the context of effective implementation. As noted in Section 2.2, the COSO ERM Framework (2004) became the most popular of risk standards and guidance as researchers turned to it for inspiration and knowledge. However, there is as yet no evidence of a correlation between the application of this framework and increased ERM effectiveness (Paape and Speklé 2012).

Key research by academic and industry contributors who took an empirical view of how organisations successfully implement ERM programmes was discussed in detail throughout Chapter 2. Having investigated the academic literature based on empirical studies, the researcher found that the majority of academic research falls into quadrant III, followed by quadrants II and I. Walker *et al* (2009) was one of the few scholars who proved to have been concerned with the implementational side of ERM and therefore looked for ways to improve ERM adoption from empirical case studies (quadrant IV). Other important contributions to the ERM literature extensively discuss the issues of value creation, competitive advantage, the strategic alliance between ERM and business, as well as challenges to ERM implementation and guidelines for tackling potential problems, but largely in a descriptive context.

Key industry publications, as outlined in Section 2.5, support the theoretical assumptions of academic research. The results of the literature analysis indicate that they include more empirical data and fall largely into quadrants III or IV. Generally, the majority of academic literature is still of a visionary and theoretical nature and spread between quadrants I and II. However, in recent years, the academic literature has reflected a tendency for researchers to evolve from a theoretical to a more practical approach to ERM (quadrant III). Research in this area has undergone constant development and as the economic reality has changed, both academics and industry professionals have recognised an increased need for a continuous search for new trends. Table 3-2 places researchers in the relevant quadrants according to the nature of their research. The literature contributions allocated into the respective quadrants in Table 3-2 were discussed in detail throughout Chapter 2.

Table 3-2 Research Literature Evaluation

Research Philosophy			
Research Outcomes		Visionary	Implementational
	Descriptive	**Quadrant I**	**Quadrant III**
		COSO (1992; 2004);	Shenkir, Barton and Walker (2001); Banham (2004);
		Colquitt, Hoyt, Lee (1999);	Mestchian and Cokins (2006); Nocco and Stulz (2006);
		Spira (2002); Spira and Page (2004);	Mikes (2005; 2009a; 2011); Fraser and Simkins (2007); Rao and Dev (2007); Berley (2007); Chapman (2007);
		Burns (2008); Buehler, Freeman and Hulme (2008);	Barton *et al* (2008b); Beasley *et al* (2008a);
		Hofmann (2009); Hettinger(2009); Power (2009); Cendrowski and Main (2009);	Allan, Cantle and Yin (2010); Frigo and Ramaswamy (2010); Rizzi (2010); Beasley *et al* (2009; 2010);
		Brooks (2010); Mikes (2009b); Bugalla and Kugler (2010);	Ashby (2011); Frigo and Anderson (2011);
		McNally (2013);	Ashby, Power and Palermo (2012);
	Prescriptive	**Quadrant II**	**Quadrant IV**
		Schneier and Miccolis (1998); Lam (2000; 2003; 2005); DeLoach and Temple (2000);	Aabo, Fraser, Simkins (2005);
		Bansal (2003); Barton, Walker and Shenkir (2002; 2003);	Gates, Nicolas, and Walker (2009);
		Power (2004; 2007); Bowling and Rieger (2005); Gates (2006);	Arena, Arnaboldi and Azzone (2010);
		Eccles, Newquist and Schatz (2007); Rasmussen, McClean and Koetzle (2007);	Archer, Capon and Taylor (2010);
		Frigo (2008); Simkins (2008); Killackey (2008); Kroszner (2008); Moody (2009; 2012); Kaplan (2009);	Mikes and Kaplan (2013);
		Barton, Walker and Shenkir (2010b); Power (2011); Leech (2012);	

Source: Adopted from Althonayan (2003)

The researchers whose work falls into quadrant I (visionary-descriptive) focus on the theoretical aspects of ERM. Burnes (2008) addresses the weaknesses of risk management that can damage business performance and exert a negative effect on shareholder confidence and on the organisation's reputation in the market, arguing that a fragmented risk infrastructure represents a lack of standardisation and threatens effective business operations. According to this view, ERM methodology stands for uniqueness, in that most organisations need to implement a more strategic risk approach, but as they provide little guidance on how to achieve it, their view is perceived to be of a descriptive nature (Hofmann 2009; Hettinger 2009).

Many organisations thus take a defensive stance towards risk management and concentrate on managing the downside risks (Cendrowski and Main 2009), while overlooking the essential opportunistic side of risks, whereas Bugalla and Kugler (2009) describe the upside of risk by aligning it with the business objectives to identify the potential opportunities associated with risk taking. Historically, risk management focused on protecting organisations against the downside of risk. However, with the development of enterprise risk practices, the concept of risk upside has become a strategic point of focus

(DeLoach and Temple 2000; Power 2009). Risk upside is seen by Bugalla and Kugler (2009) as "entrepreneurial risk management", rather than being all about asset preservation, compliance and regulation. Bugalla and Kugler (2009) argue that ERM objectives should increase organisational value by creating a so-called "holistic alignment" of risk management, business strategy and operations. Considering the upside of risk allows better ERM visibility and more thorough understanding by senior management; therefore it brings the process one step forward to effective implementation. Similarly, new risk opportunities can only be discovered by enterprise-wide collaboration; ERM is a result of joint effort and requires continuous enterprise-wide relationship building (Power 2009). The conceptual character of this research places it in the visionary-descriptive quadrant.

The research of Brooks (2010) focuses on realising the value of a risk-aware culture, which has come to represent the core of ERM efforts. Brooks (2010) asserts that senior management should accept a risk culture as a condition of maximising shareholder value driven by optimising the trade-off between risk and reward, while risk culture should also be reflected in risk-adjusted decisions. This approach has made a significant contribution to the literature on ERM culture in recent years and its descriptive value places the research of Brooks (2010) in quadrant I.

A significant number of studies can be classified as visionary-prescriptive (quadrant II). Lam (2000; 2003; 2005) asserts the importance of integrating ERM with strategy and business processes. Lam (2000) also discusses future ERM issues and challenges, before providing practical implementational advice, which classifies his research as visionary-prescriptive. Lam (2000) looked at the rapidly multiplying failures of risk management at Barings, Kidder and LTCM, describing them as "wake-up calls" for the finance industry. Thereafter, more financial organisations began to review the traditional practice of silo risk management and to recognise the potential value of ERM (Lam 2000). The evolution of ERM has been driven by external and internal risk events, changes in risk methodologies (Lam 2000) and naturally by the financial collapses of recent years (Sherris 2007). While reviewing the current state of ERM, Lam (2003) addresses potential challenges that may lead to its future evolution (Table 3-3) and offers a view of ERM as best-practice risk management (Lam 2005).

Table 3-3 Hallmarks of best-practice ERM

Area	Best practice ERM	Future ERM Challenges
ERM	The tone at the top	ERM integration. ERM should be aligned with key business processes and strategies
	Integrated ERM	
	Top-down governance	ERM policy with explicitly defined risk-tolerance levels. Considering the importance of risk appetite and tolerance levels, the board and management should debate both before establishing the thresholds appropriate for an organisation.
	Independent ERM function	
	Risk aware culture	Culture and change management. Risk culture is a critical element of ERM because of its profound impact on employees' behaviour enterprise-wide and the impossibility of establishing policies and controls for every business situation.
	Policies with specific risk limits	Assurance and feedback loops. One of the objectives of risk management is to minimise unexpected earnings volatility, i.e. eliminate unknown sources of risk or earnings volatility, which can be achieved effectively through enterprise-wide communication and feedback.
	ERM dashboard	Risk reporting and governance by the board. The role of the board remains one of the most underleveraged elements of ERM and will require extensive research.
	Robust risk analytics tools	Risk analytics and dashboards. By measuring risk only at a certain probability level, rather than tail risk, organisations are exposed and unprepared for highly improbable but impactful black swan events.
	Established ERM framework	Risk and executive compensation. Future incentive programmes should reward long-term earnings growth and risk management effectiveness, while reducing excessive short-term risk-taking, which often leads to future losses.
	Optimisation of risk-adjusted profitability	

Source: Adopted from Lam (2005)

ERM starts with the organisational support and involvement of senior management and the board. It becomes essential that well established risk committees exist at the management and board levels and are reinforced by internal and external audit (Lam 2005).

Independent ERM function is typically placed under the jurisdiction of CRO, reporting to the CEO and the board. Lam (2005) supports the view of an integrated ERM framework that aligns key strategic, business, operational, market and credit risks and other risk factors relevant to its potential impact on the organisation. Lam's (2000; 2005) support for the major elements required for developing strong ERM practice forms one of the key pillars of the ERM Alignment Framework developed here.

Based on studies of five organisations selected from different industry sectors, Barton, Walker and Shenkir (2002) examine the role of internal audit and its connection to ERM implementation, presenting their outlook on unique audit expertise relevant to the development of ERM. Power (2004; 2007) further emphasises the significance of internal control and asserts that more attention should be devoted to building a risk-intelligent

organisation aware of the challenges of the existing risk infrastructure and working towards establishing a no-blame risk culture. Power's later research (2007) is a critique of ERM which takes an exclusively top-down view to be unrealistic and outdated. Realistically, the contemporary world, according to Martin and Power (2007), needs a link between ERM and strategy to keep track of business dynamics, rather than regulatory conceptualities exclusively. The prevailing problem of actionability should be resolved by developing an analytical ERM programme of a more strategic focus that addresses real risk issues and potential risk opportunities, driving organisational value regardless of market uncertainties. The work of Power (2004; 2007) falls clearly into the visionary-prescriptive quadrant.

Frigo (2008) also discusses the need to align strategic risk management with ERM to increase shareholder value. This approach can be described as a continuous process that employs strategic KRIs and creates a link between business strategy and risk in the context of SVA. Connecting ERM with strategy is the key to a successful ERM approach, but the lack of implementation guidelines directs this research into quadrant II. Simkins (2008), on the other hand, explores current ERM initiatives, gaps and the process of risk evolution; stories and experiences of ERM are shared by a panel of business practitioners. Similarly, Moody (2009) considers the finance industry to be one of the few adopting ERM while showing dedication and resilience in its implementation. Moody (2009) analyses recent ERM failures and identifies the following literature gaps as having contributed to the collapse of many financial organisations: 1) lack of a strategic ERM focus, 2) immaturity of ERM practices, 3) failure to aggregate key risks efficiently, 4) risk resources with the right ERM expertise and 5) lack of uniform standards of regulation of financial practices. Moody (2009) also examines the inability of organisations to embed ERM into corporate culture and their failure to obtain the necessary support from senior management. Barton *et al* (2010a) concur as to the value of incorporating ERM into organisational strategy to build a strategic approach to risk. ERM has to develop as a function of strategic risk management, with support from the board to become ingrained into corporate culture (Gates 2006). Kroszner (2008, p.1) further argues that "survival will hinge upon such integration" and that "it is necessary for institutions to improve the linkage between overall corporate strategy and risk management".

The third quadrant contains research classified as descriptive-implementational (Barton *et al* 2001; Nocco and Stulz 2006; Chapman 2006; Mikes 2007; 2009a; 2011; Barton *et al* 2008b; Beasley *et al* 2010). Barton *et al* (2001) evaluate several risk management case studies and identify emerging risk management patterns offering a better understanding of a practical ERM approach. Similarly, Mikes (2007) analyses case studies in the financial sector, presenting variations of ERM practices in two banks. Arguing that "one doesn't fit all" and that in order for ERM to be effective it is best used as part of a "risk management mix", Mikes supports Power (2003) in his conviction that ERM is driven by the organisational motivation to increase shareholder value (through performance measurement) and requires a risk-based control framework (aligning risks and strategic objectives with internal controls). Seeing the potential for future research, Mikes (2007) outlines further research questions regarding differences between value-based and strategic approaches to ERM and the importance of a dynamic risk structure in providing good descriptive-implementational research value. In later research, Mikes (2010) focuses more on the significance of CROs and their role in ERM implementation. Mikes's research (2007; 2009a; 2011) can thus be characterised as descriptive-implementational.

Nocco and Stulz (2006) perceive ERM as a challenging process but also as a source of competitive advantage with the potential to create significant value for an organisation. Practical implementation issues are examined in a descriptive manner, emphasising the need for more research to help with ERM implementation. Chapman (2006; 2011) shares his beliefs in the interconnectivity of ERM, organisational strategy, internal controls and enterprise-wide corporate governance with Barton *et al* (2008b), who focus on details of ERM implementation. Both Chapman (2006) and Barton *et al* (2008b) advocate proactive risk management, governed by a clear risk philosophy and aligned with the strategy and organisational objectives. The use of dynamic risk metrics that allows the flexibility and effectiveness of ERM to be monitored is also classified as critical.

Beasley *et al* (2010) support the revolutionary concept according to which risk creates value for the organisation and opens new business opportunities to create shareholder value and profit. Beasley *et al* (2010) suggest new ideas to revitalise outdated thinking and drive up organisational value, through creativity and out-of-the-box thinking. They propose introducing an "engagement platform" that focuses on building interactions between

people and maintaining a live dialogue to initiate business relationships. However, some financial organisations struggle to establish the enterprise-wide rapport that would allow close collaboration between employees and management at all levels and therefore need guidelines on how this can be done in a dynamic business environment.

Beasley *et al* (2010) also argue that management should encourage employees to provide creative input regarding initiatives that can potentially increate organisational value. Building an enterprise-wide culture of risk helps to manage new risks more effectively and make well informed strategic decisions. Beasley *et al* (2010) agree with other researchers that the linking of strategy with ERM is vitally important in the current climate, as this alignment (together with the KPIs and KRIs working in parallel) can generate value for an organisation and accelerate steady growth. ERM turns the attention of management towards strategic risks, which with the help of KRIs tune the enterprise into the ever-changing economy. Finally, Beasley *et al* (2010) list some critical steps for effective strategic value-based risk management, with the emphasis on creating a common risk culture as well as effective alignment of ERM and strategy execution.

In a series of surveys, Beasley *et al* (2010) also examine the current state of ERM, revealing that most business leaders are unsure how to build an efficient risk oversight process or to identify and track emerging risks. Many financial organisations still experience difficulty in translating a conceptual ERM into a more practical approach and struggle to implement enterprise-wide risk management successfully. Beasley *et al* (2010) conclude that many organisations have started to understand that change is on the horizon and that they are continuing on the journey to increase the robustness of their ERM practices. Frigo and Ramaswamy (2010) and Frigo and Anderson (2011) also discuss how organisations can drive value with ERM and where to start the implementation process, providing simple instructions on key success drivers and initial action steps.

Research classified in quadrant IV is scarce and represented primarily by the work of Aabo, Fraser and Simkins (2005), who describe one of the first successful ERM implementations, at Hydro One, and by that of Gates *et al* (2009), who focus on addressing research questions that examine which components of ERM lead to more informed decisions and increased business profitability. Research by Arena *et al* (2010) identifies three requirements of successful ERM implementation as: 1) creating an organisational

space for ERM, 2) ERM owner and 3) conceptualising ERM risks. Archer *et al* (2010) present a discussion of ERM by key industry practitioners, stressing the importance of stimulating a dialogue between boards and business leadership to create an effective alliance resulting in proactive ERM. Mikes and Kaplan (2013) introduce a contingency framework for ERM along with a risk taxonomy that classifies risk as preventable, strategic and external; it aims to guide management towards more effective and strategic risk management.

This research considers that the paucity of such studies indicates that the prescriptive-implementational quadrant is under-researched, and on that basis aims to make a significant contribution to the ERM research literature. The gap specific to academic and industry research literature is summarised in Table 3-4. The key literature contributions extend over the last two decades and demonstrate the main trends in research into the major aspects of and challenges to the development of ERM.

Table 3-4 Research Literature Gap

Table 3-4: **RESEARCH LITERATURE GAP (1990s-Present)**			
ERM Area	**ERM Gap**	**Research Author (Year) - Academic**	**Research Author (Year) - Industry**
Evolution of ERM	Silo risk management mentality	Schneier and Miccolis (1998); Colquitt, Hoyt, Lee (1999); Power (1999; 2004); Fraser and Simkins (2007); Mikes (2007); Simkins (2008); Stulz (2009); Moody (2009; 2012); Beasley *et al* (2009; 2010); Lam (2000; 2010); Allan, Cantle and Yin (2010); Ashby (2011); Leech (2012)	Deloitte (2004); Towers Perrin (2006); KPMG (2007); SSG (2008); IIA (2010); Towers Watson (2010); FERMA (2012); Ernst & Young (2012); AON (2013); RIMS (2013)
	Low level of ERM maturity		
	Weak understanding of how to custom-define ERM for an organisation		
	Management's overconfidence in current risk approaches		
	ERM as "just another risk process"		
	Poor clarity on how ERM is to be embedded within the organisational structure		
	Lack of understanding of what ERM is and how it should be defined		
	Lack of good understanding of key factors contributing to the global financial crisis and the importance of the risk change		
Support of management & board	Insufficient involvement and support from senior management	Spira (2002); Kleffner, Lee, and McGannon (2003); Spira and Page (2004); Beasley, Clune, and Hermanson (2005); Desender (2007); Barton *et al* (2008b); Beasley, Pagach and Warr (2008a); Buchanan (2009); Power (2009; 2011); Walker (2009); Manab, Kassim and Hussin (2010); Beasley *et al* (2010); Pagach and Warr (2011); Sobel and Reding (2011) Beasley *et al* (2012)	KPMG (2007; 2009); EIU (2009); KPMG (2009); RIMS (2009); Zubrow (2009); APQC (2010); Deloitte (2010); NYSE (2010); AICPA (2011)
	Lack of a regular and meaningful risk dialogue between the board and the C-Suite		
	Difficulty in defining what risk appetite is and how it should be measured		
	Lack of a robust corporate governance aligned with the risk appetite		
	Lack of a clear scope of responsibilities and structure of the board's risk oversight		
	Inadequate risk skill set in the boardroom		

Table 3-4: **RESEARCH LITERATURE GAP (1990s-Present)**

ERM Area	ERM Gap	Research Author (Year) - Academic	Research Author (Year) - Industry
ERM & strategy	Poor understanding of importance of the alignment of ERM with objectives, strategic planning and execution	Liebenberg and Hoyt (2003); McWhorter *et al* (2006) Mestchian and Cokins (2006); Gates (2006); Frigo (2008, 2010); Killackey (2008; 2009); Paladino (2008); Hofmann (2009); Beasley *et al* (2010); Cokins (2010); Rizzi (2010); Wade (2010); Govindarajan (2011); Mikes and Kaplan (2013)	APQC (2007; 2010); Buehler *et al* (2008); Deloitte (2008); Accenture (2009); RIMS (2009); Grant Thornton (2010); KPMG (2010); Towers Watson (2010); KPMG (2011); Protiviti (2012);
	Lack of expertise about how to align risk appetite, organisational objectives and strategies		
	Lack of sufficient understanding of how to define and measure risk appetite and tolerance levels		
	Lack of dynamic incorporation of external risks into strategy setting		
	Lack of understanding how ERM and strategy alignment link into decision-making		
ERM process & framework	Lack of understanding of how to integrate ERM within existing processes	Bansal (2003); Bowling and Rieger (2005); Mikes (2005); Chapman (2006; 2007); Kaplan (2009); Rizzi (2010); Althanoyan, Keith and Misiura (2011a; 2011b); Paape and Speklé (2012)	PRMIA (2008); EIU (2009); COSO (2004; 2010a;b); RIMS (2011)
	Lack of a fully dynamic and strategic ERM framework		
	Opportunities in effective risk identification and assessment		
	Overlooking the change of internal and external environment		
	Inconsistent enterprise-wide risk standards, controls and procedures		
	Fragmented risk architecture		
	Inadequate data quality		
	Inability to aggregate risk data effectively for risk reporting		
Enterprise risk culture	Lack of know-how on creating a risk culture that supports ERM	Archer (2002); Mikes (2009a; 2009b); Brooks (2010); Lauria (2011); Ashby Power and Palermo (2012); Althanoyan , Keith, and Killackey (2012a; 2012b; 2013)	Buehler *et al* (2008); KPMG (2007); AON (2007); EIU (2009); Grant Thornton (2010); Ernst & Young (2011); IRM (2012); Marsh (2012); Protiviti (2012); Deloitte (2012a, 2012b); RIMS (2013)
	Fear of escalating/disclosing bad news to senior management		
	Lack of risk awareness and risk mindset		
	Lack of enterprise-wide risk co-operation and communication strategy		
ERM structure and ownership	Confusion as to what effective enterprise risk structure looks like	Mikes (2007; 2008); Fox (2009); Arena, Arnaboldi and Azzone (2010); Hwang (2010); Rizzi (2010); Hull (2010); Shortreed (2010)	RMA (2006); Deloitte (2009b; 2010)
	Dismissing the importance of the CRO/risk committees/risk champions		
	Difficulties in determining what the right risk ownership structure looks like		
	Issues with appropriate risk resources allocation (including funding)		
	Lack of or inadequate risk resources		
	Lack of risk transparency for shareholders		
ERM benefits	Lack of understanding what long-term benefits of ERM can be	Shenkir Barton and Walker (2002); Smithson and Simkins (2005); Aabo, Fraser, Simkins (2005); Nocco and Stulz (2006); Chapman (2007); Fraser and Simkins (2007); Mikes (2007); Rao & Dev (2007); Gates, Nicolas, and Walker (2009); Jaffer (2010); Beasley and Frigo (2010); Rizzi (2010); Friedman (2010); Arena, Arnaboldi and Azzone (2010); Sabatini and Ingram (2010); Frigo and Ramaswamy (2010); Bugalla and Kugler (2010); Mikes and Kaplan (2013) Acharyya and Mutenga 2013	Foster, London and Dewor (2009); Deloitte (2009b); APQC (2010); EIU (2011); RIMS (2011); KPMG (2011); Protiviti (2012); Ernst & Young (2012); FERMA (2012);
	Lack of effective and transparent measurement of ERM benefits		
	Underestimating the upside of risk		
	Lack of ability to see the full (long term) ERM potential		

Table 3-4: **RESEARCH LITERATURE GAP (1990s-Present)**

ERM Area	ERM Gap	Research Author (Year) - Academic	Research Author (Year) - Industry
ERM challenges	ERM driven mainly by compliance and regulatory requirements	Kleffner, Lee, and McGannon (2003); Liebenberg and Hoyt (2003); Banham (2004); Aabo, Fraser, Simkins (2005); Barnes (2006); Francis and Richards (2007); Fraser and Simkins (2007); Martin and Power (2007); Eccles *et al* (2007); Lam (2007); Rasmussen *et al* (2007); Fraser *et al* (2008); Burnes (2008); Schanfield and Helming (2008); Barton *et al* (2008a); Simkins (2008); Stulz (2009); Kaplan (2009); Moody (2009); Barton *et al* (2010b); Arena, Arnaboldi and Azzone (2010); Lam (2010); Mikes (2011); Paape and Speklé (2012); Mikes and Kaplan (2013)	Vedpurisvar (2003); Standard & Poor's (2005); COSO (2010a); Towers Watson (2010); RIMS (2011); Ernst & Young (2011); Accenture (2013)
	ERM bias shaped by the global standard/guidance		
	Lack of a strong risk culture		
	Lack of the willingness to change what is working		
	Failure to understand the relatedness between ERM implementation, culture and long-term sustainable competitive advantage		
	Lack of understanding what values ERM drives		
	Lack of clear ERM implementation guidance, and expertise on how to resolve potential ERM issues effectively		
	Lack of collaboration between scholars and industry practitioners		

Source: Researcher

Accordingly, the research literature gap (Table 3-4) highlights key issues related to the following ERM categories: 1) the evolution of silo risk into ERM, 2) support for ERM from senior management (and the board), 3) ERM alignment with strategy, 4) ERM process and framework, 5) enterprise risk culture, 6) ERM structure and ownership, 7) ERM benefits and 8) ERM challenges. Table 3-4 lists the academic and industry literature contributions related to each of the categories of ERM literature gap. The conclusions drawn from this exercise have been incorporated as a foundation for the development of a theoretical ERM Alignment Framework, as presented in Chapter 4.

3.3 Rationale for a new ERM Alignment Framework

Despite growing interest among risk and business practitioners in ERM and various surveys by providers of ERM "solutions", such as the software offered by numerous risk consultancies, little academic research has been done to provide a solid understanding of ERM (Simkins 2008; Leech 2012; Paape and Speklé 2012).

As interest has grown in ERM, as revealed in the literature, business risk awareness has increased significantly in recent decades (Power 2009; Mikes 2009). Silo risk management is now seen to lack the strategic focus necessary to drive enterprise-wide change. As much as senior managers agree that ERM is an integral part of effective management, however, there seems to be widespread disagreement and confusion on how to put it into practice (Banham 1999; Nocco and Stulz 2006; Arena *et al* 2011).

Each global crisis is another lesson learnt and creates the need for innovative ideas to contribute to the development of a more effective ERM agenda (Hampton 2009; Moody 2009). Since the GFC, financial organisations have increasingly invested in developing risk management to help transition their current practices into ERM (AON 2010). Some enterprises have full-time risk officers who report directly to the Chief Financial Officer (CFO), others internal auditors whose responsibilities include ERM. In some organisations, the board of directors meets once a year to look at ERM, while in others, it receives updates on it as part of the regular reporting agenda (Frigo 2008; Mikes 2009b; Pagach and Warr 2011).

The role of risk management has evolved "rapidly to keep pace with change" over the years (RIMS 2012; Palm 2012; AON 2013) and organisations appear to recognise that ERM expertise can drive competitive advantage by embracing a more strategic risk management approach (Ernst & Young 2009; Elahi 2010). Understanding the essence of ERM becomes especially important during volatile times, when maintaining a 'fortress' market reputation can be critical for market survival (Doherty 2000).

ERM implementation is not a straightforward process and before any organisation can think of adopting ERM its leaders should first determine what value they intend to gain from ERM and its alignment with the strategic direction of the organisation (Berenbeim 2005; Gates 2006; Francis and Richards 2007; Ashby 2011). A common pitfall for financial organisations is the inability to align ERM with its strategic objectives, leading to difficulties with ERM implementation (Francis and Simkins 2007; Paladino and Francis 2008). Another concern is over-focusing on the risk management process, rather than its output, which will tend to limit the overall value added (Power 2003; Mikes and Kaplan 2012).

As regulators continue to introduce new financial reforms, ERM will grow in importance. The value of risk management, however, cannot be measured by the level of compliance with financial regulations alone (Smithson and Simkins 2008). Banks need to start looking beyond regulatory compliance and the Basel Accords for an enterprise-wide approach to risk, catering to key requirements in a more cost-effective and efficient manner (Belmont 2004; Beasley and Frigo 2007). While adopting the elements of various approaches to ERM (e.g. the COSO ERM Framework) may help organisations to drive their risk

initiatives beyond mere regulation, they will ultimately struggle to reach full strategic ERM potential, to overcome the challenges identified in Chapter 3 and to generate long-term sustainable business value and competitive advantage (Beasley *et al* 2005; Foster *et al* 2010; Leech 2012).

In the light of the research gap discussed in this chapter, there is an evident need for a more strategic approach that can help financial organisations to manage their key risk exposures in a more dynamic way. In response, this research proposes the development of a Strategic ERM Alignment Framework that addresses the key issues and provides practical guidance towards establishing sustainable ERM to drive long-term value and competitive advantage.

3.4 Conclusion

Over the last two decades, ERM has made significant progress in becoming a critical part of corporate governance and organisational identity. However, senior managers continue to seek a more strategic approach to managing risk that can provide clear practical guidance on the implementation process and on how to: 1) define ERM that can be embedded into the existing organisational structure, 2) transition from silo risk towards ERM, 3) achieve measureable ERM benefits that drive organisational value and competitive advantage, and 4) establish a strong enterprise risk culture that supports ERM.

Senior managers need a clear definition and understanding of ERM and its effective implementation specific for each organisation, while appreciating the need to align ERM with the strategic objectives of the enterprise, rather than treating them as separate organisational functions. In effect, the value that ERM can drive needs to be measurable to demonstrate the impact on organisational performance to key stakeholders. The ERM function offers an opportunity to expand the silo approach to risk management beyond the compliance and control environment, and to start associating ERM with its value creation potential, thus contributing to enhancing business performance instead.

The research confirms that ERM has evolved and matured considerably over the past two decades, but their level of risk maturity is relatively low and some critical challenges still need to be addressed. If certain challenges are not resolved, ERM may remain an unfulfilled promise. Moreover, risk management should become an effort with a long time horizon that requires significant commitment from the board and senior management to generate value.

The literature review further reveals that key gaps in work on ERM are still not thoroughly understood by financial organisations. This research has identified the following as key gaps in the ERM literature: 1) lack of a strategic alignment of ERM with key organisational factors, 2) lack of clear ERM implementation guidelines and difficulties in understanding how to embed ERM into the existing organisational processes 3) insufficient support from senior management, 4) lack of understanding of how to define ERM, its benefits and its value (and how to achieve them) and 5) lack of a strong enterprise risk culture.

The majority of contributions to the academic literature on ERM are of a visionary nature, while industry-based research focuses on aspects of ERM implementation, more often descriptively. Research into potential benefits or the value that ERM can add enterprise-wide is also mostly descriptive. Therefore, more ERM research on measuring the value generated by ERM is recommended. The importance of aligning ERM with both organisational objectives and strategies is mentioned in the existing literature, but rarely in a prescriptive context. This confirms that ERM is still an under-researched area with a high level of immaturity that requires continuous development. The researcher therefore proposes to build on the shortcomings in existing ERM scholarship identified in this chapter and to develop a foundation upon which an ERM alignment framework can be built. Chapter 4 discusses the development of the proposed Strategic ERM Alignment Framework on a more detailed level.

4 Chapter Four: Development of Strategic ERM Alignment Framework

4.1 Introduction

Throughout this research, there is a focus on the most notable ERM literature, exploring important ERM issues affecting the financial sector and identifying a variety of well established approaches to ERM and their strengths, along with the potential shortcomings. During recent decades, ERM has developed into the best-practice approach to risk with an enterprise-wide perspective and several conceptual standards and theoretical frameworks have been developed. On the basis of the analysis of the literature in Chapters 2, it has become evident that the existing ERM initiatives lack a clear strategic alignment and focus. Most approaches address ERM from a specific perspective, rather than aligning key organisational factors in one strategic approach, and therefore require further development (Meulbroek 2002a; Archer *et al* 2010; Engle 2010; Althonayan *et al* 2012b).

The aim of the present chapter is to develop a theoretical strategic alignment that builds upon the shortcomings of current ERM approaches in the finance industry.

Therefore, this chapter discusses the derivation of all the proposed components of the Strategic ERM Alignment Framework based on the literature gap highlighted in Section 3.1. All key elements of the Framework are presented and explained in theoretical terms.

The theoretical assumptions underlying the proposed framework are then validated in Chapter 8 with some new empirical factors emerging from the data collection and analysis. The research goal is to bring together potential theoretical issues, followed by those identified in the empirical study, and present key findings as a clear prescriptive ERM implementation guide for the financial industry and the academic community.

4.2 Derivation of the theoretical Strategic ERM Alignment Framework

This section examines the derivation of the Strategic ERM Alignment Framework through the evaluation of the literature (Chapter 2) and the formulation of the literature gap (Chapter 3).

The Strategic ERM Alignment Framework was initially inspired by existing approaches to ERM and supported by various academic and industry contributions to ERM research in the last two decades. In an attempt to address all relevant gaps revealed by the research

evaluation (Section 3.1), the Framework is derived from literature based on the existing theories, rather than from a single theory. Contributions to that literature have been classified using the four-quadrant framework depicted in Table 3-4 (Section 3.1), which allows meticulous categorisation of research and identification of the literature gap. Sections 2.3, 2.4 and 2.5 have summarised key trends in the ERM literature, noting that academic research has addressed selected aspects of ERM, rather than investigating the research topic comprehensively from multiple angles (Barton *et al* 2002; Frigo 2008; Power 2009; Ai *et al* 2012). From the industry viewpoint, according to multiple case studies and other existing research based on empirical data, many financial organisations struggle to implement ERM effectively and to sustain it in the long term (Jaffer 2010; AON 2010). The literature review findings summarised in Chapter 2 indicate that organisations tend to meet the requirements of some areas of ERM but show significant deficiencies in others, thus failing to develop and fully embed a strategic approach. The Strategic ERM Alignment Framework addresses key aspects of ERM researched in the last two decades and aims to align them within a single enterprise-wide mechanism.

As concluded in Chapter 3, most ERM frameworks and standards address some or all of the principal risk management components shown in Figure 4-1. This indicates that the initial step of any ERM approach is knowing and understanding the organisational strategy and objectives; management can then identify what opportunities to pursue and invest in (Tchankova 2002; Agpar 2006; Beasley and Frigo 2007). The next step is the identification of risks, which depends largely on the clarity and transparency of strategies and objectives at the corporate and business levels. Risk identification also depends on clear understanding of key strategic factors of the internal and external environments. Some of the key risk identification tools are introduced in Chapter 8 (Section 8.2, Table 8-2). The ERM framework adopted across an organisation needs to be designed

so as to reveal the areas of risk that are unclear and to help allocate them to appropriate stakeholders for further clarification (Mehr and Hedges 1963; Chapman 2006).

Figure 4-1 Risk management process

Source: Adopted from Institute of Chartered Accountants (1999), cited in IMA (2006)

Once risks have been identified, the third step is risk assessment. As presented on Figure 4-1, once the organisational objectives are clearly understood by key stakeholders and can be related to daily tasks and responsibilities they are aligned with the risks and the risk assessment process commences (IMA 2006). Furthermore, risk professionals need to develop a good understanding of what risk appetite and tolerance mean for their organisation and how these are determined (Govindarajan 2011). According to the IRM (2011), risk appetite and tolerance should be developed in the context of risk management maturity and take into consideration views of professionals at the strategic, tactical and operational levels. Risk appetite needs to be developed enterprise-wide and be clearly understood across all organisational levels (Anderson 2008; RIMS 2012; Allan and Cantle 2013). Additionally, the board of directors should retain governance over approving, measuring and monitoring the level of risk appetite linked with the risk tolerances set by senior management (Buchanan 2010; IRM 2011). Various models address the issue of risk tolerance and appetite differently; the ERM Alignment Framework is based on the combined views of multiple enterprise risk management practices to ensure consistency and effectiveness (Barton *et al* 2010b). Appendix G (Table G1) provides a summary with the risk assessment techniques and introduces a risk assessment matrix as an example.

Knowing what risks are within and beyond the organisation's control, their probability of occurrence and the magnitude of their negative impact on business performance is essential for effective measurement of those risks and their enterprise-wide management (Henisz and Story 2003; Meyer *et al* 2011). After key risks are identified, assessed and managed, in

steps four and five of the model management decides on how to treat, control and respond to them. Factors that can determine the appropriate actions at this stage are the impact those decisions may have on the business and the analysis of costs vs. benefits for each alternative (Lam 2003). The last stage of risk management cycle is to monitor and communicate key risks across the enterprise. The ERM framework in this phase should stand for promoting risk-based decision-making at all levels of the enterprise, with the use of appropriate risk indicators where applicable. Under effective ERM, monitoring with KPIs and KRIs should occur as an integral part of the business operations (Frigo and Anderson 2011).

ERM approaches discussed in Chapter 2 of this research represent a spectrum of factors affecting financial organisations. The literature gap discussed in Chapter 3 highlights key shortcomings in ERM practices across the financial sector (see Table 3-4):

- Lack of a strategic alignment of ERM with key organisational factors of the internal and external environments
- Lack of clear ERM implementation guidelines and difficulties in understanding how to embed ERM into the existing organisational structure
- Insufficient support from senior management
- Lack of understanding of how to define ERM, what are its benefits and its value (and how to achieve them)
- Lack of strong enterprise risk culture

Based on the research shortcomings summarised above, the Strategic ERM Alignment Framework presented in this chapter illustrates the importance of aligning ERM with the strategic factors within its individual internal environment:

- Key organisational strategies and objectives
- Risk appetite
- Risk oversight
- Corporate risk governance
- Enterprise risk culture and awareness

The above factors have been identified on the basis of literature trends and recommendations provided by key researchers during recent decades, as well as the major ERM frameworks discussed in Section 2.2. The key ERM frameworks investigated were

those of COSO (1992; 2004; 2013), Australian/New Zealand Standard 4360 – Risk Management (Standards New Zealand 2004), ISO 31000– Risk Management Process (ISO 2009), Lam (2005) and Althonayan *et al* (2011a; 2012a). Table 4-1 provides an overview of all key components of the ERM Alignment Framework and the academic and industry literature contributions focusing on the respective ERM areas that serve as a theoretical baseline of the Framework. Its development is further supported by existing surveys and case studies of financial organisations conducted by other researchers in the financial industry over the years (Chapter 2, Tables 2-4 and 2-5).

Table 4-1 Derivation of theoretical Strategic ERM Alignment Framework from Literature

ERM Alignment Framework Factor	Literature Reference
ERM Alignment Framework Factor: INPUTS	
Key strategies & objectives	Noy (1998; 2003); Liebenberg and Hoyt (2003);
	McWhorter, Matherly and Frizzell (2006); Mestchian and Cokins (2006); Gates (2006);
	Frigo (2008, 2010); Fraser and Simkins (2007); Mikes (2005; 2011)
	Francis and Richards (2007); Killackey (2008; 2009); Paladino (2008); Frigo (2008); Simkins (2008)
	Hofmann (2009); Kaplan, (2009); Beasley, Branson and Hancock (2010); Cokins (2010); Rizzi (2010); Wade (2010); Althonayan, Keith and Misiura (2011a; 2011b)
	APQC (2007; 2010); Buehler *et al* (2008); Deloitte (2008); Accenture (2009)
	RIMS (2009); Grant Thornton (2010); KPMG (2010); Towers Watson (2010); KPMG (2011); Protiviti (2012); Mikes and Kaplan (2013)
Risk appetite & limits	Schneier and Miccolis (1998); Lam (2000; 2003; 2007; 2010); Desender (2007); Tonello (2007)
	Power (2009); Beasley *et al* (2009; 2010)
Risk oversight	Barton, Shenkir, and Walker (2008b)
	Govindarajan (2011); Beasley *et al* (2012); RIMS (2012)
Risk mindset & awareness	Moody (2009); Mikes (2009a); Brooks (2010); Althonayan, Keith, and Killackey (2012a, 2012b; 2013)
	Trickey and Walsh (2012); IRM (2012); Hindson (2013)
Corporate Risk Governance	Spira (2002); Spira and Page (2004); COSO (1992; 2004; 2009); Manab, Kassim and Hussin (2010) ; Richard Anderson & Associates (2010)
ERM Alignment Framework Factor: FOUNDATION	
Process & Framework	Lam (2000; 2003; 2005); Rossiter (2001); Bansal (2003); Kleffner, Lee, and McGannon (2003);
Risk Culture	Schein (1990); Standards New Zealand (2004); Protiviti (2006; 2011); Farrell and Hoon (2010); Buehler *et al* (2008); Deloitte (2008; 2009b; 2011); ISO (2009); Moody (2009); Mikes (2009a; 2009b)
Infrastructure	Hwang (2010); Brooks (2010); Lauria (2011); Althonayan *et al* (2011a; 2011b); Althonayan *et al* (2012a; 2012b; 2013); DeLoach (2012a; 2012b); Cooper, Faseruk and Khan (2013)

ERM Alignment Framework Factor	Literature Reference
ERM Alignment Framework Factor: INTEGRATION	
ERM Structure & Ownership	Barton *et al* (2002; 2003); Archer, Taylor and Capon (2002); Liebenberg and Hoyt (2003); Banham (2004); Beasley, Clune, and Hermanson (2005); AON (2007; 2010);
Enterprise-wide Communication	Fraser, Schoening-Thiessen and Simkins (2008); Beasley, Pagach and Warr (2008a); Fox (2009);
Risk training & Education	Gates, Nicolas, and Walker (2009); Barton, Shenkir and Walker (2010b); Pagach and Warr (2011); Paape and Speklé (2012)
ERM Alignment Framework Factor: OUTPUTS	
Corporate	Lam (2000; 2003); KPMG (2001; 2010); Barton Shenkir and Walker (2002; 2003); AON (2007; 2010)
Business	Gates, Nicolas, and Walker (2009); Smithson and Simkins (2005); Nocco and Stulz (2006); Protiviti (2006; 2010); Berley (2007); Chapman (2006, 2007; 2010); Rao and Dev (2007)
Operational	Barton, Shenkir and Walker (2008b); Deloitte (2008; 2009b; 2011); Sabatini and Ingram (2010); Frigo and Ramaswamy (2010); Jaffer (2010)

Source: Researcher

As presented in Table 4-1, the importance of the board of directors and senior management buy-in is argued in the literature (Lam 2000, 2003, 2005, 2010; Frigo 2003; Barton *et al* 2008b; Beasley *et al* 2010; Govindarajan 2011). The integration of ERM with the strategies has been examined in the literature by Fraser and Simkins (2007), Frigo (2008; 2010), Killackey (2008; 2009), Gates (2006), Chapman (2006; 2007; 2011), Mikes (2006; 2010) and Althonayan *et al* (2011b). Francis and Richards (2007) asserts that linking risk management closely to strategies is the hallmark of ERM, while Noy (1998) agrees that risk should be an integral element of an organisation's strategy setting and development. Killackey (2009) believes that organisations should have ERM properly aligned with strategies at corporate and business levels; only then can risks be efficiently managed through a strategic approach. According to Simkins (2008), ERM can be adopted as a strategic tool that the leadership can utilise for more effective risk management and alignment with both corporate and business strategies in a holistic dimension.

In recent years, the significance of the cultural dimension in ERM implementation has been of growing interest to some researchers (Mikes 2009a; 2009b; Brooks 2010; Althonayan *et al* 2012a; 2012b). Adopting ERM culture as a component of the Strategic ERM Alignment Framework was inspired by the risk frameworks of Buehler *et al* (2008), Lauria (2011) and Althonayan *et al* (2012a). Other researchers focusing on the benefits of ERM and challenges to its implementation are Lam (2000; 2003), Nocco and Schulz (2006), Chapman (2006; 2011), Barton *et al* (2001; 2008a) and industry researchers such

as Protiviti (2006; 2011), KPMG (2001; 2010) and Deloitte (2008; 2009b; 2011). Table 4-1 aims to provide a comprehensive summary of the derivation of critical components of Strategic ERM Alignment Framework in the literature.

4.3 Theoretical Strategic ERM Alignment Framework

The key focus of the Strategic ERM Alignment Framework is derived from an evaluation of the literature and the key strengths and shortcomings of ERM research highlighted in the identification of the literature gap. The core function of the Framework is to reflect the alignment with critical organisational factors within the internal and external environments. Therefore, the researcher considers the following attributes essential for developing the Framework: it should be strategic, consistent, dynamic, well defined, simple and transparent, and should provide clear implementation guidance.

One of the most important concerns is to ensure its strategic nature by addressing key ERM issues and their application enterprise-wide. Corporate leaders often struggle to establish consistent risk management and to reinforce intangible risk and business rules (March and Shapira 1987; Mandelbrot and Hudson 2006; Deloitte 2008). The Strategic ERM Alignment Framework encourages management to adopt a consistent attitude towards ERM standards across the organisation and to ensure that such behaviours are accomplished within the enterprise risk culture. The Framework as developed on the basis of the inputs discussed in Section 4.3.1 leads to a well defined and transparent approach to risk that maintains a level of consistency across the enterprise. Further critical elements of its implementation, and ensuring its simplicity and the ability to explain the ERM process in straightforward terms (Miccolis and Shah 2000; Barton *et al* 2008a; Engle 2009).

Based on the summary in Table 4-1, the proposed Strategic ERM Alignment Framework (Figure 4-2) consists of four strategic (and interlinked with one another) ERM alignment components, which are examined in subsequent subsections of this chapter. The four elements that represent the critical components of the internal environment are inputs, foundation, integration and outputs. These elements consist of key factors that are influenced by changes in the regulatory, financial, political, economic and cultural aspects of the external environment.

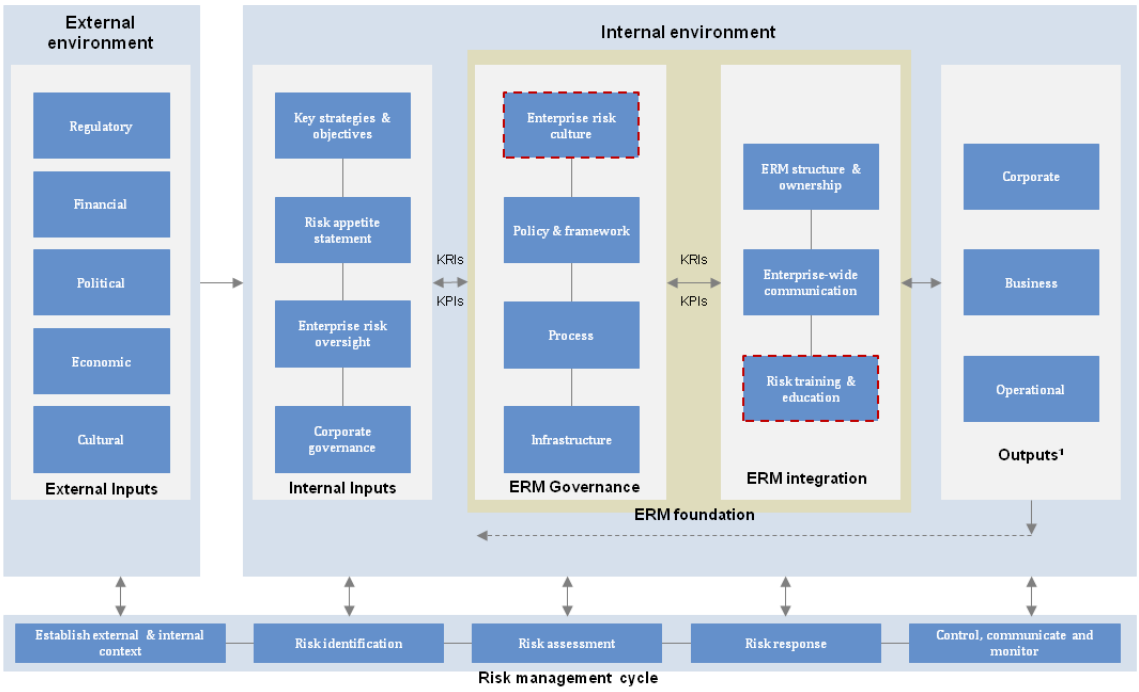


Figure 4-2 Theoretical Strategic ERM Alignment Framework

Source: Researcher

A unifying framework should be able to help articulate key risks consistently across an organisation and evaluate alternative capital structures comprising equity, debt, insurance and hedging to bear those risks. ERM is about establishing a consistent enterprise-wide communication (Shimpi 2005). Therefore, senior management can communicate the basis for its decisions and actions only if credible risk information is available and reported in due time (Miller 1992).

Financial organisations are exposed to a variety of complex risks at the strategic, business and operational levels. Hence, the ERM processes adopted need to be aligned with the organisational strategies and cover the hierarchy of key enterprise risks (Oldfield and Santomero 1997; Althonayan *et al* 2011b). As senior management develops a strategic vision for the organisation, the roadmap for corporate and business objectives is being established in tandem (Noy 2003). Subsequently, ERM and strategy development should be aligned, becoming two sides of the same coin (Beasley *et al* 2005; Althonayan *et al* 2012b). Moreover, ERM is intrinsically aligned with both corporate and business strategies. By focusing on the organisation's vision, mission and objectives, it can be transformed from "risk as individual hazard" to "risk in the context of the strategies"

(Henisz and Story 2003; Oldwisk 2012). The challenge, however, is to ensure that ERM incorporated into business and strategic plans can lead towards the organisational goals, thereby adding to shareholder value, i.e. that value can be derived from the ERM/strategy interface (Mehr and Forbes 1973; McGuire *et al* 1988; Monahan 2008).

Corporate and business strategy, plus ERM understood as a well-defined process, can guide an organisation towards the accomplishment of uniform goals and objectives (Simkins 2008; Stulz 2009). If a risk management framework does not properly align risks with strategies, organisations may engage in activities associated with excessive risks which are not justified in an analysis of possible long-term prospects (Simkins and Ramirez 2008). Different risk categories and their impact on corporate and business levels should be included in strategy setting (KPMG 2011; Mikes and Kaplan 2012).

The identification of a portfolio of key risks facing the organisation and their evaluation are crucial steps in the process of designing an effective ERM alignment framework. Integrating ERM with corporate and business strategies requires co-operation among executives, managers, administrators, specialists and employees at other levels. A thorough understanding of ERM strategies on the part of employees at various functional levels fosters their commitment to the process (Teuten 2005). Bowling and Rieger (2005) also note that to inspire action in the right direction, ERM should form an alignment with the corporate and business strategies and that interconnection needs to be clearly defined and understood. The concept of embedding risk management into the development and execution of corporate and business strategies is also discussed by Beasley *et al* (2010). Given the importance of aligning ERM with strategic planning and execution, most financial organisations will find that understanding and integrating risk oversight and strategies across the enterprise is a major challenge.

It is also critical for senior management to determine risk tolerance and risk appetite before developing organisational and risk strategies. Risk tolerance is the level of risk that an organisation can bear given its strategic objectives, while risk appetite is about the pursuit of risk (IRM 2011). A critical aspect of managerial responsibility is to recognise which risks can be accepted and which can have destructive impact on business performance (Pagach and Warr 2010). Thereafter, considering complex market conditions and volatility, the flexibility of the Strategic ERM Alignment Framework (Figure 4-2) allows the

continuous re-evaluation of the organisation's approach to risk, which further supports the dynamic and strategic nature of the Framework.

The dynamic nature of this framework (Figure 4-2) is associated with the need to monitor emerging trends and market volatility, and the ability to trigger a uniform and timely risk response to minimise negative business impacts. Additionally, senior management should oversee and approve the reporting and analysis of risks in order to identify internal and external factors affecting the business, regardless of their nature (i.e. regulatory, political, financial, economic or cultural) (Wade 2003; Von Känel *et al* 2010).

Another significant matter to consider for the alignment of ERM and the strategies relevant to the ERM Alignment Framework (Figure 4-2) is deciding on the course of action regarding the available information once key strategic risks are identified, i.e. how to translate risk assessment into real response action steps and derive value for the enterprise at the same time (Chapman 2006). The correlation of risks and understanding the interdependence of exposure to them can be managed more efficiently once they have all been categorised (Mikes and Kaplan 2012; Tysiac 2012). By understanding how key risks interconnect across the portfolio, business leaders can assign them to specific risk categories (i.e. risk taxonomy) that will then influence how these risks are optimised and ultimately managed (Burbridge and Walsh 2002; Fraser *et al* 2008). In order to understand this interconnectivity, business units communicate continuously. Throughout all the steps of communication between strategies, risk champions are essential (Frigo 2008). Appointing ERM champions (i.e. subject matter experts [SMEs]) in each business unit and creating a network of risk experts are significant aspects of the ERM Alignment Framework (Figure 4-2) and can be seen as proactive elements of the alignment initiatives, facilitating updates to senior management and keeping the process alive. The importance of aligning ERM with organisational strategies and their role in the ERM process are clear from the relevant literature and research on ERM (Table 4-1). The Strategic ERM Alignment Framework (Figure 4-2) is also based on previous research by Althonayan *et al* (2011a; 2012a; 2012b) presented in detail in Chapter 2.

The cross-functional ERM (Figure 4-3) shows that ERM should extend across key organisational functions, integrate the main management processes and help to break down the isolation of the various silos in the organisation. The very isolated nature of silo risk

management argues against the effectiveness of ERM and diminishes risk transparency across the organisation. Mylrea and Lattimore (2010) further emphasise that understanding key risks helps the management and the board to determine correctly which risks can trigger a downside effect while exceeding the risk tolerance. Management can therefore ensure that information flow about key risks is transparent and sufficient to eliminate silo reporting. As financial organisations grow in complexity and are exposed to the risks of global markets, the leadership challenge is to understand fully how the various business units interact and relate, and, in turn, how the risks cut across the silos (Shenkir and Walker 2006).

Figure 4-3 Cross-Functional ERM

Source: Researcher

The main attributes of the ERM Alignment Framework (Figure 4-2) identified by evaluating published research and other literature define the nature of the dynamic interaction of its components and the means of achieving organisational consistency. The researcher aims to integrate key findings of the literature gap in the theoretical baseline for the ERM Alignment Framework. Furthermore, key components of the best-practise ERM across financial organisations can drive the strategic focus of the ERM framework and ensure business effectiveness by generating value and creating competitive advantage. The next subsection focuses on the input factors vital to the Strategic ERM Alignment Framework (Figure 4-2).

4.3.1 Input factors to theoretical Strategic ERM Alignment Framework

The input factors to ERM alignment framework (Figure 4-2) are recognised by the Framework as arising from the strategic vision and mission determined by an organisation, and as having a significant influence in forming its key attributes. The inputs, therefore, initiate the strategic direction of the organisation and aim to align it within the strategic risk view (AON 2007). The input factors in the strategic ERM alignment are different for every financial organisation. Management's understanding of the strategic and risk objectives is critical to defining the input factors suitable for each organisation (Wilson 2009).

Based on the findings of the literature review (Chapter 2), and the literature gap (Chapter 3), key input factors were identified as:

- Key organisational strategies and objectives;
- Risk appetite aligned with risk tolerance;
- Risk oversight;
- Corporate governance.

As risk has become an integral part of today's business reality, organisations need to prepare an intensive risk-orientated organisational strategy in order to react to market unpredictability and volatility (Althonayan *et al* 2011a). This notion leads to the inclusion of a well-defined risk component in the strategy setting and ultimately to increased sensitivity to risk in making decisions. The organisational strategy becomes an input to the ERM Alignment Framework in order to align the risk appetite of the organisation with its risk tolerance. The researcher considers the link between ERM and strategy crucial to mapping high priority risk exposures within corporate planning and strategy development (RIMS 2012). Corporate strategy and ERM would then adopt uniform risk perception, sensitivity and understanding throughout all business units (Noy 2003). Management's awareness of the boundaries of risk appetite and risk tolerance helps the organisation to prepare for managing unexpected risks. Therefore, ensuring a balanced alignment of risk appetite and tolerance with corporate strategy is considered essential for developing effective ERM alignment (Konarsky 2010).

Aligning business strategies and objectives with risk strategy is essential to the ERM process, and can protect and enhance shareholder value (Frigo 2008; Killackey 2008; Kaplan 2009; Althonayan *et al* 2012b). Althonayan *et al* research (2011a, p. 25) supports the "comprehensive alignment of all three interconnected dimensions: ERM, corporate and business strategies" (Althonayan *et al* 2011a). It "aims to steer risk management initiatives and strategies in the same direction, therefore inspires improving the organisation's ability to meet the strategic objectives. It aligns and prioritises key risks and strategies across the enterprise, bringing organisational balance into the strategic equilibrium" (Althonayan *et al* 2011a, p. 10).

As the GFC developed, some of the largest financial organisations realised that they had to face the consequences of a failure to align their strategy and ERM. Organisations sought to replace the silo risk approach with a strategic and aligned risk approach to enable them to embed the ERM within their strategic objectives (Gorton 2008; Barton *et al* 2010a). ERM aligned with strategy execution can build a foundation for balancing risk appetite and exposure within transparent strategic objectives (Lam 2010). The British Risk Standard BS31100 (BSI 2011) defines risk appetite as the amount and type of risk that an organisation is prepared to seek, accept and tolerate in pursuit of value. One of the most significant ways of embedding risk into strategy planning and execution is by defining it through an enterprise-wide risk appetite statement. Rather than focusing solely on executing the strategy in line with the strategic objectives (and by defining the KPIs in the context of the BSC), financial organisations should redirect their attention towards evaluating the level of risk appropriate to the type of objectives that are set (Kaplan and Norton 1992; Taylor and Davies 2003; Brancato 2005; Beasley *et al* 2010). By doing so, organisations adopt a strategic alignment that aligns both risk and performance management (Smart and Creelman 2009; Pagach and Warr 2010). According to a PWC (2008) survey, linking KRIs with the corporate KPIs has also become more common in recent years.

Senior management support and buy-in of ERM are key components of the Framework. Engaging senior management in ERM is essential to establishing an effective and sustainable programme (Beasley *et al* 2010). Senior leadership are challenged to fully understand the concept of ERM and found it difficult to align the quantifiable value of ERM and the return on investment (Abrams *et al* 2007; Deloitte 2011). In order to achieve the active involvement of senior management, several guidelines can be recommended (Deloitte 2008; Beasley *et al* 2010):

- Ensure senior management considers ERM as a priority;
- Gain senior management's commitment to ERM;
- Integrate the success of ERM in managers' financial compensation;
- Provide specific examples of instances in which ERM has succeeded;
- Do not let the ERM "label" get in the way;
- Use ERM as a developmental opportunity.

Deloitte (2008) recommends that senior managers view ERM as a strategic necessity; ERM would extend across the entire organisation and be prioritised according to broad corporate objectives, not exclusively to the risk appetites of individual business entities. For example, to encourage enterprise-wide risk assessment, key risks of individual business units can be aggregated and discussed (Tapestry Networks 2008; Deloitte 2008). The Strategic ERM Alignment Framework (Figure 4-2) fosters continuous enterprise-wide communication between top management ("the top"), middle management ("the middle") and employees at any level or dimension of the organisation ("the bottom") (AON 2007). It is important that key personnel feel motivated to participate proactively in discussions and risk-based processes (Arena *et al* 2010). By identifying all relevant stakeholders, the commitment to ERM and accountability for it in both downward and upward communication can be encouraged as part of adopting a unique enterprise risk culture (AON 2007; 2010).

In the context of ERM alignment, corporate governance and risk management are interrelated and therefore create an alignment to some extent. According to Richard Anderson & Associates (2010), organisations develop strategies to achieve their goals and each strategy has risks that need to be managed to meet those goals (Manab *et al* 2010; Aven 2010). Strong corporate governance principles can be applied to risk management and will help organisations to reach set goals. Good corporate governance clearly defines the roles of the management, the board and shareholders, with a specific focus on ERM (Manab *et al* 2010). Three pillars of corporate governance are considered in the ERM Alignment Framework: 1) the board's support of corporate governance, 2) management rewards for a culture of performance with integrity, 3) shareholder's consideration for a long-term perspective (Richard Anderson & Associates 2010). Management should set risk policies that do not promote excessive risk-taking or compromise short-term increases in stock price performance, as well as compensation plans that incorporate long-term value creation. Additionally, the "tone at the top" should encourage consistent ERM processes and internal controls performed by competent professionals. Lastly, management and the board should integrate corporate governance with the organisation's strategies to achieve the risk transparency required to make informed investment decisions (Van den Berghe and Louche 2005; Beasley *et al* 2010). Risk oversight and its importance to ERM implementation are discussed in Section 2.3.6.

Key benefits of integrating corporate governance practices with ERM are summarised by Tonello (2007) as: 1) reductions in cost and inefficiency by aggregation of risks (i.e. it allows adequate quantification and consistent risk response as business synergies are created), 2) identifying risk interdependencies (i.e. risk correlations help to minimise costly risk exposures that would otherwise remain unnoticed), 3) improved capital efficiency, increased return on equity, stable earnings and reduced stock-price volatility (i.e. hedging techniques can reduce unanticipated fluctuations in earnings if applied correctly) and 4) potential for more profitable risk-adjusted investment decisions (Frigo and Anderson 2011).

All input factors presented in this section were derived from the research literature (Chapters 2 and 3) and are considered critical to sustainable ERM adoption and effective ERM alignment (Lam 2010; Protiviti 2011). The empirical study discussed in Chapters 6 and 7 collected qualitative and quantitative data which is analysed to determine the priority of all factors discussed here. The remaining components of the Framework set out in Figure 4-2 are discussed in subsequent sections of this chapter.

4.3.2 ERM Foundation

This subsection considers the factors of the ERM Foundation element of the Framework. The Framework aims to establish a new focus for risk-based decisions that are sustainable over a long time, adding value to the organisation's financial and reputational standing. Strategic ERM Alignment Framework supports organisational efforts to achieve a competitive edge among industry peers. Its strategic focus is highlighted in this subsection, as it considers the founding elements of the Strategic ERM Alignment Framework (Figure 4-2). This discussion identifies some fundamental aspects of ERM such as risk culture, framework, process and infrastructure.

4.3.2.1 ERM culture

Key factor of the ERM alignment foundation (Governance) component, is the enterprise risk culture (Ashby *et al* 2010; Deloitte 2012a; 2012b). Culture constitutes of the most sensitive yet critical elements of the ERM (IRM 2012a; Ashby *et al* 2012; Hindson 2013) and is considered a strategic imperative in the face of growing market competitiveness and complexity (Mallak 2009; Mikes 2009a; 2009b; Deloitte 2012a). Section 2.3.5 addresses in more detail the importance of enterprise risk culture as part of ERM implementation.

Enterprise risk culture is the foundation of risk management (Borge 2013); thus, a consistent and dynamic enterprise risk culture is a critical element of the Strategic ERM Alignment Framework. In managing risk effectively, it is essential to recognise what drives behaviours towards risk (Deloitte 2012b). Among the process, integration, framework and infrastructure, enterprise risk culture is one of critical factors in ERM implementation (Deloach 2012b). As the role of ERM has gone through significant changes over the years, transitioning of risk culture has become an area of increased focus (McKinsey 2010). After the GFC, the leaders of many financial organisations tried to establish key factors that had led to the crisis. Evidently, that cultural misalignment and lack of a consistent enterprise risk culture had contributed largely to organisational failures (Brooks 2010; Deloitte 2012b). Financial industry practitioners have extensively analysed the flaws of existing risk management practices, corporate governance, leadership and risk culture (Ashby *et al* 2012; Althonayan *et al* 2012b). Culture has been identified as critical for building risk-intelligent organisations where everyone can take responsibility for risk management and "mind the business" to protect and create value (Deloitte 2011). Furthermore, even the best designed risk management process can be compromised if the culture fails to oppose dysfunctional behaviours. DeLoach (2012b) discusses the importance of ERM support and involvement from the boards and senior management. DeLoach (2012b) also stresses that BOD's involvement in ERM should be balanced with the independent oversight that considers the risks underlying strategic choices and an incentive system that respects the long-term interests of shareholders as a part of a strong enterprise risk culture.

An organisation's culture can determine how key risks are managed in a stressful market environment (Schein 1990). Where the risk culture is undeveloped, it creates instability and lack of confidence in the organisation's standing. However, if the risk culture is well defined and mature, it can facilitate both solidity and competitive advantage (Deloitte 2012b). Converting risk into competitive advantage requires accountability; a consistent risk approach cannot be fully achieved unless key risks are understood and addressed by individuals and teams. Failure to address key risks by senior management can increase exposure to "black swans". As a result, significant growth opportunities can be potentially overlooked in critical organisational areas (Taleb 2007).

Consequently, developing a strong enterprise risk culture is a prerequisite for a sustainable and value-adding ERM (COSO 2012; Althonayan *et al* 2012b). Risk culture is a pillar of ERM; if managed effectively it has a significant potential for value creation and can be a source of considerable competitive advantage (IRM 2012; Althonayan *et al* 2013). Moreover, the existing enterprise risk culture gap, a lack of awareness and concern for ERM, can undermine the effectiveness of risk management (at both the planning and implementation stages) and negatively affect strategic performance by failing to achieve organisational objectives (Bloomberg Business Week 2010; Borge 2013). Organisations that recognise the importance and value of culture can incorporate its principles into their mission statements (Althonayan *et al* 2012b; 2013).

Ashby *et al* (2012) interviewed 15 CROs and senior managers from nine major financial organisations, finding that organisations differed in their approach to risk management and that this was reflected in distinct risk cultures. Moreover, banks and financial organisations responded differently to risk; some organisations chose to exercise more control over risk-taking. The researchers found that financial organisations often appeared either too controlling or too cautious. Those interviewed expressed their concern for a lack of clear authorities to set risk limits and boundaries. Effective enterprise-wide communication was recognised as critical to establishing a strong risk culture (Ashby *et al* 2012).

The key principles of enterprise risk culture are at the core of ERM alignment (Figure 4-4). Enterprise risk culture is a crucial part of the foundation element of strategic ERM alignment and forms the core of the theoretical Strategic ERM Alignment Framework (Figure 4-2).

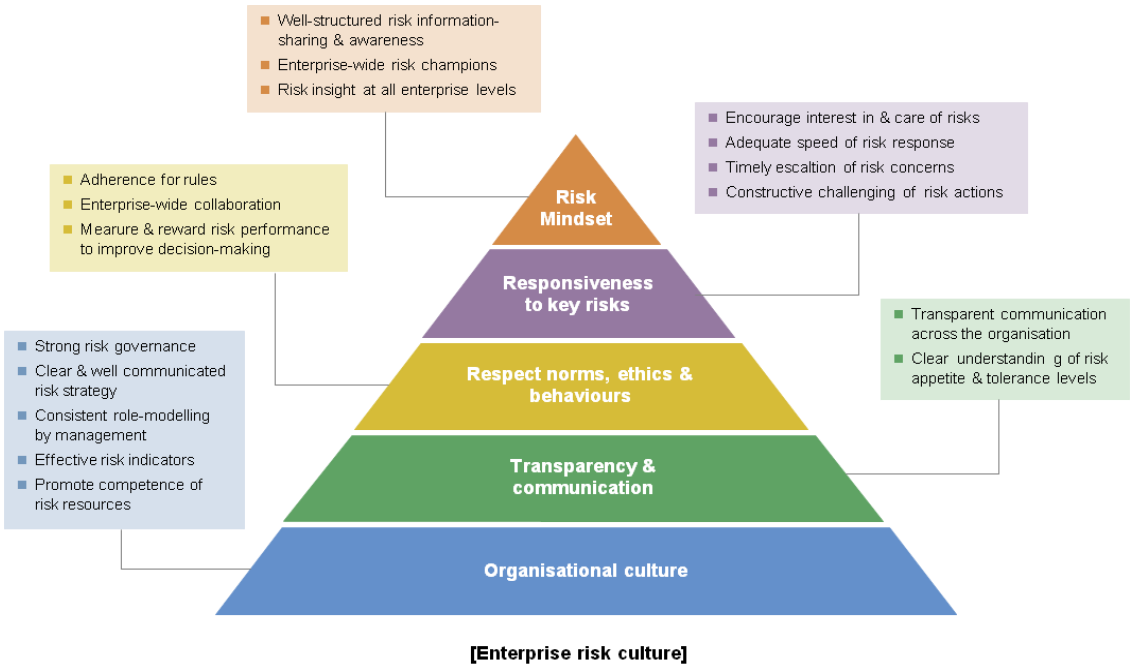


Figure 4-4 Key elements of enterprise risk culture

Source: Researcher

Enterprise risk culture starts with the fundamental principles of corporate culture and a clear alignment of risk governance, risk strategy and consistent behaviour by senior management (Kimbrough and Componation 2009). One of the most important factors influencing ERM is the involvement of leaders and employees at all levels in adopting, accepting and promoting culture as a part of corporate image (IRM 2012). Some organisations recognise that a cultural shift may improve how risk is understood and managed, and drive communication between senior management and the board. Organisational culture, as shown in Figure 4-4, fosters consistency in how senior managers represent their approach to risk and encourage risk behaviours from the top down. It signifies strong risk governance, aligned with a clearly defined and communicated risk strategy and effective risk indicators. The accountability of risk resources and their natural aptitude for a negative risk response are overridden by identifying issues and capitalising on potential opportunities. This transition in culture can be aligned directly to the organisation's risk tolerance and can contribute to driving sustainable growth and improved financial results.

The transparency and communication layer of ERM culture (Figure 4-4) indicates the significance of transparent communication across the organisation and of a clear

understanding of risk appetite and tolerance levels. Top-down and bottom-up communication and dialogue about risk lead to the creation of a common language and ultimately to further development of an ERM culture. A common language of risk creates an ERM mindset and generates an intimidation-free atmosphere for discussions with management about business and risk. Cross-communication between business lines, along with an awareness of risk and business objectives, significantly affects the development and implementation of ERM alignment. Results-driven organisations view information flow and communication as key principles for creating strong governance and culture (Althonayan *et al* 2012b). Enterprise-wide risk communication and a dialogue among management, employees, groups and departments can help everyone to understand key risk concentrations better and to familiarise themselves with the risk appetite and tolerance levels set for their organisation (Lauria 2011; DeLoach 2012a).

At the mid-level of Figure 4-4, respect for norms, ethics and behaviours characterises key cultural attributes such as adherence to rules, enterprise-wide collaboration, and measuring and rewarding risk performance to improve decision-making (Pagach and Warr 2010). The next level of the ERM culture concerns responsiveness to key risks. This means encouraging adequate speed of risk response and timely escalation of risk concerns enterprise-wide, while challenging risk actions constructively and promoting interest in risk. For example, within ERM alignment, an effective method for responding to risk issues may entail identifying stakeholders, gaining their commitment and awareness, developing a robust communication strategy within safe channels and ensuring continuous feedback. Senior management's commitment to creating a sustainable organisational culture should support the development of unique cultural characteristics that can significantly boost business value and reputation. A strong ERM culture promotes leadership strategies for downward-upward communication (Rossiter 2001; Althonayan *et al* 2012a).

Lastly, risk mindset sits at the top of the ERM cultural pyramid (Figure 4-4), reminding the management of the critical importance of risk insight, well-structured risk information-sharing and awareness, and enterprise-wide risk champions at all levels. A persistent problem in financial organisations is that executive teams lack the information required to effectively manage risk, because employees often withhold input vital to decision making,

fearing that it will reflect negatively on their performance (Bloomberg Business Week 2010). This limitation can significantly impede an organisation's ability to identify, assess or simply react to internal and external threats on time.

A survey on risk culture in 2008 found that fewer than 20 percent of executive managers received negative information material to the organisation's performance in time to react accordingly (Corporate Executive Board 2008; Griffin and Seshadri 2012). Openness of communication (i.e. employees' perceptions of how valuable management considers two-way dialogue) and willingness to speak up without fear of retaliation are the most critical factors subject to cultural inhibitions identified by the research as likely to compromise corporate integrity. Moreover, the research affirms that organisations which are able to "break down barriers to honest feedback" achieve a significant advantage over their competitors, outperforming them in long-term total shareholder return by a considerable margin (Griffin and Seshadri 2012).

The inclusion in the Strategic ERM Alignment Framework of the element of ERM culture is inspired and supported by academic and industry research literature analysed within the scope of this study (Rossiter 2001; Farrell and Hoon 2010; Brooks 2010; Cooper *et al* 2013; Althonayan *et al* 2012a; 2012b; 2013). The researcher has also evaluated surveys and case studies of risk culture published in recent years (Chapter 2). Key literature contributions underlying the enterprise risk culture component of ERM Alignment Framework are included in Table 4-1. The ERM Culture Alignment Framework, discussed in detail in Chapter 2, has made an important contribution to the proposed ERM Alignment Framework, presenting arguments that support the need for strong and sustainable enterprise risk culture embedded across financial organisations (Althonayan *et al* 2012a; 2012b). This shows that creating and maintaining a strong enterprise risk culture is paramount to a lasting and meaningful ERM. It is essential for financial organisations to understand what risk culture is, how it becomes established and in what way it affects ERM implementation. Often, where financial organisations fail to focus on the significance of enterprise risk culture, the result is a severely compromised ability to generate sustainable value and competitive advantage (Farrell and Hoon 2006; Cooper *et al* 2013).

Althonayan *et al* (2012b) further researched the conceptual model of ERM culture alignment; their factor analysis of data collected in the travel and tourism sector confirms

that the element making the strongest unique contribution was "Corporate Strategy: Aligning risk appetite and tolerance". This finding is consistent with the work of Courtney *et al* (1997) and Collins and Porras (1997), who argue that the element of risk must be integrated into a strategic setting to ensure that risk appetite does not exceed risk tolerance. The risk component should therefore be standardised and uniform enterprise-wide (Rozendaal 2012).

The second strongest unique contribution based on the data analysis was made by "Business Strategy: Developing business objectives aligned with risk strategy". This outcome is substantiated by Noy and Schmuel (2003) and Dewitt and Simon (1958), who state that managers can react variably, which compromises their ability to manage and meet their predetermined business-specific objectives. Consequently, ERM culture should be aligned with core organisational strategies, where risk is effectively managed as a part of a strategic ERM approach extending across departments enterprise-wide. The third most significant unique contribution was made by "Management and Board: Commitment at the top", a finding supported by Bandura (1991) and Luthans and Avolio (2003), who assert that management can influence employees' behaviour through positive role modelling, i.e. leading by example.

The role of the board of directors is therefore specifically emphasised, as their perception and the oversight of risk must not be influenced by any external variables such as monetary rewards; instead, they should focus on the best interests of the organisation (Beasley *et al* 2009). The fourth and final significant unique contributor to the success of ERM culture alignment was found to be "Enterprise Risk Mind-set and Accountability: Value adding decision making". As stated by Rossiter (2001) and Cardy (2004), employees should be stimulated to manage risk proactively. To promote risk awareness, risk-related training, education and accountability mechanisms should be introduced. Consequently, this empirical study reveals that the process of determining the cultural inputs to ERM affects the effectiveness of the alignment of ERM culture. The above factor analysis, performed on the basis of the empirical investigation by Rozendaal (2012), establishes that these measurement items are valid and suitable for further testing.

4.3.2.2 Policy and Framework

Another critical component of ERM Foundation is a mature and dynamic ERM framework that can support effective implementation of the initiative across the organisation. This subsection focuses on outlining key principles around the design, specification, implementation, monitoring and continuous enhancement stages of a framework that financial organisations adopt in order to facilitate efficient management of key enterprise-wide risks. The researcher agrees with Doherty's view (1985) on risk frameworks addressing the principle risk management components, as explained in Section 4.2.

By definition, the risk framework serves to create an overview of interlinked activities that aim to achieve a specific goal; for example, implementing ERM. The framework can facilitate and structure an approach that can be both measured and repeated (Doherty 2000). Figure 4-5 illustrates the process of mapping specific action points to respective stages of developing a framework proposed by the researcher.

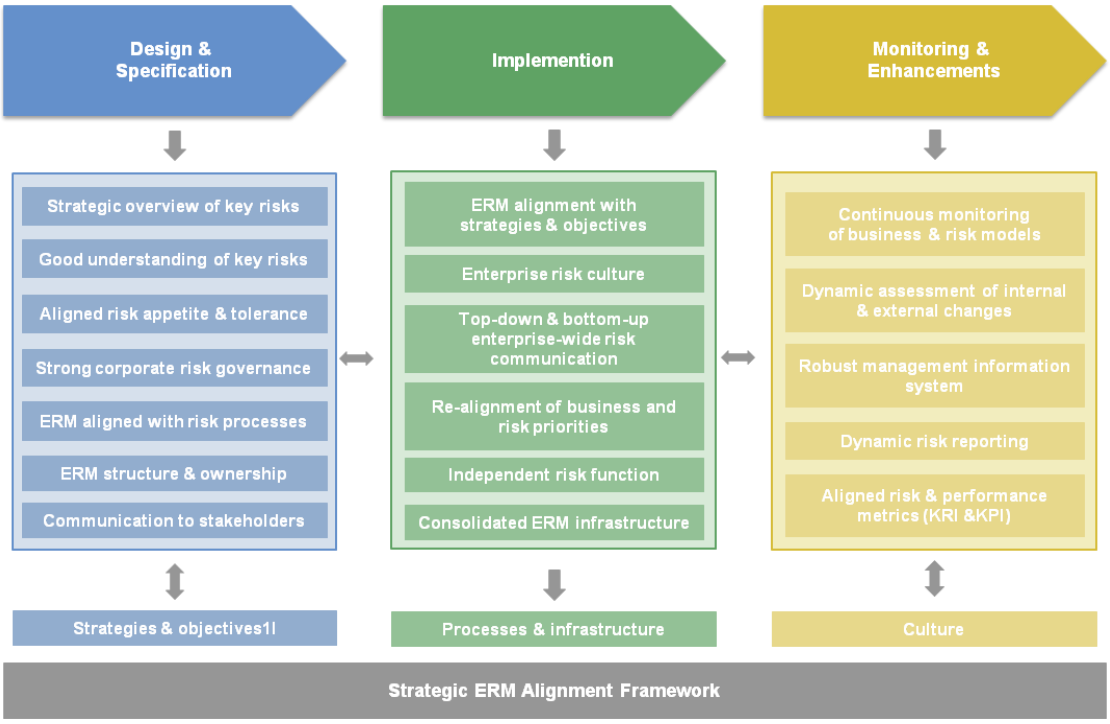


Figure 4-5 ERM Framework

Source: Researcher

The framework mapping process consists of three stages: 1) design and specification, 2) implementation, 3) monitoring and enhancement. Each of these requires specific action points to be fulfilled to ensure the most effective adoption of ERM.

For example, the first requirement in designing the risk management framework is a good understanding of key strategic risks and how they can obstruct organisational objectives. The overview of strategic key risks is a prerequisite to an active ERM integrated into the business plan (Oldfield and Santomero 1997). Gaining a more complete picture of risk can be associated with the ability to align it with the boundaries of risk appetite and effectiveness in how it is governed (Knowledge@Wharton 2009, p. 4). Once the list of top risk exposures is identified, it can then be reconciled with ongoing risk management activities within the organisation. This may reveal risk oversight gaps that require further attention from management and the board. As a result, currently overlooked key strategic risks may come to the surface (Beasley *et al* 2009). Another fundamental issue in understanding and managing risk is the assumption that risk management models are only as good as the decisions that are based on them:

> "We have to be careful – not all the models were bad. What we are really seeing now is a need to integrate decision-making processes into the evaluation. These things are not at the margin; they are central. You can assess the risks very carefully with the best experts, but if you don't think about [them] and integrate [them] with the strategic decision process, you don't get anywhere." (Knowledge@Wharton 2009, p. 5)

In effect, it is the mindset that underlies the implementation of the framework, but the quantitative risk analytics and their assessment cannot be overlooked as part of ERM (Foley and Moss 2010).

Based on Figure 4-5, the second stage of the process aligns the enterprise risk culture, communication and flexibility to adapt to changes in the business and risk assumptions driven by the volatility of internal and external environments (Lam 2010). Michel-Kerjan (2008) notes that key to effective risk management are the knowledgeable risk resources in the organisation, who can challenge assumptions about the future. According to Oldfield and Santomero (1997), organisations should also focus on developing consolidated risk databases and measurement systems aligned with their business practices. Strategic risk management system allows comprehensive and consistent evaluation of individual,

business and enterprise-wide performance (Gates 2006; Frigo 2008). The researcher agrees with Mikes and Kaplan (2012) that risk treatment varies and is determined by different types of risks; there is a variety of risk frameworks that can address and help manage respective risks effectively. The ability to correctly classify the types of risk that organisations deal with on a regular basis remains a challenge in the finance industry (Moody 2009).

Monitoring plays a major role in the third stage of developing a framework, where there is scope for enhancements. Lam (2010) emphasises the importance of assurance and feedback loops to ensure that risk management is working effectively. In the past it was considered sufficient to base the evaluation of the effectiveness of risk management on the achievement of key quantitative milestones. However, establishing suitable performance metrics and feedback loops is an important part of ERM which can help financial organisations to identify unknown sources of risks and minimise unexpected earnings volatility (Ezarik 2009; Lam 2010; Downer 2010).

Another important factor in building a framework is maintaining the level of transparency and resiliency in how organisations manage the change resulting from either internal or external influences (Rizzi 2010). Robust reporting of risk data and incorporating it into management information systems provides the necessary input into strategic risk-adjusted decision-making (Banham 2004; APQC 2007). Management should continually review the effectiveness of risk management processes, with the aim of verifying strategy alignment.

4.3.2.3 Key risk indicators (KRIs) and key performance indicators (KPIs)

While some organisations may rely on key performance indicators, benchmarking or the BSC, KPIs alone can be considered ineffective, as they measure events that have already happened and had an impact on the enterprise's performance (Kaplan and Norton 1992; Killackey 2008; Kaplan 2009). While KPIs usually answer the question: "Are we achieving our desired levels of performance?" key risk indicators address a more dynamic issue: "How is our risk profile changing and is it within our desired tolerance levels?" Thus, while KPIs provide information regarding past events, KRIs can potentially provide insights into potential risk events (Taylor and Davies 2003). For example, performance metrics can measure expected performance and KRIs can predict the downside risk or volatility of performance (Smart and Creelman 2009).

KRIs have a critical role in any risk management approach. For instance, if organisations use self-assessment tools for risk identification and control, KRIs can facilitate the monitoring process at set intervals. They can also indicate what the risk appetite is (Immaneni *et al* 2004). When used appropriately, those tools can provide the insight needed to track business strategies and therefore drive through the benefits of change (Kaplan and Norton 1992; Frigo 2002). In practice, KRIs often work most effectively when developed alongside KPIs (Althonayan *et al* 2011a) and in tandem with a system of thresholds. KRIs indicate breaches of risk tolerance, triggering escalation to management and initiating a chain of action commands (Immaneni *et al* 2004; Beasley and Frigo 2010; COSO 2012).

Developing a set of effective KRIs should enable managers to identify relevant measures that can provide information about the impact of risks on the accomplishment of strategic objectives. Therefore, a good understanding of organisational objectives is essential before creating enterprise-wide KRIs. Most organisations perceive the development, aggregation and reporting of effective KRIs as key challenges. Financial organisations usually focus on indicators of credit risk and market risk (Lam 2005) and may be challenged to develop KRIs for financial risk, technology risk or operational risk. Lam (2005) discusses various sources from which KRIs can be developed: 1) policies and regulations, 2) strategies and objectives, 3) previous losses and incidents, 4) stakeholder requirements and 5) risk assessments. According to Immaneni *et al* (2004), the most effective structured approach to initiate KRIs can be either top-down or bottom-up. While a top-down method would assess general objectives and risks, then design appropriate risk indicators to reflect these and communicate them downwards, the alternative is for management to initiate a bottom-up approach in each business area, defining specific processes and risks. While it is true that businesses develop unique KRIs in this way and it may become challenging to aggregate the indicators at a corporate level due to their distinctive nature, results of the bottom-up approach are more effective for business areas with unique processes. One proposed way to overcome this challenge in other cases is to select measures over the limit and transform them into an index, i.e. a tool designed to merge findings from different indicators and report them as an aggregate (Immaneni *et al* 2004).

To elucidate the interconnections among objectives, strategies, key risks and KRIs, Figure 4-6 illustrates an example where management has set the objectives of increasing profitability and lowering costs. Strategic objectives crucial to meeting those goals have been set. Potential risks have also been highlighted, then mapped to core strategic initiatives, to allow the management to create metrics that will contribute most effectively to the execution of the strategic goals (COSO 2010). Accurately mapping KRIs to critical risks and core strategies minimises the likelihood that management will be distracted by less relevant information.

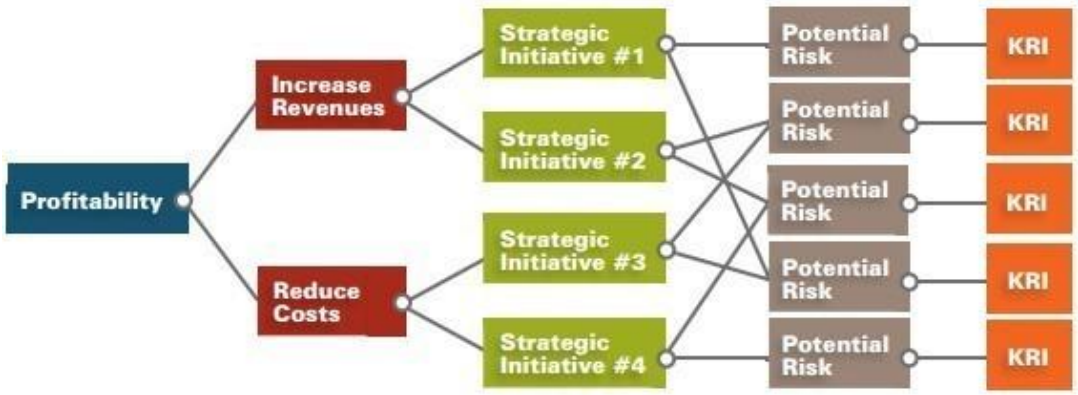


Figure 4-6 Linking Objectives, Strategies, Risks and KRIs

Source: COSO (2010b)

To sustain a dynamic ERM Alignment Framework (Figure 4-2) requires continuous monitoring and analysis of potentially emerging internal and external threats that prompt the management to re-evaluate the existing ERM strategy. Therefore, the Framework demonstrates the use of the alignment of KRIs and KPIs, which can enhance monitoring and control of probable future risk events and objectives-at-risk (COSO 2010b). In the context of ERM alignment, both KRIs and KPIs are formulated as critical elements of the strategic ERM alignment. Most importantly, there are five ways in which alignment benefits from the use of key indicators: 1) by simplifying risk aggregation and reporting, 2) by aligning objectives, risk owners and standard risk categories, 3) by supporting management decisions and actions, 4) by reducing costs (i.e. reducing losses by predicting potential risks, or reducing the cost of capital by improving investors' risk perceptions and identifying opportunities for strategic exploitation) and 5) by increasing monitoring and control of over-the-limit indicators. All of these can enhance shareholder value and improve business effectiveness within the scope of the Alignment Framework.

4.3.2.4 Process

Risk management is a process that aims to improve an organisation's ability to achieve its strategic, business and operational objectives (COSO 2012). The outputs of ERM focus primarily on providing senior management and the board with information that can be vital in effective decision-making. Therefore, to capitalise on the benefits of ERM, it is critical that ERM is aligned as closely as possible with the existing planning and execution of strategy, as well as operational processes at all levels (Theil and Ferguson 2003; Smart and Creelman 2009). While strategic planning requires formulating, evaluating and implementing decisions that can help meet organisational objectives, ERM should allow the focused identification, assessment, treatment and monitoring of key risks that can prevent their achievement (ISO 2009).

Figure 4-7 shows how the ERM process aligns with strategic and operational planning as an integral element of the ERM foundation pillar. Aligning strategic planning with ERM can benefit performance and facilitate the implementation of core strategies along with the achievement of key objectives (Frigo 2008). As illustrated in Figure 4-7, the core element that aligns both processes is the feedback loop that allows continuous communication between risk, objectives and strategic planning. Once the strategic context is established, key organisational objectives set in parallel are driven by the organisation's strategic direction, vision and mission.

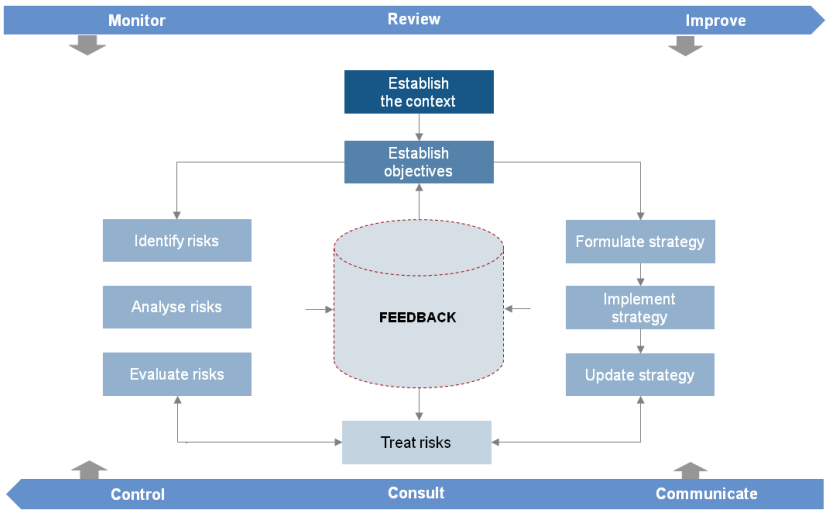


Figure 4-7 Aligning ERM, organisational objectives and strategic planning processes

Source: Adopted from Standards New Zealand, Joint Standards AS/NZS Committee (2004)

Identifying key organisational objectives determines the formulation of core strategies, and in effect, their implementation within the organisational structure. Treating risks is a critical part of the ERM process which should therefore be closely aligned with risk assessment (i.e. how key risks are identified and analysed). Accordingly, strategy implementation is in direct alignment with the actions taken to manage key risks. Once core strategies are formulated, feedback received as a result of ERM can help the organisation to revise the underlying assumptions of its risk and organisational strategies and to adapt to any internal of external changes that occur. Figure 4-7 derives its principles from risk management frameworks and standards presented in Chapter 2 (COSO 2004; Standards New Zealand 2004; ISO 2009; McNally 2013). The strategic alignment of ERM with organisational objectives and strategies lies at the core of the Framework and is considered one of its most critical factors.

4.3.2.5 Infrastructure

The last input factor of the Strategic ERM Alignment Framework (Figure 4-2) is a consolidated enterprise-wide risk infrastructure. The increasingly complex nature of financial organisations and the market in which they operate may make it difficult to introduce a uniform enterprise risk platform. However, integrated and transparent risk data becomes important when it comes to robust risk reporting and risk information flow to senior management (Hofmann 2009). As highlighted in Chapter 3 (Section 3.1), this area of ERM is under-researched and therefore addressed in the Framework (Figure 4-2). Generating and reporting data in a timely, relevant, replicable and cost-effective manner facilitates the core processes associated with the implementation and effective functioning of ERM alignment. Therefore, risk architecture that allows transparent and consistent capture, storage, manipulation, presentation and reporting of data is indispensable (Althonayan *et al* 2011b).

Risks associated with technological and operational failures are managed in order to protect potentially enhanced value across all enterprise levels and to optimise the holistic dimension of risk management practices (Bansal 2003). Being able to identify effectively the key technological and operational risk factors that can potentially exert negative impacts on business performance has become critical for financial organisations (Power 2005b).

Legacy silo systems often need to be redesigned to better serve information dissemination. As a result, they can significantly reduce costs otherwise incurred by mitigating risks (e.g. eliminating duplicate systems and redundant information resources, and creating stronger data inventory control). Due to complexity, some financial organisations may choose to outsource major risk infrastructure system (RIS) functions as part of enterprise resources planning. In conclusion, a unified risk infrastructure is fundamental to the ERM Alignment Framework discussed in this chapter.

4.3.3 ERM Integration

ERM Integration is a key element of the Strategic ERM Alignment Framework (Figure 4-2) comprises three elements: ERM structure and ownership, enterprise-wide communication, and risk training and education. Lam (2010) argues that to optimise the organisation's risk return profile, ERM needs to be integrated into key management processes. Aligning ERM with core organisational strategies provides a significant opportunity for ERM integration. Before any further steps can be taken towards integration, ERM has to achieve enterprise-wide reach (Quinn 2005). A clear and transparent structure of risk ownership, accountability and good communication between key ERM resources on key risk events (supported by ongoing risk education and training) at all organisational levels is critical for developing effective ERM (IRM 2012).

Beasley *et al* (2003) argue that brainstorming can add value to ERM as long as all participants engage openly in the free exchange of ideas concerning risks and challenges. Hendrickson (2011) notes that many financial organisations struggle to decipher ERM roles and responsibilities and that once the board has initiated the process of ERM adoption, it often falls to management to determine the structure and magnitude of specific efforts and to ensure alignment with strategic and operational goals. Another key opportunity of ERM integration is risk-adjusted pricing to demonstrate the real cost and value of ERM. Financial organisations take risks to achieve their business objectives and may therefore want to adjust their models for pricing risk (Lam 2010).

Researchers often argue that the components of effective ERM integration can be cultivated through a consistent and balanced enterprise risk culture that supports organisational and risk objectives (Archer 2002; Power 2004; Archer *et al* 2010). In order to fully embed an ERM initiative into the organisational structure, it first needs to become

part of daily activities and job descriptions, slowly integrated into the natural risk mindset; for every organisation, ERM means something different and can be achieved in its own unique way (Dafikpaku 2011).

4.3.4 The Outputs of ERM Alignment

The factors defined as ERM outputs (benefits) represent an organisational state where the dynamic ERM Alignment Framework becomes a motivational driver for their achievement. Along with aligned ERM and strategic risk management driving enhanced shareholder value as a key priority, gaining competitive advantage in the market is seen as a primary indicator of future success within this framework (Bansal 2001; Samuels 2005; Wagner and Layton 2007; Frigo 2008; Elahi 2010). Effective risk management can drive up shareholder value (Wade 2010). Based on the findings of the literature review (Chapters 2 and 3), on secondary data obtained from case studies and surveys (Chapters 2) and on the researcher's professional experience, key ERM outputs are divided into three main categories: corporate, business and operational. The outputs of ERM alignment, illustrated in detail in Figure 4-8, are considered potential benefits that the Framework facilitates.

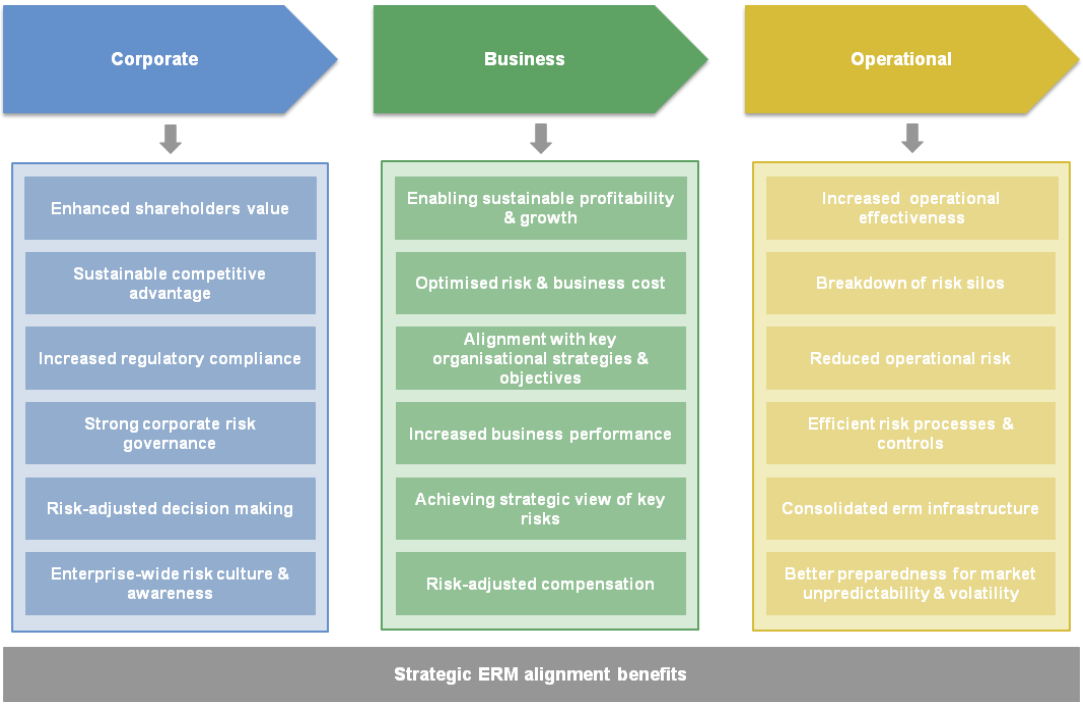


Figure 4-8 Outputs of Strategic ERM Alignment Framework

Source: Researcher

Figure 4-8 also outlines specific corporate, business and operational benefits of adopting the Strategic ERM Alignment Framework on a more granular level. According to Deloitte (2011), two major challenges for corporate leadership are to gain a tacit understanding of what enterprise-wide risk awareness means in business reality and to align the business and corporate risk objectives.

The Strategic ERM Alignment Framework focuses on defining unique organisational values that an enterprise can potentially capitalise on in order to enhance shareholders' investment, such as by increasing the share price or reducing business volatility for some organisations, or using capital more efficiently for others (Abrams *et al* 2007; Wade 2010).

ERM alignment, therefore, focuses on value creation and targets the organisational deficiencies most significantly affecting business performance, such as failure to align ERM with strategy. In addition, the framework allows the identification of risk management practices which are already working well across the organisation, so that they can be fruitfully extended (Fraser and Simkins 2007). Understanding the existing practices reflects the strategic nature of the Framework; a collective understanding of which risks should be accepted, avoided, transferred, shared, mitigated or exploited can reduce organisational dissonance about risk tolerance levels (Francis and Richards 2007; Frigo and Ramaswamy 2010). Business effectiveness and the relation of ERM to cost reductions are two relevant and sensitive discussion points regarding the potential benefits of the programme. All output factors of the Strategic ERM Alignment Framework are investigated and discussed further in the empirical part of this research.

4.4 Conclusion

Despite the increased awareness of ERM, financial organisations still have a lot to learn about extracting its strategic value. Consequently, senior managers direct their focus towards adopting ERM that will ensure sustainable long-term benefits in terms of business performance.

According to research findings reported in the literature review (Chapters 2 and 3), one of the most significant challenges facing organisations is the lack of clear practical guidance for developing strategic ERM. Strategic ERM would allow senior management to focus on building a mature and sustainable enterprise-wide structure aligned with the core strategies and enterprise risk culture, and embedded in the business model.

Section 4-3 of this chapter discusses the development of a theoretical strategic ERM Alignment Framework, supported by current ERM practices across the finance industry, by generic risk management models, by relevant contributions to the academic and industrial literature, and by ERM research conducted by the researcher herself. The proposed framework has been developed to fill the literature gap identified in Chapter 3, Section 3.1. Among the greatest challenges to financial organisations since the GFC have been the lack of a fully embedded strategic approach to ERM across the financial sector and the paucity of support for ERM implementation. In response to these needs, the ERM Alignment Framework aligns key factors relevant to a strategic risk approach, which will be further substantiated through empirical research to ensure their reliability and validity. The Framework has been developed to improve the consistency of organisational performance, reducing earnings volatility, managing the potential risk of underperformance and advancing the methods of achieving strategic business goals.

5 Chapter Five: Research Methodology

5.1 Introduction

Determining the appropriate methodology can be considered a difficult and critical element in a research study. The researcher examines theoretical underpinnings, addresses data collection and analysis, then eventually draws conclusions regarding the issues being investigated (Walker 1997). Collis and Hussey (2009) see methodology as the "overall approach to the entire process of the research study". In essence, research methodology focuses on investigating the research problem and therefore varies with its nature (Remenyi *et al* 2003). Thus, identifying the most appropriate methodology is important, not only to ensure that the research objectives are met, but also to establish the credibility of the work. Since research philosophy, approach, strategy, choice and techniques are inherent components of the methodology, it is important to have consistency between research questions and approaches, both methodological and theoretical (Churchill and Sanders 2007).

This chapter discusses the methodology in relation to the research questions and objectives outlined in Chapter 1 and adopts the terminology of the "research process onion" (Saunders *et al* 2009) presented in Figure 5-1.

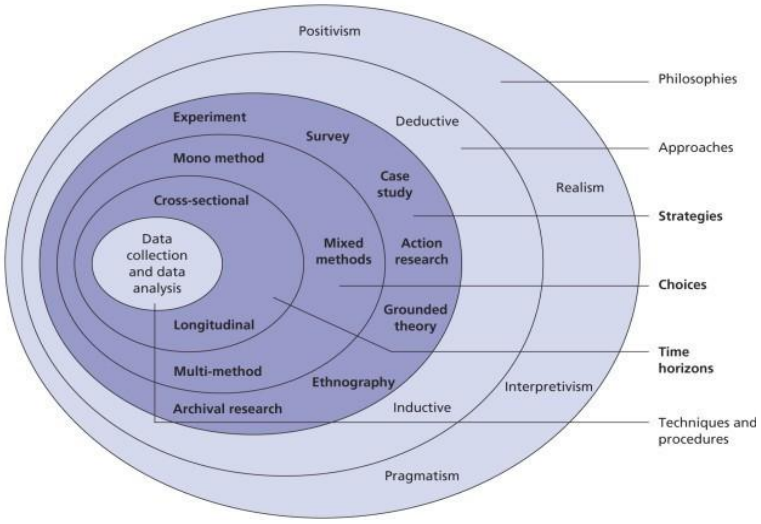


Figure 5-1 The research process "onion"

Source: Saunders *et al* (2009)

This chapter comprises two parts. The first part details the research philosophy and research approach, then the second offers a further exploration of the research design and the selection of appropriate strategies and techniques. Section 5.2 briefly discusses key research philosophies, while Section 5.3 examines the nature of inductive and deductive research approaches. Section 5.4 discusses main research strategies. Section 5.5 presents the research design. Data collection and analysis methods are considered in Sections 5.6 and 5.7. The researcher evaluates quantitative and qualitative research methods and provides a justification for selecting the mixed methods approach. Section 5.8 discusses the quality of this research in regard to issues such as validity and reliability. Finally, Section 5.9 summarises the chapter.

5.2 Research philosophy

Research philosophy reflects significant assumptions about the ways in which researchers view the world. Each philosophy is often referred to as a paradigm and can be defined as the "basic belief system or worldview that guides the investigator", according to Guba and Lincoln (1994, p.105), who consider three aspects of paradigms: ontology, epistemology and methodology. This section briefly introduces research philosophies and provides a rationale for the one adopted for this research.

Blaikie (1993) defines ontology as "the science or study of being", describing "the form and nature of reality". In order to research the concept of ontology, Hatch and Cunliffe (2006) asked study participants to describe their views of reality, concluding that individuals define reality differently as "subjective" or "objective" depending on individual experiences.

Epistemology is "the theory of knowledge", reflecting views "of what we can know about the world and how we can know it" (Marsh and Furlong 2002; Easterby-Smith *et al* 2008; 2012). It helps to determine what knowledge is and to define its sources and limits (Eriksson and Kovalainen 2008). Chia (2002) describes epistemology as "how and what it is possible to know", while Hatch and Cunliffe (2006) summarise it as "knowing how you can know"; they both focus on discovering how knowledge is generated.

When discussing research philosophy, it is important to note that there are two paradigms underlying social science research, differing in ontology and epistemology: positivism and phenomenology (or radical structuralism) (Galliers 1991; Easterby-Smith *et al* 1999).

Positivists believe that reality can be described from an objective viewpoint (Levin 1988) and lean towards a deductive approach. For them, reality is based upon values of reason, truth and validity gathered through direct observation, experimental and manipulative methods and measured empirically using mainly quantitative methods (Blaikie 1993; Saunders *et al* 2007; Eriksson and Kovalainen 2008; Easterby-Smith *et al* 2008; Hatch and Cunliffe 2006, Cohen and Crabtree 2006). Phenomenology, by contrast, leans towards an inductive approach and pertains to "the study of the lived experiences of persons". Within these two research paradigms lie eight research philosophies, seven research strategies, three research choices, two research time horizons, and a variety of research methods for data collection and analysis (Saunders *et al* 2007), which are discussed in subsequent sections of this chapter.

The research philosophies underpinned by the above two paradigms of are realism, interpretivism, objectivism, subjectivism, pragmatism, functionalism and radical humanism. The order in which they are listed shows the extent to which they lean towards deduction or induction. Ranging from a purely positivistic to a purely radical structuralist standpoint are seven main research strategies: experiments, surveys, case studies, action research, grounded theory, ethnography and archival research. In the same order, there are three research choices: mono methods, mixed methods and multi-methods. Each of the research choices assumes the adoption of either a single research method (mono methods), or combined qualitative and quantitative methods (mixed methods). All can fall under cross-sectional or longitudinal time horizons. The techniques available for collecting and analysing data, which depend on the researcher's distinctive ontological and epistemological position, include questionnaires, interviews, content analysis, focus groups and observation (Pettigrew 1990; Wilkinson and Birmingham 2003; Sandelowski 2000).

Gummesson (2003) argues that all research is interpretive, while Otway and Thomas (1982) and Bradbury (1989) contend that every researcher battles with the problem of risk perception while considering objective versus subjective viewpoints, only to favour the subjective perspective as more balanced.

Interpretivists believe that the topic of research can be largely understood through subjective interpretation, which helps to gain real insight in and understanding of the subject (Strauss and Corbin 1990). Interpretivists also argue that individuals understand

various situations through their individual experience, thinking and expectations expressed verbally and non-verbally (Easterby-Smith *et al* 2008). Therefore, over time, interpretivists often reconstruct their view of reality depending on their interpretations of their subjects' views of the world (Denzin and Lincoln 2003).

Considering the nature of ERM (the research subject) in the finance sector (the research field), the researcher has identified interpretivism as the most suitable research philosophy. Interpretivism brings the researcher's work closer to an understanding of the ERM practices in the finance industry and to the development of a new ERM Alignment Framework, enabling practical recommendations to be made to industry practitioners and academics. Moreover, the researcher's business and management background and her practical knowledge of the risk management field pull towards the selection of a more interpretive research approach. This study does not set out to test a single pre-existing theory (for example through the use of hypothesis or experiments), nor does it intend to generate new theory.

5.3 Research approach

This section discusses two key methods of logical reasoning most appropriate as a strong basis for this research. Cresswell (2007) asserts the importance of illustrating the research approach as an effective strategy to increase the validity of social science research. Therefore, this section describes the deductive and inductive approaches and the benefits of combining them.

5.3.1 Deductive versus inductive research

One way to classify research approaches is as inductive and deductive. The deductive approach is described as involving more scientific reasoning; it proceeds from the more general to the more specific and draws conclusions from specific outcomes or facts (Trochim 2000). Conversely, inductive reasoning starts with a specific observation and moves towards a general theory, entailing a degree of uncertainty around involving more complex variables; initial conclusions may be disputed. A known example of the deductive approach is Newton's discovery of gravity from the observation of an apple falling to earth, which he deduced must have been due to a force (gravity). Thus, a specific conclusion can be drawn on the basis of a specific outcome. If the same example is analysed by inductive reasoning, Newton would have observed the fall of an apple during

the harvest and a number of complex conditions would have been considered as reasons for this event.

As Figure 5-2 illustrates, the deductive (top-down) approach begins with a general theory or question that needs to be examined, related to a topic of interest. The theory is then refined to a hypothesis, which is tested for truth or falsity (Blaikie 1993; Gill and Johnson 2002). The hypothesis must be presented as testable and enable the relevant variables to be measured in order to either confirm or reject the hypothesis and consequently the truth of the theory. The outcome of the testing should describe the relationship of those variables. Based on this outcome, the hypothesis may need to be refined to allow for more definite results to be achieved.

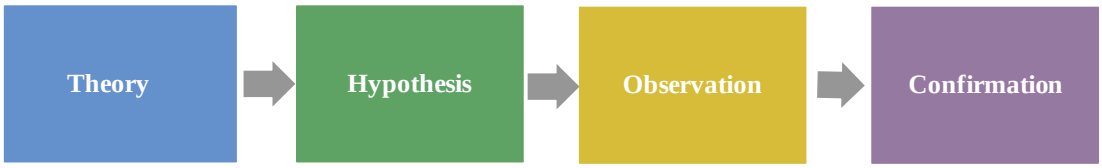


Figure 5-2 Deductive (top-down) approach

Source: Burney (2008)

Deductive research may be considered a classic approach, but it is not without weaknesses. While the process of hypothesis testing is seen as scientific, the theory that is the starting point of the reasoning can be questioned as being subjective. Subjectivity can have a significant impact on forming the hypothesis and its outcomes. Blaikie (1993) argues that the subjectivity of deductive reasoning makes it, in fact, inductive. In addition, deductive research is limited in its ability to include unexpected factors as they emerge during the process of developing the theory, regardless of their potential significance.

Conversely, inductive (bottom-up) research, as illustrated in Figure 5-3, starts with a specific observation and moves towards a general theory (Trochim 2000). This reasoning involves making observations to identify patterns that can form a tentative hypothesis, which is further investigated until general theory can be formulated. The method of analysis specific to inductive reasoning influences the research outcomes and developed theories but tends to be free of bias. The approach rests on the supposition that all science comes from observations, which are the foundation for developing knowledge (Blaikie 1993).

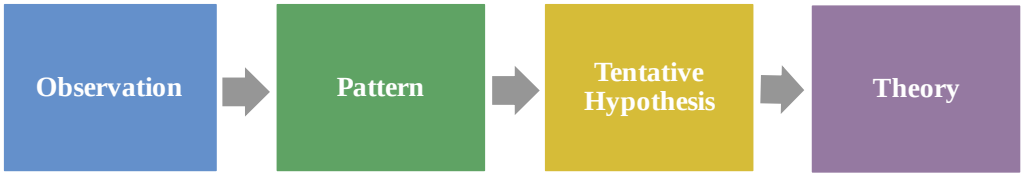


Figure 5-3 Inductive (bottom-up) approach

Source: Burney (2008)

Reservations regarding the inductive approach mainly concern the risk of drawing false conclusions from incorrect assessment of correlations between observations. By increasing the number of observations, the probability of incorrect conclusions can be reduced but not fully eliminated (unless the observations continue ad infinitum).

5.3.2 Combining deductive with inductive reasoning

Although the deductive and inductive research approaches appear to be conflicting in nature, each fulfils an important purpose in the research process. However it materialises, research usually involves both approaches at some stage (Trochim 2000). Figure 5-4 depicts a model showing the cyclical interaction between the two approaches.

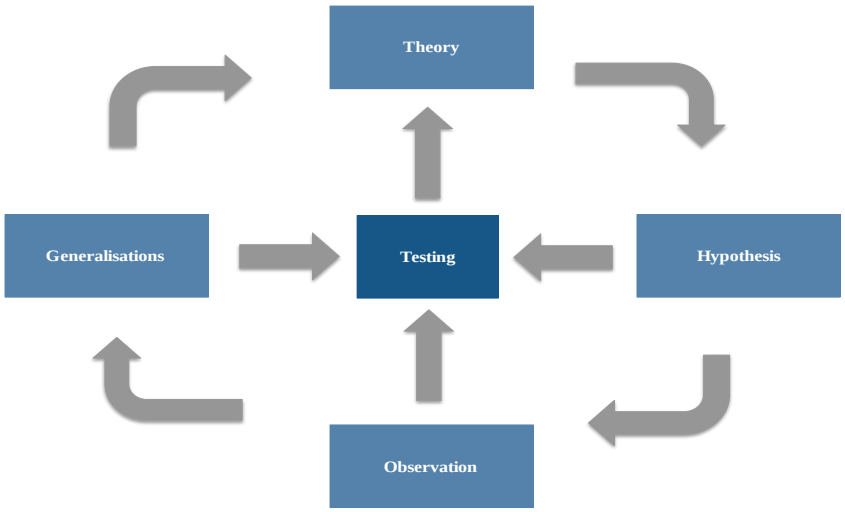


Figure 5-4 Uniting the deductive and inductive approaches

Source: Blaikie (1993), citing Wallace (1993)

The argument that theory is developed inductively ultimately suggests that research can use both types of reasoning and commence at any point. Before formulating a final theory, some additional inductive activities may need to be performed to refine the existing

theoretical assumptions. Therefore, Wallace (cited by Blaikie 1993) includes the integral element of "testing" in his model (Figure 5-4), which allows newly emerging themes to be integrated into the original theory.

Based on the supposition that the deductive and inductive research approaches can be used effectively in combination, this research adopts just such a mixed reasoning. This duality is not symmetrical, as the inductive approach is stronger, but it reflects a certain inclination towards deductive reasoning (Bryman 1988; Bryman and Bell 2003). The researcher's professional experience and observations of risk management as an industry practitioner helped understand the background for the inductive assumptions underlying this research. The deductive element of the study is nonetheless critical to gaining a better understanding of ERM and developing the Strategic ERM Alignment Framework while pushing forward the boundaries of practice. From a deductive point of view, the Framework has been derived on the basis of different theoretical assumptions investigated in the literature reviewed in Chapter 2 and the literature gap relevant to existing ERM practices examined in Chapter 3. In other words, the Framework is deduced from theories and literature. Therefore, the researcher decided that the research design should contain a deductive element to act as both a validating and moderating control over the inductive approach driven purely by observation.

Lastly, balance and objectivity are at the core of this research, which aims to generate academic work of good quality and validity, while making a practical contribution to management research. Therefore, the research questions (Chapter 1, Section 1.7) are intended to lead to achievable applications, being formulated so that the answers will add value to practical implementation and not simply add to the research philosophy.

5.4 Research strategies

Research strategy is one of the components of methodology, providing clear guidance on how to conduct research (Remenyi *et al* 2003). There are several strategies applicable to business and management studies, the most common being case study, experiment, survey and action research (Robson 2002; Yin 2003; Easterby-Smith *et al* 2008; Collis and Hussey 2009; Creswell 2013). This section addresses key conceptual issues and offers a rationale for selecting the case study strategy.

Research strategy is defined differently by various researchers. Saunders *et al* (2009, p. 600) describe it as "the general plan of how the researcher will go about answering the research questions" and Bryman (2008, p. 698) as "a general orientation to the conduct of research". According to Blaikie (1993), research strategy forms a link between the researcher and his or her methods of data collection and analysis. Similarly, Yin (2003) believes that research strategies may be applied to all research studies regardless of their purpose, as long as they answer the research questions and achieve the research objectives (Denzin and Lincoln 2012).

In recent years, case study has developed into a tool widely used to gather a range of data about a specific topic (Denzin and Lincoln 1994; Trochim 2000). For Robson (1993, p. 164), case study is "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence", while Collis and Hussey (2009, p.74) describe it as "a methodology that is used to explore a single phenomenon in a natural setting using a variety of methods to obtain in-depth knowledge".

Among the advantages of case study, its flexibility is widely recognised, as researchers decide the boundaries of the research topic (Robson 1993; Miles and Huberman 1994). Multiple methods of data collection are likely to be adopted in a case study, which is considered strength (Yin 1994). The present researcher agrees with Stenhouse (1985, p. 49) that "the interview is the main road to multiple realities", and following Yin's (2003, p.5) recommendation, focuses on three reasons for adopting a case study: 1) type of research questions (i.e. "how" and "why"), 2) the extent of control the researcher has over actual behavioural events and 3) the degree of focus on contemporary issues. A case study should also be conducted in a natural setting without the manipulation of any elements (Hsieh, unknown). The present researcher remained outside the case as an observer, had no control over the events and did not manipulate the behaviour of respondents in either research surveys or interviews. Agreeing with Yin (1994, p. 113) that "the ability to trace changes over time is a major strength of case studies", the researcher first observed the evolution of ERM in the financial industry over the last two decades, along with the factors that influenced its transformation, then performed the empirical investigation and evaluation of key organisational factors that might influence ERM adoption.

Some aspects of case study such as its flexibility have been criticised by the academic community (i.e. it can result in lack of rigour in sampling, data collection and analysis). Yin (1994) also points out that case studies are criticised for generating large quantity of data. For that reason, Denscombe (2008) raises the issue of its largely descriptive nature. Having considered its main advantages and disadvantages in this section, the researcher emphasises that the value of the case study should not be underestimated as a result of these critiques.

One of the key determinants that strongly supported the selection of case study for this research was its flexibility towards adopting multiple research data collection and analysis techniques, providing a rich mix of data for the study and in-depth knowledge of ERM, the phenomenon being investigated (Yin 2003; Gerring 2007). In fact, the researcher argues that this strategy suits such a heterogeneous research field as ERM, particularly in the finance sector, where it is often difficult to make strong generalisations due to the highly individual nature of organisations and their risk management. The quality of a case study is ensured by four tests common to empirical research (i.e. construct validity, internal validity, external validity and reliability) (Yin 2003; Fellows and Liu 2008) and is discussed in detail in Section 5.9.

5.5 Research design

Having analysed various theoretical contributions to the literature, this section discusses the research design built from within the methodological constraints of mixed methods. Research design is a "road map" that connects the empirical data to the research questions and ultimately to the findings and conclusions (Yin 2009), concerned with collecting, analysing, interpreting and reporting research findings (Creswell and Plano Clark 2010).

The researcher decides on all elements of the research: philosophical assumptions, research method, data collection techniques, approach to data analysis and a written record of the findings (Myers 2009; Miles and Huberman 1994) with the aim of aligning the empirical evidence with the research questions. In effect, the present research was designed in three stages: I) research definition, IIA) qualitative data collection and analysis, IIB) quantitative data collection and analysis, III) research findings (Figure 5-5).

As Figure 5-5 shows, the research design starts with the identification of the research problem, followed by an in-depth review of ERM literature, with the aim of evaluating the

literature gap and addressing the research questions. The literature gap provides a theoretical baseline for developing the theoretical Strategic ERM Alignment Framework. Stage I of the research design concludes with the selection of the most suitable research methodology. Stage II then focuses on defining the appropriate research design for mixed quantitative and qualitative methods of data collection and analysis. Finally, stage III involves interpreting the combined qualitative and quantitative datasets, validating these in the context of the Strategic ERM Alignment Framework developed in Chapter 4 and generating the final research findings.

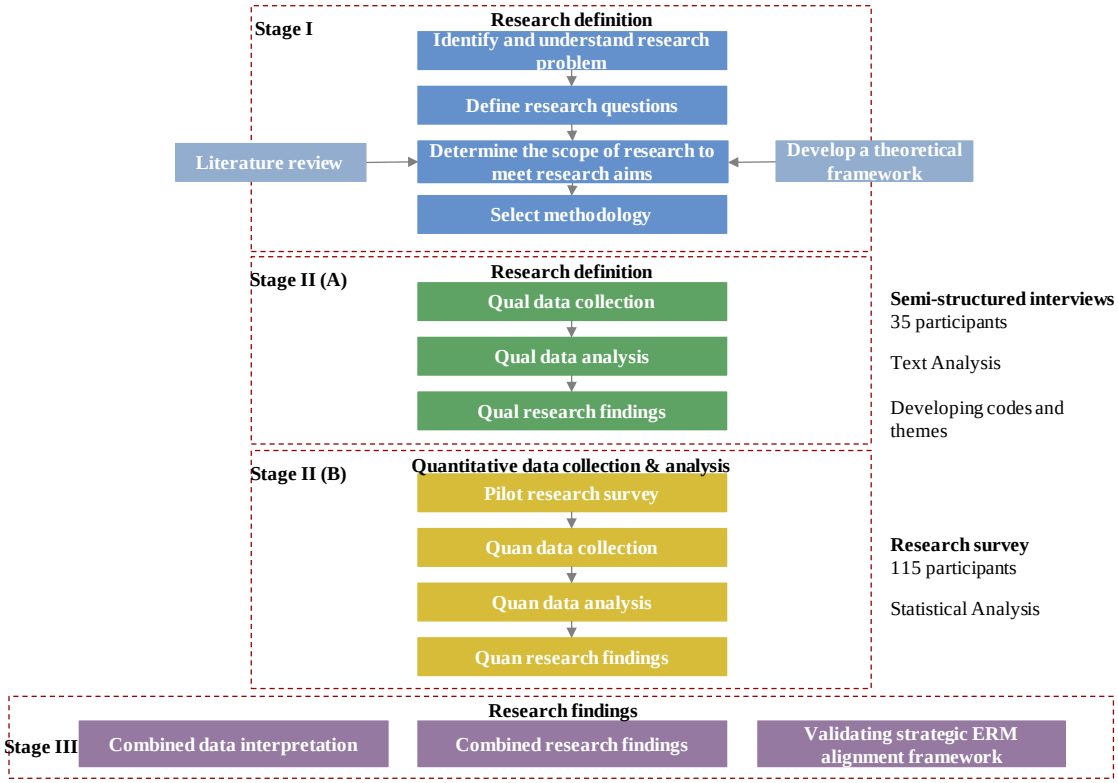


Figure 5-5 Sequential Exploratory Mixed Methods Design

Source: Adopted from Creswell (2007) and Driscoll *et al* (2007)

Creswell (2012) introduces the idea of a "strand", described as a component of a study that includes the basic process of conducting quantitative or qualitative research, when examining four factors contributing to the choice of an appropriate mixed methods research design. Those factors are: 1) the level of interaction between the strands (independent or interactive, 2) the relative priority of the strands, 3) the timing of the strands, and 4) the procedures for mixing the strands. The researcher considers both qualitative and quantitative strands as interactive, with the qualitative taking priority over

the quantitative; the datasets are collected and analysed sequentially. Driscoll *et al* (2007) also describe mixed methods research designs that relate to the timing of data collection.

Creswell (2007) highlights the use of mixing strategies to achieve a more comprehensive understanding of the research problem. There are different ways to mix the datasets: 1) merging or converging, 2) connecting (one builds on the other), 3) embedding (one type of data provides support for the other dataset), and 4) using a framework to bind together the datasets. Figure 5-6 depicts three of these techniques.

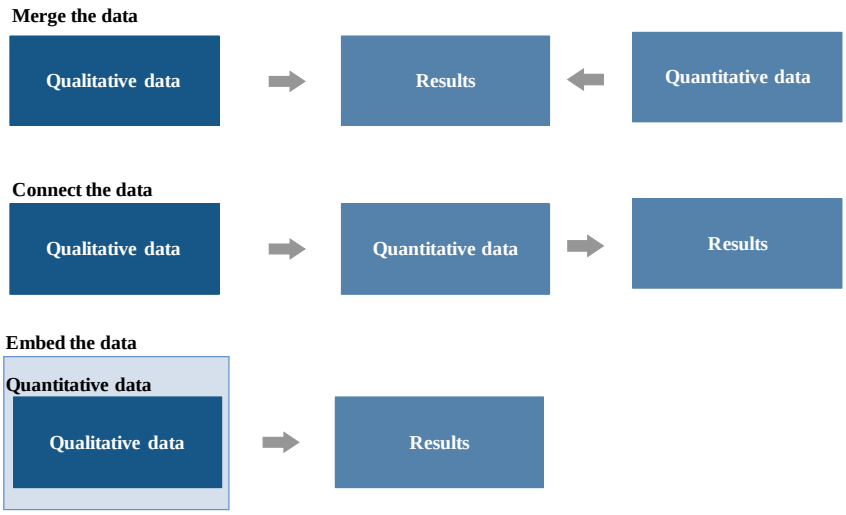


Figure 5-6 Ways of Mixing Quantitative and Qualitative Data

Source: Creswell (2007)

Thus, collecting and analysing quantitative and qualitative data may not be sufficient; the two datasets need to be mixed in some way to form a conclusive picture of the problem (Creswell 2007). Having analysed the nature and the purpose of the research study, the present researcher determined that connecting the qualitative and quantitative data would be the most appropriate technique here.

As Sandelowski (2000) explains, mixed method studies usually assume that the qualitative and quantitative techniques are either explicitly integrated (Caracelli and Greene 1997), or remain as distinct design components. Either the qualitative or the quantitative approach to sampling, data collection and analysis usually prevails over the other and the two may be used sequentially, concurrently, iteratively or in a sandwich pattern (Morse 1991a; Sandelowski 2000; Creswell 2012). Sandelowski (2000), inspired by other researchers, discusses various mixed method design templates that use a combination of timing,

weighting and data mixing (Morse 1991b; Miles and Huberman 1994; Morgan 1998; Tashakkorri and Teddlie 1998). Depending on the underlying logic, there are certain criteria that are best suited to a specific research design (Table 5-1).

Table 5-1 Preliminary Design Considerations

Design Type	Variants	Timing	Weighting	Mixing	Notation
Triangulation	Convergence Data transformation Validating quantitative data Multilevel	Concurrebt: quantitative and qualitative at same time	Usually equal	Merge the data during the interpretation or analysis	QUAN+QUAL
Embedded	Embedded experimental Embedded correlational	Concurrent or sequential	Unequal	Embed one type of data within a larger design using the other type of data	QUAN (qual) or QUAL (quan)
Explanatory	Follow-up explanations Participant selection	Sequential: Quantitative followed by qualitative	Usually quantitative	Connect the data between the two phases	QUAN-> qual
Exploratory	Instrument development Taxonomy development	Sequential: Qualiatative followed by quantitative	Usually qualitative	Connect the data between the two phases	QUAL-> quan

Source: Creswell and Plano Clark (2007)

As discussed earlier in this chapter, this research entails the sequential use of data collection techniques commonly associated with qualitative and quantitative research. As symbolised in Table 5-1 as QUAL→quan (research interviews→survey), this research design reflects the qualitative research prevailing over the quantitative method (Sandelowski 2000) and can be classified as exploratory (see Figure 5-5).

Following the recommendations of Creswell and Plano Clark (2007), the researcher first examined how individuals described the ERM research topic in interviews (QUAL[3] data collection). Then, iteratively, the researcher developed a quantitative research survey distributed to a larger population (QUAN[4] data collection). As Figure 5-5 shows, the datasets were analysed in sequence, the qualitative data, being primary, was analysed first (Stage IIA; Figure 5-5). The quantitative data analysis (Stage IIB; Figure 5-5) supports the findings of the qualitative data investigation by exploring the views of research participants in more detail (Rossman and Wilson 1985; Tashakkori and Teddlie 1998; Creswell *et al*

[3] Qualitative

[4] Quantitative

2003). The overall purpose of the sequential design was to use a quantitative strand to explain qualitative results (Tashakkori and Teddlie 1998; Creswell *et al* 2003).

5.5.1 Research process

This subsection discusses the research process followed in this study, divided into desk (Section 5.5.1.1) and field research (Section 5.5.1.2), both forming a theoretical baseline for the development of the Strategic ERM Alignment Framework.

5.5.1.1 Desk research

The purpose of the desk research was to establish a theoretical baseline for the development of the Strategic ERM Alignment Framework, as set out in Chapter 4, through an in-depth literature review (Chapter 2), followed by identification of the ERM literature gap (Chapter 3). The evaluation of existing ERM literature, comprising books, academic and industry journals and case studies, provides an understanding of ERM practices across the financial sector and serves to identify key strengths and weakness.

The reviewed literature was categorised in Chapter 3 according to a framework of four quadrants (The Four-Quadrant Framework), depicting research philosophy as visionary or implementational and outcomes as descriptive or prescriptive (see Section 3.2, Table 3-1). The conclusions drawn in Chapter 3 reveal the lack of a strategic approach to ERM in the finance industry and support the need for developing a strategic framework to address and builds around the existing ERM gaps.

The purpose of using the Four-Quadrant Framework (Althonayan 2003) was to develop a better understanding of each of the categories and to explore the criteria required for each quadrant. The researcher was able to identify the areas of ERM research in need of further development. Based on the existing research and the outcome of the literature review, the researcher was able to classify most of the literature as either visionary-descriptive or visionary-prescriptive. While some literature could be classified as implementational-descriptive, little was found to be implementational-prescriptive. This observation confirmed the need for strategic ERM lying in this fourth quadrant. Key objectives of the desk research were as follows:

- To identify key academic and industry-based ERM literature
- To characterise the ERM literature gap

- To determine the theoretical baseline for a strategic ERM Alignment Framework to address the literature gap
- To strengthen expertise on the research subject.

As a result of the field research, the development of this proposed framework, its analysis and its validation would make a research contribution by addressing an existing literature gap and providing practical recommendations to academia and the financial industry.

5.5.1.2 Field research

The choice of research methodology is intended to support and facilitate the researcher's focus on the main contribution of this research, i.e. developing a strategic ERM alignment framework. To strengthen the analytical power of arguments, the researcher deemed the application of mixed methods most appropriate for this research:

1. Primary research data sources:
    a. Qualitative research (QUAL)
        i. Semi-structured interviews with senior ERM practitioners
    b. Quantitative research (QUAN)
        i. Survey questionnaires distributed to respondents across financial organisations
2. Secondary research data sources:
    a. Literature review (academic and industry-based research)
    b. Existing academic and industry surveys and case studies of financial organisations regarding risk management practices.

The main objectives of the field research were:

- To investigate the current state and the level of maturity of ERM practices in the finance industry and to identify areas for further development;
- To examine key organisational factors critical to strategic ERM;
- To assess challenges to ERM and to propose ways to overcome them effectively;
- To determine the key benefits of ERM;

- To collect empirical evidence to validate the theoretical Strategic ERM Alignment Framework and to provide practical guidance to academia and the financial industry.

5.5.2 Sample composition

This section discusses sampling techniques suitable for mixed research and focuses on the sample composition. Typically, quantitative research relies on a large, randomly drawn sample, while qualitative studies are often associated with smaller, purposive (non-random) samples (Bazeley 2003). The researcher considered a variety of sampling techniques, discussed in detail in this section.

According to Creswell (2012), the idea behind qualitative research is to identify purposefully selected participants and settings to improve the understanding of the research problem. Such purposive sampling contrasts with the random sampling of larger populations typically associated with quantitative research (Miles and Huberman 1994; Creswell 2012). According to Patton (1990, p. 169), purposive sampling involves "selecting information-rich cases for study in depth". This method assumes that the research participants must have first-hand experience of the research topic and be able to discuss it and share their views. The researcher establishes a clear rationale and criteria for sample selection. The primary goal is not the generalisation of findings but rich descriptions of phenomena by those who have experienced them (Jackson and Verberg 2007).

Sampling methods are classified as either probability or non-probability. In probability sampling, each member of the population has a non-zero probability of selection. Common probability methods are random sampling, systematic sampling and stratified sampling. In random sampling, the nature of the population is defined and all members have an equal chance of selection. Non-probability approaches such as convenience sampling, judgment sampling, quota sampling, and snowball sampling involve choosing participants from the population in some non-random manner (Cochran 2007).

For qualitative data collection, non-probability sampling is considered the most efficient approach; randomisation may be irrelevant and too expensive for this type of research. In quantitative data collection, however, random events are comparable and predictable;

therefore the most effective sampling methods are probabilistic. The aim of sampling related to the quantitative part of mixed methods research is to draw a sample from the population so that the results can be generalised across the population (Patton 2002). In essence, a representative sample resembles the total population.

Three non-probability approaches to selecting a sample for a qualitative study are discussed in this section: convenience sampling, theoretical sampling and judgement sampling. Convenience sampling usually involves the most accessible participants but may result in poor quality data and lack intellectual credibility. Theoretical sampling is usually theory driven, and not deemed fit for this research. Judgement sampling is the most common technique, where the subjects selected are those considered most likely to answer the research questions. This method may be valuable to any research with a broad range of subjects including sample outliers (deviant sample), those with specific experience (critical case sample) or those with unique expertise (key informant sample). Additionally, existing participants may recommend other potential candidates for the research, producing a snowball sample. This technique was considered the most appropriate to select the sample for the semi-structured interviews in this research (Marshall 1996).

The first stage of data collection thus involved conducting in-depth qualitative semi-structured interviews with a sample of thirty-five key ERM practitioners representing various financial organisations, who met the relevant research criteria. Convenience sampling is usually determined by the availability of certain individuals who are otherwise difficult to contact (Wardhaugh 1996), or a belief that the issue of representativeness is less significant in qualitative research than in quantitative research, because it leads to an in-depth analysis (Bryman and Bell 2007; Bryman 2012). Therefore, both convenience and judgement sampling techniques were used as most appropriate at this stage. Because of the nature of the research and restrictions on employees' time, the sample was limited to those industry professionals having key involvement in ERM. This limited population of potential candidates with specific ERM expertise made non-probability judgement sampling appropriate. This method was selected to ensure that participants represented a wide range of business, risk, leadership and managerial backgrounds within their profession (Glaser and Strauss 1968).

At the second stage of data-gathering, an online quantitative survey was distributed to a sample of finance industry professionals who met the research criteria. These participants were selected by a probability method, random sampling. All stages of data collection represent a different perspective from participants of diverse professional backgrounds, therefore illustrating their professional relationship to various ERM areas. The sample selected for the research survey consisted of industry professionals who had worked in the risk management field for a number of years, had good knowledge of ERM and could therefore provide sufficient theoretical and practical expertise.

5.5.3 Sample size and data saturation

In mixed methods research, sample sizes will depend on whether a qualitative or quantitative approach is taken, while the size of a qualitative interview sample will itself vary with the researcher's methodological and epistemological perspective (Small 2009; Baker and Edwards 2012). For example, Adler and Adler (1998; 2011) regard as sufficient a sample of between twelve and sixty, with thirty being the mean, whereas Ragin and Becker (1992) suggest a sample of 20 for an MA and 50 for a PhD dissertation (Baker and Edwards 2012). Thus, one of the challenges of qualitative methods is determining the number of interview participants required to achieve the satisfactory research quality (Savolainen 1994). In order to decide how many qualitative interviews to conduct, the researcher further interrogates the research aims to produce the desired research outcome (Lieberson 1991; DePaul 2000).

In the context of achieving an appropriate level of research validity and ensuring the study stands up as a piece of social science research, the present researcher aimed for data saturation, defined by Glaser and Strauss (1967, cited by Mason 2010, p. 55) as being reached "when the collection of new data does not shed any further light on the issue under investigation".

Therefore, the researcher considered the value of the quality of the data analysis and the effort and time taken to analyse interviews, rather than quantity exclusively. Developing a convincing analytical narrative based on "richness, complexity and detail", rather than on statistical logic exclusively, remains critical to this research (Baker and Edwards 2012). The researcher also considered limitations to the size of the sample, such as the population of senior ERM professionals available for interviews and the time available for data-

gathering. As a result, an initial sample of between fifteen and forty interview participants was considered likely to provide ample qualitative data to fulfil the research aims and answer the research questions. The researcher also outlined a minimum of ten financial organisations to be represented in the interview process, to ensure diversity in the qualitative data obtained. The distinctive nature of ERM across financial organisations called for consideration of key organisational factors that might be critical to individual ERM implementations. Consequently, a sample of 35 interviewees was determined to be optimum to allow valid deductions about the population and to address the research questions adequately (Marshall 1996).

As for the quantitative stage, the researcher considered n>100 the optimum sample size. Since the quantitative data was intended to supplement the findings of the data collected in the research interviews, a sample size of 115 respondents was deemed sufficient for a reliable statistical analysis (Tashakkori and Teddlie 1998).

5.6 Mixed methods of data collection

This section discusses the mixed data collection techniques used in this research (Figure 5-5). The definition of mixed methods suggests that the research involves collecting and analysing at least one qualitative (designed to collect words) and at least one quantitative dataset (designed to collect numbers) within a study of inquiry (Caracelli and Greene 2003). Therefore, this section focuses on presenting the theoretical assumptions behind the two divergent methods, those based on quality and quantity, their key advantages and disadvantages, along with the strategy used for mixing them (Denzin and Lincoln 1994).

The idea of mixing qualitative and quantitative data collection methods has stimulated much interest and debate in recent years (Greene and Caracelli 1997; Sandelowski 1995; Tashakkori and Teddlie 1998; 2003; Johnson and Onwuegbuzie 2004). Researchers tend to adopt such mixed methods to expand the scope of their research and intensify new insights (Sandelowski 2000).

Johnson and Onwuegbuzie (2004, p. 15) characterise mixed methods as a “research paradigm whose time has come” and the “third research paradigm”. Denscombe (2008) rejects the assertion that mixed methods are new, arguing that they have been applied in research throughout history. Creswell (2007; 2012) emphasises that mixing of data can provide a better understanding of the research problem, strengthen the analytical power of

arguments and add more value to the research study than a qualitative or quantitative method alone. Furthermore, Tashakkori and Teddlie (2010) acknowledge much growth and diversification in the field of applying mixed methods. The researcher argues that the strengths of mixed methods research can offset the limitations of either qualitative or quantitative methods alone (Jick 1979).

The complementary nature of mixed methods is also important. As Caracelli and Greene (2003) indicate, a complementarity purpose is met when qualitative and quantitative methods measure overlapping but distinct aspects of the phenomenon under research. The researcher accepts Sandelowski's (2000) view that qualitative research expresses "the voices of research participants". At the same time, the researcher ensured that a potential risk of bias related to personal interpretations of the topic was minimised by the quantification of participants' answers (Sandelowski 2000). Table 5-2 illustrates key literature contributions to the development of mixed methods research in four stages over the last few decades.

Table 5-2 Contributions to the development of mixed methods research

Stage of development	Authors (Year)	Contribution to Mixed Methods Research
Formative period	Campbell and Fiske (1959)	Introduced the use of multiple quantitative methods
	Sieber (1973)	Combined surveys and interviews
	Jick (1979)	Discussed triangulating qualitative and quantitative data
	Cook and Reichardt (1979)	Presented 10 ways to combine the quantitative and qualitative data
Paradigm debate period	Rossman and Wilson (1985)	Discussed stances towards combining methods - purists, situationalists and pragmatists
	Bryman (1988)	Reviewed the debate and established connections within the two traditions
	Reichardt and Rallis (1994)	Discussed the paradigm debate and reconciled two traditions
	Greene and Caracelli (1997)	Suggested that we move past the paradigm debate
Procedural development period	Greene, Caracelli and Graham (1989)	Identified a classification system of types of mixed methods designs
	Brewer and Hunter (1989)	Focused on the multimethod approach as used in the process of research
	Morse (1991)	Developed a notation system
	Creswell (1998)	Identified three types of mixed methods designs
	Morgan (1998)	Developed a typology for determining design to use
	Newman and Benz (1998)	Provided an overview of procedures
	Tashakkori and Teddlie (1998)	Presented topical overview of mixed methods research
	Bamberger (2000)	Provided an international policy focus to mixed methods research
Advocacy as separate design period	Tashakkori and Teddlie (2003)	Provided a comprehensive treatment of many aspects of mixed methods research
	Creswell (2003)	Compared quantitative, qualitative, and mixed methods approaches in the process of research
	Johnson and Onwuegbuzie (2004)	Positioned mixed methods research as a natural complement to traditional qualitative and quantitative research

Source: Adopted from (2007)

The use of mixed method research may allow exploratory research that can be highly effective with solely qualitative research, especially when investigating the highly heterogeneous topic of managing risk in the finance sector (Creswell 2007). Mixed methods have been proven to provide more comprehensive empirical evidence to support the research aim that is of value to this research. In addition, addressing the research problem by means of mixed methods appeared practical because the participants tended to solve problems by combining inductive and deductive thinking as the mode of understanding ERM across the financial sector.

Section 5.6.1 examines key characteristics of both research approaches and substantiates the researcher's choice of mixed methods. Such research can prove to be complex to adopt; it requires time and resources to collect and analyse both quantitative and qualitative data.

5.6.1 Qualitative versus quantitative research

Researchers may be predisposed towards one set of research methods. Therefore, understanding the difference between the qualitative-versus-quantitative methodologies is critical (Gummesson 2000; Bryman and Bell 2003). Both approaches are considered standard but independent ways to conduct research developed in parallel over time (Flick 2009). Each set of methods is characterised in detail in Table 5-3.

Table 5-3 Main characteristics of quantitative and qualitative research

	Qualitative Research	Quantitative Research
Objective	Understanding of underlying reasons and motivations	Quantifying data and generalise results from a sample to the population of interest
	Provides insights into the setting of a problem, generating ideas and/or hypotheses for later quantitative research	Measures the incidence of various views and opinions in a chosen sample
	Describes meaning, discovery while using communication and observation.	Establishes relationships and causation, and uses specific instruments.
Research approach	Reasoning is dialectic and inductive	Reasoning is logistic and deductive
Research questions	What? Why?	How many? Strength of association?
Literature review	Literature review may be done as study progresses or afterwards	Literature review must be done early in study
Sample	Sample size is not a concern; seeks informal, rich sample	Sample size: n>100
Data collection	Unstructured or semi-structured techniques e.g. individual depth interviews or group discussions.	Structured techniques such as online questionnaires, on-street or telephone interviews.
Data analysis	Non-statistical.	Statistical data is usually in the form of tabulations (tabs). Findings are conclusive and usually descriptive.
Outcome	Exploratory and/or investigative. Strives for uniqueness; patterns and theories developed for understanding.	Strives for generalisation leading to prediction, explanation and understanding.

Source: Adopted from Anderson (2006)

As outlined in Section 5.6, in the present mixed research, the main qualitative data collection method was semi-structured interviews, while quantitative data was collected by means of a survey. The researcher determined the survey population and sample on the basis of the research criteria explained in this chapter. The link to the online survey was distributed electronically, giving participants abundant time and the choice of environment to answer the questions (Robson 2002).

Creswell (1998, p.39) describes qualitative research as a "process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting". McMillan and Schumacher (1993, p.479) refer to a "primarily […] inductive process of organizing data into categories and identifying patterns (relationships) among categories". Qualitative research is a set of methods used to inquire into a problem, issue, question or theory of interest to a researcher; it seeks to build a holistic, largely narrative, description to inform the researcher's understanding of a social or cultural phenomenon (Bargagliotti 1983; Trochim 2000; Marshall and Rossman 2006; Myers 2009).

Conversely, quantitative research addresses "how many" questions and is based on the idea that the research subject can be quantified, measured and expressed numerically; quantitative data is expressed in numerical values and can be analysed statistically (Trochim 2000). The quantitative approach also comprises various research methods, including surveys, laboratory experiments, simulation, mathematical modelling, structured equation modelling, statistical analysis and econometrics (Myers 2009).

Since both qualitative and quantitative research can be used to seek a description of social reality, Table 5-4 further illustrates key advantages and disadvantages of both approaches.

Table 5-4 Advantages and disadvantages of quantitative and qualitative research

	Quantitative research	Qualitative research
Advantages	■ Allows accurate measure of variables	■ Enhances description/theory development
	■ Structured & standardised	■ Describes theories and experience
	■ Statistical methods for data analysis	■ Allows deep understanding & better insight
	■ Generalisations	■ Holistic and humanistic
	■ Objective	■ Flexible
	■ Measurable	■ Value placed on participants' views
		■ Interpretive
		■ Subjective dimensions are explored
Disadvantages	■ Inflexible	■ No hard data, no clear measuring
	■ Deterministic	■ Subjective, 'non-scientific'
	■ Disregard of some important factors	■ Deep researcher involvement increases risk of bias
	■ Excludes subjective aspects of human existence	■ Small samples
	■ Assumption of an "objective" truth	■ Generalisation limited to similar contexts and conditions
	■ Generation of incomplete understandings	
	■ Inapplicable to some immeasurable phenomena	

Source: Althonayan (2003)

Among the advantages of quantitative methods are that it is easy for participants to tick boxes and to apply numerical scoring methods with no lengthy descriptive questions, thus greatly reducing the time spent on collecting data. The researcher's ability to address a geographically dispersed population is valuable and can yield some very specific and highly detailed results that are easily comparable across the sample. Subsequently, the results are measurable in the statistical analysis and can be generalised to a larger population.

However, inflexibility, the relatively rigid structure of questionnaires and little or no ability to integrate emerging themes into the research weakens the potential advantages of this method and may generate skewed data (Trochim 2000; 2002). Having considered the potential disadvantages of this method (Table 5-4), the researcher resolved the potential weaknesses of research surveys by increasing the focus on the preparation stage, conducting a pilot research survey whose findings were reviewed and incorporated into the finalised version of the questionnaire distributed among the sample population.

The researcher recognises that the flexibility of the qualitative method leads to more compelling research case (Yin 2003; 2013). The provision of flexibility through the use of open-ended questions gives the participants an opportunity to respond in their own words, rather than being forced to choose from fixed responses. Open-ended "why" or "how"

questions can evoke meaningful and unexpected responses that strengthen the research outcomes in a unique manner (Yin 2003). Table 5-5 summarises key features of both approaches and depending on the research aim, provides guidance for selecting the most appropriate one.

Table 5-5 Comparing quantitative and qualitative research approaches

Use this approach if:	Quantitative	Qualitative
If you believe that:	There is an objective reality that can be measured	There are multiple realities; focus is complex and broad
Your audience is:	Familiar/supportive of quantitative studies	Familiar/supportive of qualitative studies
Your research question is:	Confirmatory/predictive	Exploratory/interpretive
The available literature is:	Relatively short	Relatively long
Your research focus is:	Broad	Narrow and deep
Your ability and desire to work with people is:	Medium or low	High
Your desire for structure is:	High	Low
You have skills in areas of:	Deductive reasoning	Inductive reasoning
Your skills are strong in the area of:	Technical and scientific writing	Literary, narrative writing; attention to detail

Source: Leddy and Ormond (2001)

On balance, the researcher considered a quantitative survey a useful data collection method, particularly to validate the findings of the qualitative phase and provide supporting information on the views of the respondents regarding ERM (Robson 2002). Whilst qualitative data identified key areas of ERM research, quantitative data helped assign weight to their importance (Trochim 2000).

In conclusion, the differences between qualitative and quantitative research have been discussed by a number of different researchers (Maxwell 1998; Thomas 2003; Corbetta 2003) and a key differentiating issue is identified as the nature of the data. The present research required the data collected to be rich, deep and descriptive, in order to accommodate the aim of identifying current ERM practices in the finance industry, reflected in a strategic ERM Alignment Framework. This allowed the researcher to follow the evolution of ERM and to discover various trends in this area over the last two decades, while helping to validate emerging ideas related to this research in the academic and industrial contexts.

5.6.2 Research interviews

This section offers a theoretical discussion of the types of interviews suitable for qualitative research, the design of the research interview process and selection of the interviewees. According to Kvale (1996), the qualitative research interview seeks to describe the meaning of central themes in the world of the subjects. The main task in interviewing is to understand what the interviewees say. Therefore the researcher focuses on establishing both "a factual and a meaning level", and getting to know the story behind each participant's experiences (Kvale 1996).

Three typical forms of interview are discussed in this section: unstructured, semi-structured and fully structured (Figure 5-7).

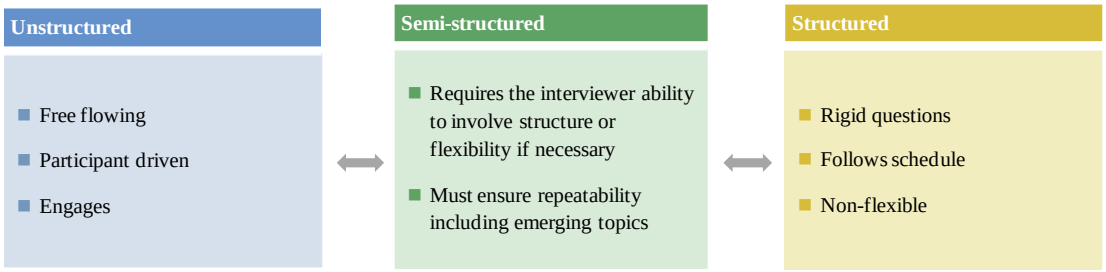


Figure 5-7 The interview structure spectrum

Source: Trochim (2000)

The unstructured interview has a free form appropriate to discussing a broad subject of interest. Such interviews are subject to the interviewees' discretion and the level of informality can encourage the willingness to share information, resulting in a wealth of detailed data being elicited, some of which is of only marginal use to the research (Wengraf 2001). Furthermore, the consistency and reliability of the data obtained will be dependent on the interviewer's professionalism (King 1994).

In semi-structured interviews, the interviewer follows a predetermined schedule, keeping the questions within the scope of the topic of interest. There is the flexibility to discuss emerging subjects raised by interviewees (Trochim 2000), allowing the interviewer a level of proactivity to manage the flow of the discussion. The researcher may also become aware of new aspects relevant to the topic that were not identified before the interview. The advantage over a less structured interview method is higher standardisation, adding

reliability to the collected data, as well as the ability to cover emerging views on the topic of discussion (McCracken 1988).

Structured interviews are the least flexible type, following a strict agenda set out by the researcher. This type is similar to a personally led survey, with room to add open-ended questions and record the answers on paper (McNamara 1999; Robson 2002). A key advantage of the structured interview is ease of repetition, which increases data reliability (Wengraf 2001). Direct control over interview questions helps the researcher to follow a fixed research design more clearly, but at the same time makes it difficult to integrate emergent topics raised by interviewees (Campion *et al* 1994; Pawlas 1995; Robson 2002).

Telephone interviews, which have become more common in recent years, can be appealing to participants because they reduce the time spent on the interview itself, but the lack of face-to-face and non-verbal human interaction can be a significant drawback. Some of the interviews in the present research were conducted face-to-face and some over the telephone, due to the geographic dispersion of the participants.

Regardless of the type, interviews have a broad range of advantages and disadvantages over other data collection techniques. Insufficient standardisation may create difficulties for researchers in monitoring, managing and analysing the process (Rubin and Rubin 1995; Robson 2002). To compensate, the interviewer remains professional in conducting the interview, outlining the discussion guidelines and allowing participants to raise emerging topics without drifting away from the main topic (Kvale 1989).

Interviewing is time-consuming; therefore it should be well planned, organised and performed. The traditional criticism of qualitative interviews is also the potential lack of objectivity (Kvale 1996). Having selected interviews as a primary method of data collection and analysis, the researcher followed Kvale's (1996) seven stages of interview investigation, illustrated in Figure 5-8.

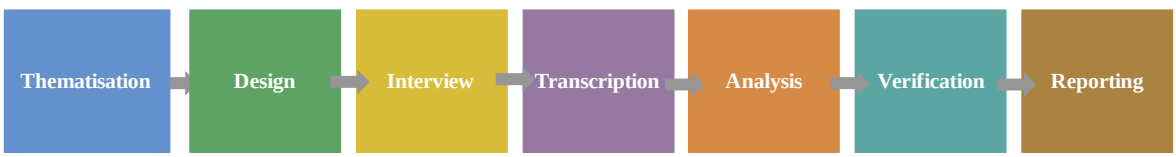


Figure 5-8 Stages of Interview Investigation

Source: Adopted from Kvale (1996)

The seven-stage technique ensures that the analysis is carried out in a structured way and enables a researcher with little qualitative research experience to provide a reasonable and reliable analysis, combined with the chain-of-evidence principle (Yin 2003). The process of thematisation involves developing the research aims, objectives and questions, then deciding how the study will be formulated. Design is discussed in the next subsection. The interview stage aims at obtaining empirical data that ensures the quality of the study and can answer the research questions (Kvale 1996). At the transcription stage the qualitative data is converted into specific categories to allow further interpretation. Once transcribed, the data is analysed (Chapters 6 and 7), validated (Chapter 8) and reported as research findings and recommendations (Chapter 9).

5.6.2.1 Design of Research Interviews

This section explains the process of developing interview questions around key ERM research areas developed through the literature review:

- The evolution of enterprise risk management
- Risk management failures;
- ERM alignment with key organisational factors;
- Benefits and challenges of ERM;
- Enterprise risk oversight at the board risk;
- Value-adding ERM as a driver of competitive advantage;
- Enterprise risk culture.

The research interview consisted of approximately eleven open-ended core questions, divided into three sections, on 1) ERM generally, 2) ERM as applied by each interviewee's organisation, and 3) the strategic ERM Alignment Framework (see Appendix B for a complete list of interview questions). The researcher followed Kvale's (1996) suggestions on varying the type of questions, such as introducing, follow-up (elaboration), direct and indirect questions. Direct questions were left until the end of the interview in order to avoid influencing its direction. Interpreting questions were considered particularly critical; therefore participants were asked to clarify their responses if needed to minimise the risk of bias and misinterpretation.

Due to the flexible nature of semi-structured interviews, the emphasis is on how the interviewees understand research issues and the topic. Figure 5-9 illustrates the process of formulating questions followed by the researcher.

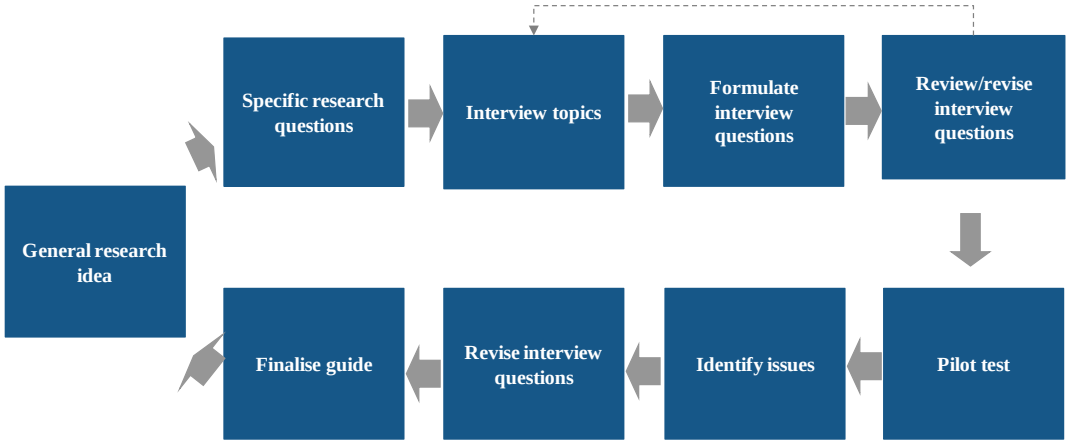


Figure 5-9 Formulating interview questions

Source: Bryman (2012)

According to Kvale (1996), for an interview protocol to support the research method effectively, several dimensions should be considered. For example, the level of openness throughout the interview can set the stage for an exploratory interaction between the interviewer and the interviewees, preparing them to provide their own insight on the topic. Before an interview, the researcher tries to get an appreciation of what questions may be significant in relation to each of the research areas. With that in mind, the researcher is prepared to modify the order in which the specific questions are asked during the actual interview to adjust to the interviewees' knowledge and the flow of the interview.

Following Foddy (1993) researcher formulated the interview questions to address the research questions and potentially leading questions were eliminated where possible. Interviewees requested sight of the interview guidelines, including the structure, agenda and topics, at least a week in advance, to allow ample time to familiarise themselves with the research. In case interviewees had any questions prior to the interview, they were encouraged to clarify those with the researcher beforehand. The interview length was set at approximately thirty to sixty minutes.

The first part of the interview included questions to establish the demographic profile of all participants and their employing organisations, to ensure that participants had sufficient

ERM knowledge and expertise to provide valid data. Before the discussion of ERM commenced, the researcher asked questions regarding the nature of the business of participants' employers, to determine the context for ERM. Because of the sampling technique chosen for this data collection stage, certain information regarding participants' positions, seniority and organisational details may already have been obtained.

The second section of the interview included questions primarily related to ERM in the interviewee's organisation, the aims being: 1) to establish the depth of recent changes in ERM practices, 2) to determine the current state and level of maturity of ERM, 3) to understand key factors critical to ERM implementation across the finance sector.

The third section of the interview involved specific questions about the strategic nature of ERM, intended to elicit the empirical data required to validate the theoretical Strategic ERM Alignment Framework (Chapter 4). Questions referred to key organisational factors critical to establishing a sustainable strategic ERM framework, along with key benefits and potential challenges. As the data was collected and analysed, all emerging ideas and the comments of the participants were integrated into the validated Strategic ERM Alignment Framework and used to develop it as a prescriptive tool, as presented in Chapter 8.

5.6.2.2 Selection of Interviewees

Two non-random methods of selecting interview participants were employed in this study. First, the researcher identified a sample of approximately twenty people within her own professional and academic network who met the research requirements of seniority, a number of years of ERM expertise and familiarity with the research topic. Further interview participants were then selected by snowball sampling, as discussed in Section 5.5.2. The interviewees were recommended by members of the researcher's professional networks (e.g. PRMIA, GARP, IRM, RIMS and various associations of ERM practitioners) familiar with the research and actively participating in either the interviews or the survey. These approaches led to the selection of thirty-five interview participants.

5.6.3 Research survey

This section discusses the analytical process of determining a research survey design suitable for this research, including the conduct of a pilot survey. Table 5-6 shows how the respective sections of the survey were related to the research questions (Chapter 1).

Table 5-6 Structure of the research survey

Description of Section	Topics	Research Questions
Section I: Demographic Profile		
Demographic facts about respondents and their organisations.	Descriptive variables	N/A
Section II: Enterprise Risk Management		
ERM across financial organisations	Current state of ERM	1. How do financial organisations transition from their traditional silo risk approach to ERM?
	Maturity level of ERM	2. How did financial organisations change their existing approach to managing risk since the GFC?
Section III: Developing a strategic ERM Alignment Framework		
Developing a strategic ERM Alignment Framework for the finance industry.	Key organisational factors critical to a strategic ERM framework	3. What are the key organisational factors critical to strategic ERM implementation and how to incorporate those into the Strategic ERM Alignment Framework?
	Main benefits and challenges of ERM	4. How can ERM achieve long-term sustainability, enhance shareholder value and drive competitive advantage?
	Value-adding sustainable ERM	
	Enterprise risk culture	5. How important is the role of enterprise risk culture in ERM implementation?
Section IV: Risk Management		
This section, added after the pilot survey, applied only to risk management professionals.	The definition of risk management and risk framework	1. How do financial organisations transition from their traditional silo risk approach to ERM?
	The current state of risk management practices and their shortcomings (rationale for not implementing ERM)	
	Risk improvements introduced post-GFC	2. How did financial organisations change their existing approach to managing risk since the GFC?
	The benefits and challenges of risk management	

Source: Researcher

Before conducting the main survey, the researcher decided to run a pilot survey as a critical form of preliminary evaluation, to capture key emerging research themes not included in the original draft of the survey. Feedback from the pilot survey participants formed a baseline for making necessary amendments before the survey was distributed to the main sample. Lastly, the researcher designed a clear, simple layout for the survey and avoided technical jargon wherever possible.

The pilot survey mirrored the original draft of the research questionnaire, comprising thirty-five questions in four sections, each beginning with a brief introduction of the contents. Section I had seven questions to establish the demographic profiles of the respondents and their organisations. Section II consisted of ten questions aiming to measure their level of understanding of ERM and the current state of ERM and its maturity in financial organisations. The main objective of the nine questions in Section III was to gather empirical data to validate the theoretical Strategic ERM Alignment Framework. The dominant questions in this section concerned factors critical to a strategic ERM

framework, desired ERM benefits, possible ERM challenges and recommendations on how to overcome them. Section IV also consisted of nine questions, intended exclusively for participants who had indicated a lack of sufficient ERM knowledge and expertise at the beginning of the questionnaire. Most questions were closed-ended, with a few open-ended questions across all sections. The expected completion time was 10 to 15 minutes for those completing Sections II and III, or five minutes if they were re-directed to Section IV.

The sample for the pilot test was selected from among academics and industry professionals. Based on seniority and expertise in ERM, the participants provided valuable views on the construction of the survey and its relevance to key research questions. These respondents also suggested some questions that the researcher had not considered during the construction of the pilot survey. Table 5-7 summarises their feedback, which the researcher used to revise and rephrase the questions in the main survey.

Table 5-7 Feedback from pilot survey

Organisation	Industry/department	Region	No of persons	Position	Feedback
University	Risk Management, Strategic Management	EMEA	2	Senior Lecturer, Lecturer	Redefine and consolidate key questions in ERM sections to ensure that research questions are addressed
University	ERM	North America	1	Senior Lecturer	
Asset Management	Management Consultancy/ Portfolio Risk Management	North America	1	CEO	Ensure questions are brief, concise and to the point, to direct respondents towards answering accurately and understanding what is asked of them.
RBS	Banking/Credit Risk Management	Asia	1	Senior Manager	
Investment Bank	Banking/Business Management	EMEA	1	Manager	
Other financial organisation	PMO/Strategic Management	EMEA	1	Manager	Customise the questionnaire for both risk and ERM professionals to maximise the value of the data collected.
Investment Bank	Banking/Market Risk Management	EMEA	2	Manager	
Investment Bank	Risk/Credit Risk Management	EMEA	1	Manager	
Commercial Banking	Commercial Banking/ Management Accounting	EMEA	1	Manager	
Asset Management	Banking/Investment Management	Latin America	1	Manager	Ensure survey completion time does not exceed 15 min
Investment Bank	Coordination of MBA programmes	Asia	1	Manager	
Investment Bank	Banking/Research	North America	1	Manager	
Management Consultancy	Financial Management	EMEA	1	Manager	

Source: Researcher

Key feedback from the pilot survey involved adding a risk management section to elicit the views of industry professionals less familiar with the concept of ERM, but who could provide valuable insight based on their risk management expertise. On that basis, the researcher added a new section to the survey, only applicable to participants who disclosed

a lack of ERM expertise at the beginning of the research questionnaire. The main focus of Section IV was to establish: 1) the definition of risk management and risk framework, 2) the current state of risk management practices and their shortcomings, 3) changes introduced by organisations since the GFC, 4) methods of analysing risk, 5) key risk management benefits and challenges, and 6) rationales for not implementing ERM. The findings related to Section IV of the survey are discussed in detail in Section 7.2.4.

5.7 Data analysis

The following two subsections discuss the analysis techniques applied respectively to the qualitative and quantitative data so collected.

5.7.1 Qualitative analysis: interview data

The choice of data analysis tools is usually determined by the techniques of data collection, the circumstances of the research and the expected results (Strauss 1987; Rowntree 1991). In qualitative research, in-depth textual data is typically analysed without the use of statistical software such as NVivo or Atlas. Although software is now available for such analysis, the researcher decided to use Excel to analyse the interview data.

Among the various techniques available to structure the analysis of qualitative data (Yin 2013), the researcher considered Kvale's (1996) four-stage method most suitable for this research. The stages are: 1) structuring the transcriptions, 2) deriving common themes and categories, 3) consolidating key themes and categories, and 4) resuming the findings. They are usually interactive in practice (Lamnek 1995), requiring continuous interpretations of the data and the posing of analytical questions (Creswell 2007).

The data was given a theoretically meaningful structure through the use of coding (Lee 1999), i.e. applying codes or descriptors to categorise the same concepts and views brought up by various participants. Lee (1999) discusses three distinct coding strategies: open, axial and selective. This choice determines the process of data analysis; strategies can be mixed to some extent (Glaser and Strauss 1967) without detrimental effect, provided that the process of collecting data is clear and unbiased (Lee 1999). The researcher used this approach to allow both pre- and post-interview development of coding categories. The coding structure allowed new categories to be added while examining emerging themes, concepts and factors in the course of the research interviews. This meant loosening the strict adherence of one datum to one code (observed in both axial and selective coding) and

allowing a fuller description of data through the use of broader sets of codes (Lee 1999). In effect, the researcher could then use the data to reflect the emerging issues related to the research topic.

Generally, a code in a statistical (quantitative) dataset represents the category or concept it stands for. With qualitative data, by contrast, the description supporting a code is available for review to facilitate patterns or comparative analyses. Thus, qualitative coding has singularity rather than single dimensionality, in that all text about a particular issue, idea or experience may be assigned the same code, regardless of the way it is expressed (Wolcott 1994; Sivesind 1999).

The interview data was thus coded and categorised to facilitate its comprehensive understanding (Rossman and Rallis 1998). Key themes emerging during data analysis were classified as specific variables and defined consistently across the qualitative and quantitative phases of the study. Later, qualitative data collected in the research interviews was converted to quantitative codes in a process which Tashakkori and Teddlie (1998) call "quantitizing". All factor codes were developed by the researcher, each based on the logical association with its relevance to ERM, and are consistently applied in Chapters 6 and 7. Factor codes and descriptors are listed in Appendix A (Table A10, Table A12, Table A13, Table A15).

When a qualitative theme code is quantitized, its meaning becomes fixed and single-dimensional. The most critical issue in the interpretation of quantitized data is to understand the meaning behind the coding before the conversion takes place. The way overlapping codes are interpreted will have implications for the generation, processing and interpretation of numeric data from coding of qualitative text (Bazeley 2004). For the purpose of this research, the researcher exported dichotomous (0/1) codes into Excel indicating the presence or absence of a concept, with counts giving the frequency. This technique was applied to both interview and survey data. As there are no strict rules to define how much of the collected data should be coded to allow valid conclusions to be drawn (Strauss and Corbin 1998), the researcher relied on the quality of the participants and the data they supplied to construct reasoned arguments in support of the research aim.

Each statistical technique carries particular assumptions which must be met for appropriate use of that technique. For data derived from qualitative coding, most measures and those

applied in this study are nominal or ordinal rather than interval, distributions are unknown and normality cannot be assumed. Due to the nature of qualitative research and the size of the interview sample, a basic descriptive reporting in Excel was performed and presented as frequencies. A common strategy used in this research requires counting the number of times a qualitative code occurs. Such quantitized frequencies identify codes which occur repetitively and therefore emerge as a particular concepts or themes (Onwuegbuzie and Teddlie 2003). The quantitized data can then be statistically compared to the quantitative data collected separately.

Non-quantifiable interview data was presented as direct quotations in order to simulate the ambience of the interview, particularly significant for telephone interviews (Chapter 6). Interview responses were used for an analysis of management behaviour as well as any ERM-related matters discussed. All interviews were conducted in English; therefore no translations were necessary.

As well as taking handwritten notes, the researcher asked each interviewee for permission to make an audio recording of the interview. Ensuring that interviewees' answers were captured in their own terms is significant for the detailed analysis required in qualitative research. After each interview, the researcher made further notes, including specific non-tangible observations related to the process (Bryman 2012). Based on the recordings and notes, each interview was then carefully transcribed for analysis. The researcher considers transcription necessary to facilitate thorough examination of responses and so to achieve good research quality. It also helped to minimise the influence of the researcher's values or biases on the data analysis. Therefore, all transcripts were edited thoroughly to ensure the accuracy and validity of data collected throughout all interviews. Each participant was given a copy of the relevant transcript, to allow corrections or additions. A selected sample transcript is included in Appendix B.

5.7.2 Quantitative analysis: survey data

As outlined at the beginning of this chapter, the qualitative interview data was validated by quantitative survey data, whose analysis this section discusses. A simple approach to quantitative data analysis can be clouded by the various analytical methods available, so researchers tend to use the methods they are familiar with, relying on experience and a certain level of expertise (Rice 1995; Robson 2002). Thus, familiarity with Microsoft

Excel and its data analysis functionality led the researcher to select it over the more sophisticated and complex SPSS software (Trochim 2000).

The survey data was input to Excel, then basic univariate and bivariate statistical analyses were performed to interpret the data and support recommendations pertaining to the research objectives. Univariate analysis is the simplest form of quantitative (statistical) analysis carried out with the description of a single variable, and was used for the descriptive analysis of survey data. The researcher also used some elements of a more advanced statistical analysis called the inferential bivariate. Bivariate analysis measures the interaction of two variables simultaneously. Basic steps in the quantitative data analysis entailed: 1) editing and coding survey data in Excel, 2) descriptive analysis such as frequency distribution, means analysis and cross-tabulation to generate insights, and 3) performing higher-order correlation analysis (the Excel correlation [CORR] function).

In quantitative data analysis, correlation is the most popular technique for indicating the relationship of one variable to another. Correlation, in descriptive statistics, describes a level of dependence of two variables; it defines a statistical relationship between two random variables or two sets of data. The correlation coefficient (r) is a statistical measure of covariation or association between two variables; its value ranges from –1.0 to +1.0. If r = +1.0, a perfect positive relationship exists (i.e. the two variables may be one and the same), while if r = –1.0, a perfect negative relationship exists, the implication being that one variable is a mirror image of the other; as one goes up, the other goes down in proportion. No correlation is indicated if r = 0. A correlation coefficient thus indicates both the magnitude of the linear relationship and the direction of that relationship. A correlation matrix of key factor codes measured in this data analysis is included in Appendix F (Table F1, Table F2 and Table F3). .

In order to establish if there was a relationship between two variables (cross-tabulation), the researcher used Pearson's chi-squared (χ^2) test, which carries the following assumptions: a simple random sample of sufficiently large size, normal distribution and independence of observations (Prein and Kuckartz 1995). In-depth multivariate analysis is out the scope of the quantitative analysis conducted in this study and as outlined in Chapter 9, it can be considered as a potential future research opportunity in this subject.

The completed surveys were edited to eliminate any inaccurate or invalid forms; any that were considered unusable, such as where a significant part was incomplete, were discarded. As described in detail in Section 5.7.1, coding applied in quantitative data analysis required assigning numerical or character codes to all responses to every question in the survey. Basic data analyses such as frequency distribution, arithmetic average, median, mode and standard deviation are discussed in Chapter 7 and presented in Appendix D.

5.8 Research quality

This section discusses the general standards for assessing the quality of the present research in terms of its reliability and validity. Johnson and Onwuegbuzie (2006) emphasise that while the importance of validity in quantitative research has been long established, theoretical discussion on this aspect of qualitative research has been more contentious. In mixed methods research, the issue of validity is rather undeveloped. Because such research involves combining the complementary strengths and individual weaknesses of quantitative and qualitative research, assessing the validity of findings is particularly complex (Brewer and Hunter 1989; Johnson *et al* 2007) and can yield "the problem of integration" (Johnson and Onwuegbuzie 2006).

Authors including Denzin and Lincoln (1994) and Strauss and Corbin (1998) state that the concepts of reliability and validity have been replaced by the broader one of verification, which ensures that research findings are accurate from the standpoint of the researcher and the participants. Seale (1999) and Onwuegbuzie and Johnson (2006) agree that validity and reliability no longer seem adequate to summarise the range of issues raised as a concern for quality, preferring the term "legitimation". Regardless of the terminology used by various authors, it is appropriate to make the case for data quality in this research.

Guba and Lincoln (1981) argue that while all research must have "truth value", "applicability", "consistency" and "neutrality" to be considered of value, the nature of knowledge within the rationalistic (quantitative) paradigm varies from that of the knowledge in the naturalistic (qualitative) paradigm (Morse *et al* 2002). The quality of data can be evaluated by means of the criteria of internal validity (accuracy), external validity (generalisability), construct validity (measurability) and reliability (consistency, replicability) (Gill and Johnson 1991; Yin 1994). Guba (1981) and Lincoln and Guba

(1985) refer to the "trustworthiness" of qualitative research and use terms such as "credibility", "transferability", "dependability" and "confirmability". According to Creswell (1998; 2003), internal validity measures the strength of qualitative research, while reliability and generalisability are more significant for quantitative research.

A review of the literature provides significant evidence concerning the assessment of previous research of a similar nature. The issue of achieving internal validity arises only if a researcher is unable to generate a convincing case for the observed behaviours, which historically has not been described in the literature as a problem. Internal validity is associated with qualitative research, whose outcomes cannot generally be extrapolated to a wider population; it addresses the question: "Is the model consistent with the theory?" Strong literature exists to help document and support the establishment of construct validity; it is best classified as asking whether the sources of data are relevant (Lecompte and Goets 1982; Morse 1999).

External validity appears more difficult to attain and must therefore be addressed in the primary data collection (i.e. the attributes and behaviours researched must be proved to be valid in subsequent research, considering potential changes of circumstances). The criterion of external validity usually relates to quantitative studies, representing the ability to extrapolate the results and relate them to a larger population by answering the question: "How far can the results be generalised?" Reliability, finally, concerns consistency and the repeatability of an investigation, indicating that the conclusions drawn from each running of a test will be broadly the same. The following subsections discuss the issues of reliability and validity in detail.

5.8.1 Reliability

Reliability is the applicability of research to the real world (Trochim 2000). It can be described as the extent to which the procedure would generate identical findings regardless of how many times it was tested against random members of a population (Hammersley 1990). Similarly, Gill and Johnson (1991) see reliability as the researcher's ability to replicate an earlier study, achieving consistent results given unchanged parameters. Creswell (2003) emphasises the need for the researcher to ensure the accuracy and credibility of his or her findings, while Davies discusses reliability in qualitative research as follows:

> "Because qualitative researchers do not normally employ any formal or precise systems of measurement, the concept of reliability is related to the rigour with which the researcher has approached the tasks of data collection and analysis and the care with which the report describes in detail the methods that have been employed – including, especially, some discussion of how critical decisions were made. Often, the term 'reliability' in this sense is equated with methodological 'accuracy'." (Davies 2007, p.241)

Bryman (2008, p.31) offers an acceptable definition of reliability by noting that the concept is commonly used in relation to the question of whether "measures that are devised for concepts in the social sciences are consistent". Bryman (2008) also highlights the importance of three main aspects of reliability, namely: "sufficient", "compelling evidence" and the "rigour of data collection and analysis". In this research, sufficient and compelling evidence and rigour have been achieved by employing multiple data collection methods. Reliable research methods entail the ability to record observations consistently. Table 5-8 lists a number of verification strategies that can support the reliability of research.

Table 5-8 Reliability strategies

Reliability strategies	Adoption in the research
Methodological coherence	The researcher confirms the congruence between the research questions and the components of the method (Morse et al, 2002)
Defining consistent sets of questions for research interviews and surveys	The researcher determines a set of measureable questions linked directly to research objectives
Think theoretically	The researcher utilises new ideas emerging from data and reconfirmed in new data; this gives rise to new ideas that, in turn, must be verified in data already collected
Recording and transcribing research interviews	All interviews are recorded to present more reliable evidence and avoid any bias which might happen if the researcher attempted to remember the conversations with the participants

Source: Adopted from Creswell (2007)

Neuman (2003, p.184) argues that for qualitative researchers, "reliability means dependability of consistency and that they use a variety of techniques (interviews, participation, documents) to record their observations consistently". Therefore, reliability can be addressed by using standardised methods to write field notes and proper transcripts

in the case of interviews; Neuman (2003, p.288) also asserts that "reliability can be improved by comparing the analysis of the same data by several observers". The number of research participants (i.e. sample size) may affect the reliability and applicability of the results. Since the reliability of qualitative data cannot be measured numerically, it is better described as trustworthiness (i.e. the extent to which you can trust the results) (Sandelowski 1986; Trochim 2000). To ensure reliability in qualitative research, the examination of trustworthiness is crucial (Seale 1999). Therefore, reliability should be observed by the researcher throughout the course of the entire research (Bogdan and Biklen 1998).

Data collection repeatability is also critical; each participant should be selected using the same parameters and the line of questioning should be consistent. The consistency of the findings of this research has been strengthened by the use of mixed methods. Qualitative data obtained from the interviews was transcribed and analysed with a very high degree of accuracy. For all secondary sources of data used, the validity of the information given was also examined.

Synthesizing Lincoln and Guba's (1985) concept of trustworthiness, Bassey (1999) argues that researchers should focus on several key aspects to achieve reliability and validity, allowing ample time to understand the environment of the research area and to establish a long engagement with data sources. The second issue revolves around maintaining persistent observation of emerging issues in order to increase alertness to any potential unexpected occurrences. Lastly, the research should be supported with details and abundant empirical evidence to sustain an adequate "audit trail".

5.8.2 Validity

According to Trochim (2000, p.12) the validity of research can be described as an "approximation of truth of a given proposition or conclusion". Both data collection and analysis should focus on minimising potential bias and ensuring reliability. Creswell (2007) lists some strategies for ensuring validity used by different researchers and recommends adopting at least two in any given research. These are listed in Table 5-9, which shows that the researcher collaborated at the research formulation stage with others from various fields of knowledge (academic and industry). Furthermore, all the questions formulated for research surveys and interviews have been directly linked to the research

aims and objectives (see Table 5-6). The application of mixed methods to collect and analyse empirical data was intended to increase the validity of the research and its findings.

Table 5-9 Validation strategies

Validation strategies	Adoption in the present research
Research collaboration	Peer review: This research was supervised by academic researchers with extensive industry experience, who reviewed the data and research process (Lincoln and Guba, cited in Creswell & Miller 2000)
	External audit: The researcher consulted an auditor external to the study (with no connection to this research), who examined the process (research steps, decisions, activities) and product (narrative accounts, conclusions) of the study to determine its accuracy
The researcher solicits participants' views of the credibility of the findings and interpretations	The author has published research in international and national sources, and at PhD-related conferences
Rich and thick description	Qualitative data collected in semi-structured interviews supported by the findings of the quantitative research survey
Randomisation	Participation in the quantitative survey in each organisation was determined randomly to ensure that there was no systematic bias in either sample group
Sample sufficiency	Samples were sized appropriately to achieve statistically significant and reliable results. Additionally, they consisted of participants who were in the best position to represent or have knowledge of the research topic
Sequential data collection & analysis	Collecting and analysing data concurrently created a mutual interaction between data and analysis

Source: Adopted from Creswell (2007)

When considering the randomisation associated with quantitative research, the researcher addressed the question of whether non-random sampling made the outcomes of the case study less reliable. The conclusion, reached with confidence on the basis of the theoretical research evaluated in this study, was that non-random sampling and a small number of participants do not determine the validity of research outcomes.

Saunders *et al* (2007) support the view that the validity of qualitative studies based on interviews may not be an issue, as it refers to the extent to which a researcher achieves access to the experience and knowledge of participants and is able to deduce the meaning that they intended from the language that they employed. In this research, the researcher appreciates that a high level of validity can be established on the basis of the responsiveness and flexibility of the interaction between interviewer and interviewee. The researcher's experience in the field and her understanding of the research topic from a practical perspective helped to direct the interview questions and to formulate additional clarifying questions throughout the interviews. The fact that each interviewee received a guide explaining the agenda of the ERM discussion (Section 5.6.1) also promoted clarity.

Lastly, depending on formal inquiry for validity and rigour, the existing academic research on risk reviewed in Chapter 2 proves to be of academic quality and is considered key in the ERM domain. The strength and unquestionable validity of those research studies is encouraging, showing that the reliance placed on the data from secondary sources is not misplaced and can produce significant results (Whittemore *et al* 2001).

5.9 Summary

This chapter has presented a theoretical and analytical discussion of research methodology. The qualitative nature of this study supports interpretivism as the most suitable research philosophy for this study. The research approach adopted was combined deductive and inductive reasoning. As the researcher collected the data at one specific point in time, this study is considered cross-sectional.

Having explored potential methods of data collection and analysis, the researcher determined that mixed methods were most suitable for this research. Mixed methods research can be a dynamic and versatile option to extend the research scope and to improve the analytical power of studies (Sandalewski 2000). The researcher aimed to align the qualitative and quantitative datasets while preserving the numbers and words in each (Caracelli and Greene 1993). Therefore, qualitative data was collected in semi-structured interviews and quantitative data by means of a questionnaire. The primary data collection was supported by the findings of the secondary research sources discussed in Chapter 2 (academic and industry research literature, surveys, and case studies), along with the researcher's own risk management experience.

The chapter has also explained how the empirical data was analysed to identify patterns and trends related to ERM, thus achieving the research aims and validating the development of the theoretical Strategic ERM Alignment Framework and its practical application within the finance industry and academia. The chapter concluded with a discussion of the role of validity and reliability in supporting the potential practical value of the study. In effect, achieving a sufficient level of research quality sustains the researcher's aim to generate valid academic work, making a new practical contribution to risk management.

Chapters 6 and 7 now discuss the data collection and analysis of the qualitative and quantitative data respectively.

6 Chapter Six: Qualitative data: collection and analysis

6.1 Introduction

Following the discussion of methodology presented in Chapter 5, this chapter investigates the collection and analysis of the qualitative data generated by semi-structured interviews. The aim of a qualitative analysis is to identify certain patterns, coherent themes, meaningful categories and new research ideas that improve the understanding of a phenomenon or process (Trochim 2009). In the case of this chapter, the main analytical challenges were to reduce the data, identify valuable connections and offer reflective conclusions relevant to this research.

This chapter also highlights the theoretical aspects of ERM discussed throughout the desk research reported in Chapters 2 (literature review) and 3 (literature gap). In accordance with the researcher's methodological stance (Chapter 5), the theoretical discussion is later aligned with the empirical part of the qualitative research investigation.

The foremost aims of this chapter are thus to analyse the qualitative data collected during interviews and apply the empirical evidence to validate the theoretical Strategic ERM Alignment Framework developed in Chapter 4 (Figure 4-2). Subsequently, Chapter 7 presents the second phase of data collection and analysis, concluding the empirical part of this study by discussing the outcomes of the quantitative research phase.

6.2 Interview Data Analysis

This section discusses the interview questions in detail, interprets their outcomes and presents these as findings in response to the research questions set out in Chapter 1. Each of the main subsections considers one of the three sections of the interview protocol, each dedicated to a different aspect of ERM.

Table 6-1 also introduces the factor codes critical to the qualitative and quantitative data analyses, assigned by the researcher to key ERM variables being measured in this research.

Table 6-1 Interview questions

No	Interview Questions	Factor Code
Section I: Demographic Profile		
1	What region does your organisation operate in primarily?	ERMREG
	What is your organisational area?	ERMAREA
	What is your current organisational position?	ERMPOS
2	What type of financial organisation do you work for?	ERMSEC
	What is the size of the organisation based on the number of employees?	ERMSIZE
3	How many years have you worked in risk management or ERM?	ERMEXP1
	What is your prior background, if this applies?	ERMSEN
Section II: Enterprise Risk Management		
1	How do financial organisations transition from their traditional silo risk approach to ERM?	ERMSTATE1
2	How did financial organisations change their existing approach to managing risk since the GFC?	ERMSTATE2
3	Has your organisation adopted ERM? If yes, please describe it briefly (areas covered, accountability, maturity, state of development, definition, framework etc). If no, please provide key reasons why.	ERMMAT
4	What is your ERM experience? What stage of ERM (including risk framework) have you been directly involved in?	ERMEXP2
Section III: Developing a strategic ERM Alignment Framework		
1	How important is the strategic alignment of ERM and key organisational areas:	ERMALGNT
	Core strategies and objectives?	ERMSTR
	Risk governance?	ERMGOV
	Risk appetite and tolerance?	ERMAPPT
	Enterprise risk culture?	ERMCUL1
	Enterprise risk infrastructure?	ERMINFRA
	Risk Framework?	ERMFRMK
	Risk and performance measures?	ERMMET
	Risk management tools and techniques?	ERMTOOLS
	Risk adjusted compensation scheme?	ERMCOMP
	CRO/Risk committees?	ERMCRO
	Monitoring the changes in internal and external environments?	ERMENV
2	Can ERM be sustained in the long term? How?	ERMSUST
3	Why do financial organisations implement ERM? What are some key potential benefits?	ERMBENFT
4	What are the biggest challenges in implementing ERM and how can they be overcome?	ERMCHLNG
5	Does your organisation have a strong board-level enterprise risk oversight? How does the board of directors support ERM and how can support be improved?	ERMBOD
6	How can ERM generate value and drive competitive advantage?	ERMVAL
7	Is a strong enterprise risk culture critical to full effectiveness of ERM implementation? If so, how can it be established?	ERMCUL2

Source: Researcher

Table 6-1 summarises all of the questions asked throughout the interview process and lists the corresponding factor codes used throughout Chapters 6 and 7. Factor codes assigned by the researcher are referenced in all frequency tables and were designed for the purpose of the analysis of data obtained from both qualitative and quantitative methods.

6.2.1 Section I: Descriptive Statistics

This section presents the descriptive statistics of the qualitative data collected in scope of this research study. Table 6-2 summarises the demographic profiles of all 35 interview participants, using data supplied in response to questions in Section I of the interview (see Table 6-1).

Table 6-2 Demographic profiles of interviewees

No	Region of operation	Financial industry sector	Number of employees	Organisational Area	Experience (years)	Position in organisation	Seniority Level
1	Asia Pacific	Management Consultancy	< 1000	ERM	10–20	Risk Manager	Senior Management
2	Global	Insurance	1,000–10,000	ERM	10–20	Chief Risk Officer	C-Suite
3	North America	Management Consultancy	< 1000	ERM	> 20	ERM Manager	Senior Management
4	Asia Pacific	Bank	< 1000	ERM	10–20	Head of ERM	Senior Management
5	Global	Other	> 50,000	Risk Management	10–20	Head of Commodity Market Risk Control	Senior Management
6	Global	Management Consultancy	< 1000	ERM	10–20	Director of Enterprise Risk Services	Senior Management
7	Global	Management Consultancy	< 1000	ERM	10–20	ERM Advisory	Senior Management
8	Global	Management Consultancy	1,000–10,000	ERM	> 20	Director of ERM	Senior Management
9	Global	Management Consultancy	1,000–10,000	ERM	10–20	Enterprise Risk and Finance Specialist	Senior Management
10	North America	Management Consultancy	< 1000	ERM	> 20	Enterprise Risk Specialist	Associate Partner
11	North America	Other	< 1000	ERM	10–20	Director of Corporate Compliance and Risk Management	Senior Management
12	North America	Other	10,000–50,000	ERM	10–20	Senior Enterprise Risk Manager	Middle Management
13	EMEA	Management Consultancy	< 1000	ERM	10–20	Director of ERM	C-Suite
14	EMEA	Other	< 1000	ERM	> 20	Risk Manager	Member of the Board
15	Global	Management Consultancy	< 1000	ERM	> 20	Global Head of Risk Research & Analytics	Senior Management
16	Global	Management Consultancy	< 1000	ERM	> 20	Director of ERM	Senior Management
17	EMEA	Bank	< 1000	ERM	> 20	ERM Advisory	Senior Management
18	Global	Hedge or Investment Fund	1,000–10,000	ERM	10–20	Enterprise Risk Partner	Senior Management
19	Global	Management Consultancy	< 1000	ERM	10–20	Global Head of Liquidity Risk Management	Senior Management
20	North America	Bank	1,000–10,000	ERM	> 20	Chief Risk Officer	C-Suite
21	EMEA	Management Consultancy	< 1000	ERM	10–20	Director of ERM	Senior Management
22	Global	Management Consultancy	1,000–10,000	ERM	10–20	ERM Advisory	Senior Management
23	Global	Management Consultancy	< 1000	ERM	> 20	Director of ERM	Senior Management
24	North America	Management Consultancy	< 1000	ERM	> 20	ERM Advisory	Senior Management
25	North America	Management Consultancy	< 1000	Risk Management	10–20	Director of Portfolio Risk Optimisation	C-Suite
26	Global	Insurance	1,000–10,000	ERM	10–20	Chief Risk Officer	C-Suite
27	Global	Management Consultancy	> 50,000	ERM	10–20	Enterprise Risk and Capital Management Specialist	Senior Management
28	Global	Insurance	1,000–10,000	ERM	10–20	Deputy Chief Risk Officer	C-Suite
29	Global	Insurance	< 1000	ERM	10–20	ERM Transformation Specialist	Senior Management
30	Global	Management Consultancy	< 1000	ERM	10–20	Enterprise Risk Specialist	Senior Management
31	Global	Management Consultancy	1,000–10,000	ERM	> 20	Director of ERM	Senior Management
32	Global	Other	1,000–10,000	ERM	> 20	Strategic and Enterprise Risk Specialist	Senior Management
33	Global	Management Consultancy	1,000–10,000	ERM	> 20	Director of ERM	Senior Management
34	EMEA	Management Consultancy	< 1000	ERM	10–20	ERM and Business Psychologist	Middle Management
35	EMEA	Other	< 1000	ERM	> 20	Director of ERM	Senior Management

Source: Researcher

Responses to each of the seven questions in Section I, corresponding to the seven main columns of Table 6-1, are now discussed in turn. The corresponding variables are also explained.

Figure 6-1 illustrates the frequency of responses regarding the variable of geographical region of operation, the corresponding factor code being labelled as [ERMREG]. When interviewees were asked what region their organisation operated in primarily, over half stated that they were employed by organisations with worldwide operations. This finding suggests that these respondents had acquired global exposure to various ERM practices and

could therefore offer in-depth ERM expertise (Appendix A, Table A1). A fifth of participants stated that their organisation operated in North America and almost as many confirmed Europe, the Middle East and Africa (EMEA), while only 6 percent said Asia. The researcher's aim was to select the interviewees from organisations primarily with a global presence, so that the geographical composition of the interview sample would complement that of the survey respondents, where around half represented organisations based in EMEA, 30 percent in North America and only 8 percent fell into the "global" category.

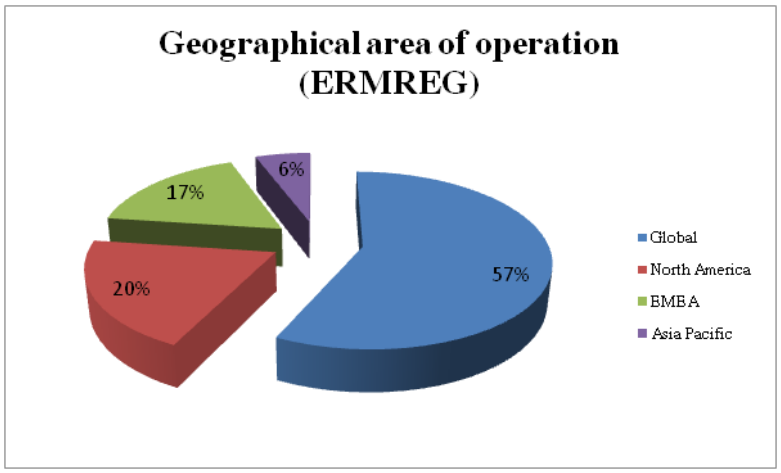


Figure 6-1 Geographical region of operation (interview)

Figure 6-2 illustrates the frequency distribution of a variable called ERMSEC, indicating the industry sub-sector that the interviewees represented. It reveals that 60 percent were associated with a management consultancy (Appendix A, Table A2). Management consultancies offer a broad variety of risk management professions that focus on specific perspective of ERM. Therefore, in order to gain a better insight into the ERM expertise of those respondents, the researcher asked specific questions on their professional background (Section 6.2.2). This enquiry revealed that the respondents working in the management consulting organisation had previously worked for banks, funds or other financial organisations, then having acquired an appropriate level of risk expertise, had moved into the consultancy sector. These results support the researcher's intention to select a sample having strong ERM knowledge and expertise in the finance industry.

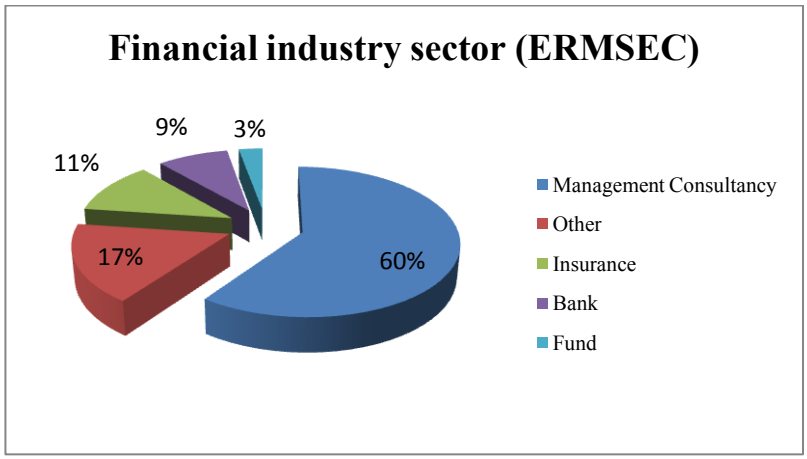


Figure 6-2 Financial industry sector (interview)

Looking at the variable representing organisational size by number of employees (ERMSIZE), Table 6-2 confirms that while 60 percent of interviewees worked in a medium-sized organisation (fewer than 1,000 employees), 34 percent of organisations were considered relatively large (1,000 to 50,000), and only six percent very large (more than 50,000 employees).

Table 6-3 Organisational size by number of employees

No	Organisational size	Frequency	Relative Frequency
1	Under 1000	21	60%
2	Between 1,000 and 10,000	11	31%
3	More than 50,000	2	6%
4	Between 10,000 and 50,000	1	3%
	Total	35	100%

The results for the ERMSIZE variable in the survey data (Chapter 7, Figure 7-3) show that 43 percent of questionnaire respondents worked for medium-sized organisations and 42 percent for large organisations. Thus, medium-sized organisations were considered the most frequently observed and therefore the most common in the industry (within the normal distribution), applicable to the majority of respondents (Appendix A, Table A3).

When asked about the organisational area variable (ERMAREA), 94 percent of participants claimed to have direct experience of various aspects of ERM across a variety of financial organisations (Appendix A, Table A4). The analysis of the variable denoting participants' length of experience (ERMEXP1) shows that 60 percent had worked between 10 and 20 years in this area, and the remainder for over 20 years. The survey results are

broadly comparable: 43 percent had between 10 and 20 years experience, while 17 percent had worked for more than 20 years in the industry (Appendix A, Table A5).

Figure 6-3 illustrates results for the ERMSEN variable, measuring the level of interviewees' seniority. Over 70 percent were at senior management level and nearly 20 percent in the C-suite (i.e. executive management such as CEO, CRO, CFO). The sample composition differed significantly from that of the survey sample, where top management (i.e. C-suite) accounted for 34 percent, middle management for 29 percent and senior management for 24 percent (Appendix A, Table A6). These differences are a direct result of applying different sampling techniques, as discussed in detail in Chapter 5. The seniority level was one of the most important parameters chosen to determine the composition of the interview sample, as it is correlated with the level of ERM expertise, as revealed in the course of this research (see Figure 7-9).

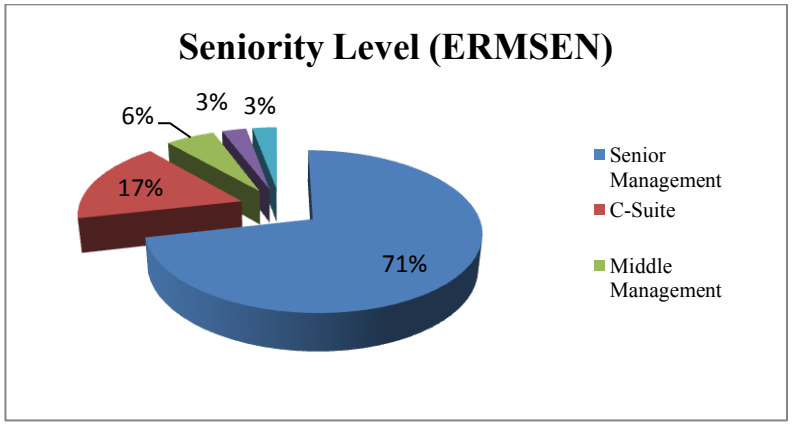


Figure 6-3 Seniority Level (interview)

The seven questions asked in Section I of the interview were designed to ensure that participants selected for this method met the research criteria and had sufficient knowledge and expertise to provide critical data relevant for this research. Depending on the answers provided, follow-up questions were necessary in some cases, to clarify the respondent's professional capacity or experience, or the nature of the business conducted by their employer. This was necessary to establish the business context of ERM (i.e. every organisations understands and adapts a different form of ERM most suitable for its culture and organisational structure), and to understand the nature of ERM specific to each organisation.

Because of the sampling technique chosen for this data collection stage (Section 5.5), certain information regarding participants' position, seniority and organisational details may already have been obtained ahead of the interview. Based on the selected descriptive variables, the professional profiles of all interviewees were deemed sufficient to provide the adequate field ERM expertise critical to this research.

6.2.2 Section II: ERM

This subsection focuses on the analysis of data obtained as a result of the four questions asked in Section II of the interview, concerning changes in ERM in each interviewee's organisation. Questions II (1) and II (2) referred to the current state of ERM in those organisations (ERMSTATE1 & 2). Question II (3) addressed their level of maturity (ERMMAT) and question II 4 elicited details of the level of experience in ERM (ERMEXP2). This section aimed: 1) to establish the current state of ERM and the level of ERM maturity in the finance sector, and 2) to identify key organisational factors critical to ERM.

Question II (1)

Question II (1) asked interviewees whether they believed that an effective transition of risk management from a silo approach to ERM was possible and if so, how it could be achieved. Their responses to the first part of this question are shown in Figure 6-4.

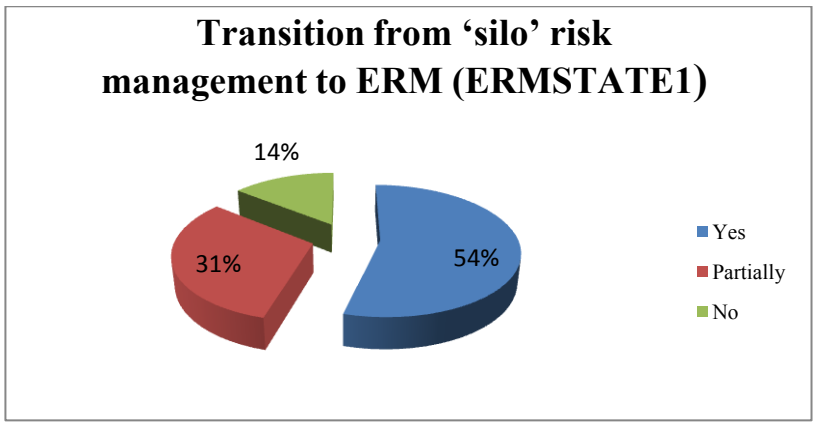


Figure 6-4 Frequency distribution of variable ERMSTATE1

According to 54 percent of all interviewees, it is possible to achieve a successful transition from silo risk management to ERM. A further 31 percent felt that it was not possible to

remove risk silos completely, although they could be broken away and integrated. Only 14 percent replied that it was not possible at all (Figure 6-4). In other words, a strong majority of interviewees believed it possible to transition the silo risk structure, either partially or completely, as part of ERM.

Over the last two decades, financial organisations have been exposed to increasingly complex risks and have therefore sought a more strategic approach to risk management (Frigo 2008; 2011). The concept of managing risk has undergone fundamental changes, moving away from a compliance-driven risk governance model towards a more value-driven approach (Dickinson 2001; 2005; Lam 2003; Power 2003). Nonetheless, over 60 percent of respondents to a study by Towers Perrin (2006) expressed concern about the way key risks were managed, while only one third had adopted ERM or were committed to doing so in the future. Consequently, as emphasised in the literature, ERM needs a more interdisciplinary focus (Power 2009).

Based on the coded qualitative data obtained in the interviews, the researcher created specific data categories that summarised the variable ERMSTATE1. Figure 6-5 represents these categories, summarising interviewees' responses as to how ERM transition could be performed effectively. Over 70 percent stated consistently that effective ERM transition can happen only when there is: 1) enterprise-wide buy-in (77 percent), 2) strong enterprise risk culture, awareness and mindset (74 percent) or 3) increased integration of processes and communication across the silos to bring them together (71 percent).

Clear risk structure, ownership and accountability were highlighted as important by 63 percent of respondents. Nearly 60 percent felt that senior management and the board need to be involved in the transition to make it achievable, while the same number called for the deployment of ERM committees. The integration of ERM into the core strategic management processes was seen by nearly 49 percent of the interviewees as essential in the transition. Bugalla *et al* (2010) strongly advocate high-level support for ERM, aligned with the establishment of risk committees or the appointment of a CRO.

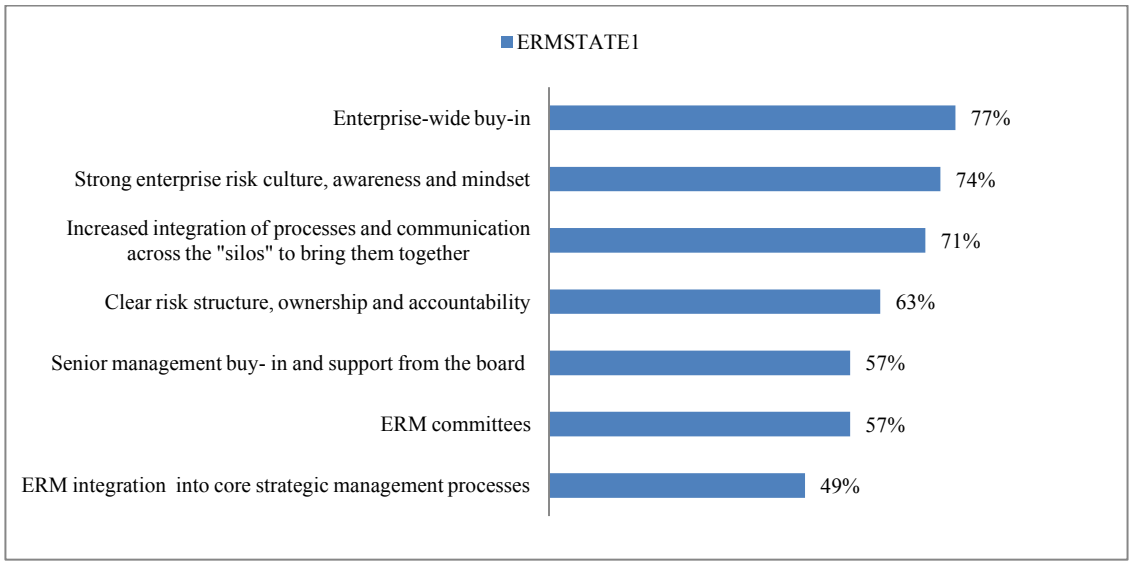


Figure 6-5 Effective transition from silo risk management to ERM

The empirical evidence documented in Figure 6-5 is clearly aligned with the theoretical standpoints of various scholars on the evolution of ERM discussed earlier in Chapter 2 (Section 2.2). Gradually, ERM has started to transform; it was perceived as the response to the need to "break down the silos" (Chapman 2006), to integrate risk into business strategies (Tysiac 2012) and to drive a competitive business performance (Fox 2012). The case study by Lam (2003), recalled in Section 2.2, highlights enterprise-wide buy-in as a predominant starting point of effective risk transition. It also identifies the building of a culture strong enough to foster open communication and cooperation across the silos as an essential element of a robust ERM framework.

Those interviewees in the present study who expressed a belief that silo risk can be transitioned into ERM stated that ERM needs to become an enterprise-wide effort, a core strategic objective and an element of the business model. It should be aligned with the organisational vision, integrated into strategic planning and ultimately strategic decisions. The majority believed that silo risk management is still a prevalent approach in most financial organisations. Most saw breaking down the silos as a key ERM challenge. All silos need to communicate and work together to achieve an enterprise view of risk management. Similarly, an early publication on ERM by Lam (2000) notes the importance of "breaking down silo risk management".

In this research study, interviewee 14 argued that the active involvement of senior management could facilitate the effective alignment of risk identification and assessment across the silos:

> The most critical success factor is the willingness to share ideas and to cooperate. The biggest problem is the fact that each and every function is trying to prove the rationale for its existence. No one is willing to sacrifice their job and position within an organization. Therefore, the traditional distinction of functions and its roles is hampering the sharing of ideas and experiences. As always, the determination of top management and its commitment is the driving force to make it all happen or prevent it.

As a result, people start to understand how risks generated in each silo affect the overall organisation. The greatest problem in many financial organisations is the tendency of the silos to seek to rationalise their existence. This mentality hinders the free and effective sharing of risk information and cooperation. As noted in Chapter 2, the idea of sharing risk ideas and cooperating as part of ERM is expressed by Power (2004), who emphasises the importance of risk communication towards developing "intelligent risk management".

Moreover, many interviewees considered the transition from the silo risk approach to ERM to be at an early stage, moving gradually towards the risk teams being granted a more active involvement in decision-making and a greater degree of independence. As a result, enterprise risk team would operate separately to maintain their independence from the profit-driven functions. Conclusively though, a strong majority affirmed that to achieve a well functioning ERM, managing risk had to become everybody's responsibility. Because ERM is a long-term effort, patience and persistence are necessary to achieve its full potential.

Banham (2004) argues that risk is everyone's responsibility and identifies risk structure as a key difference between traditional risk management and ERM (Chapter 2, Table 2-2). Banham (2004) also emphasises that in the case of ERM adoption by Capital Financial the CRO was appointed and made responsible for the ERM team, formulating risk methodologies and setting uniform enterprise-wide risk reporting standards. Being in charge of enabling communication between various business groups and the ERM team, he ensured that ERM principles extended across the organisation (Chapter 2, Section 2.2).

Interviewee 25 made a similar point:

> The key is to give more responsibility to the risk management team. Historically, risk management has not been actively involved in decision-making, and a large part of their involvement was overlooked. In my view, it is essential that the risk team become involved in the decision-making as a part of the transformation from traditional risk approach to ERM. Therefore having an independent risk function that would have an adequate compensation risk-adjusted structure, and not be influenced by the profit-driven departments, is the key.

Support for the involvement of ERM in the decision-making making process is also evident throughout the literature. Shortreed (2010) uses the example of a concept of the ISO 31000 (ISO 2009) framework which, according to him, assumes that risk management is well integrated into the corporate decision-making process: management considers risk management in decision making that has an impact on achieving the objectives.

Those interviewees who felt that partial silo integration was possible as part of ERM agreed that the main weakness of the silo risk structure is that people in each silo will focus on optimising the risk within their own function, rather than seeing it as part of an enterprise risk effort. They saw it as not uncommon, especially in financial organisations facing high risk complexities, for interrelated risk elements to be wrongly considered separately. These participants emphasised that understanding the correlation of risks across the portfolio and risk data aggregation were critical elements of ERM in the post-crisis reality. Lam (2007) refers to this as the "ERM roadmap" and "indentifying the 'low hanging fruit' " (i.e. maximising the ERM value given the cost vs. effort).

Interviewee 7 gave an example showing how viewing various components of the portfolio separately can affect the entire financial organization:

> […] funding in 2007 was almost free. […] social housing was pretty low risk, and […] well seen by the government […]. So they [banks] started to pile up investments in social housing […] with social housing margin 10-15 bps [basis points] which […] was no high risk, and low funding. But in 2009-2010, for 30-year long social housing, the cost of funding was around 150 bps. So 10 bps margin was closed in for 30 years [...] because people failed to look at the cost of funding and how it can potentially change over the years. So for example the treasury department was doing the right thing, but the business was focusing on a short-term gain rather than on a longer horizon and potential long-term consequences to the organization, not taking into account that in five years the cost of funding could be totally different.

This is a good example of the lack of understanding of how various risk components can change over the years, causing a significant loss of profitability and stability across the entire financial organisation.

Interviewee 8 (Director of ERM) agreed that silos would never go away completely, but saw it as critical to appoint people responsible for specific functions across the silos and to embed ERM into core management processes. The key was to ensure that the silo risk structure did not compromise the effectiveness of ERM. Therefore, each silo must be engaged into the customised risk approach adapted by the organisation and participate dynamically in management activities.

> The existence of silos has always been associated with traditional risk management. So everything you did around managing people would have an HR function around it, everything you do for managing financial & treasury risks would have a financial function, everything you do around safety, you would have operations for. Traditional risk was built with the silo structure in mind. ERM, on the other hand, is taking a view of the enterprise as a whole and is attempting to elevate the strategic focus of risk management. So that's why you have to be thinking about integrating ERM into processes that are strategically focused.

Finally, those interviewees who did not believe it possible to achieve a complete transition from traditional silo risk management to ERM nevertheless considered it possible to achieve a level of risk convergence across the silos. In ERM, there should always be clear transparency and alignment between the functions, helping to achieve a more efficient flow of relevant risk information across the organisation. This means that risk conversations and a clear communication strategy must be established between the silos. Interviewee 21 offered a firsthand example of how Organisation A managed to achieve a level of risk convergence across silos:

> [The] ERM remit was to look at reassessing the risk governance effectively and the way that risk was working in the organisation, i.e. to look at breaking down the silos and find more effective ways to manage risk. The point of view of a corporate risk reporting team was a main driver, but assessing the efficiencies and gaps of specific organisational functions and removing the existing duplications was also a top priority. Firstly, a workshop which involved looking at some of the risk functions and a broad group of stakeholders closely was set up. On the first day the aim was to get those groups to talk about what they actually did. [...] Given it was such a large organization, a lot of people did not know what their functions were actually involved in. So the first thing was all about getting the clarity of what was happening in the organisation and what everyone was doing. Once everyone

> appreciated that, it was easier to start identifying where we are, what are we reporting, are we reporting the same information [what and where are the overlaps?], do we need to improve the communication between the different functions etc?

This is an informative example of practical cross-collaboration across silos that shows how enterprise-wide communication can help ERM to identify the areas that need improvement as well as those that work effectively. The interviewees also expressed growing concern that financial organisations tended to misjudge the level of risk maturity that applied to their organisations. Moreover, silo risk structure was still seen as a consequence of the lack of strong risk culture, with people choosing not to share relevant risk information. The summary of all the responses to question II(1) on ways of achieving effective transition from silo risk management to ERM, along with the respective categories, can be found in Appendix A (Table A7). It provides a description of the issues associated with this transition as experienced by the interviewees in practice and offers some suggestions for resolving them.

The researcher concluded from the responses to this question that before the management initiates ERM, it needs to be aligned with the organisational direction within the cultural context. It is important first to assess what the organisation is already doing well, why and how, then to identify the potential commonalties and redundancies inherent in the silo approach. The realisation that the inefficiencies associated with certain silos erode the opportunities to identify ways of creating value can be a driving force for risk change. Three major challenges are: 1) defining the right risk culture to support change across the organisation, 2) ensuring buy-in and 3) identifying risk resources able to encourage collaboration between the silos and to ensure ongoing integration and communication.

The findings in respect of question II (1) are aligned with those of academic and industrial case studies, surveys and reports discussed in Chapter 2. The RIMS study (2013) found that ERM had gained a "critical mass" of acceptance, with almost two-thirds of respondents reporting either a partially or fully implemented ERM. Interestingly, a third of respondents saw the primary value to be increasing risk awareness. The case studies of both Wells Fargo and Metro Bank reported by EIU (2011) indicate that in order to adopt a sustainable ERM, it was necessary for the management to make fundamental changes to organisational and risk culture. To ensure an immediate impact on decision-making, senior

risk management professionals with long experience in banking were appointed to strategic positions. Lastly, enterprise-wide risk management was engaged in ERM at all levels. Thus, the findings of desk and field research converge on two key assumptions: that an effective transition from silo risk management to ERM rests on organisation-wide support and buy-in and on a shift in the existing enterprise risk culture.

Question II (2)

Question II (2) addressed changes to the existing approach to managing risk resulting directly from the GFC, represented by the variable ERMSTATE2 (see Table 6-1). Interviewees were asked whether, in their experience, financial organisations had changed their risk management approach since the GFC and if so, how. They were also asked what further improvements they thought were required. Figure 6-6 shows that more than two-thirds judged that financial organisations had partially changed their approach, while almost a quarter saw the GFC as a definite turning point in how risk was viewed in the finance industry and only 9 percent saw no change in current risk management practices. Thus, over 90 percent of respondents believed that organisations in the financial sector had made at least partial changes to their risk management approach since the GFC.

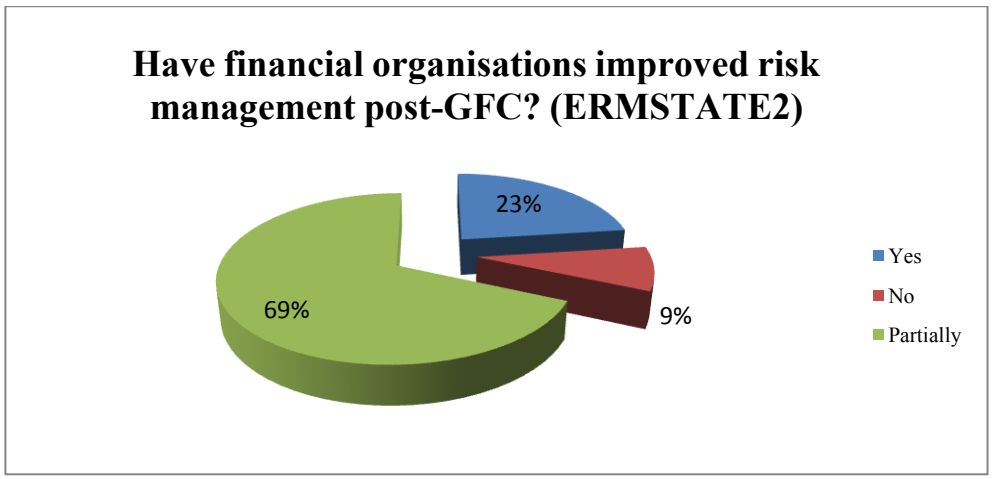


Figure 6-6 Frequency distribution of variable ERMSTATE2

When asked what change was prevalent in financial organisations, 46 percent of interviewees attributed the regulation and credit rating agencies as main drivers of the risk management change. In addition, as shown in Figure 6-7, one-third agreed that financial

organisations had moved slowly towards the integration of isolated processes and activities across the risk silo structure.

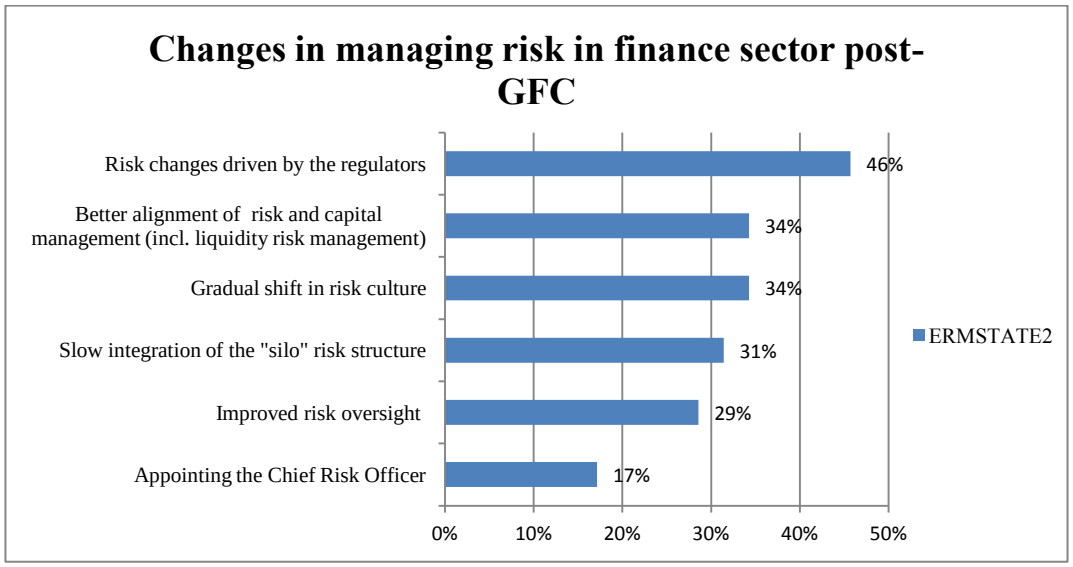


Figure 6-7 Changes in managing risk in finance sector post-GFC

Interviewee 18 concluded that "the financial crisis has given additional impetus to risk management due to the regulators having been more intrusive". This is consistent with widespread evidence of a significant rise of interest in ERM over the last few years. Risk management, according to a majority of respondents, had transitioned from an internal audit type function to a more proactive approach, a topic of considerable interest in the academic literature. Following down the evolutionary risk path, Banham (2004) continues to see the internal audit function as providing significant support to risk management, rather than as a designated risk management function. Barton *et al* (2003) also researched five different organisations and documented the impact that internal audit had on ERM and the value it created throughout the ERM implementation process. In a study by KPMG (2007), 60 percent of respondents reported seeing increased coordination between internal audit and risk managers in their organisations.

At the same time, financial organisations have put more emphasis on the soft (human) side of risk management, followed by a gradual shift of cultural elements and a focus on building a strong enterprise risk culture. Figure 6-7 shows that 34 percent of research interviewees observed a gradual shift in risk culture. Greater alignment of ERM with process management and corporate strategy has been evident, but understanding of the

importance of ERM and its role in strategy management appears to require more attention. Awareness of model risk and its limitations has also unmistakably resurfaced in financial organisations as part of the "new risk awareness". Finally, financial organisations have tried to move away from the silo risk approach, reviewing their organisational structure more often.

The conclusions drawn from responses to question II (2) are consistent with the findings of reports and surveys conducted over the years by various organisations across the industry and discussed in Chapter 2. Almost two-thirds of respondents to a survey by AON (2007) identified establishing risk culture as a key ERM driver, while nearly half considered corporate culture a vital element of ERM implementation. When asked about key ERM benefits, a third of respondents to Deloitte (2008) described a risk-aware culture as critical.

Ernst & Young (2011) report that over 90 percent of surveyed organisations had recently changed their approaches to liquidity risk management and implemented new stress testing. A third of interviewees in the current study also noted an increased focus on identifying risk issues early and investigating their potential impact on the entire organisation, especially in liquidity risk management. Interviewee 4 summarised his stance as follows:

> Since the financial crisis, both senior management and the regulators have been more focused on risk issues, especially in the liquidity risk management area. There were changes in organisational structure to manage risk holistically at bank level by integrating key risk and its consideration in all business decisions. This has a major impact on large organisations (...) where investment banking gets separated from the commercial bank and operates as a subsidiary. This protects the bank and its depositors from taking the type of risk involved in investment banking activities.

One-third of interviewees reported seeing an increased flexibility in managing risk across the entire portfolio and a more robust and regular reporting of key risk exposures across various legal entities. Moreover, many interviewees saw more attempts at defining the risk structure and ownership, such as setting up risk committees or appointing a CRO or ERM champions (17 percent).

Figure 6-7 shows that 29 percent laid emphasis on a gradual improvement in risk oversight at the board level. Interviewee 17, for example, asserted that "many banks have appointed and elevated the status of the chief risk officer and have worked on embedding risk

governance throughout the organisation". The role of the CRO and its impact on ERM has been widely discussed in the literature in recent years. A survey by Beasley *et al* (2005) found that having a CRO, a more independent board and the active involvement of senior management in ERM were positively associated with the extent of ERM deployment across organisations. Mikes (2009b) agrees with Lam (2000) that the CRO's role has evolved in recent times, arguing that that success in this function requires the combination of four unique skill sets: "the compliance guru", "the modelling expert", "the strategic controller" and "the strategic advisor".

Regardless of changes in ERM in recent years, a relatively significant proportion of interviewees agreed that there remained significant room for improvement. Interviewee 16 said:

> Risk is a more prevalent term in C-suite discussions. With the collapse of several high-profile banks, the bail-out of others, billions of dollars of write-downs, dismissal of CEOs, and hearings in the US Congress, it was expected that banks in particular would start to pay a lot of attention to risk management.

Interviewee 15 depicted the change as having started with "a static risk vision and slowly moving towards a more dynamic risk approach, hoping that at the end of the day we will achieve a business-wide integrated risk management", which is an indicator of the change in ERM being a relatively slow process. Kaplan and Mikes (2013) describe this view of enterprise risk as a "crucial component of contemporary corporate governance reforms".

Another finding that can be formulated on the basis of the analysed data is that ERM is still often put in place as a conduit between the risk and compliance functions and the business areas, to monitor and report on all risks and to break down silos. This is an indicator that the financial industry is still not in a position to benefit fully from major investment in ERM, but often utilises it simply to comply with regulatory requirements. Nearly 40% of respondents to an RMA (2006) survey admitted that ERM was driven primarily by regulatory requirements, rather than strategic competitive advantage, while over 60 percent of respondents to FERMA (2012) still considered law, regulation and compliance the main external factors triggering ERM initiatives. This reflects a regulatory mindset pervading the financial sector. Risk managers have not been actively involved in decision-making and a large part of their involvement has been consistently overlooked or ignored. As a

result, there is little evidence of ERM being well embedded in organisational and risk culture or considered in key business decisions. Most financial organisations persist with the silo risk approach and fail to implement risk education schemes which would involve everyone in ERM, helping them to understand it better in the organisational context and to relate its value to their everyday work. KPMG (2007) found that one way to break down silos was to increase communication and awareness through training and promotion.

A major challenge in relation to the risk transformation process has been identified as the risk mindset, requiring a further shift in risk culture away from the silo mentality. This may be a direct consequence of the lack of a structured approach to integrated risk and performance management which would incentivise people across organisations to accept change. For instance, the risk function should be proactive, prepared to challenge the risk data without fear of repercussion and to provide alternative risk scenarios to management as required. Moody's (2009) case study of Countrywide shows how organisational collapse can result from a failure to integrate risk management with high-level strategic decision-making, to understand how to link key business objectives with the risk strategy and to take a dynamic approach to risk management. Kleffner *et al* (2003) list the top three factors that can significantly impede ERM implementation as organisational culture, resistance to change and the lack of qualified personnel to implement ERM.

Another area for improvement mentioned by many interviewees was building a strong and dynamic ERM framework tailored to the specific organisation, aligned with its business cycle and strategic planning, then eventually embedded into the organisational structure. Mikes (2005; 2009a; 2011) has investigated organisations across the financial industry, studying how they have adopted different ERM frameworks. Mikes found that no single ERM approach fitted all cases; in order for ERM to be effective, organisations had to customise the framework to align with their unique organisational structure, strategies and objectives. Contrary to this finding, interviewee 6 asserted that financial organisations still look for the golden mean, an off-the-shelf ERM framework that would work for everyone. Therefore, management needs to understand that ERM is not consistent with this approach, but can help to highlight the interdependencies of various functions across an organisation. ERM can create a protective umbrella against key threats while maximising opportunities, by leveraging on what already works well and helping to identify less effective areas.

ERM can also be calibrated as a tool to increase transparency around financial leverage and measuring the level of risk appetite (Power 2009). There is room for improvement in data integration and the quality of risk information provided to management and utilised in making decisions. Taking risk reporting a step further, ERM can and should allow and support a more efficient risk-adjusted modelling and better understanding of "what hides behind the numbers", i.e. bringing together qualitative and quantitative risk expertise. Management should also be able to identify the organisational functions where ERM generates most and least value, to be in a better position to determine whether a particular area should continue to grow or be restricted. Having analysed the 1997 Asian crisis, Lam (2007) identifies key challenges with respect to risk management, such as people, managing change and having the right modelling tools to manage key enterprise risks.

Consequently, ERM must integrate with strategy setting and applied across the enterprise if it is not to lose the interest of the CEO and the executive team as well as its potential for sustainability. Therefore, organisations should learn how to turn ERM into a strategic advantage, integrating it with strategy and business planning and expanding familiarity with it enterprise-wide. Burnes (2008) focuses on the weaknesses of existing risk management practices, the importance of a link to business performance, shareholder confidence and organisational reputation. Upon the realisation that ERM does not end with identifying, assessing and reporting risks, management integrates the programme within the business model. ERM becomes a way of doing business and is embedded into the organisational structure. One of the key misperceptions of ERM identified by Fraser and Simkins (2007) is a failure to integrate ERM into daily business processes across the organisation.

When asked about their positive experience of ways to improve risk management and make it effective and sustainable, interviewees listed three steps: 1) demonstrating the value of ERM to key stakeholders, 2) ensuring strong support and buy-in by senior management and the board, and 3) developing a strong enterprise risk culture, awareness and mindset. Almost all interviewees agreed that the most effective way of gaining top management support is to demonstrate how ERM generates value and what it means for the whole organisation. Therefore, respondents considered it critical to align ERM with corporate strategies and business objectives, to gather the relevant risk information. Active

involvement in ERM by the BOD and senior management helps to align it with decision-making. The key is to align ERM with performance and strategy management, with the risk appetite of the enterprise and with the right risk governance. Lastly, ERM must be linked within the dynamics of internal and external changes, allowing flexibility in the timing of reactions to these. Similar findings are reported by Rasmussen *et al* (2007) regarding factors ensuring effective ERM implementation, which include creating an enterprise-wide awareness of the unique business drivers and their impact on the organisation, communicating and sharing risk concepts and establishing a clear structure of risk responsibility and ownership.

Most respondents considered that developing a network of risk owners, managers, coordinators, champions and committees was critical to ERM effectiveness. Interviewee 24 supported the appointment of ERM champions or subject matter experts (SMEs) as the people holding the umbrella under which all functional units can cooperate and communicate. Each ERM SME should also understand that ERM depends on inputs from other SMEs in each functional unit, so s/he must act as an auditor not only for one functional unit, but for the entire ERM. Managers should receive regular risk updates and critical risk information with a certain level of granularity that they can understand. Hiring the right risk people and effectively allocating resources were also mentioned as paramount in ERM.

ERM should be seen as everybody's responsibility; everybody needs to naturally "think risk" as part of the enterprise risk awareness. Information sharing is the key to building an open risk culture that supports ERM. Embedding ERM into organisational culture becomes one of the top business priorities and fosters an enterprise risk mindset. Moreover, risk management ingrained within lines of business and support areas encourages people to turn to a go-to person more often to discuss, leverage with and strategise about risks within their businesses. Interviewee 21 described it as essential to build a close relationship between the risk and business functions, to avoid a situation where the risk people are removed from the business and therefore do not really have the same level of knowledge or understanding of the business.

Lastly, management still struggles to understand the potential overall impact of risk failure on the entire organisation. Interviewee 25 offered a recent example of JPMorgan mishandling a risk issue:

> A very good example of how what seemed a risk failure due to the lack of understanding what the global impact could be is a recent JPMorgan scandal. The London Whale trader manipulated some complex products and in effect incurring large derivatives trading losses. This is another proof that either people do not understand what the true consequences of such actions in case something goes wrong could be for an organisation enterprise-wide, or they simply understand it, and do it anyway in pursuit of a promise of large gains. In my view, there is little correlation [and knowledge-sharing] between understanding how the models pricing complex products work, what are their limitations, with the process of execution of those potentially disastrous transactions. What's more, underlying assumptions of those models are often tinted with over-complexity, and people who are in positions where instant information is everything to execute the trade simply do not understand how they work or do not have the time to talk to people who have such expertise before making the decision, in principle.

Therefore, interviewee 25 stated that in his experience, full awareness of a potential loss and its impact at all levels of an organisation was essential to improve risk collaboration, aggregation and reporting, all of which are critical to aligning ERM with strategic decision-making. Appendix A (Table A8) includes a summary of all responses to question II (2), highlighting what has improved in ERM approaches, what needs further improvement and how it can be done.

In conclusion, the first two questions in Section II of the research interview addressed the most recent ERM issues which industry professionals saw as particularly relevant in the post-crisis reality, providing valuable guidance towards resolving them based on their experience in the field. The research findings formulated on the basis of responses to both questions demonstrate uniformity; the majority of respondents perceived an alignment between the change visible in financial organisations and the effective transition of traditional risk management to ERM. The recent risk changes in the financial industry have also been investigated in academic research presented in Chapter 2.

Question II (3)

Question II (3) (Table 6-3) aimed to determine how many financial organisations had adopted ERM and their level of ERM maturity (ERMMAT). Interviewees were asked

whether their organisation had adopted ERM and if so, to describe it in terms of areas covered, accountability, maturity, state of development, definition, framework etc. Almost all (94%) of interviewees replied that ERM had recently been adopted and was currently at various stages of maturity, while only 6 percent admitted that their organisation had not yet implemented ERM.

When respondents to a study by RIMS (2011) were asked to what extent their organisation had adopted or was considering adopting ERM, 17 percent said it had a fully integrated ERM programme (i.e. ERM was practised at the corporate level and by every operation/business unit and resource function), 37% said they had a partially integrated ERM (i.e. practised at the corporate level or by one or more operation/business units or resource functions) and 26 percent were expecting to adopt ERM in 2012.

Table 6-4 lists the numbers of responses in each of the categories that the present researcher used to describe increasing levels of maturity: Undeveloped, Formalised, Established, Embedded, Optimised and Strategic. Results indicate that the level of ERM maturity in financial organisations is still rather modest. The majority of respondents described their employer's ERM as either established (39%) or embedded (24%), while 15 percent said "formalised" and the same number said "optimised". Only 3 percent thought their organisation had developed a strategic level of ERM.

Table 6-4 Current level of ERM maturity[5]

What is the current level of ERM maturity in your organisation?			
No	**ERMMAT**	**Frequency**	**Relative Frequency**
1	Undeveloped	1	3%
2	Formalised	5	15%
3	Established	13	39%
4	Embedded	8	24%
5	Optimised	5	15%
6	Strategic	1	3%
	Total	**33**	**100%**

[5] Undeveloped – aware of risks but no structured approach applied
Formalised – basic risk framework and processes partially implemented but lacking enterprise-wide consistency
Established – formal and consistent enterprise-wide processes
Embedded – integrated processes embedded into strategic planning
Optimised - risk management with clear knowledge-sharing and continuous improvement
Strategic - well-defined, balance, dynamic and transparent alignment between risk, strategic and other functions

Thus, fewer than one in five financial organisations (18 percent) identified a higher than average level of ERM maturity (i.e. optimised or strategic). This is a strong indicator that ERM at its current stage of evolution is perceived as a risk process more often than a strategic tool. Based on research conducted before the GFC, Gates (2006) concluded that in the majority of organisations ERM was still in its infancy. More recently, when Beasley, *et al* (2010) examined the level of ERM across various organisations, one-third of respondents described it as "still immature". These results show that ERM is growing in popularity as it is increasingly adopted across the industry. Interviewee 27 compared the maturity of ERM to the stages of human development:

> If you were to equate ERM to people … you have infants, adolescence, teenagers, young adults and adults. [...] the industry overall is at the teenage stage. You have some more advanced larger firms, not all but some, that had to put ERM in place due to the nature of their business. Then you have others that are trying to get their heads around ERM and understand what it actually means. So you have organizations on both side of the spectrum, but I would say most are in the middle tier at this stage as far as ERM maturity is concerned.

The findings confirm that while there has been a gradual move towards ERM in the finance industry, there is significant room for greater maturity in this area.

Question II (4)

Question II (4) was designed as a follow-up to question I (3), eliciting details of interviewees' professional experience of ERM and their involvement with its various stages, including risk framework (ERMEXP2). The responses to this question varied, but nearly all interviewees asserted that they had been involved in ERM at all levels of maturity and had had at least 10 years practical experience of ERM (Table 6-1). The majority had been associated with a different career path before their involvement in ERM.

As discussed in Section 6.2.1, 40 percent of respondents said that they had worked in various ERM areas for over 20 years. In many instances, respondents were also involved in other organisational functions such as audit, operations, credit, marketing, regulatory risk management, representing a wide spectrum of risk experiences and issues. It became clear that interviewees' views on ERM differed with their professional expertise, providing a range of valuable insights on the subject.

6.2.3 Section III: Developing a Strategic ERM Alignment Framework

Section III of the interview protocol included some specific questions on developing a strategic ERM alignment framework. Each question addressed a different perspective on ERM, thus examining several factors critical to establishing such a framework. Section III also investigated what makes ERM sustainable in the long term, the key benefits and potential challenges throughout the ERM cycle and some potential solutions to such challenges. The data gathered in this section is highly critical to the research, considering the nature and relevance of "why" and "how" responses and determining how they relate to developing a framework that can provide practical guidance to academics and practitioners.

Question III (1)

The first question in Section III (Table 6-1) addressed the importance of key organisational factors in the alignment with ERM (ERMALGNT). Table 6-5 lists these factors contributing to the this variable and the frequency distribution of the responses in terms of five descriptors of importance, from "critical" to "not important", plus a "not applicable" option. It can be seen that responses varied considerably.

Table 6-5 Frequency distribution of the ERMALGNT variable

ERMALGNT	Relative Frequency (%)					
	Critical	Very important	Important	Slightly important	Not important	Not applicable
Core strategies and objectives	83	14	3	0	0	0
Risk governance	29	43	29	0	0	0
Risk appetite and tolerance	74	17	6	3	0	0
Enterprise risk culture	80	9	11	0	0	0
Enterprise risk infrastructure	3	43	43	11	0	0
Risk framework	20	54	23	3	0	0
Risk and performance measures (KRIs & KPIs)	11	40	46	3	0	0
Risk management tools and techniques	9	31	54	6	0	0
Risk adjusted compensation scheme	0	14	77	9	0	0
Monitoring changes in internal and external environments	0	60	40	0	0	0
Chief Risk Officer/Risk committees	11	51	34	3	0	0

Thus, over four-fifths of interviewees described the alignment of ERM with the core strategies and objectives as critical to strategic ERM alignment, while almost as many saw

enterprise risk culture as critical and three-quarters said that risk appetite and tolerance was of critical importance. This empirical evidence is consistent with the research of Barton *et al* (2008a), which supported developing a strategic alignment where ERM and organisational objectives are integrated, with the presence of a strong ERM culture, underlined by clear risk communication and well-defined risk ownership; these were seen as the building blocks of ERM.

Table 6-5 also shows that approximately half of participants ranked as very important the following five factors: risk governance; risk framework; risk and performance measures (KRIs and KPIs); appointing the CRO and risk committees; monitoring changes in internal and external environments. Over 80 percent believed that the enterprise risk infrastructure was either important or very important, while nearly 80 percent saw risk-adjusted compensation schemes as an important part of the ERM alignment framework. Figure 6-8 highlights the top three factors critical to ERM alignment.

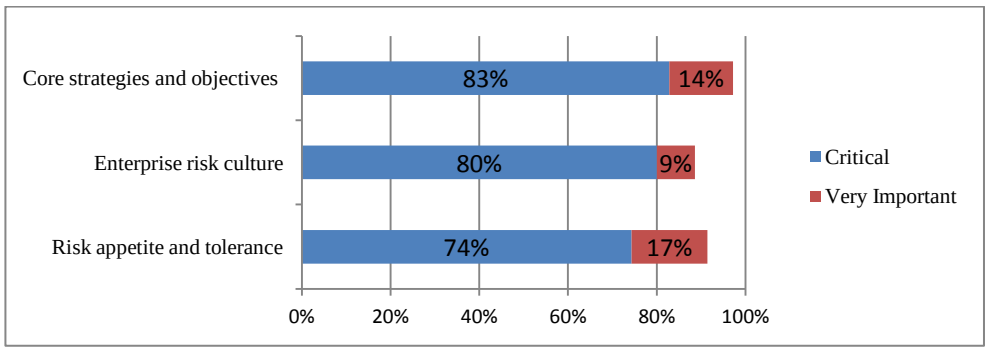


Figure 6-8 The importance of key organisational factors to Strategic ERM Alignment

Nearly every academic researcher investigating ERM has examined some of the above factors and their relationships with ERM. Lam (2003) argues that regular debates around risk appetite and risk tolerance before decision making at a board level can lead to a more effective and transparent ERM, aligned with key business processes; with the right incentive defined within a risk-adjusted executive compensation, it can become an important ERM determinant, reflected in employees' behaviour. This view is strongly supported by Fraser and Simkins (2007). Following the idea of ERM being a strategic way to manage risk in financial organisations, Rao and Dev (2007) focus on the correlation of ERM with strategic planning, incentive compensation and the analytical side of core strategies. Integrating KPIs and KRIs as part of a more robust risk reporting can, according

to Lam (2007), increase the overall transparency of ERM. Conversely, Frigo (2011) considers a disconnect between risk management and strategy execution to be one of the key factors hindering practical ERM implementation. This contribution by interviewee 21 corroborates the research findings:

> Certainly, strategic planning and setting objectives are critical; they are the starting blocks. The whole point of ERM…. if it is not linked to overall corporate structure and organisational objectives, there is no point in ERM happening in the first place. They are absolutely critical, and you need to understand them in terms of the opportunities of achieving them across the organisation. And as soon as you discuss that, risk tolerance comes to mind. If we are talking about competitive advantage, and what are the business benefits of doing something like ERM, having decided the risk appetite and tolerance means that an organisation can be a lot more flexible in terms of the decisions it makes and the timeframe it takes them in.

Interviewee 18 also supported the importance of the alignment of ERM with core strategies and objectives:

> ERM has to be aligned to strategy. One of the definitions of risk is that it is anything which prevents you achieving your strategic objectives, so the barriers to success need to be thought about at the time of setting strategic objectives, planning and setting the budget. Strategy has to define how much risk the business is willing to take to achieve its objectives and therefore risk appetite is a useful tool to ensure that risk is clearly communicated and explicitly considered when business decisions are being made.

In an attempt to substantiate the importance of the risk and performance metrics as part of ERM, interviewee 27 commented:

> Yes. These are the metrics to think about. The way I think about it, ERM is at its core when it is the means to get more information to make better decisions. When you have the right metrics that allow you to measure things in different ways, that is just more information to utilize as and when you make those decisions. One thing that can be overlooked is to put context around that. So if you have a metric that says 8, another one that says 5, even if 8 is preferred over 5, you have to put some context around that. You need to put some targets around those numbers. For example, I see a lot of frequencies and severities on different axes and sometimes these are defined through qualitative descriptors which may mean different things to different people. Again, if that context is not clear it won't help with the decision making process. Ultimately, I think having those metrics is good practice.

Strong supporters of the risk-based performance management discussed in Chapter 2 (Mestchian and Cokins 2006; Frigo 2008; Killackey 2008; 2009; Kaplan 2009) also

discuss the importance of aligning ERM with strategy to create and protect shareholder value with the support of strategic risk and performance metrics (KRIs and KPIs).

Interviewee 11 described the ERM alignment as follows:

> This alignment is essential, since risk is derived from the external environment and thus drives strategy, and strategy is determined by risk appetite and tolerance, which is tied to the culture of the company. The governance structure also aligns with risk appetite and tolerance and culture. The changes in the internal environment present risk as well and determine and prioritize the company's objectives to ensure the strategic initiatives are met. Risk and performance measures and risk-adjusted compensation serve as ways to monitor performance and the progress of risk mitigation activities.

This question is one of the most critical asked in the course of this research. Analysis of the responses provided the empirical foundation for the strategic ERM Alignment Framework described in Chapter 4. A key finding is that all factors listed in the question were regarded by a large majority of interviewees as important, very important or critical to ERM alignment. From a theoretical standpoint, Deloach (2012b) reflects the importance of alignment with his classification of critical ERM elements into four groups: process, integration, culture and infrastructure. Consequently, the theoretical assumptions of the framework can be substantiated through the results of the empirical investigation that allows further verification of all the factors as part of the Strategic ERM Alignment Framework in Chapter 8.

Question III (2)

The second question in Section III asked whether ERM could be sustained in the long term and if so, how (ERMSUST). Appendix A (Table A11) provides a comprehensive summary of the respondents' thoughts on potential problems related to achieving long-term ERM sustainability and offers some guidance on how to overcome these challenges, based on their practical experience. All interviewees considered ERM sustainable and most believed that this could be attained through repetition and clear evidence of value-added results. For example, interviewee 4 replied: "ERM is a new concept and therefore requires a lot of cultural change at organisational level", adding that "critical factors to establish ERM sustainability are: 1) risk culture that is supported by training and continuous development, and 2) constant risk monitoring and oversight at a board level, in the long term". This

indicates that ERM must bring value and improvement to the bottom line, which should be evident to the board and the management.

The empirical data is aligned with the theoretical assumptions of the academic research discussed in Chapter 2. Gates (2006) highlights the strategic value of ERM, while Schanfield and Helming (2008) emphasise the importance of the involvement of key employees who understand key risks in the ERM process. Bugalla and Kugler (2009) discuss the upside potential of ERM, its ability to capitalise on otherwise overlooked opportunities of unrealised profits, and how it can help build up its sustainability over time.

A good example of ERM achieving key objectives and being sustainable is the case study of Hydro One by Aabo *et al* (2005). Hydro One's management stated later that ERM implementation helped to shift risk awareness gradually, established a stronger risk culture across the enterprise and consequently drove the organisation ahead of its competitors. The value created through ERM had made the organisation stronger and more effective as a business in the long term.

Interviewee 5 added that "in a stressed environment when circumstances change every day, organisations suddenly struggle to adapt to those [internal and external] changes. Risk transparency and the ability to integrate information become critical, along with the development of ... the risk framework right for a particular organisation". Therefore, strong governance and managerial support are very important for ERM sustainability. Keeping a level of flexibility that allows a timely risk response in a stressed environment, adapting to various internal and external changes, and the ability to redefine strategic objectives along with the business model and risk portfolio are necessary to sustain ERM.

Most of the interviewees also stressed that there is no "silver bullet" when adopting ERM; every organisation its own strategic direction and objectives, so must find its own recipe for ERM sustainability. However, it is critical that senior managers understand the concept and offer their support and sponsorship. Since ERM involves gradual enterprise-wide change, many financial organisations find it hard to fully comprehend how to align various organisational factors to achieve its sustainability. As Frigo (2008) recognises, sustainability starts with demonstrating the potential of ERM. Mikes and Kaplan (2012), on the other hand, directed their research towards risk categorisation and managing different types of risks while using the most appropriate methods. Thus, managers can

focus on strategic or less predictable risks and remain abreast of the unpredictability that can negatively impact both ERM and organisational sustainability.

According to interviewee 8, ERM sustainability is determined by "knowing how to position the organisation as an early mover and find a way to differentiate it from the competitors". It is critical for ERM to help to realise what opportunities and risks exist and what the appropriate actions would be to address them. The concept of early movers involves analysing strategic risks and aligning the competitive intelligence function to address the vital signs that matter. Since nobody can accurately predict future events within the industry, organisations need to use ERM to become more agile and able to move quickly to respond to internal or external change. This is a way of making sure that what organisations are looking at is aligned with the critical assumptions underlying the strategy. Thus, ERM can create value and generate competitive advantage.

Interviewee 8 also emphasised that the sustainability of ERM depends on senior managers' support:

> If you want … your ERM solution to be sustainable, you have to have senior management support. The CEO has to be supportive. You've got to have the buy-in from the operators of your line of businesses. You also need cross-functional cooperation. Next is people cooperation. The ERM approach has to be relatively straightforward and it needs to leverage what the organization already does well and effectively. Finally, integrating ERM with the core management processes gives ERM a lot of legs.

What other interviewees considered vital to ERM sustainability was the integration of processes and systems to ensure that they are both adaptable and efficient in times of crisis. A crisis can be triggered within a matter of days, so any organisation, especially in the financial industry, must be dynamic enough to respond in the most robust way possible. Interviewee 19 called this "the sustainability of ERM integration".

Ashby *et al* (2010) argue that in order to build a strong ERM, financial organisations should base it on five elements: risk culture, risk appetite, management, performance and stakeholders. Accordingly, effective management should balance hard (objective) factors such as risk/financial models with soft (subjective) ones such as human behaviour. A study by Deloitte (2009b) confirms that addressing value preservation and creation across the

enterprise helps to create sustainability in a risk-intelligent organisation, while APQC (2010) found that creating the right risk culture strengthened ERM sustainability.

Another factor vital to a sustainable ERM is consistent integration among silos, to achieve a flow of information between them and form a mindset whereby people in each business unit understand that whatever they do will affect other aspects of the organisation, including the balance sheet. They must then use this awareness to decide what they can and cannot do.

The majority of interview respondents also agreed that ERM sustainability is determined by the ability to build on a strong and supportive cultural transition and to gain sufficient traction through enterprise-wide buy-in. Thus, interviewee 30 said:

> ERM needs to be at the centre of what is happening in the organization. It needs to be live. If treated as a side process, it will die out. People need to see it as critical to organizational deliverables and integrated into core management activities. It has to be part of strategic decision making. Finally, ERM needs to be embedded into the organisational model over time.

Supporting the view of an enterprise-wide buy-in, interviewee 32 said:

> Until people realize that ERM needs to be aligned with their own personal objectives and with the strategic objectives of the organization, ERM will not become sustainable. The board and senior management engagement and support are critically helpful too. If you have a senior leader who comes in and dismisses the idea of ERM offhand, this may change the attitude to ERM throughout the rest of the organization. People need to start seeing ERM as meaningful to their own work for ERM to become sustainable. So when it becomes part of the fabric of how the organization operates, that's when it gains sustainability.

To summarise, the empirical interview data, supported by the theoretical assumptions discussed in Chapter 2, indicates that in order to be sustainable, ERM needs to be fundamentally embedded into the organisation's risk culture and value system. Several aspects of risk culture are critical to ERM sustainability. According to interviewee 35, buy-in is at the top of the list; people need to be convinced of ERM's value and see where it lies. Hiring the right people is also of high significance:

> Since ERM is a relatively new concept, you do need to win the hearts and minds of the board and senior management regarding what ERM is and what value it can bring to the table. Give ERM another 10 years, it will get more embedded into the organizational structure and it will naturally become more sustainable with time.

Lastly, people need to see ERM as meaningful to their own work and aligned with their own personal objectives and with the strategic objectives of the organisation.

Thus, three main factors emerge from interviewees' responses and the literature review as paramount to ERM sustainability:

1. Enterprise-wide culture that supports ERM (including people's buy-in).
2. Adequate support and sponsorship by senior management.
3. Ability to demonstrate how ERM generates value to key stakeholders.

The research findings also indicate that if aligned with key organisational factors discussed earlier in this chapter, ERM can stimulate communication, the flow of risk information and collaboration across the organisation, so that decisions are better informed, leading to value generation, resilience and sustainability. However, as business and risk priorities vary from one organisation to another, interviewees recognised that ways of achieving long term ERM sustainability will differ accordingly.

Question III (3)

Question III (3) (Table 6-1) addressed the benefits of ERM, represented by the ERMBENFT variable. Interviewees were asked why financial organisations implement ERM and invited to assess the importance of some key potential benefits. Table 6-6 summarises their responses expressed as relative frequencies, with potential benefits ordered according to the numbers of responses in the "critical" category.

It can be seen that risk-adjusted decision making and a dynamic ERM culture and enterprise risk awareness were each considered critical by around three-quarters of interviewees. Surprisingly, nearly two-thirds considered enhanced shareholder value and competitive advantage to be a critical ERM benefit. Over 40 percent also put achieving a strategic view of key risks in the critical category. This may be indicative of the increasing strategic value of ERM to management.

Four further benefits were each rated as critical by about a third of respondents: more effective ERM alignment with core organisational strategies and key objectives; optimised risk and business cost; improved regulatory compliance; and better preparedness for future market unpredictability and volatility. Two benefits were seen as critical by a quarter of

interviewees: enabling long-term sustainable profitability and growth; and improved business and operational performance and effectiveness. Finally, only one in five put strong corporate risk governance and reputation in this category.

Table 6-6 Frequency distribution of responses regarding ERMBENFT

ERMBENFT	Frequency (%)					
	Critical	Very important	Important	Slightly important	Not important	Not applicable
Risk-adjusted decision making	77	17	6	0	0	0
Dynamic ERM culture & enterprise-wide risk awareness	71	17	9	3	0	0
Enhanced shareholder value & competitive advantage	63	20	17	0	0	0
Achieving a strategic view of key risks	43	51	6	0	0	0
More effective ERM alignment with core organisational strategies & key objectives	37	40	23	0	0	0
Optimised risk & business cost	34	43	20	3	0	0
Improved regulatory compliance	34	49	17	0	0	0
Better preparedness for future market unpredictability & volatility	31	51	17	0	0	0
Enabling long-term sustainable profitability & growth	26	51	23	0	0	0
Improved business and operational performance & effectiveness (including consolidation of risk infrastructure)	26	63	11	0	0	0
Strong corporate risk governance & reputation	20	31	46	3	0	0

As highlighted in Chapter 2, around half of respondents to a survey by the RMA (2006) agreed that main ERM benefits were: 1) setting a common risk culture, 2) the opportunity to identify (and assess) key risks critical to the entire organisation, and 3) consistent risk standards and controls. These expectations evolved along with the increase of risk complexity seen across the financial industry during the GFC.

AON (2007) reports key benefits as organisational sustainability, strategic competitive advantage and enhanced shareholder value, while Foster, London and Dewar (2009) report that their respondents expected the following key ERM benefits: improved strategic risk-adjusted capital decisions, higher business performance and enhanced shareholder value. This can be seen as indicative of financial organisations recognising ERM as an opportunity to drive value at a strategic level.

Figure 6-9 displays graphically the responses regarding ERM benefits listed in Table 6-6. It indicates that over 60 percent considered improved business and operational performance and effectiveness to be a very important ERM benefit.

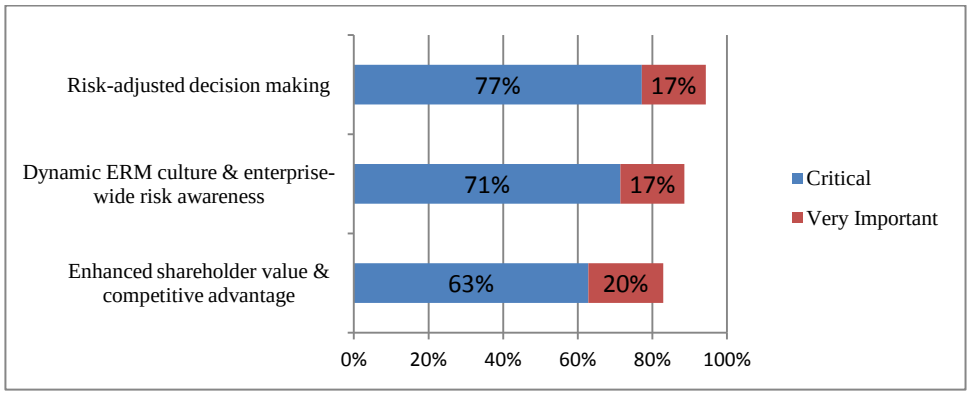


Figure 6-9 Key ERM benefits

Four benefits were each seen as very important by half of respondents: enabling long-term sustainable profitability and growth; improved regulatory compliance; achieving a strategic view of key risks; and better preparedness for future market unpredictability and volatility. The analysis of the results indicates that the perception of ERM has changed slowly across the financial industry; the majority of interviewees were starting to see the strategic value of ERM rather than focusing on its regulatory function. The overall assessment was notably positive, almost all responses being in the critical, very important and important categories.

Interviewee 4 asserted that

> Most organisations don't want to be exposed to the effects of the materialization of specific and unexpected risks that they are not prepared to accept. To avoid that, you need to be well informed about potential risk threats coming at you and stay well prepared. So that is very important as the organizations have very significant set of issues to address and ERM should help them to set the risk priorities in terms of risk, i.e. issues they don't want to hear about in the news tomorrow.

Interviewee 15 elaborated on potential ERM benefits:

> I think the answer to this question is two-fold: 1) what organizations would like ERM to achieve for them, and 2) what ERM should do for them. They can dream all about ERM making things happen, i.e. improving the margin to X bps, increase their PnL [profit and loss] etc. This could be indicators for some of those organizations, but the truth is ERM is something else. ERM helps in creating a sustainable organization that is ready for the next crisis. So if something unpredictable happens, the organization will be ready to manage it and be a safe business. In a good environment, ERM can help you make money and drive the business in a proper manner, but in a stressed environment ERM can help steer your business out of trouble.

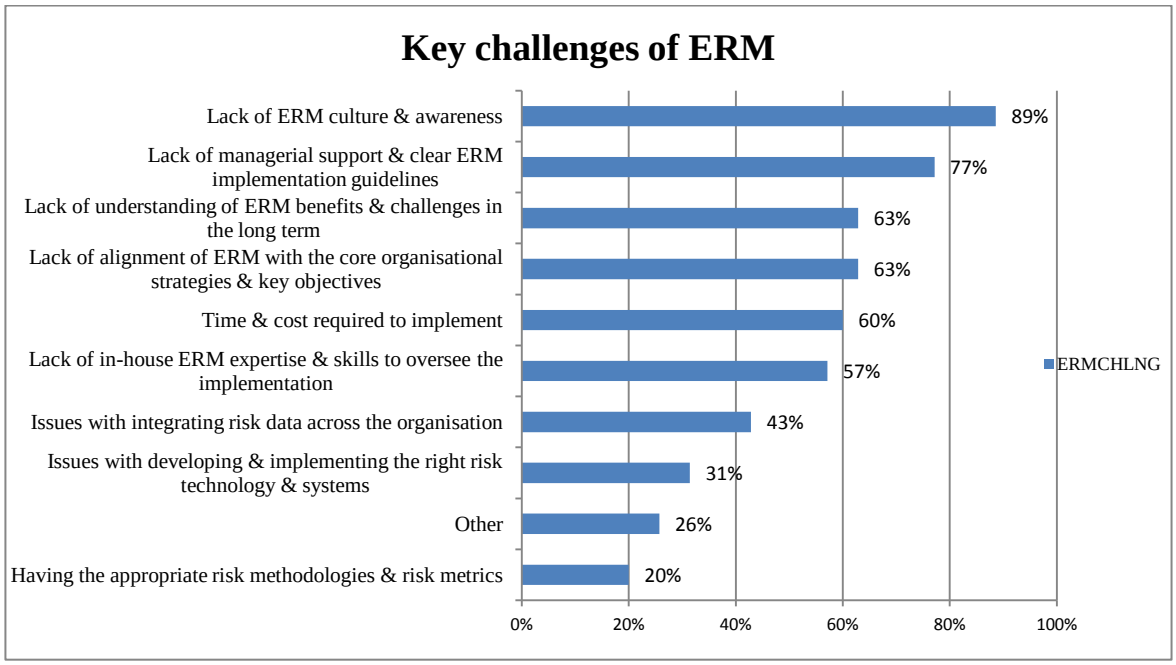
To conclude, many financial organisations view ERM as a tool to manage the unwieldy risk portfolio, help management create and recognise opportunities where none existed under a "different set of risk lights" and, in the words of interviewee 7, "make the business run smoother". As financial organisations are driven by different organisational objectives, their expectations towards ERM will vary.

Other potential benefits of ERM identified in the literature include the comparative advantage of lower costs of debt and of financial distress (Froot *et al* 1993; Stulz 1996; Doherty and Smith 1993). In addition, Gates (2006) and Meulbroek (2002b) emphasise better diagnosis and control of strategic and operating risks, better-informed decisions, greater management consensus, increased management accountability, smoother governance practices, ability to meet strategic goals, better communication with the board, reduced earnings volatility, increased profitability, securing competitive advantage and accurate risk-adjusted pricing. Although ERM can help improve capital efficiency and risk oversight, as well as reducing regulatory interventions, more effort needs to be put into producing tangible evidence of its impact on the financial indicators of the organisation.

Question III (4)

The fourth question in Section III sought participants' experiences of the greatest challenges to implementing ERM and how they could be overcome (ERMCHLNG). Figure 6-10 illustrates the relative frequency of their responses.

The most significant ERM challenges were considered as: lack of strong enterprise risk culture (89 percent), lack of managerial support and clear ERM implementation guidelines (77 percent), lack of alignment of ERM with the core organisational strategies and key objectives (63 percent) and lack of understanding of ERM benefits and challenges in the long term (63 percent).



Note: Other = ERM framework; Issues to define and measure risk appetite

Figure 6-10 Key ERM challenges

Two other challenges were mentioned by more than half of interviewees: the time and cost of implementation, and a lack of the expertise and skills needed to oversee ERM implementation. Approximately one-third of participants identified issues with developing and implementing the right risk technology (systems) and having the appropriate risk methodologies (or metrics) as barriers. Similarly, nearly 60 percent of respondents to a survey by Towers Watson (2010) saw a lack of risk culture and employee buy-in as key challenges.

The academic and practitioner communities agree with the majority of interviewees that each financial organisation faces its own set of challenges to adopting ERM. Depending on organisational strategy and objectives, ERM can help achieve goals specific to the organisation, but at the same time can result in it being exposed to particular challenges. The interviewees provided some guidance and advice from experience on overcoming common ERM pitfalls. Among the challenges mentioned most often were gaining the support of senior management and convincing other managers of the need for consistent and repeatable ERM processes. Other respondents considered a well-defined, documented and dynamic risk framework to be fundamental in the building and maintaining of ERM.

According to interviewee 17:

> [ERM] needs senior sponsorship, a collective will, time and resource commitment. This is more difficult where an organization has multiple business lines that are offered through many legal entities and in numerous countries. An important requirement is to ensure that management understand and manage their risks and that risk management staff are capable of challenging business decisions and assumptions.

As noted in Chapter 2, Deloitte (2008) listed as key challenges a) difficulty in measuring and assessing risks, b) time and costs required to implement ERM and c) failure to understand the benefits of the integrated management of risk across the enterprise. Respondents thought there was a prevailing difficulty with ERM in proving the business case to stakeholder value, improved earnings and other opportunities. Other concerns examined by Barton *et al* (2010b) were a lack of well-defined variables to measure the value of ERM implementation and a failure to understand how organisational objectives and strategies align with ERM and daily tasks.

A lack of enterprise-wide communication and no common risk language were also highlighted as significant challenges, along with a lack of clearly defined and disseminated risk management objectives. Interviewee 16 also said that the lack of a risk maturity model to guide the goals of ERM, along with a failure to demonstrate how ERM adds value and contributes to performance, can result in the inability to quantify strategic and operational risks, making it difficult to integrate ERM into decision-making processes. The greatest challenge experienced by interviewee 19 was always "transitioning to the right risk mindset", while interviewee 21 was particularly concerned with "political sensitivity", buy-in and communication:

> Generally, key ERM challenge is a political sensitivity in terms of becoming prejudiced about doing [the same process] again. Defining the process itself doesn't have to be a big challenge necessarily, especially where there are risk standards in place that you can utilise, that provide guidance about producing the required documentation. For me, the process, policies and strategies in the context of preparing the necessary documentation are not an issue from the implementation point of view. It is definitely more about getting the buy-in, getting the time and funding for getting the people to get the time off their day jobs and come to the risk training, as there usually is a need for some kind of an educational process or to attend workshops to help capture the risk information, to fill in the reports, and educate people how to use the new risk system and how to support it. So I think it is more about communicating to the business in regards to the impact that the risk

> change is going to have and provide some guidance on how they are going to have to deal with that. I think some of the key practical things tend to be overlooked, which can then turn into the main issues of ERM implementation.

Many interviewees also shared views and experiences regarding difficulties in developing comparative assessments of risk across different functions, aggregating risk data more efficiently and reporting it to senior management in a more robust way. Some recommended risk experts who could translate different risk methodologies into a common risk language, well understood across the organisation, allowing all risk information to be aggregated into one overall view of risk. Interviewee 6 offered the example of two hypothetical companies:

> One is a one million dollar company and the other is a ten million dollar company. Then the question becomes if what is significant to the small firm risk-wise will be significant to the large one. The same information can have a different meaning for both. A small loss for the large company can be catastrophic for the small one. If you look at a lot of risk events that have recently occurred in the financial sector, it is often because relatively small parts of an organization had catastrophic events that were not only catastrophic for them but also for the organization as a whole. And there has not been an effective way of rolling the relevant information across the corporate levels.

Analysis of the above data leads to the conclusion that key challenges to ERM for financial organisations are the absence of: a strong enterprise risk culture, managerial support, clear ERM implementation guidelines, alignment of ERM with core organisational strategies and key objectives, and understanding of benefits and challenges in the long term. This conclusion is consistent with the findings of academic and industry research that reveals similar challenges, identified as highly critical in developing the Strategic ERM Alignment Framework and achieving its long-term sustainability.

Key theoretical observations supported by empirical evidence for ERM challenges reveal that despite the growth and evolution of ERM during the past two decades, relatively few financial organisations have successfully overcome the challenges they encounter when implementing ERM, enabling them to develop ERM to full maturity (Gates 2006; Fraser and Simkins 2007). As Fraser, Schoening-Thiessen and Simkins (2008) note, further collaboration of academic and business practitioners is required to stimulate future research in this area.

Question III (5)

The next question (II 5, Table 6-1) was designed to gather data on each interviewee's experience and views of enterprise risk oversight by the board of directors in their current organisation, the board's level of support for ERM and ways of strengthening this support (ERMBOD).

Table 6-7 analyses responses to the first part of the question, whether interviewees felt that there was strong board-level risk oversight in their organisations. Half reported observing partial oversight, while only a third saw it as strong. Nearly 70 percent of respondents to a survey by Beasley *et al* (2009) assessed their risk oversight process as immature, while fewer than half this number indicated that the board was actively involved in risk oversight. The majority were dissatisfied with the current ERM status, but had started to see the boards and management initiating ERM discussions on top exposures, KRIs and topics related to risk oversight (Beasley *et al* 2010).This indicates that there was still much room for improvement in this area.

Table 6-7 Frequency of responses regarding ERMBOD

Does your organisation have a strong board-level enterprise risk oversight?		
Response	**Frequency**	**Relative frequency**
Partially	18	51%
Yes	12	34%
No	5	14%
Total	**35**	**100%**

The second part of this question asked how the board of directors supported ERM and how support could be improved. Appendix A (Table A14) offers a comprehensive synopsis of the interviewees' views of support at the board level, a brief description of what they saw as areas for improvement and an account of their suggestions for improvement, based on their practical experience.

Data analysis indicates that a common difficulty that financial organisations experienced in establishing strong risk oversight by the board was that the board was not actively involved in designing ERM. Therefore, the value that the board added to the overall ERM process was minimal (and thus questionable) in many financial organisations and could, in effect, significantly undermine ERM potential. Interviewee 2 considered it "critical that ERM is

sponsored by the board, which can approve ERM policies and be involved in quarterly risk assessment and the ERM process annually". Many interviewees considered the composition of the board (i.e. directors' skills and experience) to be inadequate, consistent with a study by KPMG (2009) which found that almost half of the banks surveyed acknowledged that their boards lacked adequate risk knowledge and experience. Similarly, Beasley *et al* (2010) report that nearly 60 percent of boards studied had made "significant" effort to engage management into risk oversight; however, nearly a half of the business leaders still failed to see the interconnection between risk oversight and strategy.

The majority of the current interviewees declared that the structure of various risk (board aligned) committees was paramount in the risk oversight process. For example, interviewee 4 shared his experience of what worked well:

> Risk management reports to the board directly and there is a dedicated committee responsible for overseeing its implementation that is not involved in any of the business decisions. Hence their responsibility is purely to oversee risk management of the bank with no conflict of interest. The board then approves the statement of risk appetite at bank level and at business unit level. The Board Risk Committee supervises the implementation of ERM.

Only a little over ten percent of respondents told Deloitte (2010) that the board was involved in setting risk appetite, while only five percent could verify that the board's oversight was aligned with corporate culture.

These findings indicate that directors should develop a good understanding of what ERM is and what they intend to do in terms of the value it should generate for their organisation. Therefore, businesses should instigate board support by demonstrating the value of ERM. The existing enterprise risk culture should encourage senior management to try to understand what key ERM benefits are and this is where the ERM discussion starts. According to interviewee 7:

> It is important to have senior management on board, but it is often the business that initiates the idea of having ERM. It can happen both ways. The ERM idea can come from the business as long as the business [...] provides the relevant and usable information to the management and if they have, the board will most likely be supportive of it.

At the same time, the board should be able to ask the right questions and to understand better the implications of the answers they receive.

Continuous risk education, in the form of workshops, training and risk assessments, starting at board level and cascading down to the rest of the organisation, were recognised as high priority tools to improve the existing state of risk oversight. Lastly, a majority of respondents saw strong risk governance, clearly outlining the board's roles and responsibilities, as critical. Three-quarters of organisations responding to a survey by Beasley *et al* (2009) stated that top risk exposures were still not reported to the BOD. This indicates ERM immaturity and a lack of a top-down, enterprise-wide risk oversight.

Figure 6-11 summarises interviewees' suggestions as to how financial organisations might improve risk oversight at board level. Over 70 percent of respondents agreed on the value of risk committees, providing directors with much needed risk knowledge and expertise and helping them understand ERM better. Active board involvement in ERM was considered very important by two-thirds of interviewees.

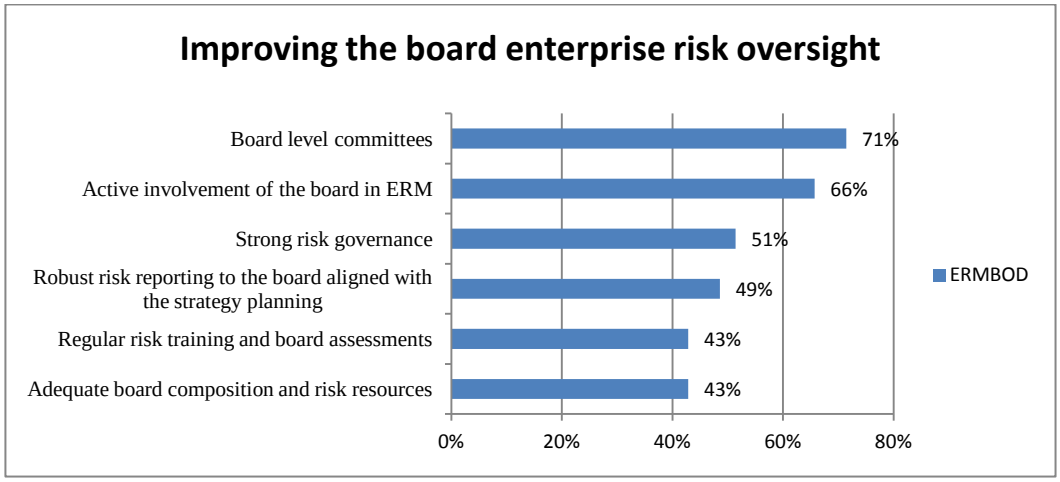


Figure 6-11 Improving risk oversight by boards

Interviewee 26 offered this summary:

> The board has the ultimate accountability for ERM and is involved in setting the risk appetite and tolerances and providing governance over the ERM framework. [...] The involvement of senior management is the most critical aspect of implementing ERM. Senior managers who do not support the programme will delay its progress, even bring the programme to a halt or leave you with such a weak framework that it won't be effective.

Approximately half of the interviewees indicated that the following factors were vital to a robust and effective risk oversight: strong risk governance; clearly defined roles and responsibilities; robust risk reporting to the board, aligned with strategy planning; regular risk training and board assessments; and adequate board composition and risk resources. Moreover, maintaining open risk communication between the board and management can result in positive energy for the organisation (Barnes and Dublon 2008).

Based on all the findings, it is evident that risk oversight by the board is an area that needs much improvement. Weak board oversight of risk has long been a conspicuous problem in modern society. Academic research shows that in many organisations the board's involvement in ERM is merely "window dressing", with little impact on its effectiveness (Barton *et al* 2008b). Bonini and Goerer (2011) found that since 2008, boards had not increased the time spent on strategy. Only one in four survey respondents rated their board's performance as very good, mostly due to increasing expectations and lack of adequate expertise or time spent on ERM. Almost two-thirds of respondents to a survey by Protiviti (2012) also reported that CROs/heads of risk did not attend board meetings. Currently, the greatest weaknesses of board-level risk oversight are ineffective strategy and inadequate risk expertise.

The observations of industry practitioners interviewed by the researcher confirm that directors of financial organisations still need guidance on improving their risk oversight (Beasley *et al* 2010; Branson 2010). While many respondents indicated that they had seen a shift in that direction across the industry since the GFC, the pace of change appeared rather slow, but because of the crisis, directors had to learn very fast to start understanding ERM and "what was at stake". Interviewee 30 warned that boards must "overcome their arrogance and overconfidence and realise that the entire organisation can be put in danger if they don't welcome a different mindset towards ERM". The general assessment of academics and industry practitioners is clear: boards have a long way to go in terms of enterprise risk oversight.

Question III (6)

The next question investigated the value generation potential of ERM (ERMVAL). Interviewees were asked how ERM generates value and drive competitive advantage, in order that conclusions could be drawn from their practical accounts as to how value can be

generated across financial organisations as a result of ERM adoption. This is closely connected with the ERM benefits referred to in question III (3).

Figure 6-12 illustrates participants' responses, showing that almost all considered a strategic view of key enterprise-wide risks to be an area where ERM can generate value. Three other drivers of value and competitive advantage were each nominated by around 90 percent of interviewees, viz. improved regulatory compliance, stronger enterprise risk culture and awareness, and cost reduction. Further drivers were each selected by approximately two-thirds to three-quarters of respondents. These results strongly suggest that while financial organisations tend to consider ERM when prompted by rating agencies and regulators, some have also begun to see it as a way to obtain strategic advantage. ERM has been seen more often as a way to highlight areas where organisations are particularly efficient or inefficient and thus to identify the appropriate course of action.

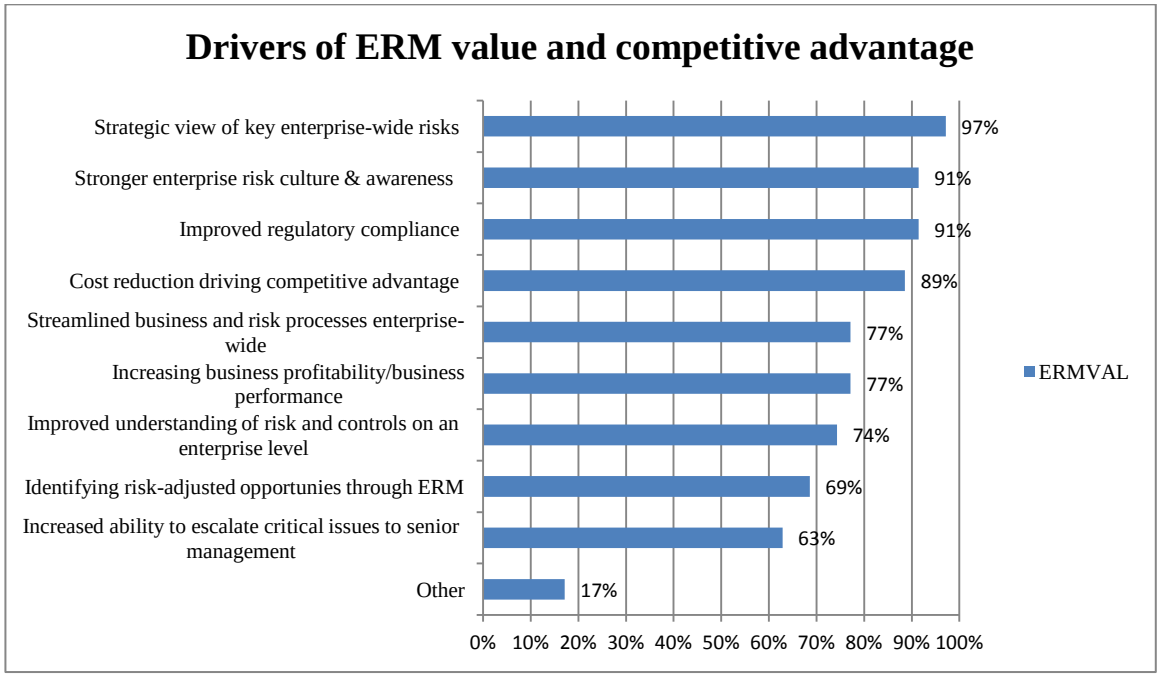


Figure 6-12 Drivers of ERM value and competitive advantage

From a theoretical standpoint, various researchers have discussed the link between ERM and the creation of value for shareholders. Shimpi (2005) argues that while the initial stages of ERM tend to be more about corporate governance and compliance, it should ultimately be aligned with strategic planning to enable the maximisation of shareholder value. In analysing the ability of ERM to create shareholder value at both macro and micro

levels, Nocco and Stulz (2006) suggest that organisations which take strategic and business risks can secure greater competitive advantage by practicing ERM. Moreover, such firms can exhibit superior decision-making capability at various management levels by taking advantage of risk and return trade-offs. A limitation of their study, leading to some scepticism, was that it overlooked the irrational behaviour of the market and changes in organisational variables, which can significantly affect the success or failure of an organisation's risk management practice. In support of Nocco and Stulz (2006), interviewee 26 said:

> ERM can generate value and ensure competitive advantage through risk reward optimization, portfolio steering involvement and strategic planning and execution involvement. For each business unit, strategy, new project or product, if you conduct a risk assessment [....] you can enhance execution in many areas by asking: What can go wrong? What is the effect? What is the cause? What is the likelihood? Severity? Can you detect issues? What is the level of your ability to detect issues? What are your mitigating actions? Who is accountable? By when?

A majority of interviewees also mentioned a frequently encountered problem: the difficulty of quantifying the value of risk management. Some chose to see ERM as preventing those risks that did not occur, to assess the potential impact vs. how much was spent on managing it. Others saw it more broadly, for example in terms of ERM's effect on credit rating and thus on access to capital and the cost of capital. There is a prevalent belief in the industry that ERM value needs to be incorporated into financial ratios in order to measure its real financial impact across the organisation and to justify the required investment. However, it is important to remember that ERM has many intangible benefits that are difficult to quantify. Ultimately, ERM value should be assessed at the senior level of an organisation, because ERM is by definition a management-level tool, so it can focus on early detection of threats to achieving organisational objectives, enabling decisions to be based on high-quality risk information.

Chapman (2006; 2007) argues that effective ERM means that it can improve the quality of well informed decisions made by management and create organisational value in one of the several ways discussed in Chapter 2 (Section 2.3.4): strategic direction, business performance, risk cost management, exploring new opportunities and establishing a sustainable competitive advantage. Therefore, if ERM is properly implemented it can generate competitive advantage by ensuring that capital is efficiently allocated against the

risks that the business has chosen to take. More forward looking business decisions can then be made in line with risk appetite. Risk managers can provide information that will help senior managers make well informed and risk-adjusted decisions, balancing risk with reward and creating a competitive edge. Metrics such as risk-adjusted return on capital are also gaining increasing importance, according to the interviewees.

Interviewee 16 observed:

> ERM can enhance decision-making processes. Senior management gains a well-defined methodology to manage risk exposures to be within risk appetite, and quantitative information that supports decisions on risk mitigation solutions. The ERM programme allows focus on the most important risks, and it improves corporate governance.

Thus, certain conclusions concerning the generation of value by ERM adoption can be drawn from the empirical evidence of interviewees and from secondary data obtained in various case studies and surveys reported in the literature. The financial industry has become increasingly aware of the strategic value of ERM, but there is little practical evidence in the literature on how it can be justified and quantified. There is general consensus among academics and practitioners that ERM helps to achieve a more strategic view of key enterprise-wide risks, improved regulatory compliance and a stronger enterprise risk culture. However, the risk management framework is still not perceived by most financial organisations as mature enough to ensure that ERM is embedded in the business or aligned with the risk culture (Protiviti 2012).

Question III (7)

The final interview question (Table 6-1) addressed the importance to ERM adoption of the enterprise risk culture (ERMCUL2). Interviewees were asked whether they considered a strong enterprise risk culture to be critical to the full effectiveness of ERM and if so, how it could be established. They were invited to share their experience of developing an enterprise risk culture and their views of the link between culture and ERM. This question prompted some interviewees to offer firsthand practical guidance on where financial organisations might want to improve on the cultural dimension and how to do so.

Table 6-8 shows that 34 of the 35 interviewees considered a strong risk culture to be critical to the effectiveness of ERM, while the remaining one agreed partially. This

strongly indicates that their experience had led them to see ERM adoption as closely aligned with establishing a robust risk culture.

Table 6-8 Frequency distribution of the ERMCUL2 variable

Is a strong enterprise risk culture critical to full effectiveness of ERM?		
	Frequency	**Relative Frequency**
Yes	34	97%
Partially	1	3%
No	0	-
Total	**35**	**100%**

Appendix A (Table A16) summarises interviewees' responses regarding their practical experience of issues affecting enterprise risk culture. Apart from providing a problem description, participants also offered some guidance, based on their professional involvement in ERM, on how enterprise risk culture can be established and sustained in the long term. A majority felt that three conditions had to be met to build a stronger, more dynamic and consistent enterprise risk culture: the active engagement of senior management in shaping the risk culture, enterprise-wide buy-in at all levels and continuous risk education.

From the academic point of view, there is little discussion in the literature of the practical value of risk culture for ERM implementation. However, as organisations begin to consider ERM, they slowly appreciate its value in contributing to long-term sustainability and competitive advantage (KPMG 2011; Paape and Speklé 2012). The sustainability required to generate long-term value from ERM is a product of organisational culture, which can be either a source of competitive advantage or a cause of persistent problems (Althonayan *et al* 2013).

Interviewee 27 provided an example of a strong risk culture helping the successful adoption of ERM:

> For once, when the CEO, CFO, people at the highest levels of the organization were directing ERM, and it didn't stop there, the board, the directors were all involved with it as well. The reason they had gone down this path was that one of the rating agencies had given them a less favourable view of their ERM process than they'd have liked it to be. So that was the catalyst [...]. It started with the CEO, looking for some outside expertise to get ERM off the ground. There were a couple of areas where there were some questions about why we were doing it this way. The interviews were conducted to first establish what was needed. People were

> very open, very receptive to ideas, liked the feedback and the guidance they received. And there were some follow-ups that happened over a 6-12 month period, and you can definitely see a movement in the right direction. And the CEO was less and less involved over time, as he didn't need to be very involved throughout the entire process. So that is a good example of how it happened.

This example confirms that organisations which manage to embed a dynamic and open risk culture do not have to struggle to persuade their employees to buy into ERM, which in turn facilitates faster and more effective adoption. Although enterprise risk culture is an often overlooked element of ERM, poor risk culture can cause a disintegration of the existing risk approach (Brooks 2010). Thus, enterprise risk culture is a critical component of ERM structure, because it has a profound impact on human behaviour (Power 2007).

The interviewees appeared to agree that a sustainable ERM cannot be effectively implemented or achieve its full value without consideration of a strong enterprise risk culture. Interviewee 21 provided an example of what a CEO did to encourage this:

> The CEO made a short video that was played to all people in the organisation as part of weekly team meetings to let them know the change was taking place, with the emphasis on how important that change is to the management. [....] The new policies and process guidelines came out with the written communications from the c-suite and the appointed senior level executive sponsors to drive the change. They had that senior level drive from the beginning coming down from the top. They were living it instead of just talking about it. What was done well was all about setting out clear expectations, i.e. what they wanted people to do in the change, and to provide people the support [and tools] they needed to deliver those expectations.

This example shows how senior managers' active involvement and support for ERM can drive the right level of engagement across the organisation. With the right communication and demonstration of what is expected, the culture can support ERM transition and ensure that organisational objectives are met. Moreover, people are more willing to provide the right level of guidance and support to perform what is critical in managing change. In financial organisations whose risk culture supports ERM, there may also be an ERM committee, whose primary roles are the review and approval of the ERM framework, risk identification, decision making and appropriate communication with internal and external stakeholders.

Buehler *et al* (2008) argue that it is quite challenging to incorporate risk thinking into the making of risk-informed decisions at the organisational level. Therefore, highly motivated

business leaders should understand the importance of creating a strong risk culture, embedding risk in critical business decisions and aligning risk with the key organisational factors (e.g. risk appetite, corporate governance, infrastructure) to allow more efficient management of the key risks to which the business is exposed.

Therefore, the role of risk culture in ERM starts with greater discussion of key risks across the organisation. With time, recognising, discussing and embracing risks begins to shape a risk-aware culture. Interviewee 14 asserted: "asking tough questions daily is the best way to foster the culture needed to grow ERM. It's an uphill battle that is best helped by top managers asking their subordinates daily: What are the biggest risks and what can we do about it?"

Interviewee 6 suggested that most financial organisations are becoming more aware of enterprise risk culture, but that they are still tentative as to how to address it and how to understand what risk culture is. The problem lies in identifying and managing different cultural views of individual versus corporate risk. Multiple cultures exist across every organisation, so the question is how to determine the right balance between risk takers and risk avoiders:

> A lot of organisations would love to have a magic bullet that a) tells them what the risk culture is, and b) is this risk culture right to achieve the strategic objectives for their organization? And that leads to another question: because the organizational objectives change all the time, how do you invest in culture to change it accordingly and ensure those new objectives are achieved? Quite often, I saw that they [managers] stick with the same approach, only to learn they are not achieving new objectives, and they don't know why.

Therefore, the enterprise risk culture needs to be flexible and dynamic enough to change with the business model. ERM culture must evolve within the business environment, adapting to internal and external influences (e.g. new business leadership, new risk-adjusted incentives, or new risk processes and systems) (Hindson 2013), otherwise it loses its agility and becomes unsustainable. A blame-free culture was also considered essential in financial organisations; employees should feel sufficient independence and freedom to report bad news to the management without the fear of repercussions for their performance appraisals.

Interviewee 5 also highlighted the importance of common risk language as part of a consistent risk culture: "In my experience, if there is no common risk language that would create communication issues between the entities and the corporate. Clear communication is the key". Interviewee supported this view, adding that "the tone from the top, i.e. a consistent message from senior management, is a fundamental requirement of an effective ERM. This requires a risk-aware culture where everyone is involved. Embedding risk culture is an ongoing challenge that requires consistent risk training and communication".

The topic of risk culture remains under-researched, but its importance is growing. Research indicates that a poor quality or absent risk culture was one of the primary contributors to the financial crisis (Ernst & Young 2011). As made evident in Chapter 3, enterprise risk culture has become a fundamental component of ERM, but many organisations still manifest significant deficiencies in this area and the pace of cultural change is gradual (KPMG 2011). The experiences and views of ERM practitioners interviewed here make it apparent that enterprise risk culture should be initiated by senior managers who are actively involved in ERM at the outset. ERM gains traction when driven by the leadership and when, building gradually in importance, it obtains the buy-in of the middle and lower ranks. Enterprise risk culture needs to accommodate risk change, and ultimately get embedded in the organisation by employees across the various functions. Therefore, everyone should become risk aware with time and be able to apply ERM in their daily work, naturally and without conscious effort. A good risk culture and mature risk processes are prerequisites for successful and sustainable ERM.

6.3 Conclusion

The majority of interviewees reported having observed increased interest in ERM, but the level of maturity across financial organisations was still relatively low. These findings are consistent with the theoretical and empirical deliberations of the academic and industry researchers discussed in Chapters 2 and 3. Qualitative data analysed in this chapter shows that aligning ERM with key organisational factors is critical for its sustainability over the long term. The majority of interviewees agreed sustaining ERM requires a strong and consistent enterprise risk culture. The topic of enterprise risk culture and its importance in ERM implementation has been under-researched and there is little empirical evidence as to the practical impact of enterprise risk culture on ERM implementation over time. The

literature review, however, provides sufficient evidence to conclude that enterprise risk culture is a critical element of ERM and that without a strong cultural foundation, it is difficult to fully capitalise on potential ERM benefits.

ERM practitioners' experience reported here also makes it evident that ERM can generate value and drive competitive advantage in a number of ways, depending on organisational strategies and objectives set by the management. More research is recommended into ways of measuring the value generated by ERM. Sceptics (especially in the finance industry) emphasise the critical need to quantify the value of ERM.

The analysis of interview data supports some of the major challenges to ERM outlined in the literature review: lack of senior management support and involvement, and an insufficiently dynamic enterprise risk culture. Finally, participants confirmed some increase in the role of board risk oversight but saw significant room for improvement in this area, suggesting that roles and responsibilities need to be clearly defined by the risk governance mechanism.

The findings presented in this chapter strongly support the main research aim of developing a Strategic ERM Alignment Framework to address key shortcomings of the existing enterprise risk approaches in the financial industry, while providing practical guidance to academia and the finance industry.

Lastly, the outcomes of the qualitative phase of data analysis provide strong empirical support for the research's theoretical assertion of the need for a strategic alignment between ERM and key organisational dimensions. Chapter 7 presents the second phase of the empirical study and provides the quantitative data collected and analysis.

7 Chapter Seven: Collection and analysis of quantitative data

7.1 Introduction

This chapter presents the quantitative data obtained through research surveys, complementing the qualitative phase of this mixed method study. As discussed in Chapter 5, the empirical part of this research had a cross-sectional, sequential design. In September 2013, the quantitative data was collected by distributing a research questionnaire on a single occasion. The questionnaire comprised thirty-five predominantly close-ended questions pertaining to critical aspects of ERM, with the exception of a few multiple-choice items. It was divided into four sections, each devoted to an area of ERM relevant to this research. Four hundred and forty-two financial industry professionals were randomly selected to participate in this part of the research; of these 115 responded by returning a completed research questionnaire, giving a total response rate of 26 percent.

Where applicable, their responses were scored on a five-point scale of importance: "critical", "very important", "important", "slightly important", and "unimportant". The survey instrument is reproduced in Appendix C. The analyses presented here are univariate and bivariate, as explained in Chapter 5, Section 5.7.2. The survey responses are subjected to descriptive statistics (frequency evaluations) and cross-tabulation of selected variables. Moreover, the data analysis is presented here in a form consistent with the findings of theoretical and empirical research discussed in Chapters 2, 3 and 6, in order to facilitate comparisons and draw valid conclusions.

7.2 Univariate and Bivariate Analyses

This section is divided into four subsections, corresponding to the four sections of the questionnaire. Subsection 7.2.1 reports the outcomes of basic statistical analysis related to the descriptive variables in Section I of the survey. Subsection 7.2.2 then addresses Section II of the survey, which investigated the current ERM practice in the financial industry. Next, Subsection 7.2.3 analyses the quantitative data collected in Section III, forming the pivotal element in validating the theoretical assumptions of the strategic ERM Alignment Framework will be discussed in Chapter 8. Finally, Subsection 7.2.4 analyses the data from Section IV of the questionnaire, concerning participants' familiarity with ERM and their experience of risk management.

7.2.1 Section I: Descriptive Statistics

The structure of the questionnaire reflected that of the interviews, explained in Chapter 6, in that it began by establishing the descriptive profile of each participant. This subsection, therefore, deals with the fundamental data or basic variables that describe the demographic profile of the questionnaire respondents and ERM across the financial organisations. Throughout this chapter, the questionnaire results are examined to test the correlations among certain variables. The researcher developed specific factor codes (i.e. descriptors) and assigned them to key variables measured in this research. These are used consistently in reference to both interview and survey data (Table 6-1).

Figure 7-1 shows the distribution of the first research variable (ERMREG), denoting the geographical region of operation of the respondents' organisations. It shows that EMEA and North America together accounted for over three-quarters of responses (Appendix D, Table D4). Comparing these frequencies with those derived from interview data (Chapter 6, Figure 6-1) indicates that the geographical profiles the two samples were different, particularly in that more than half of interviewees said that their employers operated globally, while this response was given by only 8 percent of survey respondents. The different sampling methods used for the two phases (Section 5.5.2) may account for this divergence: the interviewees were selected by convenience and judgement sampling, while random sampling was used for the survey.

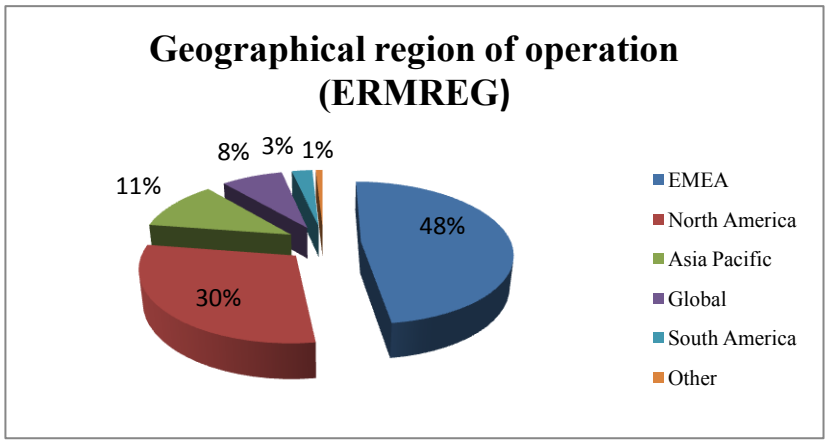


Figure 7-1 Geographical region of operation (survey)

Comparing Figure 7-2 with Figure 6-2 shows that the two samples also differed considerably in the distribution of sectors where participants worked: 37 percent of questionnaire respondents worked in banks, 19 percent in management consultancies and

21 percent for insurance firms, whereas 60 percent of interviewees were employed by management consultancies and only 9 percent by banks (Appendix D, Table D5).

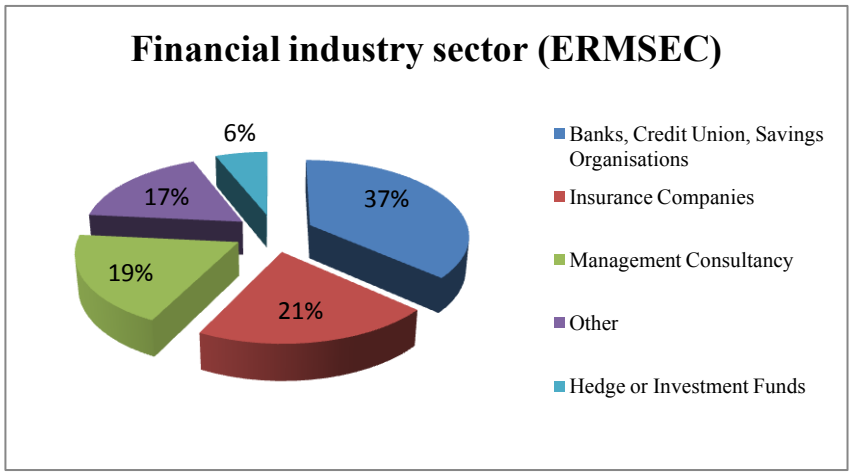


Figure 7-2 Financial industry sector (survey)

Results for the variable denoting the size of participants' organisations (ERMSIZE) are depicted in Figure 7-3, which shows that 43 percent had fewer than 1000 employees and 28 percent had between 1,000 and 10,000 (Appendix D, Table D6). These percentages are broadly similar to those for the interview sample (Table 6-2).

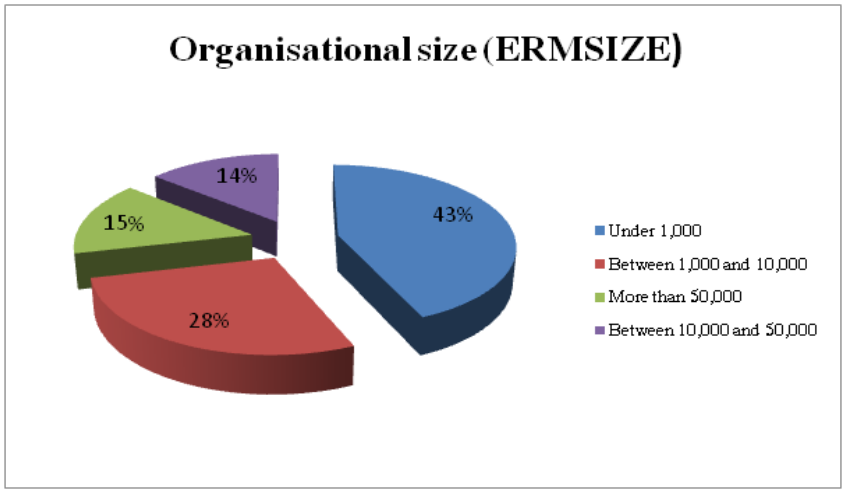


Figure 7-3 Organisation size (survey)

Figure 7-4 shows the distribution of the ERMEXP1 variable, indicating survey participants' length of professional experience of risk in years (Appendix D, Table D7). A majority (60 percent) had worked in risk management for more than 10 years, while 26 percent had done so for between 5 and 10 years and the remainder for less than 5 years. As noted in Chapter 6, Section 6.2.1, these results are broadly in line with those for the

interview sample and it can be concluded that both samples consisted largely of practitioners with significant ERM experience.

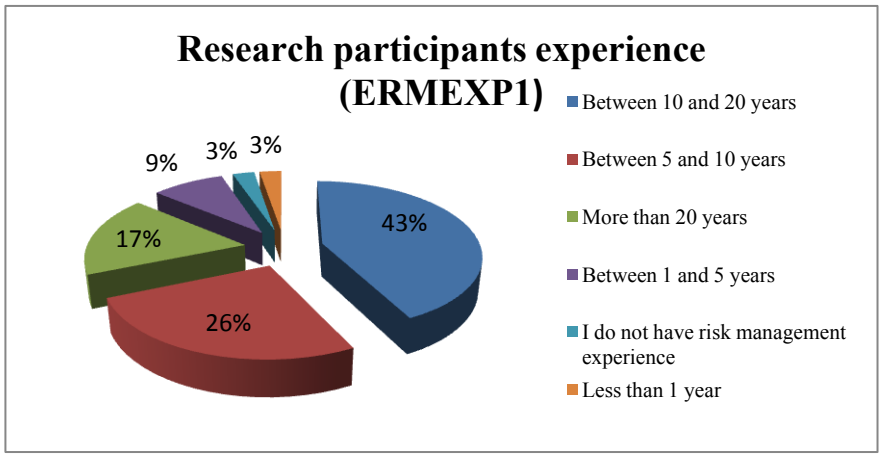


Figure 7-4 Participants' experience (survey)

The two variables discussed next denote the organisational position (Figure 7-5) and the level of seniority (Figure 7-6) of the survey participants.

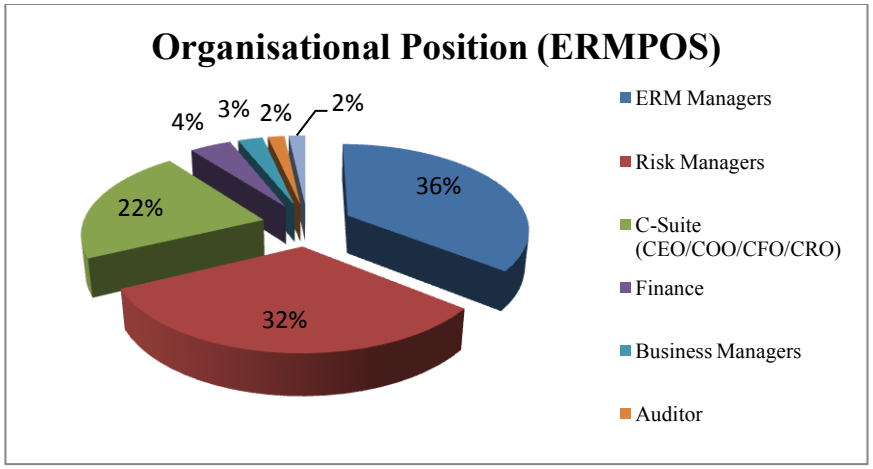


Figure 7-5 Organisational Position (survey)

As illustrated by Figure 7-5, two-thirds were either ERM managers or risk managers, almost a quarter represented the C-suite and the remaining 6 percent comprised auditors, board members and business managers (Appendix D, Table D8).

Based on the level of seniority shown in Figure 7-6, survey participants fell into three major categories: C-suite (34 percent), senior management in a decision-making capacity (24 percent) and middle management (19 percent). Figure 6-3 shows that the distribution was quite different for interviewees: 70 percent senior management and 17 percent C-suite (Appendix D, Table D9).

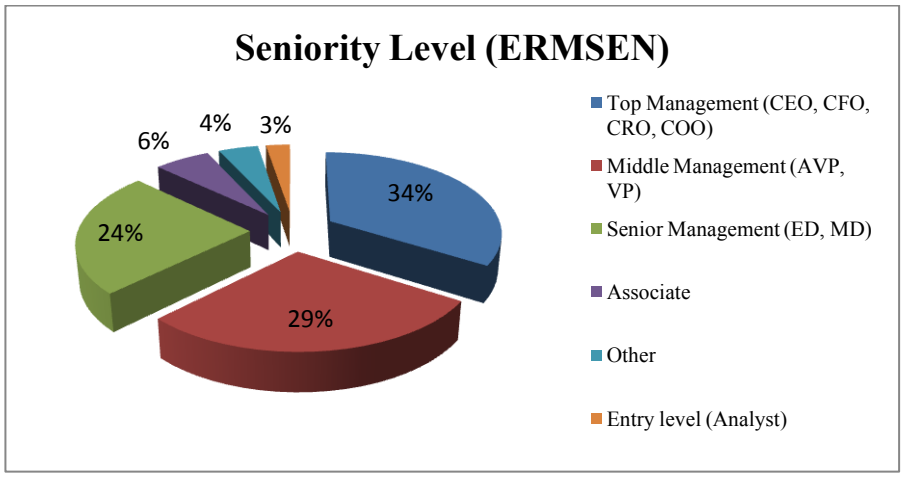


Figure 7-6 Seniority Level (survey)

A cross-tabulation analysis was next performed to determine any dependency relationship between survey participants' experience (ERMEXP1) and their level of seniority (ERMSEN). This is an example of an inferential bivariate analysis which analyses multiple variables simultaneously. First, ERMEXP1 and ERMSEN were cross-tabulated in a Microsoft Excel pivot table, then, a simple chi-square test was performed to establish whether ERMEXP1 was dependent on ERMSEN.

If either of two variables is found to be independent, the conclusion is that there is no relationship between. The level of significance set for this test was 0.05 (5%). To determine the probability, which represents the degree of independence, the difference between the observed values (Appendix E, Table E1) and the expected values (Appendix E, Table E2; E3) was computed; the difference was then squared and divided by the expected value to sum all entries in the table.

The degree of freedom (df) also needs to be computed for this calculation (chi-square table, Appendix C). The probability was computed using the Microsoft Excel CHIDIST function. A cross-tabulation was then performed to establish whether there was a relationship between ERMEXP1 and ERMSEN or whether they were independent (Appendix E, Table E3). Details of this calculation are given in Appendix E (Table E4).

Figure 7-7 shows that 49 of the 115 survey respondents (43 percent) had between 10 and 20 years experience and that of these, 22 (19 percent) were in top management, 14 (12 percent) were in senior management positions and 10 (9 percent) were at the middle

management level. Respondents at these three levels with between 10 and 20 years of risk management experience thus accounted for 40 percent of the sample.

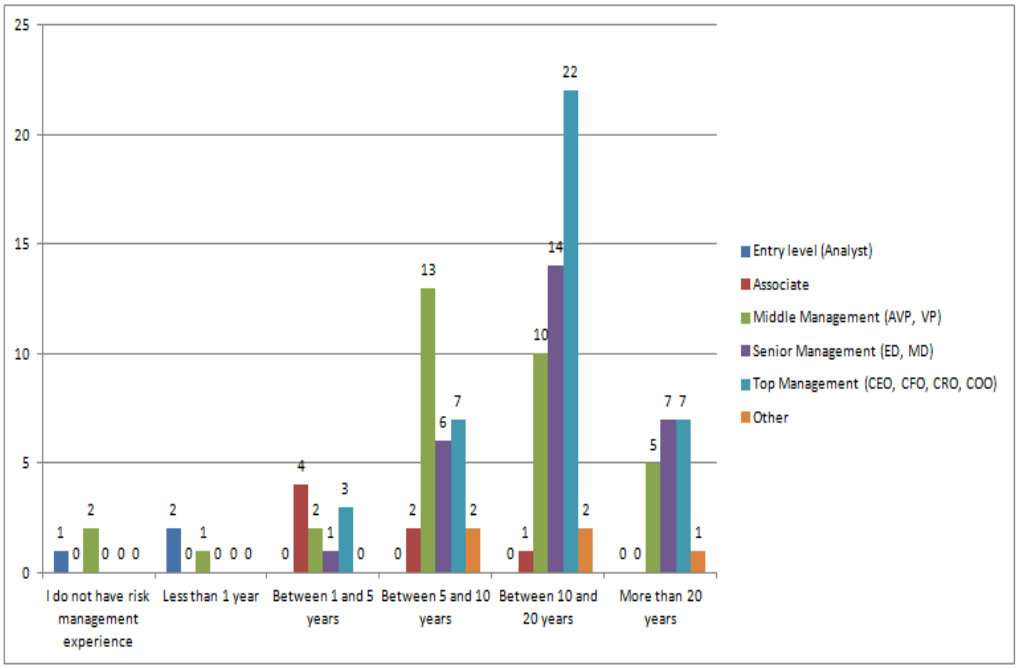


Figure 7-7 Cross tabulation of ERMEXP1 and ERMSEN

In other words, as Figure 7-7 shows, for the variable ERMEXP1, the largest frequency of top management (i.e. c-suite) had between 10 and 20 years Experience, while for the ERMSEN variable, those with more than 20 years experience were equally divided between top and senior management (6 percent each). The cross-tabulation was based on the results of the chi-square computation performed in Excel, which showed that the ERMEXP1 and ERMSEN variables were correlated. Appendix D (Table D1; D2; D3) includes a summary of the bivariate analysis.

The last variable discussed in this section is the organisational area (ERMAREA) with which the participants were associated. Figure 7-8 below shows that 86 percent worked in either ERM or risk management, the remainder being divided between the front office (5 percent), finance (4 percent), business management (3 percent) and audit (2 percent). As 94 percent of interview respondents claimed to have had direct ERM experience, the researcher concluded that the data collected in the two phases was valid, reliable and of sufficient quality to achieve the research aims and objectives (Appendix D, Table D10).

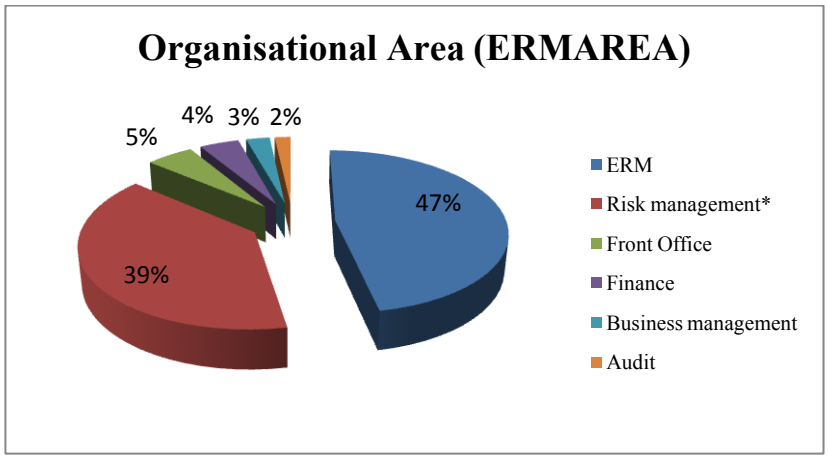


Figure 7-8 Organisational Area (survey)

The researcher focused on maintaining the consistency of the interview and survey samples. Therefore, respective research criteria along with key descriptive variables were developed in advance of the data collection. The structure of both qualitative and quantitative data collection methods was also designed with a level of uniformity and consistency; both were divided into a number of sections, addressing broadly the same ERM areas. The researcher aimed to ensure that the two empirical datasets were comparable and able to validate the research findings. Appendix D includes all frequency tables and other statistical calculations performed for the purpose of this section.

7.2.2 Section II: ERM

Section II of the questionnaire included specific questions related to ERM in the respondents' organisations. Its aims were fourfold: to establish participants' level of risk expertise and risk management experience, to determine the current state and level of ERM maturity, to understand the key factors for effective and sustainable ERM and to measure the current level of ERM support from senior management. This design of this section of the survey is consistent with that of Section II of the interviews (Section 6.2.2).

Question eight, the first of nine in this section, simply asked respondents whether they were familiar with the concept of ERM (ERMFAM). Nearly 90 percent answered affirmatively, indicating that they would be able to provide relevant empirical data in response to the remaining questionnaire items. The survey was also constructed to account for those who admitted a lack of familiarity with ERM; the few who responded "No" were directed to Section IV of the survey (Appendix D, Table D11). As experience in the risk

management field was also considered a valuable input to this research, these respondents were asked general questions about managing risk based on their expertise.

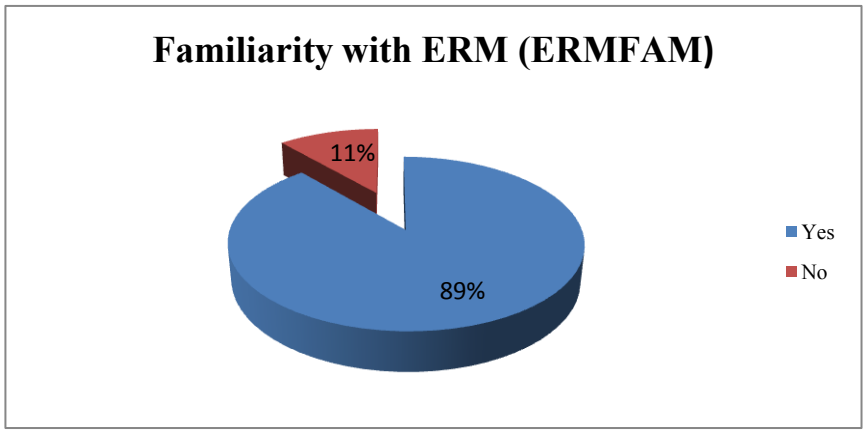


Figure 7-9 The level of familiarity with ERM (survey)

The next question asked respondents to rate their level of ERM understanding (ERMUNDRST) on a scale from "excellent" to "poor". Those who rated their ERM knowledge as poor were directed to Section IV, along with those who answered "No" to the previous question, to ensure that only those with an adequate level of risk expertise would continue complete Section III of the questionnaire, thus improving the quality of data obtained from the survey (Appendix D, Table D12).

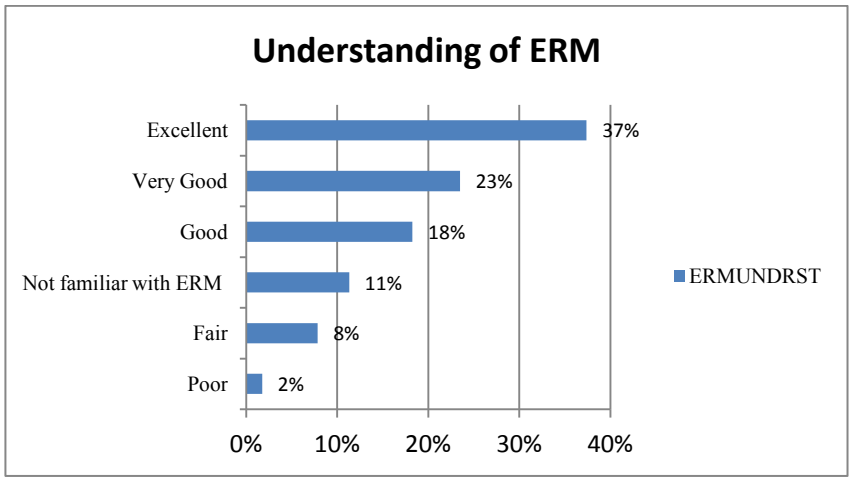


Figure 7-10 The level of understanding of ERM

As Figure 7-10 indicates, 37 percent of respondents considered their ERM expertise excellent, 23 percent very good and 18 percent as good; accounting for nearly 80 percent of the total sample. This relatively large percentage allows the assumption of fairly high

data quality based on the level of ERM understanding. Approximately 13 percent admitted either that they were not familiar with ERM or that their knowledge was poor.

In order to measure the relationship between the ERMEXP1 and ERMUNDRST variables, the researcher performed a cross-tabulation as part of the bivariate analysis. Figure 7-11 illustrates some interesting results, while details of the Excel calculations are presented in Appendix D.

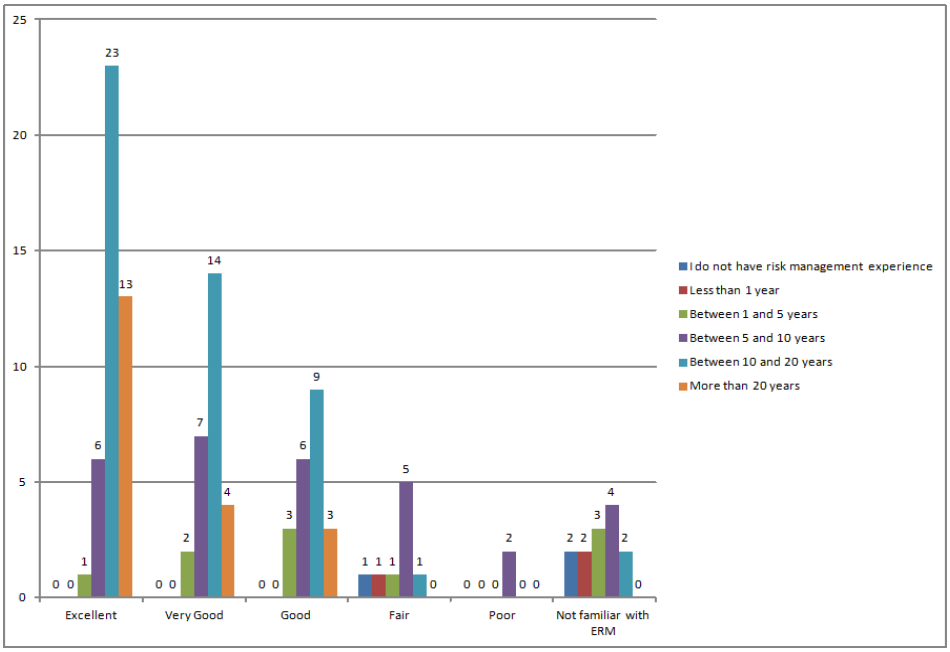


Figure 7-11 Cross-tabulation of variables ERMUNDRST and ERMEXP1

As Figure 7-10 shows, the majority of participants who were not familiar with ERM had less than 10 years of industry experience, while those who claimed excellent or very good familiarity and who also had at least ten years experience accounted for almost half of the sample of 115 (54 respondents). In order to analyse further the relationship between these two variables, the chi-square test of independence was performed (Appendix E, Table E5; E6; E7; E8). Since the probability was found to be $p<0.05$, it is possible to conclude that ERMUNDRST and ERMEXP1 were positively correlated.

Question ten measured the depth of ERM experience in order to gauge whether or not the respondents were involved in developing a risk framework and if so, the extent of their involvement in ERM (ERMEXP2). Figure 7-12 shows the results for each category of involvement. While 35 percent were involved in all stages of risk framework development, from specification through design to implementation and monitoring, 26 percent had

specific experience of ERM implementation. Over half of respondents were involved in the design, specification, development or validation stages, whereas almost a quarter reported having had no professional experience of a risk framework in the course of their career (Appendix D, Table D13).

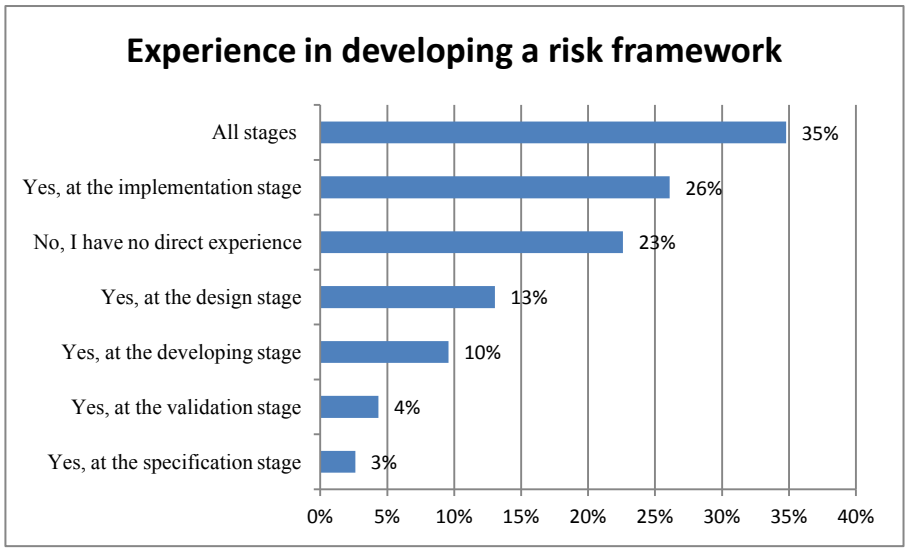


Figure 7-12 Experience in developing a risk framework

These findings reinforced the researcher's confidence that the survey sample had an adequate level of ERM expertise to provide high quality data relevant to this research. Thus, questions eight to ten fulfil the first aim of Section II outlined at the beginning of this subsection: to establish participants' level of risk expertise and risk management experience.

Questions eleven to fourteen were designed to determine the current state of enterprise risk practices (ERMSTATE) and the level of ERM maturity (ERMMAT). Question eleven sought to ascertain how many respondents worked for financial organisations that had adopted ERM (Appendix D, Table D14). Figure 7-13 shows that two-thirds replied that their organisations had adopted ERM, while a third either stated that they had not, or had indicated earlier in the questionnaire that they were unfamiliar with ERM. This is consistent with a report by RIMS (2013) stating that ERM had gained a "critical mass" of acceptance, with 63 percent of responses indicating either partial or full implementation. These findings indicate that interest in ERM is growing and are consistent with the 94 percent of respondents to interview question II (3) who reported recent ERM adoption (Chapter 6, Section 6.2.2).

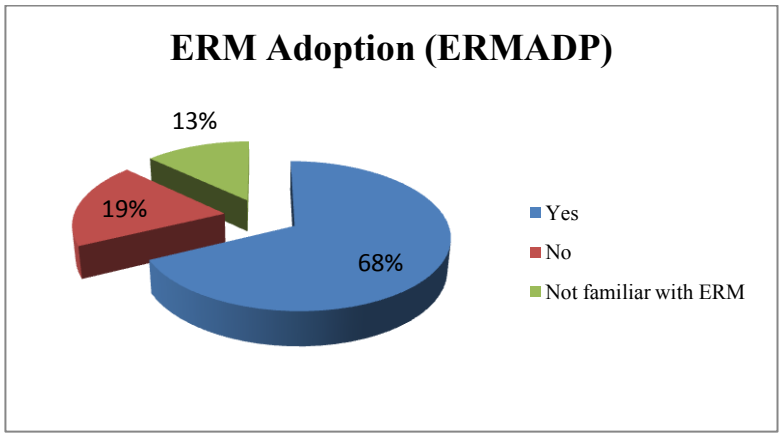


Figure 7-13 ERM Adoption (survey)

Question twelve concerned the current state of ERM (ERMSTATE) across the financial industry (Table 7-1), while question thirteen sought to establish the current level of ERM maturity (ERMMAT) (Table 7-2). Both items were designed to strengthen the findings related to questions in Section II of the interview (Chapter 6, Section 6.2.2), which measured the same variables (Appendix D, Table D15; D16).

Table 7-1 Current state of ERM in the financial sector

ERMSTATE		
How would you describe the current state of ERM in your organisation?	**Frequency**	**Relative frequency (%)**
Currently investigating the concept of enterprise-wide risk management, but have made no decisions yet	1	1
No formal enterprise-wide risk management in place, but have plans to implement one	3	3
Partial enterprise-wide risk management in place	46	40
Comprehensive formal enterprise-wide risk management in place	29	25
Not familiar with ERM	15	13
No ERM	21	18
Total	**115**	**100**

Table 7-1 shows that only a quarter of questionnaire respondents described the current state of ERM in their organisation as comprehensive and 40 percent said that it was partial. The remaining 35 percent disclosed that their organisations either had no ERM, or were considering it in their future plans. This indicates that approximately a third of financial organisations have not yet adopted ERM, most of the rest being in the early stages of its development. These findings are consistent with the RIMS (2011) research, which found that just over half of participating organisations had either partially or fully implemented ERM.

On ERM maturity, responses varied (Table 7-2). Only 10 percent categorised ERM in their organisation as strategic, while a quarter considered it either established or embedded. This is consistent with the fairly low level of ERM maturity reported in the interviews (Table 6-4), where about 40 percent said that ERM was established, a quarter said it was embedded and only three percent considered it strategic.

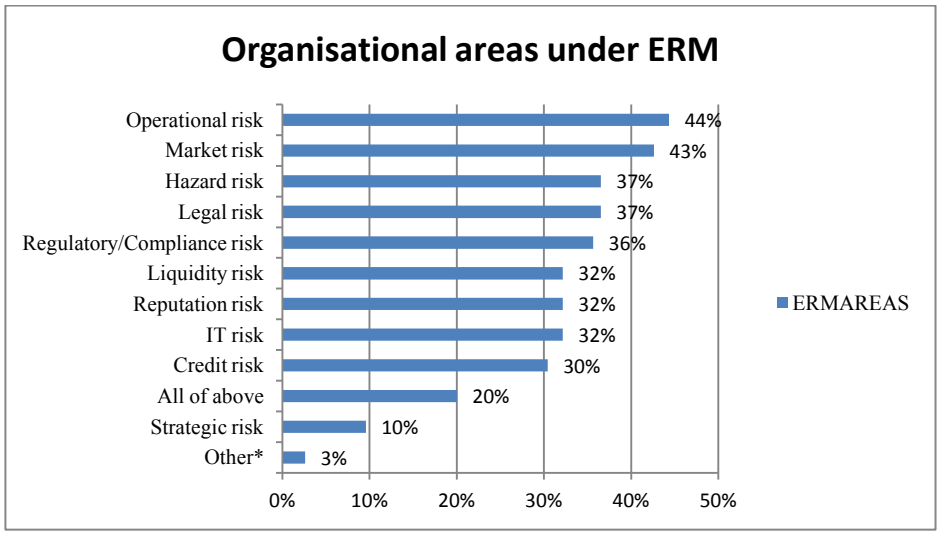
Table 7-2 The current level of ERM maturity in the financial sector

ERMMAT[6]		
What is the current level of ERM maturity in your organisation?	**Frequency**	**Relative Frequency (%)**
Undeveloped	4	3
Formalised	26	23
Established	15	13
Embedded	15	13
Optimised	7	6
Strategic	12	10
No ERM	21	18
Not familiar with ERM	15	13
Total	**115**	**100**

These findings suggest slow progress towards full ERM adoption and a relatively low level of ERM maturity across the financial sector. Most financial organisations still have some way to go before their ERM can be considered fully optimised and able to generate strategic value by providing greater certainty than before that strategic and operational objectives will be attained (RIMS 2011).

Finally, in question fourteen, respondents were asked to identify which risk categories in the list given in Figure 7-14 were covered by the scope of their organisations' ERM (ERMAREAS).

[6] Undeveloped = aware of risks but no structured approach applied
Formalised = basic risk framework & processes partially implemented but lacking enterprise-wide consistency
Established = formal & consistent enterprise-wide processes
Embedded = integrated processes embedded within business planning
Optimised = risk management with clear knowledge-sharing & continuous improvement
Strategic = well-defined, balanced, dynamic & transparent alignment between key risk, strategic & business functions



*Fraud, Emerging, Counterparty

Figure 7-14 Organisational areas under ERM

Figure 7-14 shows that only 20 percent of all respondents claimed that the ERM in their organisation covered all major risk areas (Appendix D, Table D17). The remaining 80 percent said that only certain categories were taken into account as a part of ERM, leaving the others out of the ERM equation. Respondents to a study by Deloitte (2012c) described the credit, liquidity, regulatory and market risk categories as "core" (traditional), while operational, strategic, reputation and IT risk were "emerging but critical" to ERM.

Responses to question fourteen suggest that most financial organisations still do not regard all key risk functions as coming under the ERM umbrella. Since responses to questions twelve and thirteen show that relatively few participants rated ERM as mature, it appears that the enterprise-wide scope implicit in ERM has not been fully realised. These findings confirm that in many financial organisations, ERM is still far from fully effective and from extending enterprise-wide.

Questions fifteen and sixteen addressed the key factors critical to effective and sustainable ERM and gauged the current level of senior management support for ERM. Participants were asked to select the factors applicable to their own organisations. Analysis of the data shows that only 10 percent of organisations considered all the factors listed in Figure 7-15. This is consistent with the 10 percent who reported having a fully strategic ERM in response to question thirteen. Figure 7-15 also shows that less than half of respondents felt that their BOD actively supported ERM and about the same number stated that they had the risk management process, tools and techniques to support ERM. Fewer than 40 percent

stated that ERM was aligned with corporate risk governance, while similar numbers reported that their organisation had either a chief risk officer or a risk committee and that it had an ERM framework.

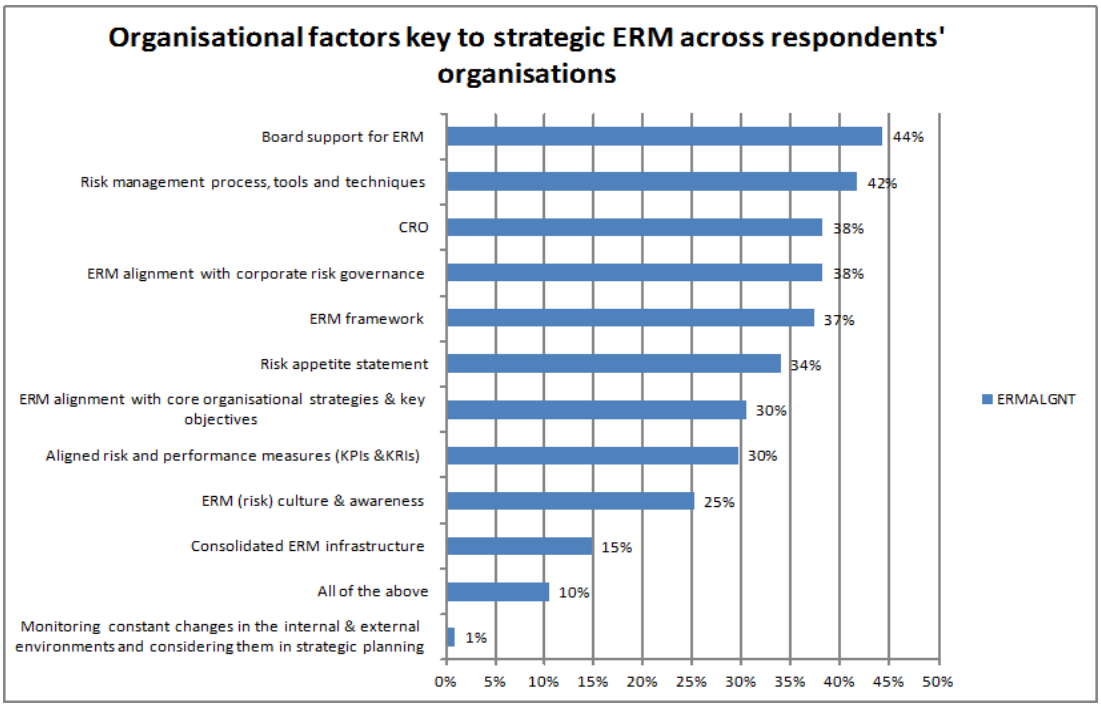


Figure 7-15 Organisational factors key to strategic ERM across respondents' organisations

One-third of respondents asserted that their organisation had a risk appetite statement, while 30 percent each said that ERM was aligned with core organisational strategies and key objectives and with risk and performance metrics (KRIs and KPIs). Only a quarter had a strong enterprise risk culture in place, supporting the adoption of ERM. Lastly, only 15 percent observed a consolidated ERM infrastructure as a part of the programme (Appendix D, Table D18).

These statistics provide further evidence that the progress of ERM in the finance industry is not as fast as it perhaps should be. However, some encouraging signs of progress are documented in academic and industry-based literature (Chapters 2 and 3). Some key observations emerge from the analysis of secondary surveys discussed in Chapter 2. The major risks to which financial organisations are exposed have remained largely the same since 2009: economic slowdown, regulatory changes and increasing competition (AON 2013). More organisations have now appointed a CRO to ensure the involvement of senior management in ERM and its alignment with strategic planning. Two-thirds of respondents

to a study by KPMG (2011) felt that the presence of a CRO could perceptibly improve the quality of risk management, while as many as 89 percent of the organisations that responded to Ernst & Young (2011) confirmed that they had strengthened the role of the CRO as part of ERM. Hettinger (2009) argues that the CRO role has evolved and should now combine several risk profiles: business leader, coach, risk manager and counsellor. The CRO should now lead the process of capitalising on both the downside and upside of key risks, improving risk controls, education, culture, expertise and communication, and finally, aligning ERM with organisational goals and strategy.

Ernst & Young (2011) revealed that 83 percent of organisations had recently increased board oversight of ERM, while over 40 percent of respondents to AON (2013) affirmed that the board had started to consider specific business risks more often and to receive regular updates on key risks and risk management activities. Ernst & Young (2011) also found that over 90 percent of organisations had paid increased attention to enterprise risk culture, but only 23 percent reported a significant shift, while 60 percent of organisations responding to Marsh (2012) affirmed that enterprise risk culture was either fully or partially embedded, with less than 2 percent stating that there was no risk culture. Nearly 70 percent of organisations surveyed also reported that evaluation of risk culture had improved significantly over a 24-month period (Marsh 2012).

Konarsky (2010, p.4) expresses concern about an organization's determination and definition of risk appetite and tolerance, without which its "implementation of an effective ERM program is incomplete". Distinguishing between risk appetite and tolerance, then calculating and articulating them across the organisation, are still considered challenging (IRM 2011; Govindarajan 2011; Konarsky 2010). SSG (2008) lists risk appetite as one of the key post-GFC concerns. Nearly 60 percent of respondents to Towers Watson (2010) stated that the risk appetite statement was documented as critical to ERM success, whereas Deloitte (2012c) report that only one in five respondents had had their risk appetite qualitatively and quantitatively defined, with a similar number still in the process of having their risk appetite statement approved; one-third revealed that they had no risk appetite statement.

Financial organisations still struggle to have a fully embedded ERM framework applied consistently enterprise-wide (Marsh 2012). Many organisations still rely on mostly generic

industry risk standards like COSO ERM or ISO31000, but find it challenging to develop a strategic and well-customised ERM framework that could be embedded into the organisational structure (COSO 2010a; RIMS 2011). Surprisingly, nearly half of the organisations surveyed by RIMS (2011) stated that ERM processes were not aligned with any particular ERM framework, and only one organisation in four had consistently applied a fully embedded enterprise-wide ERM framework.

Lastly, only one-third of questionnaire respondents in the present study reported that their organisations had aligned ERM with strategic planning. There is agreement that it is difficult to link business planning and ERM (Frigo 2008; Beasley *el at* 2012). Konarsky (2010) concurs, noting that "strategic planning is good corporate governance" and that "both of these 'management' concepts are tied into effective risk management practices". However, as various studies reviewed in the course of this research have shown, in order to create and protect shareholder value and corporate assets it is critical to connect ERM with strategy and organisational objectives. KPMG (2011) found that many organisations had made little or no progress in aligning strategies and risk; strategies were still developed in isolation, rather than on the basis of more holistic view, taking account of multiple scenarios and potential events. Other researchers have expressed concern about ERM still not being involved in strategic planning or decision making (Wade 2010; Beasley and Frigo 2010; Friedman 2011; Ashby *et al* 2012; Konarsky 2010).

There is thus a clear trend of growing attention to specific organisational factors affecting overall ERM implementation. At the same time, financial organisations need to continue to strengthen their ERM approaches and increase their understanding of the importance of aligning ERM with specific organisational areas. This helped the researcher to assess the current state of ERM against the industry benchmark (i.e. what factors were critical to the research participants, given their level of professional expertise).

Question sixteen, which concluded Section II, sought to establish the current level of senior management support for ERM (ERMSUPRT). Figure 7-16 shows that although nearly seventy percent of respondents familiar with ERM acknowledged that their organisations had adopted it, fewer than a third described current senior management support as good. Only a fifth felt that it was very good and a mere five percent assessed it as excellent (Appendix D, Table D19).

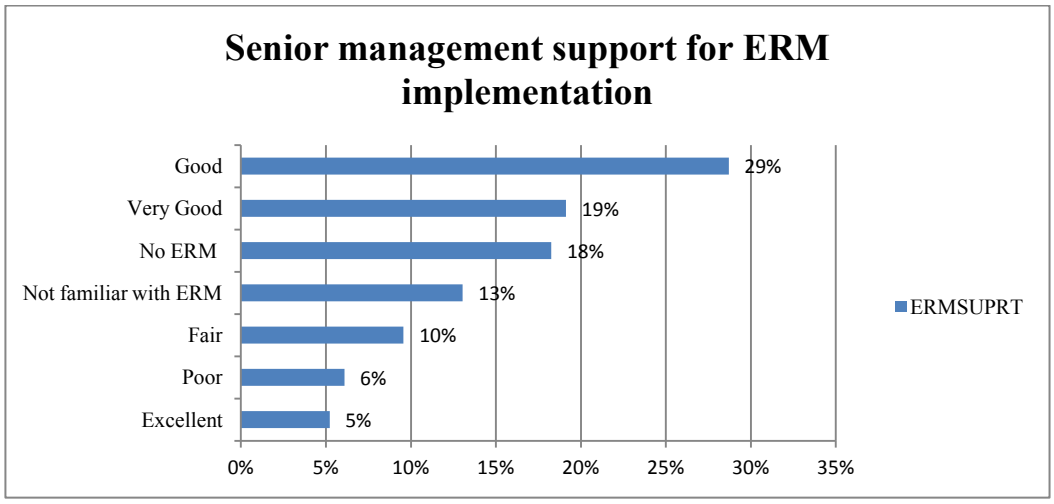


Figure 7-16 Senior management support for ERM implementation

The researcher measured the relationship between the ERMMAT and ERMSUPRT variables by calculating the correlation coefficient. Table 7-3 shows the result, r=0.89, which indicates a relatively strong positive correlation between the variables.

Table 7-3 Correlation Matrix of ERMMAT and ERMSUPRT

	ERMMAT	*ERMSUPRT*
ERMMAT	1	
ERMSUPRT	0.897124854	1

In other words, the higher the maturity level of ERM, the more support from senior management for the implementation of the initiative. Taking the importance of the support of senior management for ERM in the financial industry into consideration, this result can be seen as alarming. It also corroborates the finding of the interview data analysis, reported in Chapter 6, that the support of senior management is a necessary precondition of any ERM initiative, of paramount importance to its effectiveness and long-term sustainability. Nonetheless, only one-third of participants reported strong support for ERM or active involvement in the process on the part of top managers (APQC 2010). These findings strengthen the conclusion that ERM has not yet gained the traction and recognition it requires to reach its full potential.

7.2.3 Section III: Developing a strategic ERM Alignment Framework

Section III of the survey comprised nine questions designed to assess the importance of factors considered fundamental to developing the strategic ERM Alignment Framework, thus providing empirical evidence to validate the significance of these factors to the

theoretical framework discussed in Chapter 4. Incorporation of all of the relevant empirical findings into the Framework, in order to provide practical guidance to academics and practitioners, will be discussed in Chapter 8.

The first question in this section (question seventeen) asked respondents to select the organisational factors that in their view were key to establishing a strategic ERM framework (Figure 7-17). All codes applicable to the factors listed are presented in Appendix A (Table A10).

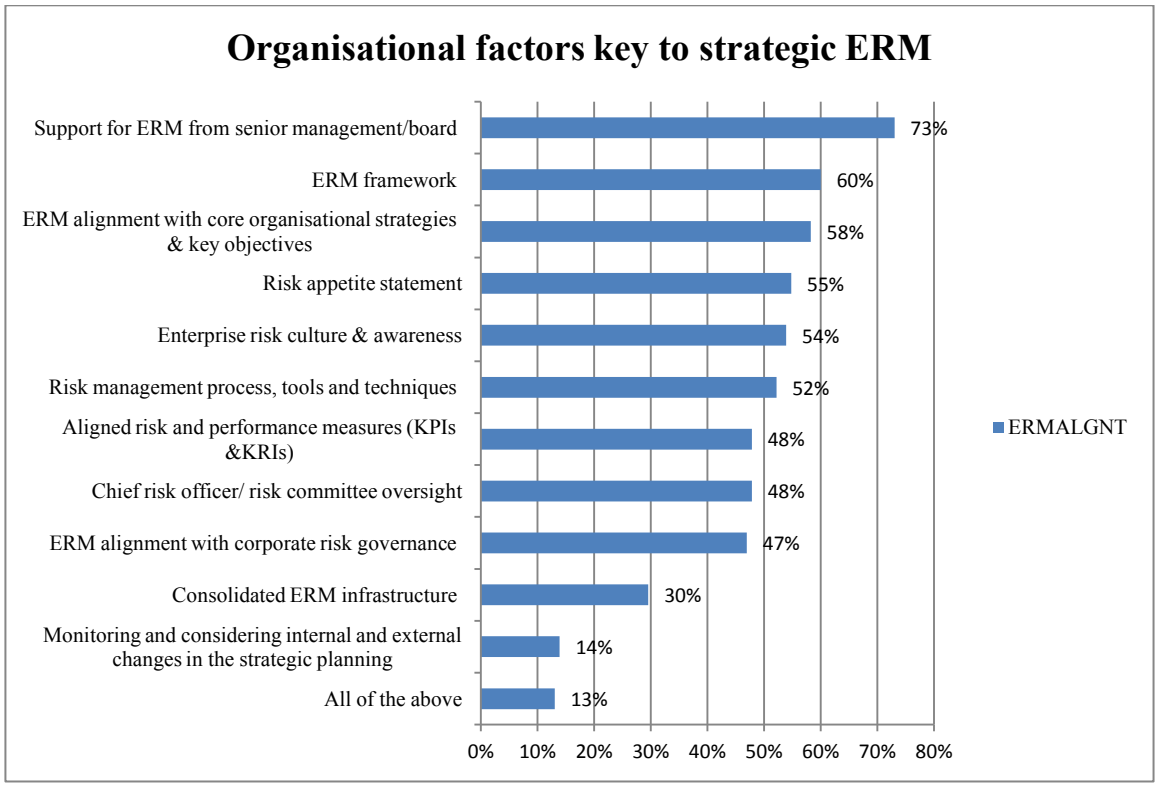


Figure 7-17 Organisational factors key to strategic ERM

Figure 7-17 shows that nearly three-quarters of respondents listed senior management/ board support for ERM as key to establishing a strategic ERM, while 60 percent rated the ERM framework itself as important. Almost as many saw alignment of ERM with core organisational strategies and key objectives, along with the risk appetite, as key. More than half affirmed that a consistent enterprise risk culture and risk awareness (54 percent) and strong risk management process, tools and techniques (52 percent) could help build on the effectiveness of ERM and transition it towards a more strategic approach. Slightly less than half of respondents identified as vital the alignment of ERM with corporate risk governance and with risk and performance measures and a similar number selected

oversight by the CRO/risk committee. Relatively few chose consolidated ERM infrastructure (30 percent) or monitoring the internal and external changes and aligning with the strategic planning (14 percent) as relevant. Only 13 percent considered all the factors equally instrumental in the strategic ERM process.

Comparing these responses with those to question fifteen (Figure 7-15), the researcher concludes that what respondents considered important to a strategic ERM differed from the current practice of their organisations. The fact that senior management support for ERM was the most common response to both questions indicates not only that it is a growing concern in the industry, but also that the pace of change in this area is most visible. Risk management processes, tools and techniques appear in second place in Figure 7-15 but in sixth place in Figure 7-17, indicating that respondents perceived financial organisations as focusing more strongly than appropriate on having the right risk management tools and processes in place to support ERM. The second, third and fourth-ranked factors in Figure 7-17 (ERM framework, alignment with core organisational strategies and key objectives, and the risk appetite statement) appear respectively in fifth, seventh and sixth places in Figure 7-15, which suggests that financial organisations struggled to meet respondents' expectations in those areas.

The topmost concerns identified in the literature are developing the right ERM framework that can be embedded into the organisation, aligning ERM with strategies and objectives, and developing a risk culture that supports ERM (Gates 2006; Frigo 2008; Jaffer 2010; Rizzi 2010; Ashby *et al* 2010; Power 2011; Mikes 2011; Mikes and Kaplan 2013). Furthermore, these findings confirm that ERM is driven primarily by support from the top and should be aligned with strategic management to ensure that achieving organisational objectives, creating value for shareholders and driving competitive advantage are not jeopardised by unrealised risks.

Question eighteen sought to measure the ERMALGNT variable by asking respondents to score the factors listed in question seventeen on the following scale of importance: "critical", "very important", "important", "slightly important" and "unimportant". As discussed in Chapter 5, Section 5.7, the researcher assigned factor codes to the variables used in the statistical analysis to increase the transparency of the investigation and to ensure adequate consistency between data collection methods.

Table 7-4 shows out of those survey respondents who were familiar with ERM, 70 percent considered senior management support for ERM (ERMBOD) to be critical, and 9 percent thought it was very important. Similarly, over 70 percent assessed ERM alignment with core organisational strategies and key objectives (ERMSTR) as critical or very important. These findings are fairly consistent with those of the interviews, where 83 percent saw ERMSTR as critical.

Table 7-4 Frequency distribution of the ERMALGNT variable

Factor	**Relative Frequency (%)**						
	Critical	Very Important	Important	Slightly Important	Unimportant	Not familiar with ERM	Total
ERMBOD	70	9	6	1	2	13	100
ERMAPPT	33	31	15	7	1	13	100
ERMCRO	30	28	24	3	3	13	100
ERMFRMK	34	32	17	4	0	13	100
ERMTOOLS	22	31	29	4	1	13	100
ERMSTR	41	33	10	3	1	13	100
ERMMET	19	37	26	4	0	13	100
ERMGOV	27	30	24	4	2	13	100
ERMCUL1	38	30	14	4	1	13	100
ERMINFRA	10	32	36	8	1	13	100

More than 60 percent of survey respondents thought that each of other three factors, viz. enterprise risk culture and awareness, ERM framework and alignment of the risk appetite statement with ERM, were either critical or at least very important to a fully functional process extended across the organisation. These results are consistent with the views of interviewees, 80 percent of whom saw enterprise risk culture and awareness as critical, while over three-quarters regarded it as critical to align the risk appetite statement with ERM. Each of the following factors was rated by more than half of questionnaire respondents as either critical or very important: ERMGOV, ERMMET, ERMCRO and ERMTOOLS. Finally, when considering an ERMINFRA as a part of ERM, 10 percent considered it critical, 32 percent very important and 36 percent important. As noted in Chapter 6, interviewees considered all of the following factors very important: ERMFRMK (54 percent), ERMGOV (43 percent) and ERMINFRA (43 percent).

In order to quantify correlations among the organisational factors key to strategic ERM measured in question eighteen, the researcher created a correlation matrix (Appendix F). The results of the statistical test (CORREL) performed in Excel allow the researcher to identify with confidence a strong positive correlation between key factors critical to ERM (ERMALGNT) and a relatively strong relationship with the level of ERM maturity (ERMMAT). Analysis of the correlation matrix (Appendix F) shows that the variable denoting familiarity with ERM (ERMFAM) and key factors critical to ERM considered in this question (ERMALGNT) were highly correlated. These findings further validate the need for strategic ERM alignment in financial organisations.

The responses to questions seventeen and eighteen were consistent in assessing senior management support for ERM as critical to strategic ERM. Alignment of ERM with key organisational objectives and strategies, risk appetite and ERM culture were also ranked highly by questionnaire respondents, who additionally saw a dynamic ERM framework aligned with the organisational structure as essential to the process. Other factors related to infrastructure, risk governance, processes and tools were considered of secondary importance.

The combined findings of the survey and interviews indicate that each of the factors listed in Figure 7-17 was considered to be of some importance by most participants, which is consistent with the relevant literature. Ai and Brockett (2008) argue that ERM development should be considered a common objective for financial organisations wishing to maximise economic value, because ERM can help to focus on managing key risks more efficiently, along with specific identified objectives. Thus, risk-return ratios can be optimised through the alignment of corporate strategic goals and risk appetite. Risk management strategies developed for a portfolio of risks should be assessed and communicated to avoid the inefficient allocation of resources that can arise from inadequate communication and cooperation under silo-based risk management. Moreover, ERM can increase a firm’s capacity to examine new opportunities to create sources of value such as higher credit ratings and lower distress costs (Doherty 1993).

Question nineteen aimed to identify the factors driving a sustainable ERM framework (ERMSUST). Table 7-5 lists the results, putting these drivers of ERM sustainability in order of perceived importance.

Table 7-5 Drivers of ERM sustainability

In your opinion, which of the following factors drive a sustainable ERM framework?		
ERMSUST	**Frequency**	**Relative Frequency**
Understanding how ERM generates value & how to resolve potential ERM challenges	81	70%
ERM aligned with core organisational strategies & key objectives	81	70%
ERM culture & awareness	73	63%
Well-defined ERM structure & ownership	69	60%
Top-down & bottom-up ERM communication	49	43%
All of the above	26	23%

Table 7-5 indicates that 70% of respondents believed that in order to achieve the long-term sustainability of ERM, it is critical to ensure its alignment with core organisational strategies and key objectives, while the same number thought it critical to understand how organisational value can be generated through ERM and how to resolve potential challenges to the process of managing risk. Developing balanced and consistent enterprise risk culture and risk awareness across the organisation was seen as vital to ERM sustainability by 63 percent of participants. As evidenced in Chapters 2 and 3, this view is strongly supported in the literature (Brooks 2010; Ashby *et al* 2012; IRM 2012). Almost as many respondents considered a well-defined ERM structure and ownership to be important to ERM sustainability, while 43 percent mentioned enterprise-wide communication as a contributory factor. Finally, about a quarter of respondents considered all factors listed in Table 7-5 equally important in sustaining ERM.

As reported in Section 6.2.3, interviewees identified three main factors critical to achieving ERM sustainability: an enterprise-wide culture that supports ERM (including people's buy-in), adequate support and sponsorship from senior management, and the ability to demonstrate how ERM generates value for key stakeholders. Sustaining ERM across financial organisations was seen by questionnaire respondents and interviewees as dependent on organisational strategies and objectives. This is consistent with the RIMS (2009) survey, which found that the management should link ERM with the process and performance management to create a sustainable ERM. Burnes (2008) also believes that ERM sustainability is underlined by the ability to tailor the programme to individual organisational needs.

Question twenty addressed the benefits expected from implementing ERM (ERMBENFT). Respondents were asked to select their answers from those listed in Figure 7-18, which shows that the three benefits chosen by the largest numbers were: enabling long-term sustainable profitability and growth (74 percent), risk-adjusted decision making (63 percent) and improved business and operational performance and effectiveness (58 percent). More than half of respondents also expected ERM to help drive optimised risk and business costs (57 percent), enhanced shareholder value and competitive advantage (56 percent), increased regulatory compliance (53 percent) and achieving a strategic view of key risks (53 percent). Other benefits considered less important by survey respondents were: strong corporate risk governance and reputation (49 percent), ERM alignment with core organisational strategies and key objectives (47 percent), enterprise risk culture and awareness (44 percent) and better preparedness for future market unpredictability and volatility (43 percent). A little over 10 percent considered all listed benefits equally essential to ERM.

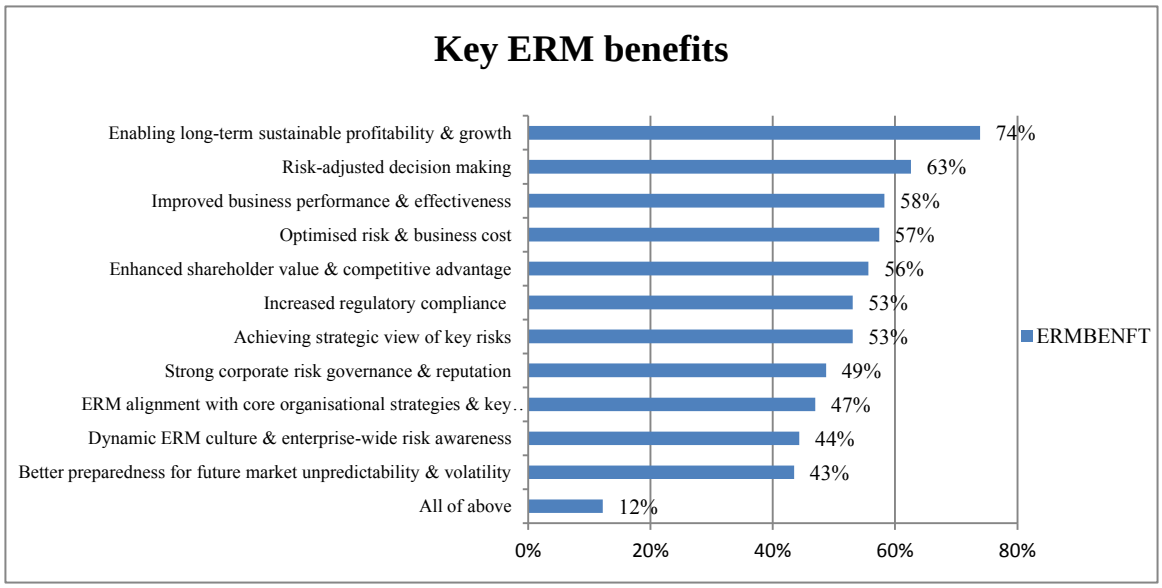


Figure 7-18 Key ERM benefits

Thus, there was general agreement among questionnaire and interview participants that ERM can help management to make more informed risk-adjusted decisions. More forward-looking organisations now see ERM and value creation as closely correlated. More significantly, to demonstrate the link between risk management and value creation, the benefits of two main constituents of economic capital management (i.e. equity and risk

capital management) should be communicated to key internal and external decision-making stakeholders (Shimpi 2005; Onorato 2007; Acharyya and Mutenga 2013).

Question twenty-one asked participants to rate the importance of the above benefits of ERM, using the same five-point scale as for ERMALGNT in question eighteen. Their responses are summarised in Table 7-6 and displayed graphically in Figure 7-19, which shows that every benefit was considered important, very important or critical by around four-fifths of respondents, although detailed responses varied.

The two ERM benefits which received the strongest endorsement were "ERM facilitating the risk-adjusted decision making process", and "achieving a strategic view of key risks". In both cases, nearly 70 percent of participants considered them either critical or very important. Four other benefits scored over 60 percent in these two categories combined: 1) enabling long-term sustainable profitability and growth, 2) ERM alignment with core organisational strategies & key objectives, 3) strong corporate risk governance and reputation, and 4) better preparedness for future market unpredictability and volatility.

Table 7-6 Frequency distribution of the ERMBENFT variable

ERMBENFT	**Frequency (%)**					
	Critical	Very important	Important	Slightly important	Unimportant	Not familiar with ERM
Enhanced shareholder value & competitive advantage	25	30	27	3	2	13
Enabling long-term sustainable profitability & growth	38	26	19	3	1	13
Optimised risk & business cost	18	36	27	4	2	13
Improved business performance & effectiveness	23	32	25	4	2	13
Increased regulatory compliance	21	24	32	6	3	13
Achieving strategic view of key risks	29	40	15	3	1	13
Dynamic ERM culture & enterprise-wide risk awareness	21	32	25	6	3	13
ERM alignment with core organisational strategies & key objectives	35	28	22	2	1	13
Strong corporate risk governance & reputation	23	39	17	6	2	13
Risk-adjusted decision making	39	30	15	1	2	13
Better preparedness for future market unpredictability & volatility	32	30	21	1	3	13

The other four benefits ("enhanced shareholder value and competitive advantage", "optimised risk & business cost", "improved business performance & effectiveness" and

"increased regulatory compliance") were each rated as critical or very important by around half of respondents, suggesting that these are significant benefits that ERM can drive across an organisation.

Comparison with the interview findings on this variable (Chapter 6, Table 6-8) indicates a level of consistency among research participants in their opinions as to the importance of the various benefits of ERM. Three-quarters of interviewees assessed risk-adjusted decision making as critical and 17 percent as very important, while 43 percent thought achieving a strategic view of key risks was critical and 51 percent thought it was very important.

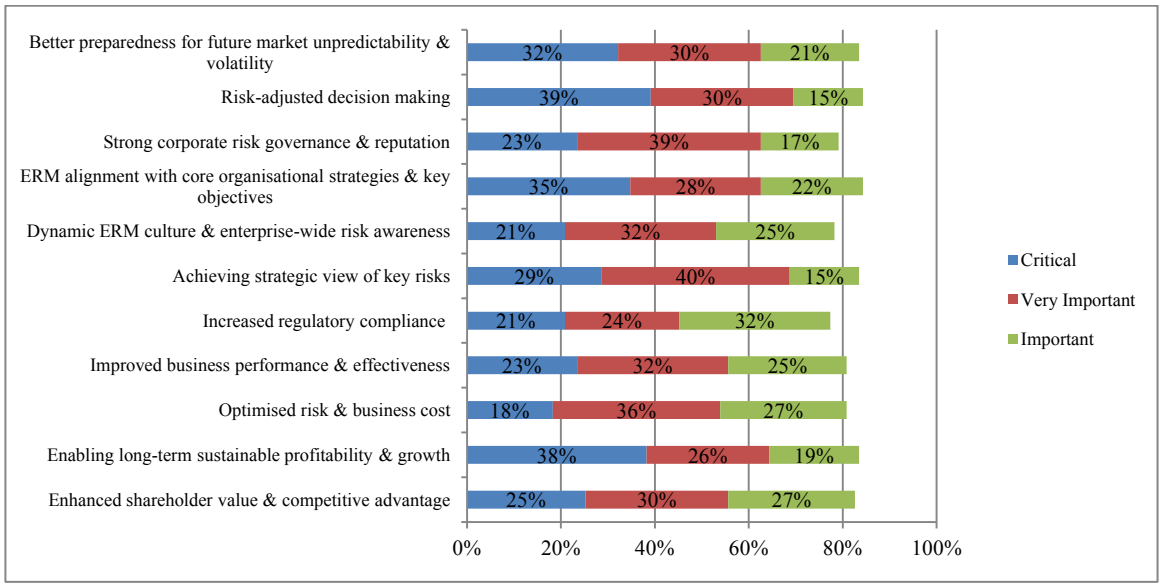


Figure 7-19 Importance of ERM benefits

A little over one-third of interviewees also rated the following four benefits as critical: "a more effective ERM alignment with core organisational strategies & key objectives" (37 percent versus 35 percent in the survey), "optimised risk & business cost" (34 percent versus 36 percent "very important" in the questionnaire), "improved regulatory compliance" (34 percent) and "better preparedness for future market unpredictability and volatility" (31 percent). "Enabling long-term sustainable profitability and growth" and "improved business and operational performance and effectiveness" were each rated as critical by 26 percent of interviewees. One in five also put 'strong corporate risk governance and reputation' in the critical category.

There was thus a degree of consistency between the survey and interview findings, validating rather homogeneous expectations around ERM benefits in the financial industry. Moreover, analysis of the correlation between ERMFAM and ERMBENFT (Appendix F, Table F3) indicates a strong relationship between understanding what ERM is and recognising its potential benefits.

These findings, in combination with the overall level of ERM immaturity across the financial industry, suggest that organisational leaders may want a more dynamic and enterprise-wide risk approach but are struggling to determine what should be done beyond existing risk management functions and how to do it. Conceptually, the majority of research respondents seemed fairly well convinced of the benefits of ERM, but it is often difficult to apply these concepts in practice, including finding ways to implement the fundamental principles of ERM into existing processes and functions (Beasley *et al* 2010).

Question twenty-two examined the areas where ERM was considered most likely to generate value (ERMVAL). Respondents were asked to assess the degree of likelihood of each of seven areas of value on a five-point scale: “Sure to happen”, “Very likely to happen”, “Likely to happen”, “Might happen”, and “Won’t happen”. Table 7-7 lists the frequency of responses and Figure 7-21 shows the same data graphically.

When asked to assess the likelihood of achieving a strategic view of key enterprise-wide risks, 37 percent replied that it was sure to happen and the same number that it was very likely. This validates the interview finding that 97 percent of interviewees saw this as the area where ERM could generate most value.

The majority of respondents to Towers Perrin (2006) placed priority on gaining an increase in the organisation’s economic value by increasing profits through better risk-based decision making. A research also identified the achievement of a strategic view of key enterprise-wide risk as one of the most critical ERM benefits.

Table 7-7 Drivers of ERM value

ERMVAL	Relative Frequency (%)					
	Sure to happen	Very likely to happen	Likely to happen	Might happen	Won't happen	Not familiar with ERM
Cost reduction creating competitive advantage	18	0	24	38	6	13
Increased ability to escalate critical issues to senior management	34	32	16	4	1	13
Strategic view of key enterprise-wide risks	37	37	10	3	0	13
Improved regulatory compliance	19	41	19	6	2	13
Improved understanding of risk and controls on an enterprise level	30	43	9	4	1	13
Enhanced culture & awareness	22	39	17	7	2	13
Streamlined business and risk processes enterprise-wide	16	30	27	11	3	13

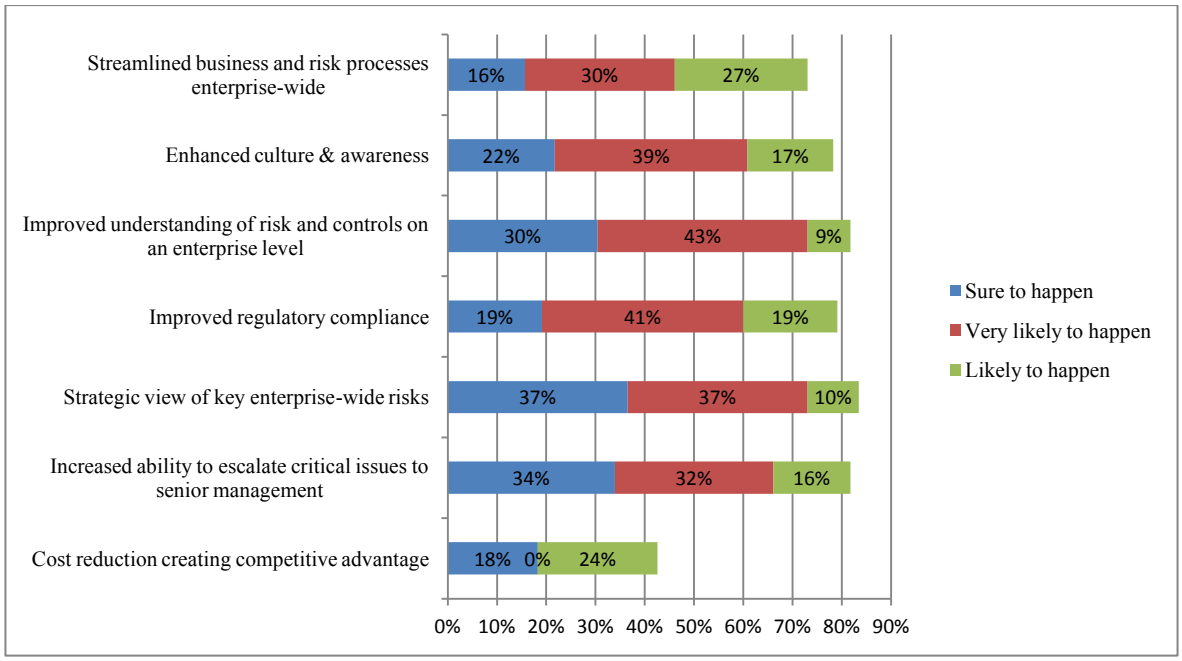


Figure 7-20 Drivers of ERM value in order of likelihood

As the perception of risk management has moved from compliance to value adding, 60 percent of respondents to Marsh (2012) asserted that the risk management process added perceptible value to the organisation. Approximately one-third of respondents to the present survey expressed their confidence ("sure to happen") that ERM can also help to improve the understanding of risk and controls on an enterprise level, to improve the process of escalating critical issues to senior management, and to develop a stronger enterprise risk culture. Around 40 percent of participants believed it very likely that ERM would add significant value in the areas of regulatory compliance, understanding of risks and controls at an enterprise level, and enterprise risk culture and awareness.

As to ERM's impact on competitive advantage by reducing the cost of risk, a quarter thought it likely and 38 percent believed it might happen, while less than a fifth were sure that it would happen. This confirms that ERM is not yet strongly associated with the reduction of risk cost. Interestingly, almost three-quarters thought it sure or very likely that ERM would improve the overall understanding of risk and controls at an enterprise level. Similarly, over 60 percent thought it very likely (39 percent) or certain (22 percent) that enterprise risk culture and awareness could be strengthened through effective ERM. Finally, the streamlining of business and risk processes enterprise-wide was deemed sure to happen by 16 percent, very likely by 30 percent and likely by twenty-seven percent of participants.

Thus, for five of the seven suggested drivers of value, at least sixty percent of respondents thought that each was sure or very likely to happen. This allows the conclusion that ERM's image is changing gradually from being driven purely by a regulatory mandate to a management tool that can actually enhance organisational value across various enterprise-wide areas.

The researcher was able to establish a strong correlation between three variables: ERMFAM, ERMMAT and ERMVAL. In other words, survey participants who were familiar with ERM also exhibited a high level of understanding of where ERM is most likely to generate value of significance to the organisation. The strongest correlations were identified between ERMVAL items 2 and 3 (strategic view of risks and an increased ability to escalate critical issues to senior management) and between ERMVAL items 4, 5 and 6 (improved regulatory compliance, better understanding of risk and controls at an enterprise level, and enhanced risk culture and awareness).

Analysis of interview data on the importance of the ERMVAL variable shows that nearly 90 percent of interviewees identified three main areas of potential value generation as a result of ERM adoption: improved regulatory compliance, stronger enterprise risk culture and awareness, and cost reduction driving competitive advantage. Around three-quarters of interviewees also reported having experienced more streamlined business and risk processes, a positive impact on business profitability, better understanding of how risk controls interconnect at the enterprise level, and lastly, a better ability to identify risk-adjusted opportunities through ERM. Gates *et al* (2009) extended their early work by

examining the value seen inside the company as measured by better decision making and increased profitability.

The survey data on this question can be seen to correspond closely to that of the interviews, further validating the research findings. In brief, this question emphasises the significance of the metamorphosis of risk from a process of compliance to a strategic tool for value creation (Lam 2000; D'Arcy 2001; Hoyt and Liebenberg 2006; Manab *et al* 2010; Beasley *et al* 2009; Hoffman 2009).

The consensus among researchers on this aspect of ERM, discussed in Chapter 6, is that more theoretical and empirical analyses are needed to demonstrate the value added by ERM (Ai and Brockett 2008). Quantifying this added value is challenging. According to FERMA (2012), nearly one-third of organisations with mature ERM practices reported a growth rate of more than 10 percent in EBITDA over five years. Some researchers propose calculating the value of ERM as the increase in economic value of the portfolio after implementing ERM (Wang 2002).

Various researchers have sought to demonstrate that effective integration of risks under ERM can create value by extending the risk/reward frontier of the entire portfolio (Zenios 2001; Zenios *et al* 2006). However, the researcher agrees with the theoretical assumption that ERM cannot be fully quantified, as it tends to have an intangible and unquantifiable impact on an enterprise (Chapman 2007; Wade 2010). Consequently, for many financial organisations, shareholder value has become one of the key drivers of ERM, recognised as a strategic outcome to maximise performance. ERM can definitely make a contribution in this area, but in order for it to do so, the organisation needs to change its perception of risk and see ERM not just as a value limiter, but as a value enhancer, able to improve competitiveness and profitability (Nocco and Stulz 2006; Deloitte 2008).

Question twenty-three looks at prioritising the challenges of ERM in the eyes of the finance industry practitioners (ERMCHLNG). Figure 7-22 lists the challenges that participants considered the most problematic, with the relative frequency of responses. A lack of managerial support and clear implementation guidelines was the largest concern for nearly 60 percent, consistent with the work of Beasley *et al* (2010). The next two challenges were a lack of ERM culture and awareness, and poor understanding of the long-term benefits and challenges of ERM, each identified by nearly half of respondents (Barton

et al 2008b; Ai *et al* 2012). Around forty percent had experienced issues with each of the next three items: integrating risk data across the organisation, the time and cost required to implement ERM, and a failure to align ERM with the core organisational strategies and key objectives. A third of respondents complained of a lack of in-house ERM expertise and skills to oversee ERM implementation, while about a quarter selected the final two challenges: developing the appropriate risk technology and having the right methodologies and metrics.

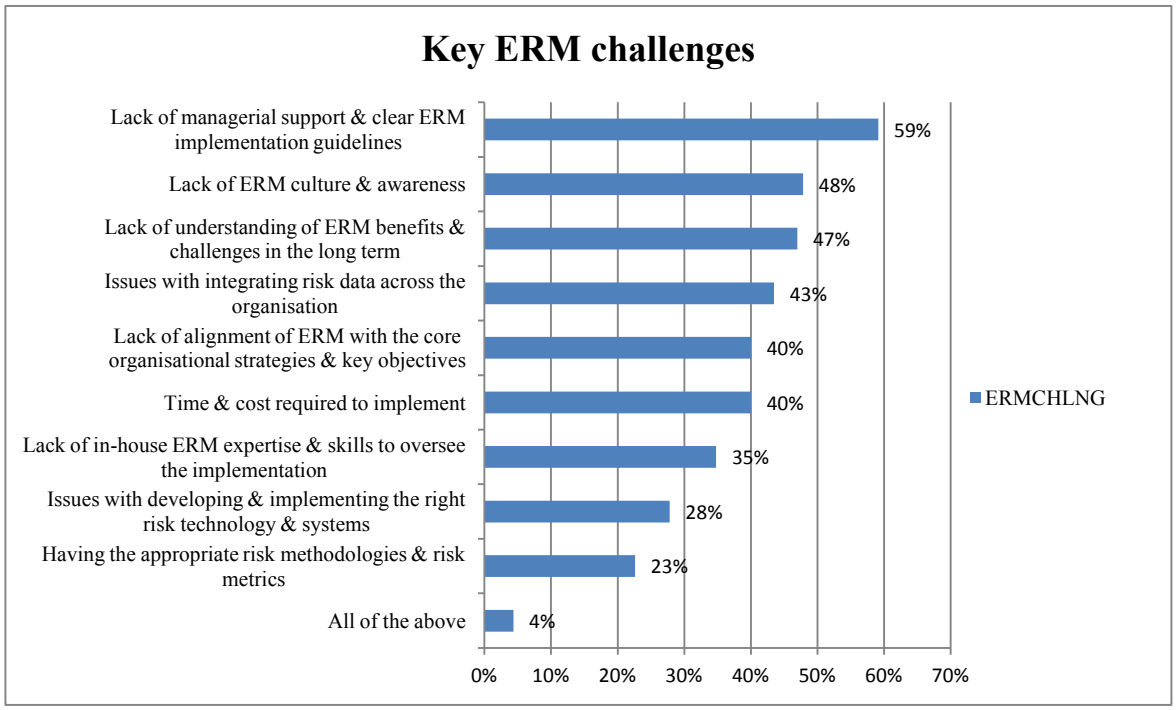


Figure 7-21 Key ERM challenges

Referring to this area of ERM, Bansal (2003) calls for risk engines working independently of each other to be consolidated in order to increase risk transparency and improve the robustness of risk reporting to senior management. Berley (2007) appears to be a supporter of dynamic risk scenarios, seeing them as necessary in increasingly complex and ever-changing market conditions. Francis and Richards (2007) argue that risk reporting to the board should be improved; directors should receive a high-level risk information package to clarify the overall risk picture before risk meetings. Furthermore, Moody (2009) recalls the results of a survey conducted by PWC (2008): that 65 percent of respondents still saw a lack of the risk management tools needed to improve risk transparency and effective risk assessment.

The major challenges to ERM identified by interviewees in the present study were a lack of ERM culture and awareness (89 percent) and inadequate managerial support and implementation guidelines (77 percent). Evidently, respondents across the financial industry were in broad agreement on the challenges to ERM most likely to affect organisations.

Question twenty-four was an open one, inviting respondents to offer practical guidance on how to overcome the main challenges encountered throughout the ERM adoption cycle. This elicited some valuable suggestions based on practical experience in the financial industry. Some respondents noted the importance of senior leaders' involvement in overcoming critical challenges to ERM. For example, respondent 5 referred to a "leadership who can look forward, not backward, and who can see the opportunities as well as threats, i.e. be open to innovation that is failure tolerant". Therefore, it is critical to convince senior management of the importance and benefits of ERM; without their sponsorship, ERM will be "guaranteed to fail". Senior management has the authority to allocate sufficient time and money to implementation (i.e. having risk resources in place, a control system, risk monitoring ability, etc). Another critical factor is the ability to demonstrate what ERM means to the organisation and to identify the potential value generated as a direct and indirect result of its implementation. Acharyya and Johnson (2006) found that CEO leadership was a critical factor in motivating and challenging financial organisations to develop ERM, while communication and cultural barriers were identified as the most important challenges to its implementation.

Other key factors were flexible design of ERM, understanding it and being able to adjust it to changing internal and external factors. Respondents were clear and consistent: "ERM implementation requires a range of comprehensive changes in the way people work, think and communicate; it changes corporate culture. Like any change, it won't be sustained unless there is congruence of formal and informal processes with strategic objectives and mission supported by patience. True change is slow."

Therefore, a weak risk culture and prevailing silo mentality weaken ERM potential and should be addressed by positive examples of successful ERM case studies, continuous education and demonstrating the benefits of ERM across the lifecycle of the business to key stakeholders who can support it. ERM requires a definite and firm cultural change. In

order to achieve this, it is important that the message comes from the top and cascades to the bottom level. The directors must understand the importance of an ERM framework and contribute to its full implementation. It may take time, but the results will surely augment shareholder value (Ashby *et al* 2012).

Respondent 5 also reported having experienced ERM being treated like "a check box exercise" by those who did not understand its strategic value, thus significantly diminishing its value-driven potential. Many respondents felt that financial organisations still lacked strong leadership support for ERM, therefore relying largely on regulatory mandates to exert pressure for its adoption. Financial organisations also struggle to integrate ERM with other management functions and find it especially difficult to align it with risk-adjusted performance measurement (Mikes 2007; Killackey 2008; Kaplan 2009).

Participants recommended greater investment to improve education, training and risk infrastructure and to recruit experts to provide support and guidance in ERM implementation. One way to make progress would be to identify ERM champions at all levels within the organisation, creating a network of knowledgeable individuals to support ERM and "make it happen in their business area" (Aabo *et al* 2005; Protiviti 2006). All the risk reporting should also be integrated or embedded into the daily work of the employees to avoid excuses such as: "I don't have time to fill out another form or do additional work not essential to managing my business unit".

Other critical factors, according to respondent 16, were a clear vision of ERM, its alignment with strategic planning, a risk framework (including key processes) and links with existing management activities. It is also critical to align ERM with process management wherever possible (Deloitte 2010). Respondent 24 concurred:

> Let those who are responsible for meeting certain objectives also be responsible for managing the risk to those objectives and see the added value of risk management. Make it clear what kind of information you would like to receive from ERM and then 'reverse-engineer' the process on how to obtain this information.

This guidance refers to establishing a clear risk structure and ownership while ensuring that communication is aligned with how ERM generates value (Rasumussen *et al* 2007; Lam 2010; Ashby *et al* 2010).

Lastly, strong risk governance plays a role in effective ERM, ensuring that the ERM methodology is endorsed by the board and senior management. Another essential condition is to have the right tools available to support adoption; i.e. systems, processes and knowledge/data management (Anderson 2006).

Respondent 66 stated:

> There are two challenges and only one solution. Challenge #1: ERM being perceived as a way to limit the business and natural risks associated with running a successful organization, and challenge #2: gaining the buy-in from key stakeholders across the organization; including the C-suite and front line managers. The proposed solution is to define the goal, objectives, and management tools for your ERM program in a clear and concise ERM framework. This creates a strong business case and allows those who are crucial for the success of the program to be actively engaged.

In conclusion, each financial organisation will face a different set of challenges when adopting ERM, but they will all need strong support from senior management, a dynamic enterprise risk culture and relatively high risk management maturity in order to overcome these challenges in the long term, according to the majority of the respondents. Therefore, the need for a unique ERM that fits the particular structure of each organisation is validated by the literature review and the empirical investigation presented in this chapter.

Thirty-seven percent of participants stated that their organisations had not yet adopted ERM. Question twenty-five ended Section III of the questionnaire by asking them why not (ERMREAS). Figure 7-23 shows that the four most common responses were that the organisation was too small (7 percent), that the existing risk culture did not support ERM (6 percent), that there was little or no managerial support or clear implementation guidelines (6 percent), and that there was no clarity as to the potential benefits (6 percent).

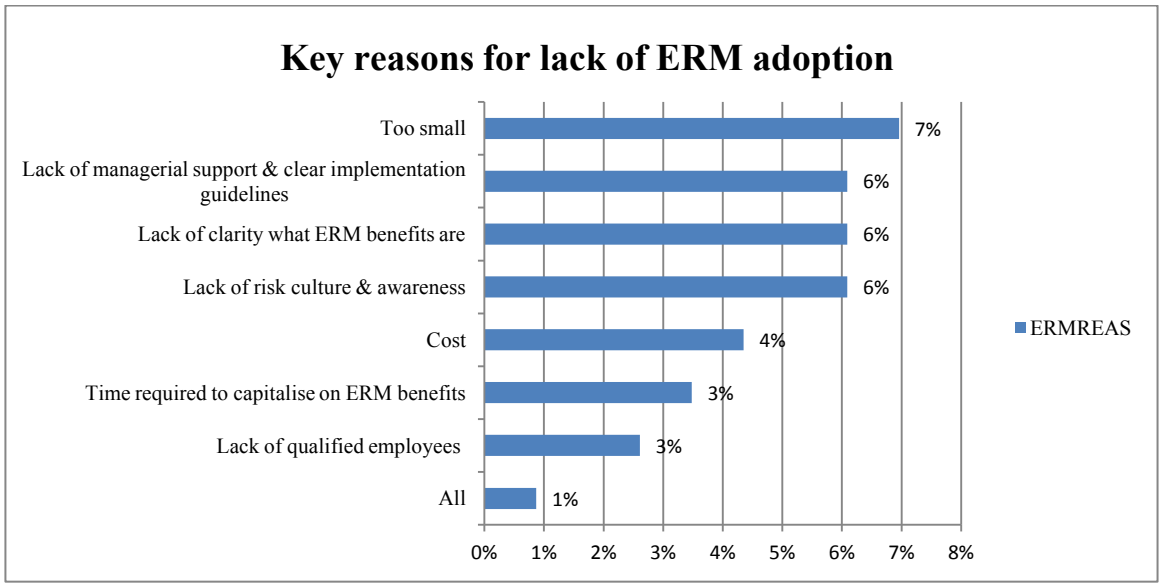


Figure 7-22 Key reasons for failure to adopt ERM

The remaining 10 percent identified cost (4 percent), time needed to capitalise on benefits (3 percent) and a lack of qualified employees (3 percent) as key reasons for not implementing ERM. Since over 90 percent of interviewees had stated that their organisations had adopted ERM, there were insufficient negative responses to make a meaningful comparison with the survey data, so no further comparison analysis was performed on this question.

7.2.4 Section IV: Risk Management

A fourth section was added to the questionnaire in response to feedback received from the pilot survey, to isolate participants unfamiliar with ERM or with poor understanding of the concept. Fifteen of the 115 participants disclosed that they were not familiar with ERM. Of these, 7 indicated that they had between five and 20 years of risk experience and were middle or senior managers, 11 worked in risk management and 13 stated that their organisation had a clear definition of risk, well integrated into mainstream business policies across the entire organisation. When asked if their organisation used a risk framework, 12 responded that an enterprise-wide risk framework was promoted by the risk management team.

One of the questions in this section, similarly to Section III, asked respondents what factors critical to ERM were in place; 12 participants replied that senior management supported ERM and was actively involved in risk management. Moreover, 10 agreed that their

organisations operated well-integrated risk management, aligned with the setting of business objectives, that their enterprise-level statement of risk appetite was aligned with risk tolerance and that there was a culture and awareness of risk. One-third (5 respondents) said that a consolidated risk infrastructure was in place.

Almost all (i.e. 13 out of 15) respondents also thought that since the GFC, their organisations had taken the following steps to improve the way key risks were managed: they had formed risk management board level committees, updated their risk appetite statement and reformed risk culture to make risk oversight more effective. These findings are consistent with the interview responses analysed in Chapter 6.

Respondents were then asked how they perceived the importance of potential risk management benefits, key factors in driving risk management sustainability and potential challenges to the effectiveness of risk management. Over half (9 respondents) identified the following five key ERM benefits: 1) enhanced shareholder value and competitive advantage, 2) stronger risk culture and enterprise-wide risk awareness, 3) enabling long-term sustainable profitability and growth, 4) alignment of risk management with organisational strategies and objectives, and 5) risk-adjusted decision making. When asked to rate factors likely to ensure risk sustainability, the majority of respondents specified these as critical priorities: “risk culture & awareness”, “good understanding of risk management including its key challenges & benefits” and “risk aligned with core organisational strategies & key objectives”.

A large proportion also considered well-defined risk structure and risk ownership, as well as top-down and bottom-up risk communication, to be very important. Finally, as potential challenges to risk management effectiveness, most respondents named lack of managerial support, cost and growing business complexity, market volatility and unpredictability. They then proposed various ways of dealing with these difficulties, including: enhanced communication, implementation of a strategic risk management framework, ensuring senior management support, a risk committee aligning risk and strategy in the longer term, and continuous risk education.

When the participants whose organisations had not adopted ERM as a way to manage key risks were asked why not, the majority responded that there was a lack of managerial

support or clear ERM implementation guidelines, as well as a lack of clarity as to the benefits of ERM.

Despite these fifteen respondents' assertion that they were not very familiar with ERM, their responses to Section IV suggest that the risk management practices adopted by their organisations indicate movement towards the principles of ERM. Therefore, the findings of this section are consistent with those of the other three sections of the survey discussed in this chapter and of the qualitative phase reported in Chapter 6.

7.3 Conclusion

A number of key conclusions can be drawn from the analysis of the quantitative data collected by means of the questionnaire survey. The majority of respondents reported having observed an increase in interest in ERM in the finance industry, but agreed that it was still relatively undeveloped. This finding is consistent with the theoretical and empirical assertions of the academic and industry researchers discussed in Chapters 2 and 3, and with the qualitative research findings analysed in Chapter 6. The validity of both the qualitative and quantitative findings presented in Chapters 6 and 7 respectively is thus supported by their consistency with those of various researchers whose studies of a range of aspects of ERM are discussed in the literature review.

Despite the fact that ERM in the financial industry is still at an early stage of development, some of its aspects described in the literature and revealed in the present empirical investigation have become more refined than observed in recent years. As new views of ERM emerge among academic and industry researchers, they consistently encourage more concrete and analytical discussions. Academic research has been gradually gaining interest along with the corporate interest in the topic. A primary hindrance to ERM research is the lack of well-defined variables to measure either organisational-level implementation of ERM or the degree of implementation.

Analysis of both qualitative and quantitative data has drawn on a few relatively recent trends in ERM development, which investigate the impact of various organisational factors on the effectiveness of ERM adoption. It has to be highlighted that ERM needs to start with the support of senior management and the board. The survey respondents considered ERM as a strategic initiative that can become a source of added value and competitive advantage. Aligning ERM with core organisational strategies and with key objectives and

developing enterprise risk culture were cited as the underlying factors that can drive a sustainable ERM framework. These findings validate those of the qualitative phase of the study, being consistent with the view expressed by interviewees.

The major benefits of ERM mentioned by the largest numbers of survey respondents were well informed risk-adjusted decisions and achieving a strategic view of key risks. However, while conceptually the majority of respondents were fairly well convinced of the benefits of ERM, many reported difficulty in the practical application of these concepts, including finding ways to incorporate the fundamental principles of ERM into existing processes and functions.

ERM was also believed to have slowly transformed from a process of compliance to a strategic tool of value creation. The responses of questionnaire participants further substantiated the potential of ERM to generate value by supporting risk-adjusted decision making, achieving a strategic view of key risks and developing a more dynamic risk culture. Further research is needed into how the value of ERM can be realised in practice. As noted in Chapter 6, Section 6.2.1.4, more qualitative and quantitative research is necessary to determine the extent to which ERM actually generates value.

Some of the major challenges to ERM have been identified in the data analysis chapters as inadequate support and involvement by senior management and an insufficiently dynamic enterprise risk culture, consistent with the theoretical assumptions laid out in Chapters 2 and 3. Further studies are recommended to investigate how to define and assess balanced enterprise risk culture as part of ERM.

The above findings further support the researcher’s proposal for the development of a Strategic ERM Alignment Framework, which will be discussed in Chapter 8 in the light of the empirical evidence obtained from the interviews and questionnaire survey.

8 Chapter Eight: Discussion

8.1 Introduction

This chapter validate the links between this study, academic research and the practical context of the financial industry. The aim of the research is to develop a Strategic ERM Alignment Framework to address the literature gap identified in Chapter 3 and to provide practical guidance on implementation to the industry and academia. This research draws together the threads of the academic and industry literature presented in Chapter 2, through the weave of the research and its findings. The researcher discusses key themes within the ERM field in relation to the research findings and the existing body of literature.

The remainder of the chapter is divided into five sections. Section 8.2 summarises the organisational factors critical to the implementation of the Strategic ERM Alignment Framework. Section 8.3 presents the amended framework and discusses its validation as the researcher analyses the impact on it of the respective organisational factors, in light of the empirical investigation. Section 8.4 provides practical guidelines for the effective implementation of the framework, Section 8.5 focuses on its strengths and Section 8.6 draws conclusions.

8.2 Key organisational factors and the Strategic ERM Alignment Framework

The researcher has identified key ERM themes in the literature across the finance sector, supported by the contributions of participants in the empirical research. These issues have significant implications for ERM managers and their organisations and have therefore been addressed by the researcher as key elements within the internal and external environments.

Consequently, this section discusses five core aspects of these internal and external contexts critical to the implementation of the Strategic ERM Alignment Framework. Having identified key internal and external factors and their roles in making the decision to adopt ERM, data analysis allows the researcher to determine the degree to which organisational factors interact with each other and to assess their impact on the implementation of the framework.

8.2.1 Strategic ERM Alignment Framework and organisational factors

Previous research has revealed that interest in ERM has increased along with the growing awareness of risk in recent decades (Power 2009; Mikes 2009a). The shift in interest in ERM implementation in the finance sector has been influenced by a number of internal and external factors. As discussed in Chapter 2, Section 2.2, the literature review has revealed that silo risk management tends to overlook the importance of a strategic focus that can drive the necessary enterprise-wide risk change. This has been reflected in research studies of the factors that can determine ERM adoption (Athearn 1971; Beck 1992; Banham 1999; Baird 2005).

In recent years, various industry surveys have analysed the barriers and challenges to ERM implementation and then focused on the heightened regulatory scrutiny of the performance of financial organisations (Towers Perrin 2006; KPMG 2007; PRMIA 2008; RIMS 2013). For example, a survey by KPMG and the EIU (2007) found that financial organisations thought more often about the strategic aspects of risk management, with a focus on creating value, and that managers admitted that the dynamics of external factors (regulatory environment, globalisation, technological advances) encouraged the re-evaluation of the existing risk management function.

Examination of the literature further reveals that adopting ERM in the finance industry has been mostly driven by increased regulatory scrutiny (Kleffner *et al* 2003; Simkins and Ramirez 2008; Chapman 2011). Risk management has also come under close scrutiny from debt rating agencies, as they begin to advocate the implementation of ERM as part of the credit rating process (S&P 2005). As a result of these external pressures, senior management has attempted to align ERM with the existing organisational structure, striving to achieve effective and sustainable implementation (Banham 1999; Nocco and Stulz 2006; Arena *et al* 2011).

Furthermore, the research gap identified in Chapter 3, Section 3.1 shows that the lack of a strategic alignment of ERM with key organisational factors remains a major concern for senior managers. The literature supports the importance of aligning ERM with the core internal organisational elements: organisational strategies and objectives, risk appetite, risk oversight, corporate risk governance and risk culture (Lam 2003; Buchanan 2010; IRM 2011; Govindarajan 2011; Chapman 2011). Some researchers concur that there is a need

for a dynamic and strategic ERM framework that will help monitor emerging trends and market volatility, giving managers the ability to trigger a uniform and timely risk response to minimise negative business impacts (Clarizen 2012). Others argue that senior management should oversee and approve the reporting and analysis of risks in order to identify internal and external factors affecting the business, regardless of whether they are regulatory, political, financial, economic or cultural (Wade 2003; Von Känel *et al* 2010).

The alignment of ERM with core organisational strategies has been examined extensively in the literature by Fraser and Simkins (2007), Frigo (2008; 2010), Gates (2006), Chapman (2006; 2007; 2011), Mikes (2006; 2009a) and Althonayan *et al* (2011a). However, as discussed in Section 3.1, the majority of contributions to the academic literature on ERM are of a visionary nature, while industry-based research focuses on aspects of ERM implementation, more often descriptively. Research into potential benefits or the value that ERM can add enterprise-wide is also mostly descriptive.

Some researchers have focused on the alignment of performance and risk metrics (Kaplan and Norton 1992; Killackey 2008; 2009), while others have examined the role of corporate governance guidelines and core strategies in the decision to adopt ERM, with wide variations across the literature (Colquitt *et al* 1999; Liebenberg and Hoyt 2003; Lam 2006; Shenkir and Walker 2006; Hoyt and Liebenberg 2011). Woods (2011) further argues that the quality of governance is considered to be a matter for individual organisations, as it varies across the industry.

The literature also supports the view that risk appetite is closely aligned with risk oversight, both requiring the involvement of senior management. Ashby *et al* (2010) recommend that when considering ERM, financial organisations focus specifically on risk appetite and risk culture. Courtney *et al* (1997) and Collins and Porras (1997) further argue that integrating risk with the setting of strategic direction is critical to ensure that risk appetite aligns with risk tolerance. Ultimately, the literature shows that to establish long-term sustainability, ERM initiatives must be aligned with strategies, objectives and the risk appetite statement, and supported by the risk culture, strong risk governance and oversight (Barrickman 2001; Barnes 2006; Barton *et al* 2010a).

Another key component of ERM alignment that has come to the forefront in recent years is enterprise risk culture (Ashby *et al* 2010; 2011; 2012a; 2012b; IRM 2012; Ashby *et al*

2012; Hindson 2013). It should evolve along with the business environment and adjust to the constant internal and external influences to maintain strategic alignment with ERM (e.g. new business leadership, new risk-adjusted incentives, or new risk processes and systems) (Hindson 2013). As Buehler *et al* (2008) argue, incorporating risk thinking into risk-informed decisions at the organisational level remains challenging to ERM implementation. However, risk culture is considered a strategic imperative in the face of growing market competitiveness and complexity (Mallak 2009; Mikes 2009a; 2009b; Deloitte 2012a; Althonayan *et al* 2012a; 2012b).

Aligning with the views of the participants in the empirical study, the researcher examined which organisational factors were currently incorporated into ERM practices and which were considered critical to developing a Strategic ERM Alignment Framework. The qualitative analysis revealed that 83 percent of interviewees considered the alignment of ERM with the core strategies and objectives to be "critical" to strategic ERM alignment, while 80 percent considered enterprise risk culture equally vital to ERM implementation. The third internal factor, according to 75 percent of the interview participants, was risk appetite and tolerance. Senior management support and oversight was also considered instrumental to ERM by 85 percent of the sample. The quantitative analysis focused further on investigating the current state of ERM in the context of considering specific organisational factors within ERM, and surveying respondents on their insight into the importance of specific factors to the Alignment Framework.

Key findings of the quantitative empirical investigation were that only 10 percent of all organisations considered all key organisational factors (Section 7.2.3), while fewer than half of respondents (44 percent) stated that senior management actively supported ERM in their organisation. At the same time, 42 percent affirmed that the risk management process, tools and techniques had been designed to support ERM.

Moreover, 38 percent of research participants noted that ERM was aligned with corporate risk governance and that their organisation had either a chief risk officer or a risk committee. One-third of respondents said that ERM was aligned with core organisational strategies and key objectives, and with risk and performance metrics (KRIs and KPIs). Only a little over one-third (37 percent) claimed to have implemented an ERM framework, while only a quarter considered the current risk culture to be strong. These findings

reinforce the view that the current state of ERM in the finance industry is such that it requires continuous improvement (Immaneni *et al* 2004; Smart and Creelman 2009; Beasley and Frigo 2010).

Lastly, when asked about the factors key to establishing a strategic ERM framework, nearly three-quarters said that senior management support for ERM was critical. ERM alignment with core organisational strategies and key objectives was either critical (41 percent) or very important (33 percent). Furthermore, 60 percent of respondents considered an ERM framework and risk culture important. The empirical findings of this research are convergent with those reported in the literature review (Oldfield and Santomero 1997; Beasley *et al* 2009).

8.2.2 Senior management support for ERM

Support for ERM from senior management is a common theme throughout the literature. While some researchers focus on the role of the CRO (Lam 2000; Mikes 2009a; Paape and Speklé 2012), others turn their attention to the importance of risk oversight (Barnes and Dublon 2008; Barton *et al* 2008b). For example, Liebenberg and Hoyt (2003) argue that the support of senior management is necessary for the continuous development of ERM, establishing risk committees and appointing a CRO, while Aabo *et al* (2005) found that creating the position of a CRO was critical to establishing sustainable ERM.

Senior management support remains one of the most underleveraged elements of ERM, but according to Lam (2003), it is critical in providing the ability to ask difficult questions about risk and to understand the implications of the answers. Regular debates about risk appetite, risk tolerance and aligning ERM with key business processes before strategic decisions are made are vital to a mature and sustainable ERM (Rao and Dev 2007). In regard to enterprise risk oversight and support from senior management for ERM, Ernst & Young (2011) found that 83 percent of organisations had recently increased board oversight of risk. Over 40 percent of respondents in a survey by AON (2013) also confirmed that the board had started to consider specific business risks more often and to receive regular updates on key risks and risk management activities.

However, regardless of continuing progress towards wider ERM adoption, senior managers continue to struggle to support the idea of implementing it in their organisations. This scepticism derives from persistent difficulty in understanding how to embed ERM into the

existing organisational processes in order to achieve long-term sustainability, value and competitive advantage (KPMG 2001; Chapman 2007; Barton *et al* 2008a).

Accordingly, in order to address the ERM gap, the researcher has incorporated the element of senior management support into the validated ERM Alignment Framework (Section 8.3). Senior management buy-in and support for ERM constitute one of the most critical components of the framework, essential to establishing an effective and sustainable ERM programme (Beasley *et al* 2010). The researcher has focused in the field research on the issues of senior management support for ERM and its alignment with enterprise risk oversight.

The qualitative analysis reveals a consensus among interviewees that without support from the top, ERM often becomes just another risk project that loses its viability over time. Only one-third of interviewees believed, however, that ERM was strongly supported by their senior management. The researcher also focused on understanding how ERM was supported by senior management, seeking insight into how such support can be improved. The findings of the qualitative analysis confirm a general lack of active involvement by senior managers when ERM is developed, with the consequence that they often struggle to understand what ERM is and what it is intended to do to generate value for the organisation. Therefore, visualising and demonstrating the value of ERM becomes a challenge (Bansal 2001; Samuels 2005; Berbenbeim 2005; Wagner and Layton 2007; Frigo 2008; Elahi 2010).

The qualitative analysis also shows that 71 percent of participants considered the advisory role of risk committees valuable to ERM buy-in and implementation. ERM committees provide much-needed risk knowledge and expertise to senior management and help them to understand ERM better. Continuous risk education through workshops, training and risk assessments, starting at board level and cascading down through the whole organisation, have been recognised as high priority tools to improve the existing state of risk oversight. Strong risk governance that clearly defines roles and responsibilities, along with the adequate skill set and experience of the board and senior management, were also deemed instrumental to ERM implementation (Van den Berghe and Louche 2005).

The quantitative data analysis also confirms that only one-third of respondents agreed that senior management support for ERM within their organisation was “good”. A high

correlation was found between the level of ERM maturity (ERMMAT) and management support for ERM (ERMSUPRT); in other words, those financial organisations with mature ERM enjoyed active senior management support throughout ERM adoption.

As the primary and secondary research performed for this study show consistently (Chapters 2, 6 and 7), senior management support for ERM is critical for its successful and strategic implementation. Gradually, the "tone at the top" towards ERM adoption has moved to the forefront of main ERM drivers, but there are still significant opportunities to develop it. Due to the importance of top management support, the researcher recommends that future research should examine further improvements in enterprise risk oversight.

8.2.3 ERM benefits

Considering that ERM is a relatively new research area, it is perhaps natural for organisations to wonder what benefits its implementation offers and whether they can be sustained (Locklear 2012). Almost every literature contribution examined in this research has discussed potential ERM benefits. Managers must determine which of these align with their organisation's strategic direction and objectives.

ERM can benefit financial organisations in a number of ways. However, it is often difficult to apply theoretical concepts in practice and to implement the fundamental principles of ERM into existing processes and functions (Beasley *et al* 2010). More significantly, to demonstrate the link between risk management and value creation, the benefits of two main constituents of economic capital management (i.e. equity and risk capital management) should be communicated to key internal and external decision makers (Shimpi 2005; Onorato 2007).

Importantly, expectations of ERM adoption will vary with the strategic objectives of the financial organisation. Some of its benefits noted in the literature are: lower cost of debt, risk-adjusted capital allocation, competitiveness, ability to make strategic risk-adjusted decisions and better readiness for unexpected risk events (Aabo *et al* 2005; Gates 2006; Rasmussen *et al* 2007; Beasley and Frigo 2010; Branson 2010). Researchers often recognise a link between risk management, creating shareholder value (Shimpi 1999; 2005) and competitiveness (Nocco and Stulz 2006; Chapman 2007).

Based on the literature review, on the critical evaluation of key ERM practices, on secondary data obtained from case studies and surveys (Chapters 2 and 3) and on the researcher's professional experience, key output factors of the ERM Alignment Framework (benefits) were categorised (Chapter 4, Figure 4-8) as corporate, business and operational. The researcher validated these in the course of empirical investigation (Chapters 6 and 7) and discusses the findings in this section.

The findings of the qualitative data analysis show that more than three-quarters of interviewees identified risk-adjusted decisions, more dynamic ERM culture and enterprise risk awareness as critical benefits of ERM. Moreover, achieving a strategic view of key risks was considered critical by 43 percent and very important by 51 percent of interviewees. Achieving enhanced shareholder value and competitive advantage was adjudged critical by 63 percent and very important by 20 percent. As to the value that ERM can drive, the literature review provides mostly descriptive views, often lacking sufficient empirical evidence to support theoretical assumptions (Manab *et al* 2010).

Survey respondents also believed that risk-adjusted decision making was vital to strategic ERM (63 percent), while enabling long-term sustainable profitability and growth was also essential (74 percent). The quantitative analysis shows that more than half of those surveyed admitted that they expected ERM to help to: improve business and operational performance and effectiveness (58 percent), optimise risk and business cost (57 percent), enhance shareholder value and drive competitive advantage (56 percent), increase regulatory compliance (53 percent) and achieve a strategic view of key risks (53 percent). The literature shows that forward-looking financial organisations now more often view ERM and value creation as a single entity; therefore, researchers often emphasise the significance of ERM evolving into a strategic management tool for value creation (Lam 2000; D'Arcy 2001; Hoyt and Liebenberg 2006; Manab *et al* 2010; Beasley *et al* 2009; Hoffman 2009).

The consensus among researchers on this aspect of ERM is that more theoretical and empirical analyses are needed to demonstrate the value added by ERM (Ai and Brockett 2008). According to FERMA (2012), nearly one-third of organisations with mature ERM practices reported a growth rate of more than 10 percent in EBITDA over five years. Some

researchers propose calculating the value of ERM as the increase in economic value of the portfolio after implementation (Wang 2002).

Referring to the literature (Chapter 2, Section 2.3.4), Ai and Brockett (2008) argue that ERM development should consider a common objective for financial organisations to maximise economic value. Thus, ERM can help to focus on managing key risks more efficiently, along with specific identified objectives, and lead to conscious optimisation of risk/return relationships. It can also increase the capacity to examine new opportunities to create sources of value, such as higher credit ratings and lower distress costs (Doherty 1993).

In order to validate the findings of the literature evaluation, the researcher gave equal importance to inquiring about the areas in which ERM can drive the most value and to learning about ERM benefits. This meant eliciting respondents' identification of the key drivers of ERM value. In the qualitative inquiry, almost all interviewees considered achieving a strategic view of key enterprise-wide risks as the area where ERM can generate most value. Other ERM value drivers were listed as: improved regulatory compliance, stronger enterprise risk culture, and cost reduction driving competitive advantage (Ernst & Young 2011).

Quantitatively, when asked to rank ERM value drivers in order of likelihood, 74 percent of survey respondents considered that achieving a strategic view of key risks was "sure to happen" (37 percent) or "very likely to happen" (37 percent). Moreover, nearly three-quarters of those surveyed agreed that improving the understanding of risk and controls at an enterprise level as a result of ERM implementation was sure (30 percent) or very likely (43 percent) to happen. Developing a stronger enterprise risk culture and reporting critical issues to senior management were also deemed important ERM value factors as a result of the quantitative analysis presented in Chapter 7, Section 7.2.3.

The data analysis strongly suggests that while financial organisations adopt ERM initiatives primarily as a response to regulatory requirements, there is a gradual trend towards ERM being perceived as a value-driving tool offering strategic advantage.

As organisations think of adopting ERM, they also come to see it as a source of significant value in the context of a long-term sustainability and competitive advantage (KPMG 2011;

Paape and Speklé 2012). The researcher has investigated the value driven by ERM implementation in other research contributions (Althonayan *et al* 2012a; 2012b; 2013), specifically examining the link between risk culture as a source of competitive advantage and achieving long-term sustainability.

As evidenced in Chapters 2 and 3, academic researchers focus on the issue of sustainability mostly from a theoretical standpoint. Overall, there is little empirical research to support a link between ERM and achieving long-term sustainability (Beasley and Frigo 2010). Some industry researchers agree that ERM sustainability is closely aligned with an organisation's level of maturity of risk culture (RIMS 2009; Deloitte 2009b; 2011; AON 2010; IRM 2012), a view strongly supported by some academics (Brooks 2010; Hindson 2013).

The qualitative interviews revealed that the following factors were considered critical to ERM sustainability: an enterprise-wide culture that supports ERM (including buy-in), adequate support and sponsorship from senior management, and the ability to demonstrate to key stakeholders how ERM generates value. The quantitative analysis shows that 70 percent of respondents believed that in order to achieve long-term sustainability of ERM, it is critical to ensure alignment with core organisational strategies and key objectives, while the same number saw it as critical to understand how organisational value can be generated through ERM and how to resolve potential challenges encountered throughout the process of managing risk. Developing consistent enterprise risk culture and risk awareness across the organisation was considered almost as vital (63 percent), while 60 percent supported the view that a well-defined ERM structure and ownership is important to ERM. Enterprise-wide communication was also mentioned (by 43 percent) as an important contributor to ERM sustainability.

8.2.4 ERM challenges

The discussion of the research gap (Chapter 3, Section 3.1) identifies some of the most commonly recurring ERM challenges as: a lack of appropriate support from senior management, lack of adequate practical guidelines towards developing and implementing ERM, lack of risk resources to provide the necessary ERM expertise, creating a risk-aware culture and adapting the ERM framework.

The literature indicates that many financial organisations struggle to implement ERM and to integrate it into the existing business environment. Senior leaders often claim to be

aware of key risk exposures, but many organisations need reassurance on how to overcome key ERM challenges (KPMG 2007; Beasley *et al* 2009). Two leading ERM concerns identified in recent research are risk culture and challenges around data integration (AON 2007; Deloitte 2009b).

Another challenge is demonstrating the business value of ERM using traditional quantifiable investment measures such as return on investment, return on equity, return on assets, or risk-adjusted return on capital, then supporting it as a business case to the board or senior management. Barton *et al* (2008a) offer some general guidelines on achieving successful ERM implementation via proactive risk management, linking of risk and organisational objectives, risk culture, clear risk communication and risk ownership, as well as effective risk metrics. The academic and industry communities agree (Chapter 2, Section 2.3) that each financial organisation faces a unique set of challenges when adopting ERM, depending on the strategy and organisational objectives (Fraser and Simkins 2007; Marsh 2012).

The qualitative data analysis identifies these key ERM challenges: lack of strong enterprise risk culture (89 percent), lack of managerial support and clear ERM implementation guidelines (77 percent), failure to align ERM with core organisational strategies and key objectives (63 percent) and poor understanding of long-term ERM benefits and challenges (63 percent). As to the quantitative survey, the strongest concerns were a lack of managerial support and clear implementation guidelines (59 percent), inadequate ERM culture and awareness (48 percent) and poor understanding of long-term benefits and challenges (47 percent). Thus, research respondents across the financial industry agreed broadly on potential challenges to ERM implementation.

Key recommendations by financial industry practitioners participating in the survey were to increase investment in ERM and improve risk education, training, risk infrastructure and the provision of specialised risk experts to provide adequate support and guidance in ERM implementation. Certain challenges can be viably resolved by identifying ERM champions and subject matter experts at all organisational levels and creating a network of knowledgeable individuals to support ERM and "make it happen in their business area" (Aabo *et al* 2005; Protiviti 2006). As Fraser *et al* (2008) assert, collaboration between academic and industry practitioners can stimulate much-needed future research in this area.

Based on the results presented in Chapters 6 and 7, the researcher has incorporated within the Strategic ERM Alignment Framework discussed in Section 8.4 some guidelines for overcoming key challenges by treating ERM Integration as a component of ERM Foundation.

8.2.5 Enterprise risk culture

A recurrent theme of the literature evaluation is that developing a strong and consistent enterprise risk culture which can support ERM is critical throughout the implementation process, as discussed in Section 2.3.5 (Power 2007; Buehler *et al* 2008; Mikes 2009b; IRM 2012; Hindson 2013). Consequently, the researcher identified risk culture as part of the literature gap and incorporated it as a critical component of the Strategic ERM Alignment Framework (Chapter 3). Aligning with the literature findings, the researcher agrees with Genus and Coles (2006) that risk taking is linked to the nature of the organisational culture, which is one of the parameters that can impede ERM implementation (Schein 1990; Berglund 2007; Kimbrough and Componation 2009). ERM failure can be related to the inability or unwillingness of employees to communicate regarding issues that can ultimately jeopardise implementation (Keizer and Halman 2007).

The researcher also argues that financial organisations usually operate in a distinct cultural context that has a strong effect on business decisions (Taplin and Schymtck 2005). Moreover, there are different stereotypes across financial organisations and each has a typical attitude towards risk (Thompson, Ellis and Wildavsky 1990; Douglas and Wildavsky 1982). A number of variable factors, including mood, feelings, the way in which problems are framed, education, training, culture and experience, all appear to shape perceptions of and attitudes to risk (March and Shapira 1987; Edwards and Bowen 2005). Risk awareness, supported by an enterprise risk culture and good understanding of the external and internal environment, is also essential for a well functioning strategic ERM alignment, while enterprise-wide buy-in is a cornerstone of ERM, without which it cannot be embedded into the organisational structure and reach full maturity.

Some senior managers may not be aware of their attitudes to risk and how these affect their decisions (Edwards and Bowen 2005). People may be categorised as risk avoiders and risk takers (Smith, Merna and Jobling 2006). According to March and Shapira (1987), “risk averse decision makers prefer relatively low risks and are willing to sacrifice some

expected return in order to reduce the variation in possible outcomes; while risk seeking decision makers prefer relatively high risks and are willing to sacrifice some expected return in order to increase the variation". Management faces the significant challenge of creating a consistent enterprise risk culture where risk attitudes are well-balanced and allocated to the appropriate organisational areas; research shows this to have a direct impact on ERM implementation (Brooks 2010; Hindson 2013).

Almost all interviewees believed ERM implementation to be closely aligned with a risk culture able to support it throughout the maturity cycle and saw the active engagement of senior management as instrumental in developing a consistent and dynamic risk culture. Enterprise-wide buy-in at all levels is considered critical to ERM implementation. Finally, continued risk education and training have been considered starting points to build a stronger, more dynamic and consistent enterprise risk culture. Based on the theoretical and empirical evidence discussed in this sub-section, the researcher strongly believes that creating a dynamic and consistent enterprise culture is vital to a sustainable ERM alignment framework and consequently recommends further research in this area.

8.2.6 Key findings of the interviews and surveys data

This section summarises combined observations and conclusions obtained from the interviews and surveys data throughout the course of this study. Table 8.1 below summarises key findings of the interview and survey data.

Table 8-1 Key findings of the interviews and surveys data

Research findings: Interview and Survey data		
Strategic ERM Alignment Framework and organisational factors	83 percent of interviewees considered the alignment of ERM with the core strategies and objectives to be "critical" to strategic ERM alignment	The quantitative analysis shows that 70 percent of respondents believe that in order to achieve long-term sustainability of ERM, it is critical to ensure alignment with core organisational strategies and key objectives, while the same number saw it as critical to understand how organisational value can be generated through ERM and how to resolve potential challenges encountered throughout the process of managing risk. Moreover, 10 percent of the organisations considered key organisational factors. Nearly 40 percent (38 percent) of research participants noted that ERM was aligned with corporate risk governance and that their organisation had either a chief risk officer or a risk committee. One-third of respondents said that ERM was aligned with core organisational strategies and key objectives, and with risk and performance metrics (KRIs and KPIs). ERM alignment with core organisational strategies and key objectives was either critical (41 percent)

Senior management support for ERM	Senior management support and oversight was considered instrumental to ERM by 85 percent Without support from the top, ERM often becomes just another risk project that loses its viability over time. Only one-third of interviewees believed that ERM was strongly supported by their senior management. 71 percent of participants considered the advisory role of risk committees valuable to ERM buy-in and implementation	Fewer than half of respondents (44 percent) stated that senior management actively supported ERM in their organization Three-quarters said that senior management support for ERM was critical A one-third of respondents agreed that senior management support for ERM within their organisation was "good".
ERM benefits	The qualitative interviews revealed that the following factors were considered critical to ERM sustainability: an enterprise-wide culture that supports ERM (including buy-in), adequate support and sponsorship from senior management, and the ability to demonstrate to key stakeholders how ERM generates value. A three-quarters of interviewees identified risk-adjusted decisions, more dynamic ERM culture and enterprise risk awareness as critical benefits of ERM Achieving a strategic view of key risks was considered critical by 43 percent and very important by 51 percent of interviewees Achieving enhanced shareholder value and competitive advantage was adjudged critical by 63 percent and very important by 20 percent Nearly all interviewees considered achieving a strategic view of key enterprise-wide risks as the area where ERM can generate most value. Other ERM value drivers were listed as: improved regulatory compliance, stronger enterprise risk culture, and cost reduction driving competitive advantage	Developing consistent enterprise risk culture and risk awareness across the organisation was considered almost as vital (63 percent), while 60 percent supported the view that a well-defined ERM structure and ownership is important to ERM. Enterprise-wide communication was also mentioned (by 43 percent) as an important contributor to ERM sustainability. Survey respondents also believed that risk-adjusted decision making was vital to strategic ERM (63 percent), while enabling long-term sustainable profitability and growth was also essential (74 percent). The quantitative analysis shows that more than half of those surveyed admitted that they expected ERM to help to: improve business and operational performance and effectiveness (58 percent), optimise risk and business cost (57 percent), enhance shareholder value and drive competitive advantage (56 percent), increase regulatory compliance (53 percent) and achieve a strategic view of key risks (53 percent). 74 percent of survey respondents considered that achieving a strategic view of key risks was "sure to happen" (37 percent) or "very likely to happen" (37 percent). Nearly three-quarters of those surveyed agreed that improving the understanding of risk and controls at an enterprise level as a result of ERM implementation was sure (30 percent) or very likely (43 percent) to happen.
ERM challenges	The qualitative data analysis identifies these key ERM challenges: lack of strong enterprise risk culture (89 percent), lack of managerial support and clear ERM implementation guidelines (77 percent), failure to align ERM with core organizational strategies and key objectives (63 percent) and poor understanding of long-term ERM benefits and challenges (63 percent)	The quantitative survey identifies the strongest concerns as a lack of managerial support and clear implementation guidelines (59 percent), inadequate ERM culture and awareness (48 percent) and poor understanding of long-term benefits and challenges (47 percent)
Enterprise risk culture	80 percent considered enterprise risk culture vital to ERM implementation Almost all interviewees believed ERM implementation to be closely aligned with a risk culture able to support it throughout the maturity cycle and saw the active engagement of senior management as instrumental in developing a consistent and dynamic risk culture.	Only a quarter of survey respondents considered the current risk culture to be strong 60 percent of respondents considered an ERM framework and risk culture important

The findings of both qualitative and quantitative research presented in details in Chapters 6 and 7 strongly support the main research aim of developing the Strategic ERM Alignment Framework. Key conclusions drawn from the analysis of the qualitative and quantitative data appear to be convergent and present strong empirical support for the research's theoretical assertion for developing strategic alignment between ERM and key organisational dimensions.

8.3 Validation of the ERM Alignment Framework

The main focus of this section is to investigate how the theoretical Strategic ERM Alignment Framework developed in Chapter 4, based on the findings of the literature has changed in light of the empirical study. Consequently, the researcher performed an in-depth gap analysis that led to the verification of key elements of the framework.

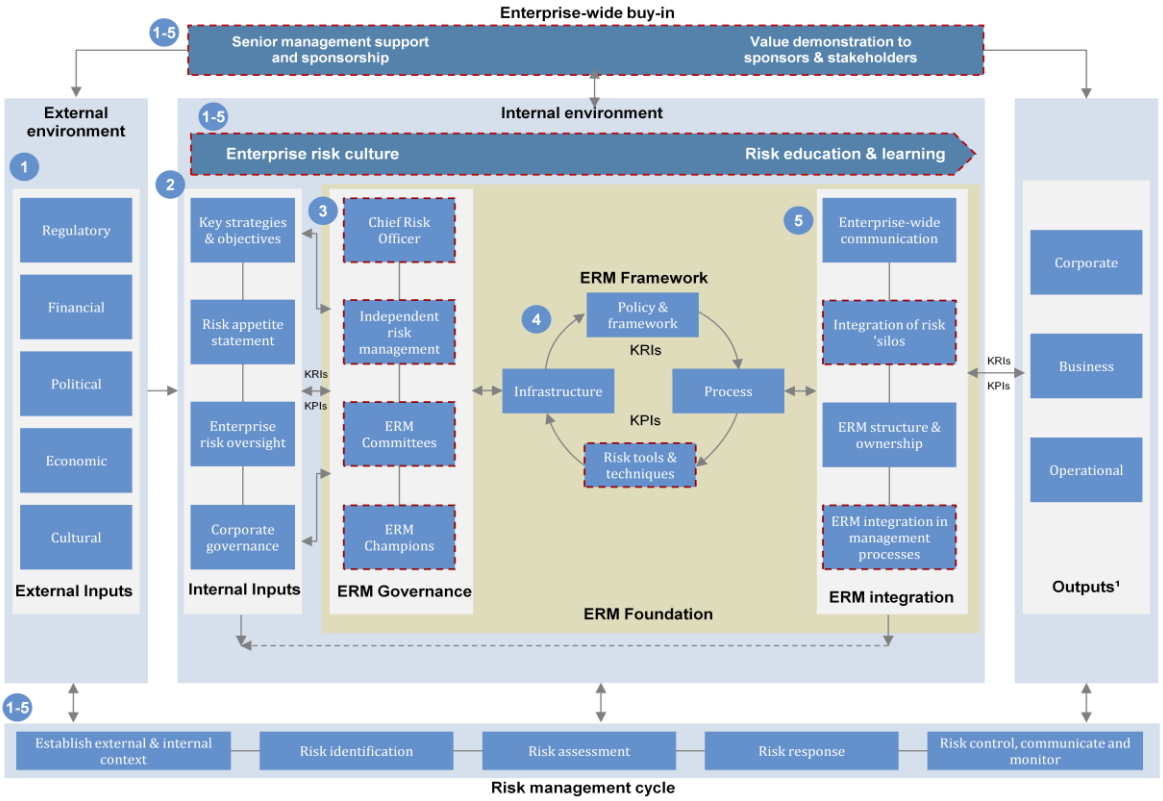
The framework represented in Chapter 4, Figure 4-2 was derived from the key findings of academic and industry research contributions (both theoretical and empirical). Its main aim was to address the existing literature gap (Chapter 3, Section 3.1) that has evidenced the need for a strategic framework to align ERM with key internal and external factors across the enterprise. Therefore, the researcher first defined key organisational factors fundamental to ERM alignment (Chapter 4), then validated their importance via empirical research (Chapters 6 and 7). The final step is to provide practical guidance on the implementation of the Strategic ERM Alignment Framework to finance industry professionals and academics.

The theoretical framework introduced in Chapter 4, Section 4.3 was developed around four pillars, each representing a critical component of the external and internal organisational contexts for ERM: Input factors, Foundation, Integration and Output factors (benefits). The researcher assumes that financial organisations are influenced by changes to external factors, whether regulatory, financial, political, economic or cultural. The input factors, identified on the basis of the literature review, are: organisational strategies and objectives, risk appetite, risk oversight, corporate risk governance, and risk culture and awareness. The Foundation pillar of the framework has four key elements: culture, framework, process and infrastructure (Chapter 4, Section 4.3.2).

Having outlined the key theoretical pillars draw from literature supporting the Strategic ERM Alignment Framework, the researcher sought to validate the importance of key factors affecting its implementation in the empirical (both qualitative and quantitative) investigation. Figure 8-1 shows the Strategic ERM Alignment Framework, reflecting some essential empirical findings that had an impact on the evaluation of the theoretical version of the framework shown in Chapter 4, Figure 4-2. It also shows which organisational factors have been re-aligned as a result of the empirical investigation; all significant

changes to the theoretical framework are highlighted in red. The numbers 1 to 5 denote the steps referred to in Section 8.4 on the guidelines for implementation of the framework.

Comparison of Figures 4-2 and 8-1 shows that the pillar undergoing the most significant transformation as a result of the qualitative data analysis discussed in Chapters 6 is ERM Foundation, where a new component, ERM Governance, has been inserted before the original two components, ERM Framework and ERM Integration, so that the implementation of ERM alignment is now seen to consist of three stages, analysed further in subsequent sections.



¹ Chapter 4, Figure 4-8

Figure 8-1 Strategic ERM Alignment Framework

Source: Researcher

This new component shows that the collaborative efforts of a CRO, an independent risk management function, risk committees and ERM champions are critical in the ERM implementation cycle. Building internal support for ERM and involving the right resources in the implementation of the Strategic ERM Alignment Framework are among the first

steps in building the right risk culture. The inclusion of this component further illustrates the importance of strong risk governance in ERM initiatives emphasised by the interviewees.

Another change to the Foundation pillar is the transformation of ERM Framework into a cyclical element. This change has been incorporated into the theoretical Strategic ERM Framework as a result of the interpretation and analysis of data gathered in the qualitative and quantitative research. The empirical research identified key elements of ERM that must work in alignment in order to achieve an effectively balanced framework as Policy and Framework, Processes, Risk management tools and techniques, supported by Infrastructure and by KRIs and KPIs. Risk management tools and techniques was not part of the theoretical framework discussed in Chapter 4, Section 4.3.2 and has been added, whereas Enterprise risk culture, which was originally an element of ERM Framework, has been reassigned as a standalone enterprise-wide continuous effort, shown near the top of Figure 8-1. As there is no universal approach to ERM, the researcher believes that the management of each organisation should determine what enterprise risk means for them. Maintaining a diversification of risks and understanding the interconnection of the four elements brings out the ability to relate to the existing risk culture and makes risks visible at many levels of the organisation before they actually have an impact. Well-defined ERM Foundation supports robust ERM, i.e. risk identification, assessment, response and defining key categories of risk within the scope of ERM. Moreover, the risk and performance metrics developed and tracked throughout the implementation process help to report key strategic risks to the management and to focus on real threats and opportunities during risk discussions.

The ERM Integration component of ERM Foundation originally comprised Enterprise-wide communication, ERM structure and ownership, and Risk education and training (Section 4.3), whereas Figure 8-1 shows it has now expanded to Integration of risk silos, and Integration of ERM into existing management processes. The empirical (quantitative) findings showed the two integration-related components to be critical to ERM implementation. Risk education and training was deemed to be part of enterprise risk culture and thus reassigned as a continuous effort throughout the implementation process. As enterprise-wide communication and ERM structure and ownership have already been

examined in Chapter 4, the following discussion focuses on the integration of risk silos and integrating ERM into the existing management processes. The findings of quantitative study had been also supported by the outcomes of the interviews.

These two integration-related elements were added to the ERM Integration component of the ERM Foundation pillar because research participants appeared to consider cross-functional risk discussions essential. As organisations comprise various business and functional units, management should provide a mechanism to enable coordination and regular sharing of risk information between various risks functions. This communication can be promoted through a cross-functional risk forum, bringing together top managers and all business units to achieve insight into each risk and to engage in enterprise-wide risk awareness; it can help break down communication barriers between silos, create a risk language and lay the foundation for a risk-aware culture.

As reported in Chapters 6 and 7, respondents also argued that risk ownership and management must remain within an organisation, with accountability held at each appropriate level and the "tone at the top"' set by senior managers (e.g. the CEO) and directors. However, where ERM responsibility lies within the organisation still varies. The business functions variously reported to house ERM included internal audit, the office of the CFO, controllership, treasury and strategy/planning.

Having interpreted and considered the combined empirical results (Chapters 6 and 7), the researcher determined that the following elements should be considered at an enterprise level as continuous efforts throughout implementation, rather than as discrete steps:

- Senior management support and sponsorship
- Enterprise buy-in
- Value demonstration to sponsors and stakeholders
- Enterprise risk culture
- Risk education and learning
- Risk management cycle

The risk culture is a common way in which members of an organisation (e.g. employees) understand, perceive and approach risk, as well as a way to promote a conversation about risk among senior managers and the board. Since a large majority of participants argued

that a strategic ERM framework cannot be sustainably implemented without a strong enterprise risk culture, the researcher moved the enterprise risk culture element to its new position across the internal environment, as noted above. All members of an organisation, at all levels, are exposed to its ERM practices and should therefore appreciate the importance of being involved through their daily responsibilities. The BOD and management team should actively invest in ERM and be willing to communicate that enthusiasm throughout the organisation. Participants argued that regular risk education and training supported by a consistent enterprise risk culture across various stages of the Strategic ERM Alignment Framework implementation cycle was a prerequisite for a sustainable ERM.

Respondents also identified a risk aware culture able to stimulate a level of acceptance for ERM (i.e. enterprise buy-in) as a priority of any successful ERM initiative that is to maintain its sustainability. The researcher argues that enterprise risk culture should develop naturally rather than be forced on employees. Collaboration with business units and allowing input from all levels helps both to identify risks and to create awareness and therefore culture throughout the organisation. Consequently, the value and potential benefits of ERM need to be understood and demonstrated to sponsors and stakeholders to maintain momentum and sustain their support. As one of the key elements reassigned in the Strategic ERM Alignment Framework, enterprise risk culture was discussed in detail in Section 8.2.5. The next section offers practical guidelines for the implementation of the validated ERM framework based on the combined findings of the academic and industry research contributions, along with the results of the empirical investigation.

8.4 Practical guidelines for implementation of the Strategic ERM Alignment Framework

This section discusses the researcher's proposed practical guidelines for implementing the Strategic ERM Alignment Framework (Figure 8-1), based on analysis of the primary and secondary data. According to previous research, organisations should first evaluate the current state of risk management, then align it with a strategy that will allow its transformation into ERM (Stulz 1996; Protiviti 2006; Rao and Dev 2007). Thus, before deciding on the process of implementation, the researcher recommends that managers consider some key questions in the context of their organisation:

- What is the current organisational structure and how can ERM be embedded within it?
- What are the benefits/value of adopting ERM?
- How can senior managers be persuaded to sponsor and support ERM?
- How to align the ERM framework with the organisation's strategies, objectives and risk appetite?
- How to define strong corporate governance with a clear risk structure and responsibilities throughout the ERM implementation cycle?
- How to develop a consistent risk culture that supports the ERM alignment framework, facilitates enterprise-wide buy-in and help overcome challenges?
- How to achieve a strategic competitive advantage and sustainable value through the ERM alignment framework?

The researcher deems the questions above an integral element of ERM and therefore critical for the validation of the Strategic ERM Alignment Framework and the provision of practical implementation guidance. Defining a unique organisational structure is an essential step in any ERM initiative, allowing the management to identify the current organisational structure and to decide how ERM can be embedded into it. Regardless of the specific strategic direction the organisation takes, management needs to understand and define the aims of the ERM programme, then communicate these clearly across the organisation. All employees should understand the vision, mission statement and key organisational objectives in relation to their performance objectives, while staying aware of the organisation's strategic direction. The researcher therefore recommends consideration of each of the following implementation steps in the light of the five actions mentioned above:

Step 1) Establish the external environment

Step 2) Define key internal organisational factors

a. Key strategies and objectives
b. Risk appetite statement
c. Enterprise risk oversight
d. Corporate governance

Step 3) Describe ERM Governance as part of ERM Foundation

e. Chief Risk Officer
f. Independent risk management
g. Risk committees
h. ERM champions

Step 4) Design ERM Framework as part of ERM Foundation

i. Policy and Framework
j. Process
k. Risk management tools and techniques
l. Infrastructure
m. KRIs and KPIs

Step 5) Define ERM Integration as part of ERM Foundation

n. Enterprise-wide communication,
o. Integration of risk silos
p. ERM structure and ownership
q. ERM integration in management processes

Step 6) Decide on the outputs (benefits) of the ERM Alignment Framework

Consequently, the researcher emphasises that while the following are key to ERM implementation, they do not constitute individual steps, but rather continuous efforts:

- Gain enterprise-wide buy-in (Steps 1-5)
  r. Senior management support and sponsorship
  s. Value demonstration to sponsors and stakeholders
  t. Personnel "on board" with ERM
- Build enterprise-wide risk culture (Steps 1-5)
  u. Risk education & learning
- Understand the risk management cycle (Steps 1-5)
  v. Establish external and internal contexts
  w. Risk identification
  x. Risk assessment (analysis and evaluation)
  y. Risk response
  z. Risk control, communicating and monitoring

Thus, enterprise-wide buy-in, culture and risk management cycle are not considered implementation steps, but continuous and omnipresent initiatives that become embedded in the organisational structure. The researcher argues that at each stage of implementation of the ERM Alignment Framework, the following actions should be considered:

- Understand
- Define
- Align
- Measure
- Communicate/disseminate
- Educate, train and learn

The following subsections offer guidance on each key implementation step illustrated on Figure 8-1.

8.4.1 Step 1: Establish the external environment

Financial organisations operate in an increasingly complex and competitive business environment, and are exposed to the dynamics of the external context (environment). This section discusses the importance of establishing the external context in which financial organisations operate as a first critical step in developing the Strategic ERM Alignment Framework (Step 1, Figure 8-1).

Various regulatory, political, financial, cultural and economic factors influence the environment in which financial organisations operate (Tchankova 2002; Agpar 2006; KPMG 2011). This external volatility may impact the existing ERM practices established in the finance sector and drive the management towards adapting to the inevitable change. External volatility also affects the internal organisational context which financial organisations develop (Frigo 2008; Power 2009).

The researcher recommends that the management should consider establishing external contexts as a first step in designing a Strategic ERM Alignment Framework. Financial organisations operate in an environment where macro-factors constantly change at national and international level. The dynamics of the external environment, beyond management control, can affect operational performance; thus, monitoring both external and internal environments is vital to the implementation of the strategic ERM framework. Macro-

factors reflect the state of the economy, financial and legal environment, political structure, market conditions and social factors. Managers need to understand these external factors before they can fully implement ERM. As external risks, unlike internal or strategic ones, are largely beyond the organisation's control, it should manage them with care by generating ideas about the type and magnitude of external events that could happen, and by developing a plan for mitigating the negative impact of such an event occurring.

External factors and their influences can be explored using a range of analytical tools such as PESTEL (political, economic, socio-cultural, technological, environmental and legal), SWOT (strengths-weakness-opportunities-threats), stress testing, scenario analysis and war-gaming, a tool for predicting the impact of aggressive changes in competitors' strategies. This section discusses the use of PESTEL and SWOT, both widely used.

The PESTEL framework can be used to identify macro-environmental factors and help organisations to understand their influence on the implementation of the ERM framework and other management activities. Similarly, SWOT analysis can help to identify areas presenting opportunities and those suffering inefficiencies. Table 8-2 lists key steps in its application.

Table 8-2 Steps of SWOT Analysis

Steps of SWOT analysis	Description
Key stakeholders	Select key stakeholders in various business areas
	Involve key external business contacts (customers, suppliers) with an objective independent view
Workshops and brainstorm	Arrange a workshop to identify the business's strengths and weaknesses and the opportunities and threats facing it. Request participants to collect and review information on internal/external factors before the workshop. Appoint a suitable (competent) workshop facilitator
	Brainstorm and decide on methods, factors, measurement and quantification
Ranking	List and rank the most important strengths, weaknesses, opportunities and threats
	Make factor descriptions as specific and concise as possible
	Quantify factors comprehensively
	Score each factor, rank in order of importance and provide supporting information
Action Plan	Substantiate the significance of the completed SWOT analysis
	Present an action plan to manage weaknesses/ threats, and capitalise on strengths and opportunities
	Utilise the SWOT analysis as a review tool before important decisions

Source: Chapman (2011)

The use of SWOT analysis can help early identification of potential external threats and opportunities and of internal strengths and weaknesses, leading in turn to an appropriate allocation of resources, improved business performance and better informed decisions.

The researcher emphasises the importance of first identifying the tools available for assessing the external environment and those best suited for the current organisational structure. The next step is to define key objectives, then once the key stakeholders and workshop participants are determined and the assessment process designed, it should be aligned with the ERM strategy.

The implementation of ERM alignment is based on the flexibility that allows management to adapt the framework to unique organisational needs and requirements while leveraging the risk practices that already work successfully across the enterprise. Finally, communicating the strategy adapted to identify and assess external factors should be incorporated into the ERM education, training and learning enterprise-wide sessions.

8.4.2 Step 2: Define key internal organisational factors

Having established the influential dynamics of the external environment, the researcher recommends that managers work to understand and define the internal environment and align its vital elements accordingly (Step 2). Key internal factors critical to developing and implementing the framework (Figure 8-1) are the alignment of ERM with: a) key strategies and objectives, b) risk appetite statement, c) enterprise-wide risk oversight, and d) corporate governance.

Firstly, management should determine the strategic direction the organisation wants to follow and think about aligning it with ERM. The alignment of ERM and strategies is instrumental in ensuring that key risks are identified, analysed and discussed in timely fashion as a result of enterprise-wide collaboration, awareness and understanding, and that they do not impede key organisational objectives (Chapman 1997).

Before assessing key enterprise-wide risks, organisational objectives should be clearly understood by key stakeholders and easy to relate to daily tasks and responsibilities (IMA 2006). Furthermore, risk professionals need to develop a good understanding of what risk appetite and tolerance mean for their organisation, how they are determined and most importantly measured (Govindarajan 2011). According to the IRM (2011), risk appetite

and tolerance should be developed in the context of risk management maturity, taking account of the views of professionals at the strategic, tactical and operational levels. Risk appetite must be developed enterprise-wide and clearly understood at all levels (Anderson 2008; RIMS 2012; Allan and Cantle 2013). For large financial organisations, defining individual risk appetite statements for each legal entity may be appropriate, considering the complexity and uniqueness of their risk profiles and business activities. Nonetheless, these individual statements should be aligned within the overall risk appetite statement. Regardless of the risk framework which managers deem most effective to quantify the level of risk tolerance against the risk appetite, understanding, defining, aligning and communicating it across the enterprise are critical for its sustainability. The ERM Alignment Framework has been based on the combined views of various enterprise risk management practices to ensure strategic consistency and effectiveness.

The findings of this research show that a key internal motive for adopting ERM is increasing pressure from the BOD to understand the risk profile and in effect to make risk-adjusted decisions. Interest in risk management oversight is rapidly developing, particularly among directors under pressure from regulators, the public, the media and others to control the risky behaviour of senior managers. As the finance sector continues to change, it is imperative that directors keep abreast of the additional requirements and recommended responsibilities related to ERM. The researcher supports the view of Buchanan (2010) and the IRM (2011), discussed in Chapter 2, that the board should retain governance over approving, measuring and monitoring the level of risk appetite. The empirical findings (Chapters 6 and 7) strengthen the researcher's argument that the foundation of strategic ERM is building dynamic and robust corporate risk governance with clearly defined risk structure, roles and responsibilities, supported by organisational policy and framework.

In addition to the key input factors critical to the implementation process, this section also considers the need to identify key enterprise risks in the context of achieving strategic objectives. The empirical research presented in Chapters 6 and 7 supports the view discussed in the literature review that as part of their corporate risk governance, financial organisations should establish a well-defined risk taxonomy that is understood across all business and operational functions. Researchers have sought to classify risks into specific

categories that can help risk practitioners manage key risks more efficiently. Therefore, to increase transparency, organisations should categorise each risk type according to a dedicated taxonomy. The researcher recommends that managers focus on identifying potential sources of key risk exposures early, then measure the correlation structure along with impact, probability and magnitude at the risk analysis stage.

According to Chapman (2011), key risk categories are those of financial, operational, technological, project and safety risks. One of the most significant has been financial risks, which can be subdivided into those related to liquidity, credit (default, exposure, due diligence, counterparty and recovery), borrowing, currency, funding and foreign investment (country and environment). Key risks in each category need to be managed to ensure that investors have a level of confidence regarding predictable dividend payout policy, low cost of capital and a stable business performance across the financial industry. Table 8-3 lists some risk identification tools selected by Chapman (2011).

Table 8-3 Risk identification tools and techniques

Risk identification tools	Examples
Information gathering techniques	Brainstorming
	Delphi technique (facilitator distributes a questionnaire to experts, responses are summarised anonymously and re-circulated among the experts for comments)
	Interviewing
	Root cause analysis
Risk checklist analysis	
Risk assumption analysis (to reveal an inconsistency of assumptions)	
Diagramming techniques	Cause and effect diagrams
	System or process flow charts
	Influence diagrams
Risk taxonomy	
SWOT and PESTEL analyses	
Risk database	
Risk register	
Expert judgment	

Source: Chapman (2011)

From a risk identification perspective, successful risk management depends on five key assumptions: awareness that all business activities face risks; good risk communication by management; structured and consistent risk identification methods; a dynamic approach to

addressing unidentified risks (blind spots); and identifying risks and opportunities (upside and downside). Risk identification can be performed in a few ways or a combination of group-oriented processes, depending on what management deems most effective. ERM alignment allows flexibility in selecting the most adequate approach, drawing on the expertise of chosen participants, from questionnaires (Delphi method), interviews, interactive workshops, scenario analysis and brainstorming. Depending on geographic dispersion, the business can chose to perform risk identification via email or video conferencing.

The researcher emphasises the importance of aligning ERM with key strategies, objectives, risk appetite, risk oversight and governance. The internal factors discussed in this section should be well understood, well defined, measured, aligned with each other, and incorporated into the ERM communication and training strategy.

8.4.3 Step 3: Define ERM Governance as part of ERM Foundation

This section discusses the importance of defining the ERM governance structure. Determining the shape of risk governance, structure and ownership has been a recurring question in the literature (Barton *et al* 2003a; Hampton 2010; Locklear 2012). Managers continue to struggle to determine the appropriate risk structure that allows an effective risk identification, reporting and escalation. Organisations can assign the responsibility of risk oversight to different groups or committees, but depending upon the type of organisation, appropriate risk guidance is a starting point.

Embedding the right risk structure within the organisation becomes a key step towards a sustainable ERM. The researcher recommends that the activities of both directors and managers are clearly established and communicated across the organisation. The BOD should also develop clear ownership of ERM oversight and be supported by an appropriate committee structure. The roles and responsibilities of the board and risk committees, and their reporting lines, should be clearly stated in the terms of reference and made available to all employees. Lastly, the alignment of the BOD's vision with strategy, policy and governance structure should be clearly communicated to everyone in the organisation.

ERM governance is supported by clearly establishing the independence of risk functions across key risk stripes enterprise-wide (i.e. credit, market, operational, liquidity risks etc); risk functions should execute an independent check-and-challenge policy and perform an

autonomous risk oversight. ERM champions, identified as the subject-matter experts, should educate employees at all organisational levels on key ERM principles, aligned with organisational culture. Key stakeholders should not be inundated by excessive numbers of "action points" during the establishment of ERM governance. When risk ownership is well defined and requires a collective effort, everyone understands his or her role in ERM implementation and feels involved in creating a consistent ERM culture. The involvement of key personnel builds upon the ERM mindset, using a common risk language to create a natural risk environment where ERM is accepted and well understood. Weak business ethics and risk culture can lead to lost opportunities, damaged reputation and declining share price (Buehler *et al* 2008; Brooks 2010).

The researcher emphasises that the Strategic ERM Alignment Framework supports the idea of simplicity in defining the ERM governance structure appropriate for each financial organisation. Managers should concentrate on determining what ERM structure is most appropriate for their organisation, then on how to align it across the organisation, measure its effectiveness and ensure enterprise-wide buy-in.

8.4.4 Step 4: Design ERM Framework as part of ERM Foundation

This section offers recommendations for implementing the ERM Framework component of the ERM Foundation pillar, which connects these critical internal elements: policy and framework; process; risk management tools and techniques; infrastructure; KRIs and KPIs. Each needs to be well understood, defined and aligned with the others within the foundation cycle.

ERM Foundation is presented in Chapter 4 (Section 4.3.3) as a critical component of a mature and dynamic ERM alignment that can support effective implementation across the organisation. Section 4.3.3 (Figure 4-5) outlines key principles of the design, specification, implementation and continuous monitoring of ERM Framework, adopted to facilitate efficient management of key enterprise-wide risks. As the element of risk management tools and techniques is the only new addition to the ERM Framework component shown in Figure 8-1, this section provides the relevant implementation guidance.

Firstly, the researcher recommends that management begins designing the ERM Framework by understanding key strategic risks and their impact on achieving organisational objectives. The overview of strategic key risks is a prerequisite to an active

ERM integrated into the business plan (Oldfield and Santomero 1997). Secondly, establishing the key policies around the ERM Framework becomes a reference point for the enterprise-wide risk standards followed by employees and therefore a platform for uniformity and transparency.

The researcher also notes that weak IT governance (i.e. risk infrastructure) potentially impedes considerably the ability to aggregate and report key enterprise-wide risks to the management and thus compromises its decision-making capacity. A well integrated enterprise risk infrastructure is one element of ERM Alignment which reduces operational vulnerability and strengthens risk reporting to senior management, facilitating risk-adjusted decisions (S&P 2005; SSG 2008; KPMG 2009).

Defining the most effective risk management tools and techniques to identify key enterprise-wide risks is an integral step in the development and implementation of ERM Alignment. Therefore, management should decide what tools are used across the organisation to achieve a set of objectives. Most financial organisations use specific tools at each stage of the risk management cycle, depending on which is considered most effective. For example, some organisations rely on risk checklists, others on risk databases.

The literature review found that managers have recently focused increasingly on improving the ability to identify, quantify, measure and monitor risks across the organisation. A robust method of identifying strategic risks and opportunities is essential in establishing effective risk management (Chapman 2011), while KRIs and KPIs must be identified in order to evaluate the ERM strategy effectively. These metrics become part of a periodic assessment of risk and return, helping to implement the monitoring processes. Key risk and performance indicators are important throughout all stages of implementation of the Strategic ERM Alignment Framework. They serve as valuable tools to create feedback loops between senior management, the business and other functional units. For example, risk and control self-assessment may allow better consideration of the extent to which routine and potential events could affect the ability to achieve goals and objectives.

As formulating a strong ERM Framework is central to the implementation of the ERM Alignment, this section also offers practical guidance on assessing key enterprise risks in the context of the strategic framework. Risk assessment is important, as it can indicate how enterprises evaluate the significance of key risks to the achievement of strategic goals,

which requires a risk assessment process that is practical, sustainable and easy to understand. Risk assessment should be structured in a disciplined fashion and be correctly tailored to the organisation's size, complexity and geographic reach. Risk assessment includes the analysis and evaluation of key risks and should provide qualitative and quantitative evaluation of the likelihood and impact of risks with the potential to impact management decisions. A number of widely recognised quantitative and qualitative risk assessment tools are summarised in Appendix G (Table G1).

The first step in risk assessment should be to develop a common set of assessment criteria that can be embedded across business, corporate and operational functions. Assessing risks consists of assigning values to each risk and opportunity using enterprise-specific criteria. Key elements of the process are to understand the probability of each risk or opportunity arising, to evaluate their impact on business objectives and to identify any risk interdependencies. It can be difficult for a large financial organisation to understand the correlation of risks, the combined effect they may have on decision making and the cost implications. Care should also be taken to avoid data input errors in statistical modelling or constructing formulas in spreadsheets, as these can significantly skew outputs.

As the results of the empirical study show, the participants strongly believed that key enterprise risks do not exist in isolation and that management needs to recognise the importance of managing risk interactions. Therefore, financial organisations gravitating toward a strategic enterprise view of risks should focus on assessing risk interactions and realise that this can cause great damage or create significant opportunity. Finally, even key enterprise risks need to be prioritised. Risk prioritisation determines risk management priorities by comparing the level of risk against predetermined target risk levels (risk appetite) and tolerance thresholds. Key findings of this process should be well documented and updated in the most current risk warehouse (i.e. risk register, inventory).

One of the most common qualitative tools that financial organisations use to assess risks is the risk map, a valuable and low cost risk visualisation tool which can be run in Excel, increasing risk transparency and facilitating prioritisation (Appendix G, Table G2).

In the financial industry, the ability to measure and systematically monitor key risks and their dynamics and intensity can be critical to ERM sustainability. Prioritising risks according to their frequency, severity and velocity is equally significant. The research

findings support the conclusion that various heat mapping tools, and risk impact and assessment matrices used to categorise key risks by magnitude, impact and likelihood of occurrence, directly affect the achievement of a strategic view of enterprise risks and can lead to better informed and risk-adjusted decisions.

Other common risk analysis techniques that can be used during the implementation of the Strategic ERM Alignment Framework are cause and effect analysis (to highlight the relation between the root cause of risk and its possible effects), decision analysis (to structure decisions and demonstrate potential issues), Pareto analysis (to focus efforts on risks that have the most detrimental effect on business objectives) and capital asset pricing model analysis (to relate the expected rate of return on an asset to its risk). The review of standard risk assessment tools lies outside the scope of this thesis. The researcher emphasises that it is the role of the management to determine the risk tools and techniques most appropriate to the organisational structure.

As the Strategic ERM Alignment Framework incorporates key findings of desk and field research, it emphasises that financial organisations should understand, define, align and communicate the critical principles of ERM at all stages of implementation. Providing the right level of risk education and training, supported by technology (interviews, workshops, risk sessions) and led by skilled ERM champions with experience of similar projects, can ensure that implementation is effective and accepted across the organisation. In order to be effective and sustainable, risk assessment must be simple, practical, easy to understand and supported by senior management (Towers Watson 2010; Paape and Speklé 2012).

8.4.5 Step 5: Define ERM Integration as part of ERM Foundation

The ERM Integration step involves establishing a strong enterprise-wide communication strategy that enables everybody to understand key strategic management objectives and strategies to achieve them. The researcher recommends that communication strategy be well planned and executed and in alignment with the risk education and training programmes. Dissemination of risk information to internal and external stakeholders (analysts, debt holders and shareholders) is critical to ERM. Decision makers rely on information on key risks to make strategic decisions. The key is to understand the risks that may materially impact any decision, which means that high-quality, timely information needs to be communicated between decision makers: directors, senior managers and risk

managers (Bansal 2003; APQC 2007; Rizzi 2010). Communication of risk strategy and structure is also essential and should therefore be designed using appropriate technology and language common to all stakeholders. Business leaders should be able to clearly demonstrate the ERM strategy as set by the BOD, to maximise the enterprise-wide value of the communication strategy.

At the same time, management should be responsible for ensuring that ERM practitioners have the necessary skills, knowledge and expertise to execute ERM principles accordingly. In some financial organisations, the CRO will be at the centre of the ERM structure and accountable to the CEO for aligning it with organisational performance, resulting in a business-aligned ERM process. Therefore, Step 5 focuses on embedding the ERM accountability and responsibilities defined within the risk boundaries in Step 2.

Whether ERM can drive sustainable change in a financial organisation depends on whether its managers can embed it into the existing organisational structure, aligning and integrating it within the existing business processes, along with the controls related to key risks. ERM activities should at this point of implementation also be included in job descriptions, incorporated into personal objectives, while risk education, training and learning programmes must align with the ERM principles outlined by senior management as a foundation of the enterprise-wide risk culture.

The researcher recommends that managers then determine how to move towards the appropriate risk response. Depending on the nature of the risks identified and assessed, various response strategies can be examined (accept as an opportunity, reduce, share, or avoid). Based on cost-benefit analyses performed, a response can be formulated and risk response plans developed. The risk plan should include the acceptance of key risk-business groups. The application of risk response is followed by dynamic risk monitoring. If new significant enterprise risks appear, the process returns to the beginning, that is, to the identification and definition of risks.

The researcher emphasises that management should understand the whole risk management cycle and actively participate in reviewing risks and in ensuring that their reporting is up-to-date. Risk transparency and other ERM Foundation factors were put in place to help management achieve timely and adequate risk responses and to identify a common ERM language to ensure that communication and feedback loops are in place

across the enterprise. Various risk response techniques can be applied to the process of ERM alignment, such as:

- Risk reassessment – Risks should be regularly monitored, controlled and reassessed in case of any emerging exposures or risk closures.
- Risk audits – The effectiveness of risk management processes and risk responses in dealing with identified risks and their root causes should be examined and documented on a regular basis.
- Variance and trend analysis – Planned results are compared with actual results to control and monitor risk events and to identify trends or deviations from them.
- Technical performance measurement – Objectives and targets defined through quantifiable measures of technical performance are compared to actual results.
- Reserve analysis – Contingency reserves (time and cost) are verified against the amount of remaining risk to determine if the reserves are sufficient.
- Status meetings – Frequent discussion of risk is essential to motivate people to identify risks and opportunities or advice regarding responses (Clarizen 2012).

Risk response is followed by the monitoring and controlling of key internal and external risk exposures. As Figure 8-1 shows, risk control, communication and monitoring are part of the risk management cycle. Managers tend to overlook this stage of implementation. The researcher argues that implementation does not end with integrating the enterprise risk framework and processes across the organisation. At this stage, it is critical that key internal and external risks are monitored regularly and reported to the management as necessary. Each stage of ERM implementation discussed throughout this chapter should be well monitored and dynamic to underpin the long-term sustainability and effectiveness of the framework.

The researcher's main observation regarding this stage of implementation is that it can be subjected to an organisation's risk culture, which is the way in which its management and personnel collectively perceive, react and respond to risk. According to the respondents in the present study, effective and sustainable ERM is usually supported by:

- Managers' realisation that risks exist and their willingness to manage them;

- Proactive involvement in looking for information on risk enterprise-wide and promoting regular risk debates;
- Establishing appropriate risk governance (risk management policies, processes, framework, structure and accountability).

Finally, Step 6 of implementation, determining the outputs of the Strategic ERM Alignment Framework, varies across organisations depending on their strategic priorities. Section 4.3.7 of Chapter 4 elaborated on key research conclusions, while Section 8.5 broadens the focus to key strengths.

8.5 Strengths of the ERM Alignment Framework

As noted in Chapter 2, the complex nature of risk management challenges researchers to develop a framework to capture and describe elements critical to ERM implementation. The results of the empirical investigation (Chapters 6 and 7) highlight the changes needed to the framework proposed in Chapter 4 in pursuit of the research aims declared in Chapter 1 (Section 1.5).

The resulting framework is intended as a practical tool for the finance industry and academia, to improve the understanding of the complexities of ERM, to identify the organisational factors critical to the strategic management of key risks and to improve competitiveness and long-term sustainability. This section examines the following key strengths of the Strategic ERM Alignment Framework:

- *Drawing together a body of academic and industry-based literature*

  The literature discussed in Chapter 2 demonstrates the breadth of subjects involved in ERM. The Framework has a solid theoretical and empirical foundation of literature and existing knowledge and utilises aspects of proven methods to explain strategic organisational ERM practices.
- *The construction of multiple interactions between ERM and various factors internal and external to the organisation*

  The Framework evolves dynamically with changes to the internal and external environments. Since it focuses on establishing the risk context along with the strategic direction taken by the organisation, it aims to increase shareholder value, competitiveness and sustainability over the long term.

- *Development of the Strategic ERM framework aligned with key organisational factors*

  Previous research and examinations of ERM focus primarily on specific aspects of ERM and their role in its implementation. As this research takes key themes from the ERM literature and investigates them empirically, the resulting Framework incorporates critical organisational aspects of ERM instrumental to its successful implementation.

- *Development of a strategic ERM framework that recognises the limitations of its internal and external environments*

  Many existing ERM or risk management frameworks and models depict an ideal world and do not work well in a stressed environment. In reality, all frameworks and models have their limitations that need to be recognised and integrated as dynamic elements.

This study recognises three core levels of output factors driven by the implementation of the Strategic ERM Alignment Framework, classified on the basis of the literature review into three groups: corporate, business and operational. These are discussed in detail in Section 4.2.5 (Figure 4-8).

The researcher believes that the strategic nature of the Strategic ERM Alignment Framework has the potential to provide organisations with a competitive edge. Searching for competitive advantage through ERM has been identified by various researchers as a main motivation for ERM adoption, as it can create a significant strategic advantage (Samuels 2005). Porter (1987) lists three strategies for creating competitive advantage: cost advantage, differentiation and focus. Depending on risk categories, there are four ways of achieving these advantages: business continuity, undertaking strategies riskier than competitors, excellence at daily business performance, and building a resilient market image.

The researcher claims that the proposed framework can minimise exposure to market volatility by early identification of external and internal risk factors, and increase interdepartmental coordination by abolishing risk silos and integrating ERM into core management activities. ERM alignment aims to improve risk transparency by introducing controls around key risks, designing a key risk and performance metric system to reinforce communication and escalation to senior management as part of risk oversight and decision

making. ERM alignment also works to build a strong risk culture, maintaining enterprise-wide resilience, which can result in creating value of some tangible financial impact, such as access to better financing, lowering transaction costs, improving business confidence, creating positive reflection in the stock price or attracting more customers.

8.6 Limitations of the ERM Alignment Framework

Throughout this research study, the researcher has analysed various aspects of the subject matter, the theoretical framework, the research methodology, the methods of data collection and analysis, and the selection of research samples. This section examines three most significant limitations of the Strategic ERM Alignment Framework:

- *The complexity of the Strategic ERM Alignment Framework*

  Given the complexity of ERM and the multiple interactions of various elements of the Strategic ERM Alignment Framework (Figure 8-1), the researcher understands that it may appear difficult to manage initially. However, the framework is intended for those who understand the principles of ERM and risk management, while the limitation may apply only to individuals who are unfamiliar with the complexity of ERM. As later highlighted in Section 9.5, this limitation can be mitigated by undertaking future research to simplify the framework following its practical application.

- *The emphasis upon a specific sector, i.e. finance industry*

  The Strategic ERM Alignment Framework (Figure 8-1) addresses the concerns and characteristics of organisations operating in the financial sector and applies the research findings specifically to this industry.

- *Strategic ERM Alignment Framework limited to the context of financial organisations*

  Even though the researcher presented the Strategic ERM Alignment Framework mainly in the context of financial organisations, further research opportunities could extend across non-financial organisational. This would allow examining the strengths and potential change of the relationships of certain elements of the framework depending on the organisational direction and business focus.

The limitations of the Strategic ERM Alignment Framework outlined in this section were recognised by the researcher as a foundation for the future research opportunities addressed in Section 9.5, Chapter 9.

8.7 Conclusion

This chapter has aligned the findings of the theoretical (Chapters 2, 3, 4) and empirical research (Chapters 6 and 7). A number of key themes from the research and existing knowledge were discussed, along with the variety of risk paradigms across the financial industry. This discussion indicates that with adequate senior management support, ERM can initiate necessary changes in how financial organisations manage key risks.

The data analysis presented in Chapters 6 and 7 supports the conclusion that ERM can help management to make more informed and risk-adjusted decisions. The results are also indicative of ERM gradually transforming from an internal control-based approach assuming compliance with regulatory requirements to one with more strategic value to the enterprise.

However, the field study (Chapters 6 and 7) confirmed that there is no universal approach to ERM that can be applied to any financial organisation. The empirical analysis showed that various internal and external factors affect the implementation of an ERM strategy. Drawing on the theoretical framework proposed in Chapter 4 (Figure 4-2), this chapter has discussed the internal and external factors influencing financial organisations in the context of ERM adoption and implementation.

Key factors affecting ERM implementation, as discussed in Chapters 3, 6 and 7, are: senior managers' support for ERM, developing an enterprise risk culture and the strategic alignment of ERM with critical organisational factors. Based on the literature contributions reviewed in Chapter 2 (Sections 2.3, 2.4 and 2.5) and the results of the empirical analysis (Chapters 6 and 7), the researcher has identified a range of challenges to the sustainable implementation of ERM. The research concluded that key internal and external organisational factors interconnect with one another and affect the way ERM is implemented across various financial organisations.

Among the greatest challenges to a sustainable ERM implementation are: enterprise-wide support and buy-in, understanding how it can be aligned with organisational strategies and objectives, developing a risk culture that supports the ERM initiative and relating it to the value generating potential of ERM. The next chapter presents the research conclusions and recommendations in further detail.

9 Chapter Nine: Conclusions and recommendations

9.1 Introduction

In this chapter the researcher discusses the research contributions, demonstrates that the aims and objectives have been met and the research questions answered, then draws conclusions from the findings, thus demonstrating how this research responds to the need for more studies of ERM expressed by both academics and the finance industry Power 2009) and addresses the research gap identified in Chapter 3.

This chapter starts with a review of the aims, objectives and research questions in light of the main findings. Section 9.3 discuses the limitations of the research and Section 9.4 its contributions to knowledge and literature. The researcher offers recommendations for future research in Section 9.5, then in Section 9.6 draws conclusions from the findings and offers practical recommendations on the implementation of the Strategic ERM Alignment Framework to the financial sector and academic community.

9.2 Aims, objectives and research questions

This section reviews the aims, objectives and research questions presented in Chapter 1 (Sections 1.4, 1.5, 1.6) to demonstrate that they have been achieved. The overall research aims are:

1. To develop a strategic ERM alignment framework that addresses key shortcomings of existing ERM practices in the financial industry.
2. To provide practical guidance for implementation of the Strategic ERM Alignment Framework to academia and the finance industry.

Both aims have been achieved. The literature review (Chapters 2 and 3) identified a plethora of academic and industry-based contributions that provided a number of key elements within the finance industry. This allowed a discussion of published research on ERM and provided a good theoretical and empirical foundation for the framework developed in Chapter 4. The development of the theoretical strategic ERM Alignment Framework (Figure 4-2) builds on the literature gap, showing an understanding of various ERM themes and drivers that directly influence its design, adoption and implementation. Additionally, Figure 8-1 presented in Chapter 8, reflects the findings of the empirical

study, and provides the step-by-step ERM implementation guidelines for the finance industry and scholars.

The researcher set six more detailed research objectives:

1. To investigate the academic and industry-based research literature and to analyse existing ERM approaches in the finance industry.
2. To identify key strengths and weaknesses of the existing ERM approaches and frameworks in the finance sector identified in the literature review.
3. To identify the ERM literature gap.
4. To investigate the role and importance of enterprise risk culture in ERM implementation
5. To validate the Strategic ERM Alignment Framework, its potential benefits and limitations, as part of a field study.

Chapters 2 and 3 provided an in-depth review of existing knowledge, theories and key research contributions related to the research area. A variety of risk and ERM standards, guidelines and models were analysed and the applicable elements were reflected the development of the theoretical Strategic ERM Alignment Framework.

The Framework (Chapter 4, Figure 4-2) was developed through the theoretical phase of the research (Chapters 2, 3 and 4). The Strategic ERM Alignment Framework evolved through the empirical field study, as reported in Chapters 6 and 7, concentrating on identifying and validating key factors internal and external to the enterprise and instrumental to ERM implementation, and on aligning ERM with the existing organisational structure. Therefore, the theoretical Strategic ERM Alignment Framework has transformed into a validated strategic management tool for practical application in the finance sector (Figure 8-1).

The aims and objectives of the research have been pursued by addressing the five research questions stated in Chapter 1, Section 1.7. These are now divided into two groups and discussed in detail in the following subsections.

9.2.1 Research questions related to general ERM research

The first two research questions address the current state of ERM and its level of maturity in the finance industry in the context of transitioning from a silo approach to a more strategic view of risk.

1. How do financial organisations transition from their traditional silo risk approach to ERM?

To address this first question, which concerns the evolution of risk management over the last two decades, the researcher first reviewed the existing literature, as reported in Chapter 2. Until the early 2000s, most researchers focused primarily on the similarities between risk management, internal audit and corporate governance (COSO 1992; Committee on the Financial Aspects of Corporate Governance 1992; Spira 2002; Spira and Page 2004; Carpenter 2004; Beasley *et al* 2008a). The researcher therefore began by analysing the range of changes in perceptions of risk management since the 1960s (Figure 2-1).

Having evaluated various definitions of ERM, the researcher identified a fundamental transformation since the 1990s in the description, attributes and outcomes of risk. Risk management was seen to have evolved from a compliance-driven risk governance model towards a finance-driven shareholder value approach (Shimpi 2005; Kaplan 2009; Pagach and Warr 2011; Fox 2012). Chapter 2 highlights the significance of changes triggered by the increased complexity of the internal and external environments that organisations now operate in. The theoretical investigation includes an analysis of the strengths and weaknesses of some globally acclaimed risk frameworks and standards (COSO, ISO, AS/NZS) as presented in Chapter 2, Section 2.2.

Literature on the evolution of risk management into ERM shows that the view of enterprise risk has become a "crucial component of contemporary corporate governance reforms" (Mikes and Kaplan 2013). The researcher agrees with the view that the recent growth in interest in ERM has been driven by pressure from shareholders, regulators and credit agencies, which are introducing ERM as part of their review of credit ratings. Analysis of the literature also suggests that ERM needs a more interdisciplinary focus (Power 2009).

The qualitative analysis of empirical data reveals that the majority of interviewees observed increased interest in ERM, but that in many financial organisations, it was still in an early stage of development. The research outcomes corroborate the theoretical and empirical deliberations of the academic and industry practitioners discussed in Chapters 2 and 3. Furthermore, the findings of the qualitative interviews indicate that that transition to ERM can be facilitated through enterprise-wide buy-in (77 percent), strong enterprise risk culture, awareness and mindset (74 percent) and increased integration of processes and communication across the silos to bring them together (71 percent).

While believing that a silo perception of risk can be transitioned into ERM, interviewees stated that this must be an enterprise-wide effort, a core strategic objective and part of the business model. ERM should align with the organisational vision and integrated into strategic planning and ultimately into strategic decisions. "Breaking down the risk silos" remains a key ERM challenge. People presently operating within risk silos must communicate and collaborate to achieve a truly enterprise view of risk management.

The results of the quantitative research surveys presented in Chapter 7 revealed that only a quarter of respondents described the current state of ERM in their organisation as comprehensive. Approximately one-third of the financial organisations surveyed had not yet adopted ERM and that in those which had, it was still at the beginning of its development. As confirmed in Chapter 7, only 10 percent stated that the level of ERM maturity in their organisation could be categorised as "strategic", while a quarter of those surveyed considered it either "established" or "embedded". Interviewees also consistently reported the level of ERM maturity in financial organisations to be fairly low, consistent with the findings of the literature review and of the qualitative data analysis.

The second research question addresses changes to the existing approaches to managing risk as a direct result of the GFC, to determine whether there was a change in how risk was viewed and managed before and after the crisis.

2. How did financial organisations change their existing approach to managing risk since the GFC?

The world has changed irrevocably (Anderson 2008) and risk management has been developing in financial organisations for the last two decades (Power 2009; Mikes 2009b)

accelerated by regulators' and market participants' ambition to understand and eliminate uncertainty. Today's reality is much riskier and therefore more uncertain than a couple of decades ago. Slowly, over the last few years, senior executives' understanding of ERM has started to change. Senior management now realise that unless risk is well understood as part of an alignment with strategic objectives to identify potential downsides along with future market opportunities, its voice will be lost in the organisational structure and therefore become obsolete (Frigo and Anderson 2011).

In Chapter 2, the researcher presented case studies of both successful and failed ERM implementation, to address the gap in research on practical ERM implementation guidance. Early ERM research focused more on finding connections between the complementary nature of ERM and internal audit (Lam 2003; Power 2004a; Banham 2004; Barton *et al* 2002). Arena *et al* (2010) categorise ERM as one of the self-regulating approaches emerging in the 1990s.

While ERM may have started in the field of internal controls, it has become a managerial way of thinking about "the achievement of entity objectives" (COSO 2004, p.2). However, in the last decade, researchers have increasingly focused on value creation through ERM, seeking to quantify the value added by implementing ERM through a cost-benefit approach (Cappelletti 2009). Other researchers have asked how ERM can help organisations to achieve strategic goals through performance metrics (Killackey 2008; Kaplan 2009). Rao and Marie (2007) provide survey evidence of a weak relationship between ERM and strategy, concentrating on KPIs and KRIs (Mestchian and Cokins 2006; Lam 2007).

Lam (2006) argued that ERM can act as a systematic process to optimise risk-adjusted profitability, while Kleffner *et al* (2003) have shown ERM adoption to be driven by the influence of the risk manager and senior management support. Banham's (2004) research, discussed in Chapter 2 (Section 2.2), gives an account of ERM transformation in Capital One. The Capital One case study is an example of where a CRO was responsible for the ERM team, for defining risk methodologies and for setting uniform enterprise-wide risk reporting standards to enable communication between business groups and the ERM team.

As part of the change in current risk approaches, financial organisations have begun to see ERM as a source of significant value contributing to long-term sustainability and competitive advantage (KPMG 2011; Paape and Speklé 2012). The researchers have linked

the concept of sustainability required for generating long-term ERM value with building a strong and consistent enterprise risk culture as a means to achieve it (Fraser and Simkins 2007; AON 2007; Power 2009; Ashby *et al* 2012; IRM 2012*;* Althonayan *et al* 2013).

The data analysis presented in Chapters 6 and 7 shows the majority (92 percent) of participants observed that financial organisations aim in some way to improve their ERM processes in the post-GFC environment. Nearly half of interviewees affirmed that changes to ERM were driven mainly by regulatory pressures. Approximately a third agreed that financial organisations have moved slowly towards the alignment of isolated risk processes and activities across the silo structure and shifted their risk culture to achieve a better alignment of risk and capital management. Improved risk oversight and appointing a CRO were also considered important in the process of ERM change.

9.2.2 Research questions regarding the Strategic ERM Alignment Framework

The literature reviewed in Chapters 2 and 3 concentrates mainly on specific aspects of ERM. As discussed in Chapter 3, Section 3.1, previous research lacks an empirical perspective on establishing strategic ERM that can drive up organisational value, improve business performance and ensure long-term sustainability.

The remaining three research questions were therefore intended to provide a foundation for the Strategic ERM Alignment Framework (Chapter 8, Figure 8-1) and for a prescriptive set of recommendations on its implementation. The researcher has attempted to identify key critical determinants to create the strategic framework that industry and the academic community need.

3. What are the key organisational factors critical to strategic ERM implementation and how to incorporate those into the Strategic ERM Alignment Framework?

The above question deals with the importance of key organisational factors in both internal and external contexts around the Strategic ERM Alignment Framework (Figure 8-1). In order to address those, after critically evaluating the relevant literature contributions, the researcher performed the qualitative and quantitative data analyses reported in Chapters 6 and 7 respectively. The qualitative analysis reveals that the factors rated as most critical to strategic ERM alignment were: 1) alignment of ERM with core strategies and objectives,

2) enterprise risk culture and 3) risk appetite and tolerance. These results are consistent with the secondary research findings discussed in Chapters 2 and 3.

Other factors perceived as important in determining the effective implementation of strategic ERM were enterprise risk governance, risk framework, risk and performance measures (KRIs & KPIs), appointing the CRO and risk committees, and monitoring changes in the internal and external environments. The researcher concludes that while almost every academic researcher investigating ERM has examined some of these factors, the literature lacks a comprehensive overview of their adequate evaluation (Beasley *et al* 2005; Lam 2007; Beasley *et al* 2008b).

The quantitative analysis showed that nearly three-quarters of respondents believed senior management support to be essential to establishing a strategic ERM framework, while approximately 60 percent felt that the ERM framework, alignment with core organisational strategies and key objectives were also important in developing a strategic ERM alignment. More than half of participants said that a consistent enterprise risk culture and risk awareness (54 percent), and strong risk management process, tools and techniques (52 percent) can build on ERM effectiveness and help to transition it towards a more strategic approach.

The empirical findings are consistent with the contributions of various industry and academic researchers. As discussed in Chapter 2, the strongest concerns reported in the research literature were gaining the support of senior management, developing the right customised ERM framework. Embedded in the organisation and aligned with its strategies and objectives, and developing a risk culture to support ERM were also considered essential (Gates 2006; Frigo 2008; Jaffer 2010; Rizzi 2010; Ashby *et al* 2010; Power 2011; Mikes 2011; Mikes and Kaplan 2013).

The researcher considers this third research question a cornerstone of this study, eliciting rich qualitative descriptions supported by the quantitative analysis. Collecting and analysing qualitative and quantitative data provided an empirical foundation for the Strategic ERM Alignment Framework.

The fourth research question addresses several critical aspects of ERM implementation. In order to gather the empirical evidence to answer it, the researcher composed specific interview and survey questions.

4. How can ERM achieve long-term sustainability, enhance shareholder value and drive competitive advantage?

Section III of the interviews and the survey thus address the development of the Strategic ERM Alignment Framework (Figure 8-1), as discussed in Chapter 6 (Section 6.2.3) and Chapter 7 (Section 7.2.3). Participants in both interviews and surveys were asked about the role of ERM in achieving long-term sustainability, the specific benefits of ERM, drivers of ERM value, the importance of ERM in board-level risk oversight and the major challenges related to the ERM lifecycle.

A key finding was that interviewees identified three main drivers of long-term ERM sustainability: an enterprise-wide culture that supports ERM (including buy-in), adequate senior management support and sponsorship, and the ability to demonstrate to key stakeholders how ERM generates value. The qualitative analysis also showed that ERM practitioners had learned from experience that ERM could generate value and drive competitive advantage in a number of ways, depending on organisational strategies and objectives set by the management.

The researcher concludes the ERM research requires more empirical evidence on how the value generated by ERM can be measured. ERM practitioners across the financial sector need to share their experiences (positive and negative) and collaborate with the academic community. Given the significant investment in ERM, the accounts of ERM implementation may help other financial organisations in making adoption decisions and determining what financial value can be generated as a direct or indirect result of ERM. The researcher agrees that being be able to quantify the value of ERM and communicate it to stakeholders is challenging but critical.

Some of the major challenges to ERM, outlined in the literature review (Chapter 2) and corroborated by the analysis of interview data (Chapter 6), are lack of support and involvement by senior management and an insufficiently dynamic enterprise risk culture.

Finally, participants noted the increasing importance of board-level risk oversight and significant room for improvement in this area.

The analysis of quantitative data presented in Chapter 7 supports the finding that any ERM initiative in a financial organisation needs the support of senior management and the board at the outset. The survey respondents considered ERM a strategic initiative which, with senior management buy-in, can become a source of value creation and competitive advantage. The factors underpinning the construction of a strategic and sustainable ERM framework are developing an enterprise risk culture and aligning ERM with core organisational strategies and key objectives. These findings are consistent with those of the qualitative phase of the study and with the research literature on ERM. Among the outcomes listed as key benefits of ERM implementation are well-informed, risk-adjusted decisions, achieving a strategic view of key risks and developing a more dynamic risk culture. However, the literature review suggests that even where managers are conceptually convinced of the benefits of ERM, it is often difficult to translate the concept into practical application and to implement the fundamental principles of ERM within existing processes and functions.

The final research question was intended to promote understanding of the critical link between the enterprise risk culture and the process of adopting ERM.

5. How important is the role of enterprise risk culture in ERM implementation?

In order to address the above question, the researcher undertook a review of research contributions on ERM culture (Chapter 3, Table 3-4), whose results could be compared with those of the empirical investigations reported in Chapters 6 and 7.

From an academic point of view, the literature offers little discussion of the practical side of developing an enterprise risk culture to support ERM implementation. ERM topic appears to have been under-researched, as the literature shows few attempts to measure the impact of enterprise risk culture on ERM implementation over time. The literature review does provide sufficient evidence, however, to conclude that enterprise risk culture is a critical element of ERM and that without a strong cultural foundation, it is difficult to fully capitalise on ERM's potential benefits (RMA 2006; Gates *et al* 2009). Moreover, as the empirical evidence obtained in this study supports the view that risk culture is of critical

importance to ERM implementation, the researcher aims to continue to research this aspect of ERM in the future.

9.3 Limitations of the research

Throughout this research study, the researcher has analysed various aspects of the subject matter, the theoretical framework, the research methodology, the methods of data collection and analysis, and the selection of research samples. This section identifies three key limitations to this research, based on the researcher's knowledge of the subject, the availability of resources such as time, effort, and access to information and skills.

- *Confining the fieldwork to financial organisations*

  The empirical investigation was limited to participants having worked for financial organisations. In order to minimise the effect of this limitation, the researcher selected for the interview sample senior managers with extensive experience in ERM, both as ERM managers and as advisers to financial organisations.

- *Qualitative case study as a research strategy*

  According to Silverman (2001), qualitative research carries the potential for bias in the way that interviewees and interviewers interpret social reality. The researcher mitigated the risk of bias by using mixed methods to collect and analyse data, thus avoiding the shortcomings of using semi-structured interviews alone.

- *Limited sample size*

  This research is based on 35 interviews and 115 survey questionnaires. However, the nature of the financial industry, in which the study was undertaken, and the high profile of the people interviewed justify this relatively small sample size

As discussed in Chapter 5, Section 5.9, the researcher attempted to enhance the quality of this interpretive research by ensuring the validity and reliability of the findings. Using multiple sources of empirical data provided various measures of the phenomenon under study. Utilising an interview guide and the debriefing technique set the tone of the interviews and allowed verification of the results. Furthermore, the interview agenda was prepared on a sound theoretical foundation, ensuring that relevant data was collected, improving the credibility of the findings.

The internal validity of the findings was also strengthened by the use of purposive sampling, intended to maximise the variability of the sample and to achieve meaningful analysis of both qualitative and quantitative datasets, through coding procedures. Thus, purposive sampling facilitated the identification of patterns across organisations, enhancing the reliability of the findings.

Notwithstanding the limitations outlined in this study has examined critical ERM patterns and themes related to its effective and strategic implementation. The data analysis has helped to capture and validate key ERM characteristics, idiosyncrasies and commonalities and to identify specific patterns and concepts. While accepting that the research was conducted in the specific context of the financial sector, the researcher asserts that it is possible to adopt the Strategic ERM Alignment Framework in other organisations across other sectors (i.e. assuming the management considered the individual organisational structure and customises the framework appropriately).

9.4 Contributions to knowledge and the literature

This section discusses key contributions to the literature and to knowledge made by this research. Its first valuable contribution to knowledge is its in-depth review of various concepts and themes around ERM, supported by a thorough review of the academic literature and reports of practitioners in the field, and by the researcher's recognition of the impact of external and internal drivers on the adoption and implementation of strategic ERM. To the best of the researcher's knowledge, this is one of the few studies specific to the finance industry which has investigated key organisational factors that can be detrimental to sustainable ERM implementation, while seeking to explain the evolutionary change towards ERM over the last two decades. As discussed in Chapter 3, this research has identified a gap in the literature on ERM which, to the researcher's best knowledge, has not been empirically addressed in prior studies to such a broad extent.

Secondly, this research makes a considerable contribution to literature by its development of a strategic ERM alignment framework for the financial industry. This framework is considered unique in a number of ways, being designed to provide a clear understanding of naturally complex interactions of internal and external factors that will influence each organisation differently, all in the context of effectively managing key risks.

The sample selected for the interviews comprised 35 senior managers who were considered well informed and familiar with theoretical and practical aspects of ERM. The empirical evidence gathered from these interviews was complemented by the insights of 115 participants representing various financial organisations, mostly of global presence (Chapter 6, Table 6-1). While carrying out this study, the researcher concluded that established ERM practices vary across financial organisations and usually rely on a highly customised framework and risk policies consistent with the structure and strategic objectives of each organisation. This has also been observed in the literature, as noted in Chapters 2 and 3 (Mikes 2005; 2009; Woods 2011; Ashby *et al* 2012).

This research contributes to a better understanding of the role and importance of ERM in financial organisations. It highlights the key drivers of ERM, in the context of the benefits and challenges of implementation, offering prescriptive guidance on how it can be achieved. This is based not only on the theoretical and empirical investigations performed as part of this study but also on the researcher's years of professional experience in risk management in the finance sector. The study thus contributes to the literature by combining qualitative and quantitative research methods. Table 9-1 summarises the key contributions of this research.

Table 9-1 Summary of research contributions

Contributions	Description	Chapter/Figure
Literature review	Evaluation of academic contributions	Chapters 2, 3 and 4
	Evaluation of industry contributions	
	ERM Alignment Framework with business strategy and information systems	Chapter 2, Figure 2-7
	ERM Culture Alignment Framework	Chapter 2, Figure 2-10
	Research gap	Chapter 3
Development of the Theoretical ERM Alignment Framework	Theoretical Strategic ERM Alignment Framework	Chapter 4, Figure 4-2
	Key elements of enterprise risk culture	Chapter 4, Figure 4-4
	ERM Framework	Chapter 4, Figure 4-5
	Aligning ERM, organisational objectives and strategic planning	Chapter 4, Figure 4-7
	Outputs of ERM Alignment Framework	Chapter 4, Figure 4-8
Research methodology	Mixed-method research design	Chapter 5
Empirical findings	Qualitative research	Chapter 6
	Quantitative research	Chapter 7
Validation of the ERM Alignment Framework	Strategic ERM Alignment Framework	Chapter 8, Figure 8-1
Practical guidelines	Practical guidelines for implementation of the Strategic ERM Alignment Framework	Chapter 8

Finally, most empirical academic research into ERM has taken the limited form of quantitative surveys of specific aspects of ERM, tending to overlook the value of rich descriptions of social, cultural and political contexts offered by qualitative research. The researcher perceives the ERM field as highly heterogeneous, so that obtaining a good understanding of its nature requires familiarisation with the historical, organisational and external contexts. Therefore, the methodological approach to the present research on ERM involves the use of multiple methods of data collection and analysis.

9.5 Recommendations for future research

The literature review has identified a need for further research into ERM in financial organisations by revealing that most published research addresses ERM implementation from the theoretical viewpoint, unsupported by empirical data (Liebenberg and Hoyt 2003). For example, most previous research lacks empirical evidence on whether ERM implementation in financial institutions drives value (Smithson 1998; Belmont 2004; Shimpi 1999; 2005; Beasley and Frigo 2007; Manab *et al* 2010; Manab and Ghazali 2013), improves risk-based decision making, supports strategic decision making (Lam 2006), develops communications (Hoyt and Liebenberg 2011) or reduces volatility in external capital, stock prices and earnings (Meulbroek 2002b; Beasley *et al* 2008a). The findings of the present study, being exploratory in nature, provide a starting point for further research into a number of themes and topics related to ERM, within and beyond the finance industry. The first recommendation is for further development of the Strategic ERM Alignment Framework; future research should investigate its implementation in a sector other than finance, via the case study of a utility company, an airline, a healthcare body or an enterprise in the manufacturing sector, for example. This would provide data on how the implementation of the framework might vary across organisations and sectors. It would also help to identify to what extent specific organisational factors affect the process of embedding the Strategic ERM Alignment Framework within diverse internal and external environments.

The methodology of future research into this topic could be more quantitative in nature, extended to a larger sample population in order to achieve greater generalisability of the findings. Additionally, such research might result in the simplification of the model, both visually and structurally.

The researcher recommends that future research should focus on intangible elements and qualities of ERM that are important to the Alignment Framework, such as developing a strong and consistent enterprise risk culture, or investigating how the framework can add value to the organisation. As the ERM field is rapidly developing, researchers should also continue to seek and introduce new relevant elements and contexts to the existing framework. Further research is recommended to measure (and where possible quantify) the value associated with all aspects of ERM, its potential benefits, challenges to it and its limitations, so that the shortcomings can be more easily surmounted.

Lastly, future researchers may choose to examine specific factors affecting the Strategic ERM Alignment Framework, seeking a better understanding of the impacts that individual framework elements have on its overall implementation and potential future enhancements.

9.6 Conclusions

A number of conclusions can be drawn from this research and are summarised in this section. Based on the literature review, the researcher concludes that ERM has been under-researched and that little research has been completed in recent years relating exclusively to ERM in the financial industry. Generic research that addresses various management issues is more prevalent.

The researcher has found that defining ERM is still a widespread issue among various financial organisations. Senior managers find it difficult to understand what ERM means for their organisation, how it can be integrated within the existing organisational structure and how to create a risk culture that would support a sustainable ERM implementation.

This research has revealed that a silo mentality is deeply embedded among risk practitioners in the financial sector, hence the emphasis throughout this research that before embarking on the ERM journey, financial organisations should first attempt to break down the risk silos and integrate core risk processes, standards and activities across key business functions. Successful ERM implementation depends on enterprise-wide cooperation among key business, risk and operational functions to drive gradual transformation in various ERM contexts.

To the best of the researcher’s knowledge, there has been little academic research to date into the concept of developing a strategic alignment of ERM with key organisational

factors, taking account of both internal and external contexts. Each industry seems to focus on specific ERM topics, but since there are some commonalities in the process, collaboration would allow the academic and industrial communities to share valuable lessons and experience.

When approaching risk management at a strategic level, it is crucial to begin by establishing the internal and external contexts. By addressing various organisational factors, management begins to understand the risk context and align it with the strategic direction of the organisation. Based upon the findings of this study, more research is needed into ERM.

There are few empirical academic studies seeking to explain the impact of the GFC on the finance sector in the context of transitioning from risk silos towards ERM. There is little evidence of what the key drivers of value-adding best practice ERM are, or how they can be measured effectively. There is poor understanding of what benefits ERM can drive in the long term and how to measure ERM-driven value effectively. The researcher believes that future research collaboration between scholars and industry practitioners might lead to valuable contributions to the ERM literature.

Whilst a number of tools exist to identify, assess or measure key risks, the researcher concludes that the greatest remaining challenges to the finance industry include the correct categorisation of risk and combining qualitative expertise with quantitative modelling. There is an evident need for a framework capable of examining an organisational strategic-level approach to ERM that would drive sustainable value and improve competitiveness.

The researcher appreciates the highly complex and volatile nature of the many internal and external issues that remain likely to affect the development of ERM. As a result, risk professionals will continue to face challenges in understanding the interrelation of various risks across the portfolio, as well as their interactions across enterprise-wide functions. The researcher believes that if industry practitioners can identify the factors that affect ERM implementation and quantify these effects, their focus can be directed towards addressing risk issues and their mitigation.

Similarly, this research has shown that senior managers across financial organisations still find it difficult to understand the concept of ERM from a more qualitative perspective. The

traditional view of risk as hazard prevails, while the financial industry still perceives ERM as driven mainly by compliance and regulatory requirements. In addition, the global standards related to ERM can bias the view that organisations take of its development and implementation. Consequently, managers often overlook its potential as a strategic tool capable of capitalising on opportunities to generate value or driving competitiveness through reduced cost, risk-based decisions, risk-adjusted capital management and a strategic view of key enterprise risks.

The researcher recognises that there is still poor understanding of the importance of the alignment of ERM with objectives, strategic planning and execution. As a consequence, financial organisations struggle to identify key risks and to incorporate them into strategy setting. Another challenge revealed in the course of this research is an inadequate understanding of how to define and measure risk appetite and tolerances levels, leading to the inability to align ERM and strategy with decision-making.

Another conclusion to be drawn from the research is that corporate risk governance is vital to support an ERM initiative. Organisational policies and procedures around ERM can be detrimental to effective risk management. If they do not accurately reflect organisational capabilities, such policies may contribute to a subverted risk culture that conflicts with organisational strategies and objectives, running the risk of miscommunication or misinterpretation of what ERM aims to change. The research also indicates that financial organisations often face the challenge of aggregating risk data appropriately. Inadequate data quality and fragmented risk architecture are considered among the key causes of ineffective risk reporting to senior management.

Thus, appointing senior risk champions to act as subject matter experts who promote the ERM initiative is essential to robust risk governance. Risk ownership and accountability need to be well-defined and extended to all levels. Establishing the right risk structure helps the enterprise to define its best-practice approach to ERM. In order to demonstrate a level of strategic consistency and credibility, senior management must overcome the tendency to dismiss the importance of the CRO, risk committees or risk champions. Another observation of the researcher is the reliance of senior management on tangible outputs such as reports or plans, rather than a continuous process of embedding ERM into the organisational culture and structure over time. Most financial organisations should

continue work towards enhancing their corporate governance and ensuring appropriate alignment within the ERM programme.

There is a systematic deficit of ERM expertise in the field. Research participants raised concern that there is a visible lack of in-house ERM subject matter experts who can offer practical guidelines throughout the implementation process. Lack of ERM expertise is also notable in the inability to align risk appetite, organisational objectives and strategies. Consequently, too little recognised training and education certification is offered by professional bodies to support the steady growth in the number of ERM practitioners.

Most financial organisations admit that a lack of available in-house ERM expertise forces them to resort to management consultancies offering advice and oversight of ERM implementation. Organisations lacking sufficient resources to oversee the whole ERM adoption process often face sizeable challenges that significantly limit the effectiveness of implementation, which is also affected by the lack of clear ERM implementation guidance and expertise on how to resolve potential ERM issues. Finally, allocating risk resources appropriately remains difficult.

Although financial organisations have made some improvements in the management of key risks post-GFC, these have not been robust enough to produce the change the financial industry needs. ERM is still at early stage of development and risk management remains hampered by an embedded silo mindset. Whilst there are past examples of errant risk behaviours, overconfidence often results in senior managers under-appreciating the significance of historical failures and what lessons can be learnt. Another worry is poor understanding of key factors contributing to the GFC crisis and the importance of changes to risk management.

The researcher concludes that it is essential to develop a consistent enterprise risk culture that supports ERM, which is a challenging task for every organisation. Senior management must focus on breaking down the natural reluctance to communicate bad news. Developing an enterprise risk awareness and mindset that encourages upward and downward disclosure of key risks is critical to robust communication, cooperation, and ultimately, risk-adjusted decisions made by the leadership.

Finally, senior management support for ERM is also at an early stage of development. Recent research shows that interest in ERM increased after the GFC, but that inadequate senior-level involvement is still evident across financial organisations. The finance industry still lacks robust corporate governance aligned with risk appetite, leading to difficulties in defining and measuring risk appetite. Deficient risk skill sets in the boardroom, along with a lack of clarity regarding the scope of responsibilities and the structure of the board's risk oversight, have been found to affect the management's ability to benefit from a regular and meaningful risk dialogue. The researcher concludes that the future progression of ERM depends critically on continued training, learning and education, along with the increased involvement of senior management in ERM development.

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Appendix A Qualitative data analysis (interviews)

Appendix Table A 1

No	Geographical area of operation	Frequency	Relative Frequency
1	Global	20	57%
2	North America	7	20%
3	EMEA	6	17%
4	Asia Pacific	2	6%
Total		**35**	**100%**

Appendix Table A 2

No	Financial industry sector	Frequency	Relative Frequency
1	Management Consultancy	21	60%
2	Other	6	17%
3	Insurance	4	11%
4	Bank	3	9%
5	Fund	1	3%
Total		**35**	**100%**

Appendix Table A 3

No	Organisation size (No. Employee)	Frequency	Relative Frequency
1	Under 1000	21	60%
2	Between 1,000 and 10,000	11	31%
3	More than 50,000	2	6%
4	Between 10,000 and 50,000	1	3%
	Total	**35**	100%

Appendix Table A 4

No	Organisational Area	Frequency	Relative Frequency
1	ERM	33	94%
2	Risk management	2	6%
	Total	**35**	100%

Appendix Table A 5

No	Participants' experience	Frequency	Relative Frequency
1	Between 10 and 20 years	21	60%
2	More than 20 years	14	40%
	Total	**35**	100%

Appendix Table A 6

No	Seniority Level	Frequency	Relative Frequency
1	Senior Management	25	71%
2	C-Suite	6	17%
3	Middle Management	2	6%
4	Associate Partner	1	3%
5	Board of Directors	1	3%
Total		**35**	**100%**

Appendix Table A7 Overview of variable ERMSTATE1 (interviews)

Overview of variable ERMSTATE1 - research interviews					
No	**Yes (Y)**	**No (N)**	**Partially (P)**	**What has improved?**	**What needs further improvement?**
1		N		Currently, most banks set up ERM as regulatory mandate but have a limited ability to integrate the various risk silos. Basel requirements may help reduce this problem of 'silo' risk management and enforce banks to take a more holistic risk approach.	Senior management buy- in Support from the board Regulatory compliance Demonstrating the ERM value to key stakeholders
2	Y			ERM needs to become an enterprise-wide effort and a part of the core strategic objectives and the business model. It gets aligned with the organisational vision, and integrated into the strategic planning (and therefore strategic decisions).	Senior management buy- in Support from the board Group ERM Committees structure Strong enterprise risk culture, awareness and mindset
3		N		Each risk 'silo' should have a clear risk structure that outlines risk responsibilities regarding risk reporting and managing. Risk information from each silo needs to then be reported to a "central risk hub" (i.e. ERM committee), which existence is critical in every organisation.	ERM Committees
4	Y			The board involvement is critical for a high level restructuring of how risk management is organised. ERM must be driven along the lines of both organisational strategies and objectives to increase the shareholders value and optimising the returns.	Senior management buy- in Support from the board
5	Y			Silo' risk management is still a prevalent risk approach in most financial organisations. Consistent risk methodology and effective enterprise communication is critical for a well functional ERM.	Senior management buy- in Support from the board Enterprise-wide communication
6		N		Financial organisations tend to misjudge the level of risk maturity that applies to them. 'Silo' risk structure is still supported by the lack of strong risk culture, people choosing not to share relevant risk information. Lack of frank exchange of critical information is an issue.	Strong enterprise risk culture, awareness and mindset
7			P	The main problem of 'silo' risk structure is the fact people within the 'silos' focus on optimising risk rather than seeing it as a part of an enterprise risk effort. Various risk elements are inter-correlated and depends on one another and often cannot be considered in separation.	Understanding the correlation of risks across the portfolio Better risk data aggregation

8			P	Risk silos are never going to go away completely. It is critical to appoint people responsible for respective functions across the silos, and embed ERM into core management processes. The key is to ensure the silo risk structure doesn't compromise ERM effectiveness. Therefore each 'silo' needs to be engaged into the customised risk approach adapted by an organisation, and participate dynamically in management activities.	ERM integration into core strategic management processes
9	Y			Breaking down the 'silos' is a key ERM challenge. Active involvement of senior management can facilitate effective alignment of risk identification, assessment etc between the 'silos'. As a result, people start to understand how risks generate in each silo affect the organisation.	Senior management buy- in Support from the board
10	Y			Risk needs to become everybody's responsibility. The three lines of defence model (3LOD) helps various risk groups to understand the level of the risk appetite and tolerance established by the board.	Increased process integration and communication across the "silos" Clear risk appetite statement Well-defined risk structure, ownership and accountability
11	Y			There are several key success factors that can help the transition into ERM time being a critical factor. ERM is a long term effort, and without patience and persistence it will not achieve its full potential.	Senior management buy- in Support from the board Enterprise-wide risk buy-in Risk maturity measurement tool Dynamic risk framework ERM Committees
12	Y			With ERM it becomes very important to integrate it with the strategic planning and budget cycle. Portfolio risk management is critical; each 'silo' need to communicate and work together to achieve a truly holistic enterprise view of risk management.	Senior management buy- in Support from the board Demonstrating the ERM value to key stakeholders
13	Y			Financial organisation need to focus more on integrating ERM into the business processes, strategies, and core management initiatives. This is critical for defining the real value of ERM.	Clear risk appetite statement ERM integration into core strategic management processes
14	Y			The biggest problem in a lot of financial organisation is the tendency to "prove their rationale for existence". This type of mentality hinders an effective and free sharing of risk information and people cooperating with each other.	Strong enterprise risk culture, awareness and mindset Senior management buy- in Support from the board
15			P	Risk management is changing but most financial organisations still don't have ERM that would cover all key risk exposures, and prepare them for the uncertainties that future may bring. Dynamic enterprise risk view is very important and it should align risk and strategic business management. Risk and business interrelate and co-exist, therefore, they should be seen as both sides of the same coin.	ERM integration into core strategic management processes
16		N		Every conversation on transitioning "silo" into enterprise risk view should address three questions. First relates to compliance with the regulations, second to determining the risk capital, and third, to the way each organisation manages risks.	Focus on the "how"-type ERM solutions

17	Y			This type of risk transition is not straightforward. Senior management needs to understand its role and the importance of the holistic "capture" of key risks. Also, they need to understand the consequences (other financial) of not making the change.	Senior management buy- in Support from the board Demonstrating the ERM value to key stakeholders
18			P	This exercise involves many variables. Buy-in and support from “the top” are crucial. Defining the right risk structure is crucial. Collaboration between the risk and business functions is critical. ERM should also be easy to understand and transparent; people should understand clearly what it is and what is aims to do.	Senior management buy- in Support from the board Clear risk structure, ownership and accountability ERM Champions Strong enterprise risk culture, awareness and mindset
19			P	Starting point of this transition begins with the right risk mindset present between the 'silos'. What is also critical is the integration and transparency of risk data; inconsistent risk information impedes effective risk reporting and affects the decision making process.	Strong enterprise risk culture, awareness and mindset ERM integration across enterprise data systems
20			P	Many organizations still adapt the 'silo' risk management. Each line of business should be able to identify key risks (credit, operational, market etc), think of the cross-commonalities and dependencies, and then be able to form an alignment with the functional areas. Understanding what other areas do and what risks they face, communicate and work together is the key.	ERM integration into core strategic management processes ERM Champions ERM education and training
21		N		You cannot move away from the 'silo' structure completely, but you most certainly can achieve a level of risk convergence across the 'silos'. There should be clear transparency and alignment between the functions; it can help to achieve a better efficiency of flow of relevant risk information across the organization. This means that the risk conversations and clear communication strategy need to be established between the 'silos'.	Strong enterprise risk culture, awareness and mindset Enterprise-wide communication Risk convergence across the "silos" Clear risk structure, ownership and accountability
22			P	Buy-in from senior leadership is a starting point. The point is to increase the awareness of what ERM is and what benefits will it bring. Without the support from the top, ERM tend to become an "uphill battle", and becomes difficult to implement.	Senior management buy- in Support from the board Demonstrating the ERM value to key stakeholders
23			P	Most financial organizations tend to change their risk approach under regulatory pressure. So, the awareness of the fact the organisation needs to change the way it viewed risk is the first step. Recently, this awareness was induced by the changes associated with the external environment, and regulatory reforms.	Strong enterprise risk culture, awareness and mindset Understanding of ERM and governance
24	Y			Management needs to convey to functional managers enterprise-wide how interdependent various risks/functions are (i.e. is may not be obvious for everyone). People in various 'silos' often misunderstand risks that other functions face. They struggle to relate risks across enterprise.	Senior management buy- in Support from the board
25	Y			Transformation of 'silo' risk approach into ERM starts with moving towards active involvement of the risk teams into a decision-making process. Independent enterprise risk team separate from the profit driven functions ('silos') is the key.	Clear risk structure, ownership and accountability Independent risk management Risk-adjusted compensation

26	Y			Critical factors to achieve a successful transition from 'silo' risk management to ERM starts with senior management, and a strong Chief Risk Officer. Aligning ERM programme with a strong risk framework that fits the organisational structure is a second step.	Senior management buy- in Support from the board Dynamic risk framework
27	Y			For ERM to evolve from the 'silo' risk structure there needs to be a strong risk culture that can accommodate a change. Strong risk culture is also facilitated with the buy-in from various people across the organisation who doesn't try to undermine the transition into this new holistic risk mindset. Understanding risk appetite, tolerances, and capacity then becomes a part of the risk awareness. Strong risk culture can help to overcome people's scepticism towards the change.	Strong enterprise risk culture, awareness and mindset Well-defined risk structure, ownership and accountability
28			P	Any risk transition is always faced with the cultural issue and it requires a degree of subtlety. Forcing people into changing the way they have managed their risk so far usually brings very little results. It is critical to first understand what works well, and what needs the change. Another thing to consider is the fact that ERM is a long term effort, and its nature is very dynamic - it requires constant monitoring and adjustments both of internal and external factors.	Strong enterprise risk culture, awareness and mindset Enterprise-wide buy-in
29	Y			Any ERM related transition has to start from the top down and then cascade down across the organisation. Then management can identify the aim of ERM and what are the expected benefits, and turn them into objectives. All ERM efforts and plans should be documented and communicated widely across the organisation – that is the starting point. To follow that up, management needs to identify the risks and allocate the ownership to them. So the clear risk structure and accountability all formalised through documentation and discussed by the risk committees.	Increased process integration and communication across the "silos" Senior management buy- in Support from the board Strong enterprise risk culture, awareness and mindset ERM Committees
30	Y			The key is the understanding that the people are the heart of ERM. There is a predisposition to try to see ERM as a process. However, a lot of ERM is actually about the culture and towards the soft side of risk management.	Strong enterprise risk culture, awareness and mindset
31	Y			Sometimes financial organizations think they can find the silver bullet and make the change they need. What organizations often lack is to look at the entire enterprise through a risk lens not to see how risky it is currently, but more how to manage the risk after the change is implemented in the new risk reality. Management needs to focus on reconstructing the risk infrastructure, ERM framework through this process because there are layers of existing processes to review to determine which factors will still be relevant in the future, which ones can bring agility and flexibility and give competitive edge over the competitors. Once that is clear the process of "re-plumbing" and "rewiring" of all of that can start.	ERM integration into core strategic management processes

32	Y			Before management start with any kind of ERM initiative, it needs to be aligned with the organizational direction. First, it is important to assess what the organisation is already doing well, why is it doing it and how is it doing it, and then finding the commonalties and the redundancies that potentially can be caused by a silo approach. It becomes clear when it gets mapped out. That tends to wake leaders up and make them realise that there may be a better way of managing risks.	Risk convergence across the "silos" Strong enterprise risk culture, awareness and mindset Risk resources with the right ERM expertise
33	Y			ERM initiative needs to be driven from the top; if there is no buy-in or support from the board and senior management nothing can or will happen. Also people in any organisation need to have an enterprise-wide view of risks, and they need to understand them. There are four key drivers/motivations that underline effective risk management: 1) taking more (better managed) risks, 2) avoid pitfalls, 3) strong performance culture, and 4) corporate ethics (i.e. re-embedding values into the organization).	Strong enterprise risk culture, awareness and mindset Enterprise-wide buy-in
34			P	There has been some realisation across financial organisations that there are individual risk cultures across the functions that need to be managed differently. Management started seeing as critical the people make the place, but most organizations are nowhere near to achieve that. The bottom line is that people view risk differently so they have differences in the willingness to take risk and how they deal with the consequences of that risk taking and the consequences of their decisions. Individual risk tolerances impact the decision making process. There are people who are less averse, less inclined to take big risks, or accept ambiguity, and uncertainty.	Strong enterprise risk culture, awareness and mindset
35			P	The key problem with ERM has been the “silo” mentality and the challenge there was thinking across the “boundaries”. This is trying to gather operational risk information and apply that to try and understand how that would affect the business.	Process integration and communication across the "silos” Enterprise-wide buy-in

Appendix Table A 8 Overview of variable ERMSTATE2 (interviews)

No	Yes (Y)	No (N)	Partially (P)	What has improved?	What needs further improvement?	The "HOW" factor
1	Y			Liquidity risk management	Oversight of liquidity funding cost	Start with the regulatory compliance (Basel III)
					Correct measurement of financial leverage	Increased board-level risk oversight
					How risk appetite is defined and measured	ERM should cover as many organisational "silos" as possible
2			P	Continuous risk change aligned with organisational objectives	Continuous risk change aligned with organisational objectives involved improving the credit rating, investor confidence and competitive advantage).	Demonstrating the ERM value to key stakeholders
						Integrating ERM into core management and business processes
						Strengthen the risk framework; build strong and dynamic processes around it.
				Gradual shift in risk culture	A group risk function is critical; it helps establish risk policy and governance, oversees the risk framework application, risk culture, risk capability and communication.	Risk network of risk owners, managers, coordinators, champions, and committees.
				Slow change around risk governance	Management needs to determine what the risk transformation plan is for their organisation and focus on a few year plan (monitor, review and adapt to changes).	Gap analysis for risk maturity model
3	Y			Most changes happen due to increased regulatory scrutiny	ERM should not be driven primarily by the regulatory mandate. Otherwise it encourages the 'walking a fine line' mentality' and so called 'getting by'.	ERM should help manage key risks more efficiently, and inform the board of the potential risk exposure along with the solutions on how to 'fix' them. There will always be this sceptical 'eye' over ERM in regards to its results due to the 'political motivation' existing in every organisation.
4		N		Increased focus on potential risk issues and their impact on the entire organisation, especially liquidity risk management.	Risk management structure should be scrutinised more thoroughly in order to manage key risks holistically at a bank level. Therefore key risks should be considered in the decisions made by the management.	Management should understand better what some potential risks are, and how they can affect performance/financial results of the entire bank. Those key risks are then, integrated into decisions at a strategic level to create a competitive edge in the market.
5	Y			Aligning key types of risks with the management of capital	There is still room for improvement in data integration and quality of risk information provided to the management and utilised in the decision making process.	Organisations started aligning key risks with the capital management. In order to be more efficient in a stressed environment, senior management request regular risk updates, and better communication and escalation of potential risk issues from various functions.
				Regular risk reporting on key risk exposures across various legal entities	Risk function should be prepared to challenge the data and provide alternative scenarios if required.	Organisations should also focus more on adapting to the dynamic changes of internal and external

				Increased flexibility of managing risk across the entire portfolio		environment and be more flexible in how they react to them.
6			P	Attempts at defining the risk structure and ownership	Better understanding of ERM	Most financial organizations misunderstand the key principle of ERM and the fact its end goal is to be embedded in the organisational structure.
					Dynamic risk framework	Organisations still look for the golden mean and off-the-shelf approach that should work for everyone. ERM is not a one-fit-all-approach.
					Risk data aggregation and convergence across different silos is critical.	Even if financial organisations have risk data available, putting all the information together, aggregating it enterprise-wide and translating different views of risk remains a challenge.
				Appointing the CRO as ERM expert.	Risk analytics	It is critical to combine both qualitative and quantitative perspective of risk management, and ensure both understand what the others do and work together towards the same objectives.
					Weak Risk Culture	ERM should be seen as everybody's responsibility and everybody needs to naturally "think risk" as a part of the enterprise risk awareness. Information sharing is the key to building an open risk culture that supports ERM. It is a part of the risk culture.
7			P	Better at recognising correlations between risks across the portfolio to reduce the overall risk cost	Integrating 'silo' risk structure	People across the 'silo' tend to prioritise the work they do, and see it as optimising their best rather than working towards the enterprise-wide aim. What they often miss is the fact that working independently is not always the best way for achieving full effectiveness.
					Data aggregation and risk reporting	Management should receive regular risk updates and critical risk information with a certain level of granularity they can understand. The key is access to simple and transparent information that can be included in the decision making process.

				Liquidity risk management and funding	More efficient use of risk-adjusted modelling and better understanding what hides behind the numbers	It is really important to build out risk processes, frameworks and risk tools along the regulatory lines but also with the intention of making improvements where they bring value. Gradual changes are better than "risk stagnation".
					Be able to identify the organisational areas where ERM generates most/least value to either continue to grow it or constrict it	Management be shown how ERM generates value across the organisation - this is critical for their support and sustainability.
8			P	Increased board-level emphasis on the risk oversight and ERM.	Overconfidence of the C-suite	There is a lot more focus on board risk oversight but it needs improvement.
				More disciplined and robust risk oversight	Improved understanding of management of what to look for	The financial crisis triggered focus on board level risk oversight that has become more disciplined and robust.
				Senior management asking the right risk questions more often	ERM needs to get integrated with the strategy setting process and it really needs to be applied across the enterprise. Otherwise, ERM will not be a process that will sustain the interest of the CEO or his or her executive team.	The board needs to ask more risk questions and increase their focus on ERM. As a financial organisation, you have to have a process (i.e. ERM) that answers the board's questions.
				Recognition that ERM and enterprise risk culture are important	Be able to answer the question: "what is it that you really do?" i.e. do you have ERM or claim you have it? More work needed to position risk management effectively in the organization.	The positioning of risk and compliance management within the organization so that they can be effective. And the importance of dealing effectively with issues once they are escalated has become even more important now after the financial crisis.
9			P	Focus on core risks	Overcoming the "silo" barrier of integrating data	ERM champions actively participating in risk identification, quantification, and prioritisation to see various risks through an enterprise-wide "lens of risk".
				Increased interest and commitment to ERM		
10	Y			Risk management transitioning from the audit type function into a more proactive approach	Work needed on understanding how to define a customised ERM framework	Better alignment of risk processes, resources and infrastructure
				Emphasis on the soft side of risk management (i.e.human factor)	Better integration of disparate risk control processes to provide a holistic view of the risk profile	Improve risk consistency in reporting across business lines
				More awareness towards model risk and its limitations	Think of a clear and accepted articulation of the ERM function before defining what it does, and what value it is to add	Reduce the overlaps and gaps typically in stress testing, concentration risks, emerging risks, risk infrastructure, risk aggregation
11			P	More audit reviews on ERM programs	The way risk is reported to the board should be more robust (i.e. currently risk information to the board is limited and doesn't capitalise the risk expertise it could)	Use dynamic risk management tools such as risk dashboards/risk heat maps

				Greater alignment of ERM with process management and corporate strategy	Turning ERM into a strategic advantage; integrate it with strategy and business planning and expand the familiarity with the ERM enterprise-wide	Embed ERM into organisational culture
				Greater diligence towards documenting ERM	Management should realise that ERM doesn't end with identifying, assessing, and reporting risks but that it matures along with the organisation business model and becomes a "way of business" (i.e. is embedded into organisation structure).	Senior management support through a demonstration of ERM value
12			P	Impression of improved compliance prompted by the regulators	The problem is the executives and their attitudes to risk and what they want to hear or do – true ERM is anathema to them	Right risk resources in place
					Cultural barriers to ERM i.e. the sort of transparency that ERM provides is not always welcome for any level of Executive, barring (privately) the C-suite – but hardly for "public" consumption.	Realising that risk culture is driven by the senior leadership that should act as "role models" to the rest of the organisation (skills, attitude, modesty, emotional intelligence, and sensitivity).
13			P	Hiring the external risk expert firms to investigate various issues	Change the way the strategy and risk are currently managed	Link risk accountability and reward to business objectives and performance measurement
				Slowly improving the understanding of how important ERM became, and its role in the process of strategy management.	Management should always understand and know what the risk appetite is, ask themselves a question: do we operate within the risk appetite, track it, and aim towards what they want to achieve (business/corporate objectives). Strategy formulation, setting and execution in line with the risk appetite, risk management, and performance management.	Focus on hiring the right risk people and effective resource allocation
					Improve communication between key stakeholders	Align risk, performance, strategy management with the risk appetite within the enterprise risk culture, and the right risk governance.
14			P	Increased interest in ERM but little change to risk approach.	Management needs to be more risk aware of the fact that early warning systems are key and most of all they need to lear what it means to them as an organisation, what impact it may have and what consequences can it create to the business model.	Share risk ideas and to cooperate. Embed the right enterprise risk culture Work towards the integration of individual "silos". Get the management sponsorship.
15	Y			Better liquidity risk management	Learn more effective enterprise risk management in "stressed" environment to optimise the risk	Integrate the segregation of "silos" to achieve better internal capital allocation, de-leveraging and reducing the cost of capital, thinking of risk in terms of regulatory requirements, using ERM for arbitrage.

				The change of risk view from "static" towards "dynamic" to achieve business integrated risk management.	Management needs to see ERM as the sum of key risks across all areas, to learn how to manage it effectively and to use it to improve how the strategy is defined from the enterprise risk perspective. Learning how to define ERM and think about it beyond operational risk has become increasingly important.	Start with the optimisation of risk ratios, metrics and eventually the entire risk portfolio. Align ERM with the strategy and risk appetite
16			P	Risk more prevalent at C-suite discussions Increased management attention to managing risk	Adoption of a stronger risk culture and better internal risk communication are key success factors to an effective ERM.	Work toward the integration of "silos", risk information and data flow between different function, and initiating risk dialogue across the organization.
17	Y			Risk changes due to regulatory pressures rather than realisation of an impending need for a change.	ERM should give senior management a holistic view of all risk exposures across an organization (i.e. on a legal entity level) thereby making legal entity management (i.e. board of directors responsible for local decisions, risk intake and exposure management).	Active involvement of the board of directors and senior management in ERM and aligning it with the decision making process.
				Slow ERM adoption in the industry (i.e. focus on 3 Lines of Defence model).	Under the 3 Lines of defence model, the business cannot outsource their responsibility for managing risk to the Risk Management Function.	Risk Management provides independent challenge to the business and has a seat at the highest senior management table.
				Appointing the Chief Risk Officer to embed risk governance enterprise-wide.	Banks should focus more on aligning ERM with key organisational factors; it is fundamental. Key elements of the Alignment are components of an effective single joined-up ERM risk management framework.	ERM needs to be driven by documented business strategy, organization risk capacity i.e. tolerance and risk appetite. The hard part is getting each strand aligned and included but it is a gradual process and critical to ERM success.
18			P	Additional impetus to risk management across financial organisations caused by the reparatory requirements.	Banks needs to get better to make a clearer distinction between risk management and capital management, as risk is one of the main drivers of capital allocation.	Good governance structure
				Weaknesses of the existing control structure is still of concern in banking.	ERM is often put in place as a conduit between the risk and compliance function and the business areas, to monitor and report on all risks and to break silos.	Independent ERM function ERM champions that can cooperate between the silos and communicate to maintain risk consistency ERM Framework
				ERM not well embedded in the risk culture or considered in key business decisions.	ERM has to be aligned to strategy and in line with strategic objectives.	ERM included in the annual budget
19			P	Manual management of risk data; lack of investment in a consolidated risk infrastructure.	Risk data integration, the quality and effectiveness of the systems, the processes that go with it [risk management] and the governance behind it are still not where they need to be	Developing an enterprise risk mindset

				Risk management was affected by the reduction of human resources (data reporting, systems operating etc)	Better (robust and dynamic) integration of the data and the systems	
				Only recently financial organisations started to move out of the survival mode and start looking forward towards fulfilling the regulatory requirements and beyond.		
20			P	Risk changes are primarily driven by the regulators (i.e. consumer compliance and capital management).	Management need to understand better what ERM benefits can be realized when implemented.	Streamlining processes and leveraging technology to minimize losses and/or build high-quality capital. That way an enterprise is ready for the next downturn and can seize opportunities to buy failing or failed companies due to its strength and sustainability.
				Prevalent "silo" risk approach.	ERM should be seen as a tool that helps to seek out opportunity to improve things at all levels through not just risk identification but also "reward" identification – flipping risk management on its head and looking for opportunities (the upside of risk).	Embed risk management people within lines of business and support areas so they would all have a "Go To" person with whom to discuss, leverage, and strategize about risks within their businesses or support areas.
				Lack of understanding the risk correlations between various functions.	Management doesn't have a clear understanding of what ERM should look like.	On-going education, dialogue and communication so all are aware of the risk culture and their role in it and coupled with that.
21	Y			Financial organisations moving away from the 'silo' risk approach, and reviewing the current organisational structure more often. .	Look at breaking down the silos and find more effective ways to manage risk	Workshop which involves looking at some of the risk functions closely and gets various groups of people to talk about what they actually do. This improves the communication and cooperation between the silos and help the integration process.
					Financial organizations changed the current set up and moved towards having a small central risk team that is the recipient of all the risk information, and then they do more effective corporate risk reporting. A lot of risk responsibility is pushed out into the business, and onto the risk champions' network. Often people still do not know what their functions are actually involved in.	Build a close relationship between the risk and the business functions to avoid the situation where the risk people are removed from the business, and therefore do not really have the same level of knowledge or understanding of the business.

				Risk culture change and becomes of an increased focus.	There has been a big shift in demand of how to develop a process to help create a culture that would be sustainable, to avoid going round in a loop. So there has been a change in mindset and the acceptance that people knew they had difficulties around the culture i.e. how do you change risk culture. Writing a risk process can be much less demanding, than creating a culture which is sustainable and featured with natural risk behaviours.	Design an effective way of escalating that risk information, and the awareness of any sort of cultural issues
22			P	Increased regulatory scrutiny emphasizes the importance of ERM.	Financial organisations often lack resources to make the change.	Buy-in from senior leadership
				Major ERM changes driven by organisations that suffered large losses in the crisis and want to re-bounce.	Risk frameworks inadequate with organizational objectives, strategies or the business model.	A lot of organisations are doing some parts of risk management well in some risk disciplines; typically it is credit, market and partially liquidity risk but they do not have the fully fledged ERM solution. They should leverage on what is effective and focus on "fixing" the inefficiencies.
23			P	Most change to risk approach as changes in governance codes as an obligatory requirement.	Financial organisations need to first understand why the change towards ERM is so important to their enterprise, and only then define what ERM will mean for them. Finally they can start thinking of ERM in terms of financial rewards such as reduced capital requirements etc.	ERM should be incorporated into a logical part of an organisation and become a part of what everybody does already. Over time, it gets embedded into an organisational structure and gets integrated. Continuous risk education on various organisational levels is critical.
24		N		Most risk changes driven by regulators requirements	Management should begin with better understanding of the interdependencies of various functions across the organisations in the ERM context (i.e. where ERM can drive better effectiveness, and where it can leverage on what already works).	Support and buy-in from senior management
				Increased risk awareness driven mostly by new financial reforms (post-crisis)	Start seeing ERM as an umbrella for all threat related activities (and opportunities). Introducing the subject matter experts (SMEs) to serve as ERM champions	ERM SMEs should understand that the programme depends on the inputs from SMEs in each functional unit, and therefore act as an auditor not only for their particular functional unit, but the program as a whole.
25			P	Some changes but not as fundamental as needed in the industry	Thinking about risk is still considered a ‘hurdle’ or ‘not relevant for me’. This indicates that there is a lack of fundamental understanding of risk at high level managerial positions not directly risk but in decision-making capacity.	Independent risk function is the key - it also needs to have an adequate compensation risk-adjusted structure, and not be influenced by the profit driven departments.

				Increased risk integration but ERM still not accepted as an integral part of organizations.	"Risk" is still perceived mostly as a compliance function which indicates that management still struggles to understand the impact of key risks across the organization i.e. what global impact can key risk exposure have on the organisation.	Risk team should become actively involved in the decision-making as a part of the transformation from traditional risk approach to ERM.
				Lack of active involvement of risk management in decision making	There is still too little correlation [and knowledge-sharing] between understanding how the models pricing complex products work, what are their limitations, with the process of execution of those potentially disastrous transactions. What's more, underlying assumptions of those models are often tinted with over-complexity, and people who are in positions where instant information is 'everything' to execute the trade simply do not understand how they [those models] work or do not have the time to talk to people who have such expertise before making the decision, in principle.	Full risk awareness of a potential loss and its impact on all levels of an organization is an absolute stepping-stone to improving risk collaboration and adequate risk aggregation, and reporting, all of which are critical to strategic decision making.
26		N		Incremental risk change due to the fact that the insurers were under a close scrutiny of the regulators and were less affected than the banking side of the industry after the crisis.	It's critical that the ERM work is aligned with strategic objectives. Without it, ERM is just an on the side reporting function. This is an area for improvement in financial industry.	Various risk sub-committees aligned with the "silos"
27			P	A shift in risk culture; slow management realization of ERM importance.	Still a lot of scepticism around ris across many financial organisations; lack of trust and commitment in terms of making the change (i.e. thinking of risk as compliance)	Enterprise-wide risk culture supporting ERM Risk awareness
				Appointing the CRO	More changes from a qualitative risk standpoint still needed, that "right" risk culture has to be there for that transition to happen effectively	
				Greater focus on elevated protection of capital.	Organisations should be careful not to take the contrarian view to the extreme and hoard more capital than it is necessary. Management try to understand the numbers and challenge what's behind it rather than accepting it blindly.	Focus on understanding the risk appetite, how to define it, measure it and align with ERM strategy
				Changes in risk modelling	Risk quantification and risk measurement were there in the past but there is a greater scepticism around the risk modelling pos-crisis.	

28			P	Gradual restructuring of risk management across the industry	The risk change was not pushed as much as on the banking side of the finance industry as insurers were under a close scrutiny of the regulators before the crisis; they continued on with the ongoing restructuring of risk management more than anything. ERM is dynamic, and management monitor all the internal and external changed that affect the core strategies and objectives, and adjust accordingly.	Formalising what works effectively already in the current risk approach
				Some shift in the cultural approach is visible	The change of culture is a delicate subject and should be managed carefully; people who manage risk should be involved into addressing the areas that prove to be least efficient, and leverage on those which are the most effective as a part of ERM. Developing trust is critical part of enterprise risk culture.	Start with an inventory of what is being done well across the "silos" and how they are organised currently. Then leverage on the risk areas that are effective in ERM scope
					Sufficient and adequate risk resources	Analyse the risk management activities to identify any duplication/redundancies to eliminate, and work with people to bring them along in terms of a more enterprise risk view; this can help them get a better perspective on risk other than just their individual groups.
29			P	Main change still driven by the regulators	Management should focus on identifying the aim of ERM and what are the expected benefits, and turning them into objectives.	Creating strong risk culture supported by the enterprise risk communication
				Slow cultural risk transformation	It is easier to learn about ERM from the scratch than to "unlearn" known behaviour. The cultural change is really challenging. It is a different if an organisation already has a relatively good risk management culture in place as it is the matter of changing the areas that are not working well as opposed to build a new culture.	
				Significant improvement in ERM maturity in terms of its evolvement.	Management should be looking beyond the regulatory requirements and see how to gain a competitive edge through ERM. In developed economies that progress is much slower.	Gap analysis with a risk maturity model ERM process documentation.
30	Y			Organisations consider the value of flexibility more and are willing to pay a premium for it.	Management started "buying" a new capacity/flexibility and outsourcing the areas they are deficient in e.g. IT.	Creating strong risk culture Enterprise-wide risk communication People's buy-in Continuous risk training and getting people to see the value in each other

				The future uncertainly motivated financial organisations more start focus on tools that can "protect" then better from the "unexpected".	Management should continue to keep ERM simple and logical (in terms of articulation)	ERM becomes a part of the day job and relates to people's job to get their attention, their buy-in, acceptance, and interest. If everybody puts a little bit in, the end ERM result is so much more valuable. As long as people feel there is value in it
31			P	The executives of financial organization get that the change is imminent and it has to be a change of culture.	ERM needs to drive those fundamental behaviours underneath otherwise you will not get the desired effect. By focusing on regulatory requirements rather that what value added benefits ERM can bring, you are "bleeding money" (PPI, rogue traders, fraud etc).	People talk a lot about the tone at the top which is really useless without the tone at the middle and at the bottom. So yes, the change needs to come from the top but if it is blocked by the middle and bottom it won't stay sustainable.
32			P	Gradual shift of risk maturity across finance sector.	ERM is still not seen as a management of portfolio of risks; it is still looked at through a "lens of risk". By not looking at it as a portfolio risk (i.e. a broad lens) management tends to miss things	Senior management buy-in and enterprise-wide risk dialogue
				Slow increase in ERM adoption over the last couple of years.	The value of ERM materialises if it is aligned with the strategy setting and planning. It helps when there are the right resources in place that have good experience in implementing ERM, and can provide some guidance.	Integrate the processes and risk reporting across the "silos" Network of ERM champions
33			P	Moderate risk change with the focus on managing key risk more effectively.	Organizations still overlook the importance of risk taking vs. control activities - there is over-focus on risk taking and lack of appropriate attention of risk control. Moreover, once risks are identified the appropriate strategies should be developed to respond to them.	Active board involvement in risk culture assessments, and risk management maturity
				The change [of existing approach to risk] driven by regulatory requirements.	ERM focus still oscillates around 'what do we need to do to comply' approach rather that 'how do we make sure ERM help us drive enhanced business value?'	Enterprise risk culture and risk awareness.
					Management should be more involved into establishing what the main risk obsessions and risk omissions are. They should also understand better if the approach to risk taking and risk avoidance fit with the organisational strategy.	Shared language of risk across the organization.
34			P	Gradual cultural risk change with no significant progress	Financial organizations are still heavily process driven (quantitative mindsets) and a new focus on a more intangible (and measurable to a degree) concept of risk culture is difficult to grasp. Understanding how the human factor can be actually utilized in ERM is critical.	Developing the enterprise risk mindset

					And management wants to know all about influencing the people who will essentially have a big impact on ERM. More complex organizations struggle with this problem as you cannot box people in, and reply mostly on processes procedures	Ensure people are on board with ERM
				Prevalent traditional “silo” risk mentality across the industry.	Management needs to consider the "risk of risk manager’s bias" in relation to the risk appetite and decision made. Also they need to understand that the audiences they interact with are very different; using a blanket approach in ERM is not the most effective way. Understand different communication styles as a risk manager depending on the audience is critical across different functions.	Adopting different communication style tailored to the audience
35			P	Greater ERM interest at a slow pace	There isn't enough understanding of ERM and 'buy-in' from other parts of the organizations to make sure ERM is robust enough.	Breaking down the "silo" mentality and increase cross-functional cooperation
				Appointing the CRO as a risk expert to increase the board level ERM support.	ERM is still not aligned with main organizational areas. Organisations struggle to connect the dots and understand that ERM needs to be linked with e.g. strategic planning or decision making. This way they may be missing out on opportunities that could otherwise be capitalized on.	ERM aligned with the all strategic dimensions to mirror key organizational objectives and to gather the relevant risk information.
						Management should focus on how ERM can generate the value for the entire organization.

Appendix Table A 9 ERM experience (no. of years)

Interviewee No	Organisational Position (ERMPOS)	Experience (years)
1	Risk Manager	Between 10 and 20 years
2	Chief Risk Officer	Between 10 and 20 years
3	ERM Manager	More than 20 years
4	Head of ERM	Between 10 and 20 years
5	Head of Commodity Market Risk Control	Between 10 and 20 years
6	Director of Enterprise Risk Services	Between 10 and 20 years
7	ERM Advisory	Between 10 and 20 years
8	Director of ERM	More than 20 years
9	Enterprise Risk and Finance Specialist	Between 10 and 20 years
10	Enterprise Risk Specialist	More than 20 years
11	Director of Corporate Compliance and Risk Management	Between 10 and 20 years
12	Senior Enterprise Risk Manager	Between 10 and 20 years
13	Director of ERM	Between 10 and 20 years
14	Risk Manager	More than 20 years
15	Global Head of Risk Research & Analytics	More than 20 years
16	Director of ERM	More than 20 years
17	ERM Advisory	More than 20 years
18	Enterprise Risk Partner	Between 10 and 20 years
19	Global Head of Liquidity Risk Management	Between 10 and 20 years
20	Chief Risk Officer	More than 20 years
21	Director of ERM	Between 10 and 20 years
22	ERM Advisory	Between 10 and 20 years
23	Director of ERM	More than 20 years
24	ERM Advisory	More than 20 years
25	Director of Portfolio Risk Optimisation	Between 10 and 20 years
26	Chief Risk Officer	Between 10 and 20 years
27	Enterprise Risk and Capital Management Specialist	Between 10 and 20 years
28	Deputy Chief Risk Officer	Between 10 and 20 years
29	Enterprise Risk Specialist	Between 10 and 20 years
30	Enterprise Risk Specialist	Between 10 and 20 years
31	Director of ERM	More than 20 years
32	Strategic and Enterprise Risk Specialist	More than 20 years
33	Director of ERM	More than 20 years
34	ERM and Business Psychologist	Between 10 and 20 years
35	Director of ERM	More than 20 years

Appendix Table A10 Factors codes ERMALGNT

Organisational Factor	**Factor Code**
Core organisational strategies and objectives	ERMSTR
Risk governance structure	ERMGOV
Risk appetite and tolerance	ERMAPPT
Enterprise risk culture	ERMCUL1
Enterprise risk infrastructure	ERMINFRA
Risk framework	ERMFRAM
Risk and performance measures (KRIs & KPIs)	ERMMET
Risk management tools and techniques	ERMTOOLS
Risk adjusted compensation	ERMCOMP
Monitoring the changes of internal and external environment	ERMENV
CRO/Risk committees	ERMCRO
Other	ERMOTH

Appendix Table A11 Summary of variable ERMSUST (interviews)

Can ERM establish the sustainability? How? (ERMSUST)					
No	**Yes (Y)**	**No (N)**	**Partially (P)**	**Problem description**	**The 'HOW' Solution**
1	Y			Integration/Alignment of risk 'silos' along with the embedding risk assessment activities into operating practices the organisation employs.	Senior management sponsorship "Silos" integration
2	Y			ERM depends on the board and CEO sponsorship; it has to be driven from the top, and cascade down to all organisational levels. ERM is all about a clear risk structure and ownership, being embedded into job descriptions and targets and eventually linked into the performance measurement/risk adjusted compensation schemes.	Senior management sponsorship Clear risk structure, ownership & accountability
3	Y			Sustainability is established through repetition and clear evidence of ERM value-added results. It needs to be evident that all work efforts to track risk make incremental impact on improving the bottom line. ERM brings value to the bottom line but it needs to be evidently clear to the board and the management. Without it ERM will lose support across the organisation including senior leadership.	Senior management sponsorship Demonstration of ERM value to key stakeholders
4	Y			ERM is a new concept and requires a lot of cultural change at organizational level. It is very important that a firm implementation plan is developed to ensure its long term sustainability. For a successful and effective ERM it is important that it is linked with the strategy of the organization and balance is maintained between risk and reward e.g. if a solution of any specific risk is costly and value of loss is less than the cost then it is better not to install the control rather accepting the risk. Critical factors to establish ERM sustainability are: 1) risk culture that is supported by training and continuous development, and 2) constant risk monitoring and oversight on a board level, in the long term.	Enterprise-wide risk culture & awareness ERM training and continuous development ERM linked with the strategy Constant risk monitoring Risk oversight on a board level
5	Y			Strong governance and managerial support is very important for ERM sustainability. Keeping the level of flexibility that allows a timely risk response in a stressed environment, adapting to various internal and external changes, and the ability to redefine the strategies, objectives along with the business model and risk portfolio when it is necessary. Also, the focus on developing the right risk metrics that improve risk transparency, the ability to integrate information, and creating the risk framework fit for the organisation.	Senior management sponsorship Strong governance Flexibility Dynamic risk framework

6	Y			Management need to understand how to use risk management tools to gather key risk information. The right level of risk analytics, and the ability to capture the institutional knowledge as of what to do if certain risk indicators occur is also a very important part of ERM. To be sustainable, organisations need to be able to make a decision about a certain risk circumstance, in a unique way, every time it occurs. Therefore, management should have a capacity to make better informed strategic decisions based on relevant data that the system has.	Senior management sponsorship Risk analytics
7	Y			Sustainable ERM starts with the right level of granular information available to senior management to make informed strategic decision and create value on an enterprise level. Collecting key information from across the silos, and integrating it all in a way that is readable, useful and easy to understand for senior management to give them another dimension about "how do things work", "what is the profitability", and that way help them make well informed decision what they should do, is not an easy task. And financial organizations still don't have the right infrastructure to integrate data across the silos. As even if you have an idea and the support, the question is: does the bank have the means to do it? Do they have the data and technology to do it? Often various data doesn't have a common identifier within that business let alone across different businesses.	Granularity of risk data/information available for risk reporting to senior management Integrating the "silos" and enabling the risk transparency between the functions Consolidated ERM infrastructure
8				Knowing how to position your organization as an early mover and differentiate it from the competitors is critical for ERM and it helps to realise what opportunity or risk exist to capitalise on. The concept of early movers involves analyzing strategic risks and aligning your competitive intelligence function to address the vital signs that matter. Since nobody really has a clear view about what is going to happen in the future in the industry, organisations need to adapt ERM to become more agile, adaptive, and able to move quickly to respond to change (internal or external). This is a way of making sure that what organisations are looking at is aligned with the critical assumptions underlying the strategy. That's how ERM can create value and generate competitive advantage. The important point here is this: if you want to have your ERM solution to be sustainable, you have to have senior management support. CEO has to be supportive. You have got to have the buy-in from the operators so your line of businesses. You also need cross functional cooperation (across the silos). Next is people cooperation. ERM approach has to be relatively straightforward and it needs to leverage what the organization already does well and effective. Finally integrating ERM with the core management processes gives ERM a lot of "legs".	Senior management sponsorship Becoming an early mover Agility People's buy-in Straightforward and uniform risk language Embedding ERM into the core management processes
9				ERM across financial organisations is still primarily pushed by rating agencies and regulators to encourage them to develop an enterprise-wide approach to risk. For ERM to bring real value, however, management must see how ERM can not only help avoid or minimize risk but also improve performance of the organization. ERM helps understand the potential magnitude and likelihood of internal and external events affecting the organization in time, and mitigate large losses better than their competition. Sustaining an ERM program requires a number of elements including: continued buy-in by top management, development of a common language around risk and the cultivation of a risk culture that is embedded in the organization.	Senior management sponsorship Developing a common language around risk The cultivation of a risk culture that is embedded in the organization

10	Y			Management should aim to create a clear risk structure where risk roles are well articulated and assigned. This should be well understood and accepted across the organisation. Another important thing it to integrate the well functioning risk processes into ERM (utilise what is already working well). In large banks, it always comes down to a demonstration of the value that a centralized corporate risk function can add.	ERM aligned with core organisational strategies & key objectives, ERM culture & awareness Well-defined ERM structure & ownership Top-down & bottom-up ERM communication
11	Y			ERM sustainability relies upon structure and process that is consistently applied. A simple ERM framework based upon any of the common risk management standards (COSO, ISO 31000, etc.) can be used to establish a sustainable framework. Following and consistently applying a common ERM framework is critical, as well as support from top management for ERM.	Clearly defined risk structure and risk governance Sustainable and consistent ERM framework Senior management support
12	Y			Sustainability is embedding it into the annual planning and budget cycle. Making it a part of job descriptions, targets and performance criteria.	Senior management support ERM embedded into the annual planning and budget cycle ERM as a part of job descriptions, targets and performance criteria
13	Y			Financial organisations often struggle to integrate the information between different "silos" and therefore sometimes mis-allocate time and resources to solving the same issue multiple times. This reduces their operational efficiency, and makes it difficult to identify key (common to the enterprise) risks and aligning them with the objectives and performance goals. ERM is also often poorly aligned with the strategy which is the key of any ERM programme. Lastly, technology is still not where it needs to be in terms of facilitating robust data aggregation for risk reporting used to make decision on a management level.	Business buy-in Align ERM with the business performance outcomes Robust and consolidated ERM infrastructure Enterprise risk culture
14	Y			There is no silver bullet as every organisation has different objectives and the strategic direction it wants to take. But that said, it is critical that senior management understands the concept of enterprise risk management and uncertainty and what to do with them. ERM is a gradual process of organisational change and aligning various organisational factors to achieve the sustainability is a concept difficult to understand for most. And it is going to take quite a while.	Allow the time for ERM transition Soft risk management skills (stamina, discipline, hard work, perseverance and patience) Support from the top
15	Y			ERM starts with sponsorship from the senior management i.e. money invested in ERM creates this psychological effect over people especially in financial organizations where they need to see that if there is an initiative that the management invested a proper budget in, and then it is actually worth investing in (time and effort). It also applies for the regulatory aspect. So you start building the sustainability by making sure you put a proper budget aside for it. Then you get people's buy-in and commitment for ERM, and those are the two key factors you need at the start.	Include ERM in the budgeting cycle and strategy planning Get people buy-in and commitment for ERM
16	Y			Financial organisations should aim to create the alignment of ERM and key organisational areas such as: strategies, objectives, governance, risk appetite and tolerance, culture, technology, risk and performance measures, risk adjusted compensation, and changes in internal & eternal environments. Besides to the factors mentioned above, I support the appointment of a CRO or at least, a team in charge of the ERM implementation, with good ties to senior management.	Support from the top Clear alignment of ERM with key organisational dimensions Enterprise-wide communication

17	Y			A well defined risk framework that is well documented is fundamental in the building and maintaining of an ERM model. Given that most organisations' risk management has grown organically over the years rather than by design, a lot of effort is required to evolve this into a single effective ERM model. It needs senior sponsorship, a collective will, and time and resource commitment. This is more difficult where an organization has multiple business lines that are offered through many legal entities, and in numerous countries. An important requirement is to ensure that management understand and manage their risks and that Risk Management staff are capable of challenging business decisions and assumptions.	ERM Framework Senior management support Trust and recognition of risk management and inclusion in decision making
18	Y			There are several key factors to ensure ERM is sustainable: Culture of strong governance which cannot easily be overridden and understanding across the organisation of the importance of risk management and a robust control environment Skill set of risk personnel – both technical skills and soft skills such as good communication & influencing skills Compensation does not incentivize risk taking especially on the basis of short term returns (this is challenging as Boards are charged with ensuring that shareholder value is maximized which may conflict with longer term risk management goals) Effective set of enterprise-wide risk management tools – either manual or computerized such as risk assessment templates, stress and scenario testing and so on. Lack of a blame culture so that risks that crystallize are not hidden. Understanding of the limitations of models – All models are wrong but some models are useful	Senior management support Understanding how ERM generates value & how to resolve potential ERM challenges ERM culture & awareness Well-defined ERM structure & ownership Risk behaviours modelled by the Board and Executive Chief Risk Officers to be part of the top executive teams Independence of risk function
19	Y			First, the integration of the processes and systems- that requires time and money to ensure they are both adaptable and efficient at the times of a crisis. The crisis can be triggered within the matter of days, and as an organization you would want to be able to be dynamic enough to respond to those risks in the most robust way possible. I would call it the sustainability of integration. Another one is the integration between the back/middle and the business which means the flow of information between the two and forming the mindset that allows the business side to understand that whatever they do is going to impact the balance sheet i.e. they need to have the awareness of how their actions will impact the entire organization and on that basis decide what they can and cannot do. Additionally, the business should also have an ability to utilize the information from the middle office regarding the markets (where is the market and what is it doing). Key drivers are: Understanding how ERM generates value & how to resolve potential ERM challenges , ERM aligned with core organisational strategies and key objectives, Well-defined ERM structure & ownership, Top-down & bottom-up ERM communication.	Allocate appropriate resources for the integration of the processes and systems Dynamic process of monitoring of internal and external changes Enterprise-wide communication Risk dialogue with key stakeholders Risk awareness
20	Y			Constant evolution according to the ever changing risk landscape both within and without and most importantly, indoctrination and heavy communication at all levels. Education with reasons for doing what you're doing – can't just say "We're doing this". Have to say We're doing this because…" and then have strong,, fact based reasons. Drivers: ERM aligned with core organisational strategies & key objectives, ERM culture & awareness, Well-defined ERM structure & ownership, Top-down & bottom-up ERM communication	Strategic CRO to implement a strategic ERM game plan rather than be a "Police" CRO Enterprise-wide risk collaboration and cooperation Vigorous cross communication through ERM implementation

21	Y			It boils down to breaking up the cultural piece. The enterprise-wide commitment not just "walking to walk and talking to talk" type approach that everyone talks about is a building block to ERM sustainability. It is always about being practical and making it as easy as possible for adopting.ERM is about finding ways to enable the business to be as effective as it can in terms of managing risks without getting in the way of processes and details that need to be completed "every 5 minutes".	Make ERM a part of people's job descriptions and aligned with the objectives and performance management Understanding how ERM generates value & how to resolve potential ERM challenges ERM aligned with core organisational strategies & key objectives ERM culture & awareness
22	Y			The key factors to achieve the sustainability are determined by the asset size of the organization, the composition of the business units – what is their focus, what kind of services and businesses they provide. And in order to achieve the level of ERM sustainability you need to maintain the right engagement within the organization, keep developing the programme continuously in alignment with the changes to the business model, services and products in place. Equally important I think is the regulatory oversight, buy-in and the enforcement from the business.	ERM culture & awareness Keep developing ERM programme continuously in alignment with the changes to the business model Senior management support and buy-in
23	Y			This goes back to the risk accountability and how the risk outcomes are measured. For example, if you have an effective risk register you need to create an action plan, set delivery dates and details, put it on agendas and meetings; you include risk owners in the risk management process, and allow the right information to be embedded in the decision making. You cannot have sustainable ERM if those things don't take place. So in other words, the right people need to get involved with the right structure of accountability and risk/performance measurement. But first, management need to make sure there is solid governance, risk policies and procedures, proper risk framework, risk reporting and accountability structure, and only then start looking at risk identification.	Clear risk structure and defined risk accountability (i.e. risk owners in the risk management process allowing the right information to be embedded in the decision making process) Alignment of ERM and performance measurement ERM Framework
24	Y			ERM needs "constant marketing" across the organisation to become sustainable; it must be visible and clear to everyone. If allowed, ERM should help improve processes without impairing the existing structure in place.	Clear risk structure and defined risk accountability - everyone is involved in ERM, and believes it brings value People's buy in and their understanding of how ERM relates to their daily job
25	Y			ERM needs to start with the top two: 1) the proper tools for risk measurement, and 2) alignment of defining the organisational objectives and the risk strategy (i.e. ensuring that both are directionally consistent). Performance targets should be aligned with the risk appetite and tolerance levels for the following reasons: 1) clear organizational structure, 2) establishing an alignment between the strategic direction of an organization and its risk management goals. A lack of such alignment prevents management from having an effective ERM; it is not feasible otherwise. Another issue is the risk infrastructure; correct and relevant information must be channelled to the right people in time. Organisations should also focus on having effective risk committee oversight; there is a real need for active involvement of the boards, and making sure the risk is reported in a clear, transparent and easy to understand manner. And finally, the issue of risk culture… the lack of collaboration of various cross-functional departments makes it difficult to implement ERM. It becomes a hurdle that is not easy to overcome, and requires a lot of time and effort to make the change 'stick'.	Enterprise-wide risk culture Consistent sharing of risk information Risk management tools ERM alignment of defining the organisational objectives and the risk strategy Understanding how ERM generates value & how to resolve potential ERM challenges ERM aligned with core organisational strategies & key objective Well-defined ERM structure & ownership Top-down & bottom-up ERM communication

26	Y			The demonstration of ERM value to key organisational stakeholders is the key to its sustainability. Senior management needs to see it can add value, improve results, execution, processes, etc., which varies by industry. In insurance sector, ERM value can be demonstrated through how it can improve the return on capital or risk vs. reward optimization. In addition, how risk management can help steer the portfolio to improve results.	Demonstrate how ERM generates the value Senior management support Clear risk structure, ownership and accountability for ERM
27	Y			ERM sustainability is determined by senior leadership who initiates ERM process along with a group of people, whose voice is on an equal playing field as any other C-suite type voice in an organization. When you look at the executive committee or something equivalent to that, if the risk function doesn't have a seat at that table, then there is a great risk of that not really holding it to its value over time, and consequently ERM becoming irrelevant over time. Equally important is there link with the board of directors. So they [risk function] should really meet regularly with the board level committee to discuss various elements of ERM framework, its evolvement, its adherence to risk tolerances. If there is no formalized structure around all those things that can be another reason it loses its sustainability. So the risk governance around ERM needs to be strong.	Senior management support Strong risk governance ERM Committee Demonstrating the ERM value
28	Y			ERM sustainability starts with the strong risk culture and the tone at the top. People across the organization need to feel that ERM brings value and it is not just a compliance effort, or checking the boxes. People need to feel you are helping them do things better and bring the value. If that doesn't happen, ERM can easily die under its own weight as it would just be another group of people asking just another set of risk questions. And often people would ask "what value is ERM bringing for me?"	Senior management support Risk committees ERM aligned with core organisational strategies & key objectives ERM culture & awareness
29	Y			ERM has to be aligned with the strategic planning first. Once it is built into the strategic planning it then becomes a part of your normal business review process. From there it can be incorporated into the individual performance plans with the appropriate KPIs/KRIs built in. So there has to be a link between the ERM and the performance management but it has to be tied into the right risk management consequences.	ERM aligned with the strategic planning ERM as a part of the core management and business process ERM aligned into the individual performance plans Monitoring the KRIs/KPIs
30	Y			ERM needs to be at the centre of what is happening in the organization; it needs to be "live". Once treated as a side process, it will die. Also, the people need to see it as critical to organizational deliverable – integrated into core management activities. It has to be a part of strategic decision making. Finally, ERM need to be embedded into the organisational model over time.	Robust risk processes (including risk reporting) Clear risk structure, ownership and accountability High maturity of risk awareness Risk adjusted decision making
31	Y			The sustainability of ERM is the ability to recognise that the organisation needs to adapt to constant changes it brings and its evolving dynamics to create an optimal balance. For example, a young high performing entrepreneur with an increased focus on the external factors (hugely customer oriented and flexible) it will have to recalibrate its culture to focus on the internal factors (people, rewards, structure, organizational stability, rules, ERM framework, models etc) It is necessary to achieve a long term ERM sustainability. Management may see that as slowing them down, but the regulators may be thinking that way the potential risks are easier to manage.	Create a balance between the right risk culture

32	Y			Until people realize that ERM needs to be aligned with their own personal objectives, and with the strategic objectives of an organization, ERM will not become sustainable. Senior management engagement and support is critically helpful too. If you have a senior leader who comes in and dismissed the idea of ERM offhand, this may change the attitude for ERM throughout the rest of the organization. People need to start seeing ERM as meaningful to their own work for ERM to become sustainable. So when it becomes a part of the fabric of how the organization operates, that's when it gains sustainability.	ERM needs to be aligned with people's personal objectives as much as with the strategic ones The board and senior management engagement and support
33	Y			In order to establish and maintain the sustainability, ERM needs to be fundamentally embedded into risk culture, and built into the value system. There are several critical aspects of risk culture that are instrumental for ERM to be sustainable.	Senior management support & buy-in ERM culture & awareness
34	Y			ERM can help management identify the resources that are most suited in specific risk roles (i.e. match individual risk profiles with the similar roles risk profile). Highly customised risk approach to ERM is critical.	Customisation of ERM framework best suited for organisational structure
35	Y			Obtaining people's buy in is at the top if the list of the factors that help establish ERM sustainability; people need to be convinced and see where the ERM value is. Hiring the right people is also critical. Since ERM is relatively new concept, so you do need to win the hearts and minds of the board, and senior management regarding what ERM is and what value it can bring to the table. Give ERM another 10 years, it will get more embedded into the organizational structure and it will become more sustainable with time. What is not happening, there is not enough successful case studies on ERM implementation – it is all kept back, people are not sharing enough so there is little implementation guidance to adapt ERM.	People's buy in ERM culture & awareness Right risk resources Demonstration of ERM value to key stakeholders ERM embedded into the organizational structure

Appendix Table A12 Factor Codes for variable ERMBENFT

ERM Benefit Category	Factor Code
Enhanced shareholder value and competitive advantage	ERMBENFT1
Enabling long-term sustainable profitability and growth	ERMBENFT2
Optimised risk and business cost	ERMBENFT3
Improved business and operational performance/effectiveness (including consolidation of risk infrastructure)	ERMBENFT4
Improved regulatory compliance	ERMBENFT5
Achieving strategic view of key enterprise risks	ERMBENFT6
Dynamic ERM culture and enterprise-wide risk awareness	ERMBENFT7
Effective ERM alignment with core organisational strategies and key objectives	ERMBENFT8
Strong corporate risk governance and reputation	ERMBENFT9
Risk-adjusted decision making	ERMBENFT10
Better preparedness for future market unpredictability and volatility	ERMBENFT11
Other	ERMBENFT12

Appendix Table A13 Factor Codes for variable ERMCHLNG

ERM challenges	**Factor Code**
Lack of managerial support & clear ERM implementation guidelines	ERMCHLNG1
Time & cost required to implement	ERMCHLNG2
Issues with developing & implementing the right risk technology & systems	ERMCHLNG3
Issues with integrating risk data across the organisation	ERMCHLNG4
Lack of alignment of ERM with the core organisational strategies & key objectives	ERMCHLNG5
Lack of ERM culture & awareness	ERMCHLNG6
Lack of in-house ERM expertise & skills to oversee the implementation	ERMCHLNG7
Having the appropriate risk methodologies & risk metrics	ERMCHLNG8
Lack of understanding of ERM benefits & challenges in the long term	ERMCHLNG9

Appendix Table A14 Summary of variable ERMBOD (interviews)

Does your organisation have a strong board level enterprise risk oversight? How can it be improved?					
No	**Yes (Y)**	**No (N)**	**Partially (P)**	**Problem description**	**The 'HOW' Solution**
1	Y			The board of directors doesn't seem to be actively involved into designing ERM. The value added to the implementation ERM process from the board is still minimal (and questionable) in many financial organisations what undermines ERM potential.	Active involvement of the Board in ERM
2	Y			It is critical that ERM is sponsored by the board, approve ERM policies, and are involved in risk assessment quarterly, and the process annually.	Board sponsorship Regular risk assessment Risk dashboards and heat maps available for board's review
3	Y			ERM can be supported by a board but once the board composition changes, the interest in ERM may also fluctuate in e.g. monthly risk reporting meetings etc. Support from senior management is paramount to the success or failure of ERM.	Senior management sponsorship Adequate board composition (skill set and experience)
4	Y			Risk management reports to the board directly and there is a dedicated committee responsible to oversee its implementation that is not involved in any of the business decision. Hence their responsibility is purely to oversee risk management of the bank with no conflict of interest. The board then approves the statement of risk appetite at bank level and at business unit. The Board Risk Committee (BRC) supervises the implementation of ERM/Risk Management.	Risk committee structure Board buy-in and support Board understanding of what ERM is and what does it intend to do (value)
5	Y			The board of directors have become increasingly interested in better risk oversight and tried to be more invovled in ERM. They also show more interest in key risk issues when they are escalated as key risk metrics with a better attempt to measure it more efficiently (and more meaningfully).	Board buy-in and support
6			P	There has been an improvement in board support, but it still has a long way to go. The boards need to spend more time in this area; they need to know the questions to ask as far as risk goes. One of the challenges the board has is the fact they heavily rely on somebody appointed to report key risks to them. There should be more risk training on the board level about how to ask the right questions of that person (i.e.CRO). The board need to understand the nature of the responses they get better.	Board understanding of what ERM is and what does it intend to do (value) Asking the right ERM questions and understanding the implications of the answers better

7			P	The board support should be initiated by demonstrating the ERM value by the business. Enterprise risk culture should encourage senior management to try and understand what key ERM benefits are and that's where the ERM discussion starts. It is important to have senior management "on board" but it is often the business that initiates the idea of having ERM. It can happen both ways. ERM idea can come from the business as long as the business produces/provides the relevant and usable information to the management and if they have, the board will most likely be supportive of it.	Board buy-in and support ERM driven from the "middle" and "bottom" through to the "top"
8			P	I think that the board is really helpful in setting the tone. An engaged board helps establish the risk accountability of the CEO. Effective risk oversight process helps set the stage for an ERM approach that is integrated with the strategy setting process and applied enterprise-wide. What the board really wants to know is what the most important issues from the risk perspective are. They can then direct the focus of the risk oversight process on those issues. Without the board's support, ERM process won't be sustainable and if it is only emphasized at the middle management level, it never goes anywhere. Boards need to further upgrade their understanding of the industry so they improve their risk oversight.	Board buy-in and support ERM approach that is integrated with the strategy setting process and applied enterprise-wide
9			P	One of the key factors in a successful ERM initiative is the support and involvement of both top management and the Board in launching and overseeing ERM at the firm.	CRO or a "C level" executive with designated responsibility for ERM Risk Committee of the Board to which the CRO reports directly
10			P	The Board owns the ERM and provides oversight on the framework and risks that the company takes. Senior management is responsible for the implementation and execution of the framework and processes, monitoring of risk appetite and escalation.	Clearly defined board risk oversight (roles and responsibilities) Clearly defined risk appetite statement aligned with ERM and embedded into the organisation
11	Y			ERM is board driven; the Board has ERM responsibilities outlined in their Charter and either the Audit & Finance Committee or the Corporate Governance & Strategy Committee have the chartered responsibility for overseeing the ERM process. In addition, the full board receives regular (either quarterly or bi-annual) risk reports and the committee responsible for overseeing the ERM Process receives at least an annual overview from the ERM Head.	Clearly defined board risk oversight (roles and responsibilities) ERM Committees Major risks reported to the board assigned to the appropriate board committee for more direct oversight of that risk and its mitigation plan
12	Y			They support this through a number of committees, and require actions to be carried out and targets to be achieved. They are directly involved in these committees at a personal level. Support from senior management is vital – it would be impossible otherwise.	ERM Committees Risk transparency of various risk issues and "bad news" around risk
13	Y			The board needs to get a regular insight from management on key risk issues wrapped up in three categories: lessons from the past (risk incidents and how they were resolved), present (risk profiles and quantification analysis on a high level), and the future (predictor events). Getting regular risk reports that allow answer the relevant risk questions helps the board to understand the overall ERM picture, and be more actively involved.	Risk Committees Clear Risk Policies ERM Roles and Delegated Authorities
14			P	Unfortunately, at board level there is a lot of misunderstanding of what ERM is, and what value it brings, so that can hinder the roll out of ERM significantly.	Board education programmes to learn about ERM and its value
15			P	There is a move in that direction in financial organizations. However, it is slow. But because of the crisis they [the boards] had to learn very fast to start understanding ERM and what is at stake. They saw it in front of their eyes what they can lose. We have a long way to go still until we get where we need to be.	Board education programmes to learn about ERM and its value

16			P	There has been a slow improvement in the board level risk oversight and much work is needed in this direction going forward.	Clearly defined board risk oversight (roles and responsibilities)
17			P	Senior stakeholder (BOD) support is fundamental to good risk management as envisaged in an ERM model. Without this, the ERM process will not happen or not be fully effective. Senior management (BOD) is responsible for the management of risk and for having in place an effective risk management system and system of internal controls. They are the 1st line of defence in the 3LOD model.	Board involvement and understanding what the value of ERM is Continuous risk education at the board level
18	Y			Board is very supportive and has the skills and expertise necessary to support ERM. Detailed involvement in ERM, Support from senior management is crucial.	Regular review of board composition and expertise of the board members Better understanding of what ERM is and what it intends to do at the board level (risk training)
19			P	Effective data management i.e. data that tells you what is critical to know when things go wrong or what is your margin as an example, is critical for risk reporting and keeping the board well informed. Unfortunately, a lot of senior management don't know with certainty where are their cash and liquidity at a specific point in a day? It is crucial that the board understands and is aware about ERM. Data is the key. ERM for a board member can be the right tool to achieve what they need to achieve i.e. to start relying on the risk dashboard and the capacity to have the interconnection between the business and the senior management, and to initiate the risk dialogue.	ERM as a tool for a board to achieve te organisational objectives Risk dashboards Build and manage the interconnection between the business and the senior management Initiate the risk dialogue
20	Y			Board oversight is critical; it has to be the primary and the "Buck Stops Here" body for articulating the risk universe and their appetite around those risks individually and then as the risks correlate one to another. And if the Directors cannot articulate or do not know then it is beholden upon the CRO to educate them and help them along. Same with other levels.	Constant and rigorous communication from the Board to all levels laterally and vertically Continuous risk education of senior stakeholders
21			P	There is confusion about where risk sits on the board i.e. COO, CFO or CRO? ERM is seen as a function that nobody is really quite sure about where does it actually belong and who should have the responsibility for it? The board needs to see the key risk message instead an insurmountable amount of risk data to sieve through.	Clearly defined board risk oversight (roles and responsibilities) Robust risk reporting highlighting top risks and implications associated with them Regular board level risk debates on key risk exposures Simple and user friendly ERM
22		N		The boards only start seeing the importance of ERM. There are some regulatory initiatives that enforce new rules in regards to the board i.e. the board risk committee that they have subject matter experts which is a good start. Currently, that is not the cas, and as a result, they do not provide the right level of much needed ERM support. At the end of the day that "support" is not reflective in providing the necessary resources to avert any future losses.	Hiring the risk experts Resource allocation towards ERM development
23		N		Often the board does not know what the level of risk appetite is. If the board is not able to provide a clear definition of what risk appetite is, then how can key risks be evaluated and measured, and against what? And how are you going to allocate it, report it? Who is accountable? Who should know about it? So that is in fact a big issue. Furthermore, in terms of ERM implementation, there is a lack of clarity around where risk is going to be reported, and how is it going to be dealt with. There is much work needed in this area.	Enterprise-wide risk training and education on the relevance of ERM to everybody's job Leverage the existing risk structure for ERM

24		N		Depending on the organisation and its relationship with its Directors, the Directors could be the driving factor for an organisation to implement ERM. If outside directors understand the value of ERM in their own bailiwicks, they are likely to promote it to the organisations on whose boards they sit. As for senior management; its involvement is critical.	Board buy-in and support
25		N		The board involvement in ERM is relevant to ensure the existence and sustainability of ERM. If the senior management is closely aligned with the risk committee it is easier to keep the objectives transparent and therefore understanding what the organization wants to achieve strategically is much clearer. The involvement of the operational management is very important in the implementation process as well.	Risk Committees Transparent risk and organisational objectives aligned with ERM Tone from the top, in the middle and at the bottom
26	Y			The board has ultimate accountability for ERM and is involved in setting the risk appetite and tolerances and providing governance over the ERM framework. The CRO presents a quarterly risk report to the board. Senior Management involvement is the most critical aspect of implementing ERM. Senior managers who do not support the program will delay its progress, even bring the program to a halt or leave you with such a weak framework that it won't be effective.	Robust risk reporting to the board Senior management involvement Clearly defined board risk oversight (roles and responsibilities)
27			P	It is crucial. It is an absolute must for the board to be heavily involved in the ERM process. The involvement that boards have had with ERM varies, but it seems like the involvement from a company to company is becoming more common and greater than in the past, partly because of the 2008 crisis. Generally there is a trend going where the role of the boards has become bigger. There is much room for improvement, and for some organizations is it still a relatively new concept.	Clearly defined board risk oversight (roles and responsibilities) Active board involvement in various stages of ERM process
28	Y			The board needs to support ERM. If the board members are executives and they are responsible for managing risk within their businesses as well as they are moving that right up to the board level - they understand ERM well and they are already quite well informed. But that is not always the case of course.	Clearly defined board risk oversight (roles and responsibilities) Active board involvement in various stages of ERM process
29			P	The boards still tend to have the compliance mentality. They get the risk dashboard with the top risks, KRIs trends – and the question then becomes "so what?" Risk reporting is rarely address the "so what" questions and it rarely links to the strategy, or indicate the potential implications (i.e. if you do not do this that is going to happen). This link of ERM to the decision making is very poor.	Identify the areas across the organizations that can provide and aggregate risk management data used for well informed decisions (risk adjusted decisions) Risk reporting aligned with the strategy planning Demonstrating the ERM value to key stakeholders (i.e. risk adjusted NPV)
30			P	The BOD support of ERM can be relatively subjective. One of the reasons for that is the fact that the board presumes sometime they know what ERM is but in fact they don't. That is how they fall into the gap. Also, if ERM is treated separately from the "day job", it will struggle to be sustained. So while in theory the board sometimes think they support ERM in reality they do not have the knowledge they need. And the arrogance makes it more difficult to notice that.	Strong governance Board level risk assessments Risk education
31			P	There definitely should be more discussions on the executive level around what impact do their decision may have on risk management and the customer outcomes.	Strong governance Board level committees

32			P	From the regulatory standpoint there are a lot of changes that are required of the board in particular within the space of overseeing risk (listed companies). There is a movement away from just one committee (e.g. audit) towards the board level committees. There are also exampled of having board member who works in an organization that actually succeeded in implementing and embedding ERM successfully as a "witness" of how it can be done.	Board level committees Board members who can provide practical ERM guidance first hand
33			P	The top level buy-in/oversight has improved over the years but still has a long way to go. There is no substitute for obtaining senior management buy-in: this has to be across the senior management team. ERM will not work without the senior management buy-in and the board's support. You need it for an enterprise-wide initiative such as ERM; the support is essential.	Senior management buy-in Board level ERM mandate
34		N		There are still a lot of arrogance and overconfidence amount the board members that affects the relationship with ERM group. A lot of people in senior roles are quite set in their ways and can be resistant to change. Depending on people's risk predispositions they will exert the influence over the board that will affect the decisions they board makes as a whole. And the board members can be very assertive, confident, and have the qualities that are excellent, but they also may have some less desired tendencies that can lead to the leadership derailment and affect ERM (downside of the personality).	Regular risk assessments at the board level to measure individual levels of risk appetites are essential.
35			P	The role of non exec directors is to challenge the BOD – in the past that didn't happen. They didn't have a great understanding or awareness of ERM. They didn't ask the right or penetrating enough questions or being challenging enough. They were not looking hard enough on the downside and the potential consequences of the projects being put forward. They were not doing the role the way they were supposed to be doing.	More educated board of directors who ask the right questions (training, workshop, risk assessments) Capable risk resources that are not afraid to be challenging

Appendix Table A 15 Factor Codes for variable ERMVAL

ERM Value category	**Factor Code**
Cost reduction driving competitive advantage	ERMVAL1
Increased ability to escalate critical issues to senior management	ERMVAL2
Strategic view of key enterprise-wide risks	ERMVAL3
Improved regulatory compliance	ERMVAL4
Improved understanding of risk and controls on an enterprise level	ERMVAL5
Enhanced culture & awareness	ERMVAL6
Streamlined business and risk processes enterprise-wide	ERMVAL7

Appendix Table A 16 Summary of variable ERMCUL2

Is a strong enterprise risk culture critical to full effectiveness of ERM? If so, how can it be established?					
No	**Yes (Y)**	**No (N)**	**Partially (P)**	**Problem description**	**The 'HOW' Solution**
1	Y			Managers should be asking themselves if the organisation has a standardised and consistent way to include risk in decision making. Also, employees risk appetites should be defined and measured accordingly.	Standardised and consistent way to include risk in decision making
2	Y			Every organisation has some form of a risk culture. The question the management should ask themselves: are we happy with ours and does it support our ERM?	Robust planning of continuous ERM education and training Formal alignment between ERM and performance management Risk management handbook
3	Y			A simple ERM truth is: without everyone's buy in ERM will be a failure. Continuous risk education is critical to its success. All employees should be able to approach and speak to the right people about risk and what to do about it, how to escalate risk issues and how to report it.	Continuous risk education The right ERM resources (i.e. "go-to") Well-defined risk reporting and escalation channels
4	Y			One challenge that management of financial organisations face nowadays is creating the consistency in Management should be consistent in how the staff is being motivated. Moreover, no ERM implementation can be fully effective if the risk culture is weak. It is critical, that the employees understand that their feedback will not implicate them negatively, and will not affect their performance appraisals. They should be aware there is a "blame-free" risk culture that fosters their feedback, and integrates it into a process of developing stronger risk environment. You start with the risk culture, and that is initiated "from the top". It can be seen as role-modelling; people know what sets of attitudes and behaviours are expected of them based on what senior management represents.	Continuous training and a well defined development programme supported by HR ERM initiated "at the top" (role-modelling) "Blame-free" risk culture employees understand that their feedback will not implicate them negatively, and will not affect their performance appraisals
5	Y			Risk culture is one of the most important factors of ERM. And the question is: can we have the right risk culture extend across the organisation and become embedded into the way organisation works. One challenge to overcome is to deal with cross-functional diversity of risk language and how differently people address similar risk issues across the enterprise. And then being able to understand, converge into the uniform risk language, and communicate across all organisational levels regardless of the seniority of the audience. Thus hiring the right resources is critical.	Cross-functional commonality of risk language Ability to converge various risk terminology into the uniform risk language Enterprise-wide communication Hire the right resources
6	Y			Most financial organisations are tentative as to how to address risk culture, and how to understand what risk culture really is. There is hesitancy, as it can be a little 'fluffy' as to define what risk culture really is, so the problem lies in identifying and managing the different between the cultural approach of an individual vs. corporate approach to risk. Across every organisation there are multiple risk attitude and behaviours and the goal is to make them along certain desired norms that tie into the strategic objectives. Risk culture needs to be sustainable - i.e. it needs to change dynamically and ensure new organisational objectives are achieved. Sticking with the same cultural approach regardless of internal and external changes will impact full ERM implementation. The key is to learn what the right balance between various risk sub-cultures across the organisation is.	Identify different organisational sub-cultures and define enterprise-wide standards Ensure the risk culture is dynamic and changes along with the new organisational objectives Continuous risk education, training, risk culture assessments

7	Y			Financial organisations should realise that the sustainability [or profitability which is exactly the same thing] of ERM cannot exist without a strong enterprise risk culture. Management should look at the long term, risk adjusted basis on a regular basis (income vs. cost). If you lose the long term perspective, you are losing the opportunity to build the sustainability. Also, people's buy-in is critical to ERM success.	Enterprise-wide buy-in Measure culture with risk adjusted metrics long term
8	Y			Many financial organisational are fascinated by the notion of risk culture but struggle to make it relevant to real people and make it actionable. Measuring risk culture may be useful from time to time as a checkpoint and get a perspective on what people's attitudes are. It can be a part of your employee survey. Have a risk culture section in your annual or bi-annual employee survey, that is to me is how you can "check" the culture to see what it is, from the vantage point of employees, and to make sure that top management perspective about risk culture is validated or not from the bottom and middle of your organization. I think risk culture is very important but still underrated, as people still don't know what to do with it, and the key is to make it actionable. Some follow the school of thought to measure and monitor risk culture, others seek to shape it by implementing effective processes, articulating clear policies, identifying and delineating risk responsibilities and making sure people know what their roles and accountabilities are, designing compensation structure that incentivises the right behaviours, and having risk tolerances and limits in place to require revisiting strategies when breaches or near misses occur. Organizations have risk culture whether you try to shape it or not but some choose to ignore the question of risk culture leaving the opportunity on the table, as there is a potential to look at risk culture and shape it in positive ways. Otherwise, it evolves on its own.	Ensure the risk culture relates to real people and is actionable Measure risk culture Design a compensation structure that incentivises the right behaviours
9	Y			To truly integrate ERM into an organization that company must cultivate a risk culture. Top and lower level management must develop and use a common language around risk. The firm should build or buy risk tools that enable all areas of the company to evaluate and communicate risks, controls and risk/performance measurement. Moreover, top management must set the tone that managing risk across the enterprise is one of the vital activities of the firm.	Tope at the top Common enterprise-wide language around risk Risk tools that enable all areas of the company to evaluate and communicate risks, controls and risk/performance measurement
10			P	Yes effective ERM can exist without a strong risk culture. However, banks don't have a single, consistent risk culture as different people will have different risk taking attitudes in the various business lines based in part on growth and performance targets. There can be a big disconnect between risk culture articulated at the senior levels and culture as understood in the business lines that take risk. There are no good measures to quantify culture and no means of tracking compliance in the business units. ERM can exists in an environment that has an amorphous risk culture because of a reliance on control metrics are quantitative in nature (e.g. VaR, EL, RC, EC).	Measure risk culture Balance a mix of subcultures across the organisation

11	Y			The role of risk culture in ERM starts with increasing the conversation and discussion w/in the company about risks. Recognizing, discussing, and embracing risks begins to shape a 'risk aware' culture. Usually, after about 3 years of formalizing an ERM Program, the annual business planning process should automatically include risk thought, risk considerations, and risk planning. There should be an ERM-go-to people appointed to provide risk guidance to staff, and to share thoughts about risk and how to best manage risks and report risks. The ERM head tend to end up with a very good 'text book' or academically sound ERM program, but it won't be effective from a practical standpoint. "Great in theory, but not in practice."	Regular enterprise-wide risk dialogue Inclusion of ERM in annual business planning process ERM champions
12	Y			Enterprise risk culture is invaluable in ERM process. It has a direct role to contribute and is very important in implementation. A poor one leads to serious incidents. When facing serious incidents, organisations' risk culture is often called out specifically as contributing to a poor controls environment and poor risk management in general. It is vital – but cannot be faked and is the product of a number of different initiatives – a plethora of interlocking drivers is the only way to move the needle on this issue.	Enterprise-wide communication Enterprise-wide participation in ERM Role modelling from senior leaders
13	Y			Enterprise risk culture is critical to a successfully ERM deployment and can be referred to as the ultimate risk management tool.	Enterprise-wide understanding of the business and value drivers and how to contribute Enterprise-wide communication Management buy-in and support
14	Y			Risk culture is very important; management should ensure everyone is risk aware and can apply it in their daily job naturally without thinking about it - but that takes time. Asking tough questions daily is the best way to foster the culture needed to grow ERM. It is an uphill battle that is best helped by top managers asking their subordinates daily: 'What are the biggest risks and what can we do about it?' If you keep on doing that for a while the idea will be embedded in each and everyone's mindset and becomes a natural reality.	Build risk awareness Risk in every job description Risk education, training, and development
15	Y			Bank's business model is all around managing risk; it is in its DNA. So when you look at ERM as a way of managing your risk, you also look at ensuring your people understand it, and become a part of it.	Increase people understanding of the risk profile of their organisation and what ERM aims to achieve Ensure the right risk awareness Risk education and training
16	Y			Risk culture is critical for the successful implementation of ERM. When such culture exists in the organisation, it will be easier to appoint an ERM committee, whose primary roles are the review and approval of the ERM framework, the risk identification and decision making, and the appropriate communication to internal and external stakeholders.	ERM committee s
17	Y			The tone from the top (i.e the message from senior management) is a fundamental requirement of an effective risk management system. This requires a risk aware culture that everyone is involved in as envisaged in the 3 Lines of defence model. Embedding risk culture is an ongoing challenge e.g. training, communication.	Enterprise risk aware culture through ongoing training Enterprise-wide risk communication
18	Y			Risk culture is fundamental. There needs to be the right tone from the top and this will permeate the whole organization. There needs to be a robust governance structure and proper delegated authorities.	Senior management support Robust governance structure and properly delegated authorities

19	Y			ERM is all about risk mindset and risk awareness first. The underlying factors in the ERM alignment are the strategy and the culture. First you focus on changing the mindset and only then tackle the systems and processes. When the risk culture and human integration are established, then you can put the strategy forward. You can trust the people, and confront them if necessary.	Building the right risk mindset via education/ training / involvement in risk management
20	Y			ERM is not sustainable if it supported by the right risk culture and isn't constantly assessed as to its own effectiveness in and of itself and against the ever changing landscape. Senior leadership must take the culture seriously or no one will.	Regular risk assessments of risk culture reported to the Board even if there is no change Tone at the top / role-modelling
21	Y			Senior management need to "live" the risk culture they are trying to embed into the organisational structure. Any changes to the processes or guidelines need to come from the leadership, and be enforced by appointed senior level executive sponsors to drive the change. And people need to feel that what they do is supported by the management, and there are people they can turn to in order to escalate issues or report "bad news". Finally the progress of the desired change needs to be monitored and measured by with the appropriate reward system. There often is disconnect between what the process says in theory and the practice of what really is happening with the culture across the organisation.	Active engagement of senior management in shaping the risk culture Risk adjusted reward system
22	Y			Without the culture, ERM becomes someone's pet project. Unless the risk culture across the organization changes, and becomes business as usual…. ERM won't reach its full potential. And to emphasize the culture – not only you need the right leadership, you also need the level of sponsorship and the right technology in place to support it. You need the focus of the organization from the reporting perspective; you need transparency to spot the right areas of weakness and opportunities, and your key strengths. In order to build a culture and awareness for risk management, quite often you find it is a struggle. But nonetheless, it is a critical component of a successful ERM programme. Every single person across the organization should have ownership of ERM programme, even if they are not classified as a risk management subject matter expert. They have responsibilities to perform their tasks, and find where risk opportunities and strengths lay, in their area. Therefore risk culture is absolutely crucial for ERM programme to be successful, otherwise it will become something a CRO or someone tries to drive forward without much success.	Risk culture becomes "business as usual" Senior management involvement Clear risk structure
23	Y			People usually do what they are rewarded to do; hence the compensation should be risk adjusted to avoid situations where people take excessive risk if there is a potential of a substantial short-term gain. One important thing that ERM's got right is being aligned with achievable organisational objectives. As soon as you take that away, ERM becomes ineffective. Once ERM is linked with the objectives, the meaningful KRIs and KPIs can be created and re-aligned/re-validated, if and when necessary. In my belief, ERM needs to be linked to organisational objectives; that is the key. And if people feel they are a part of ERM and it has a benefit that they can relate to (self-interest), they will want to be a part of it. If people see it as an add-on they will most likely not want to participate, and will do everything they can to do the minimum and get the management off their backs.	Align risk and performance measurement/management as a part of risk culture Introduce the risk adjusted compensation schemes Dynamic enterprise risk culture that everyone can relate to People's buy in

24	Y			"Risk awareness" (and the consequences of a threat occurring) at the senior management/board level is critical to ERM implementation. Gaining the buy in from the people across various functional units is a challenge; they are often reluctant to dedicate their time to ERM experts. If critical decision makers don't participate in ERM, it will end in a failure.	Enterprise-wide risk awareness People's buy-in and commitment Involvement of decision makers in ERM
25	Y			Management often doesn't know what the key risks that contributed to the collapse of their organisations were. There is no doubt that organisations have to start with identifying, assessing, measuring and reporting key risks effectively to make sure that they are able to deal with some extreme situations with the 'smooth landing'. Risk people should most certainly know what the business is doing, and the other way round (i.e. 'the right hand knows what the left is doing' approach). Independence of risk functions (risk assessment as such) is critical and it allows protect the compensation structure (risk-adjusted compensation schemes), and removes the element of pressure the business departments can have over risk management. It all comes down to people understanding the basics: when is produced [inputs and outputs of the risk process], and how it needs to be communicated and reported.	Enterprise risk culture where everyone is involved in the process Enterprise-wide risk transparency in the context of how risk is managed and how the business is run.
26	Y			Having a strong culture is the key to building an ERM program. If you have CEO and senior management support, you will be fine. If you do not have this, then the program is likely to fail or not achieve its goals. Strong risk culture can be developed by establishing consistent repeatable risk processes which are carried out on a regular basis e.g. quarterly.	Risk culture addressed through a repeatable ERM actions ERM owned by ERM Committees Risk-adjusted compensation ERM aligned with the performance metrics
27	Y			Enterprise risk culture is critical to fully effective ERM and for it to reach its full potential. You can have some elements of ERM in place without a strong result, but you are going to be limited in how far you can go with that. It is like rioting down the road with a flat tire, you can move but you are not going to move nearly as fast as the cars passing you, you are not going to have a whole lot of control. That is an analogy that can apply to ERM framework too.	Active engagement of senior management in shaping the risk culture Risk consistency across organisational functions Strong management guidance around ERM implementation Risk adjusted reward system
28	Y			It starts with the tone at the top. Next is tying risk compensation to risk adjusted performance results. If the junior people don't see that the senior people don't take ERM seriously, they won't take it seriously either. ERM's value is often intangible at first, and only materialises in a long term. The right culture should support enterprise risk awareness otherwise ERM can be easily undermined. You can do it the fast way and not bring the right people along, or you can do it the slow way, build it up over time, when it became embedded in how people think. To me the latter is much more valuable and sustainable.	Communication and risk culture initiated and led by the Board and CEO are key Risk adjusted compensation schemes People's buy-in
29	Y			Good risk culture along with mature risk processes is a prerequisite for a successful and sustainable ERM. So if you want to integrate risk management with performance management, the performance management framework needs to be mature. Organisation must have a positive organizational culture as much a strong risk culture along with the mature strategic management in place for ERM to succeed.	Risk culture becomes "business as usual" Senior management involvement Clear risk structure, ownership and accountability

30	Y			Risk culture is really critical – it has to be a way of life; ERM has to be – embedded into the organization. ERM success is highly dependent on the people doing the right thing. So it is essential to get the people, process, and all the factors highlighted in Q5 aligned. That reduces the overall cost of risk. ERM is not for free you need to invest to gain from it. People need to deliver on their actions, deliver on their goals.	Embed ERM in the existing organisation structure Increase risk collaboration and communication between the functions People buy-in
31	Y			Culture is often in "too difficult" box. The world culture is difficult to describe and few organizations would have a definition for it. They are not sure what the starting point is and where to begin. And even if they do the surveys measure it they are really HR type surveys that are not really effective and don't get deep down to what culture is all about. At the end of the day, management should be able to answer what impact did the changes made in the organisation had on the culture. Not many can accomplish that. Some organisation chooses to audit risk culture they decide on the diagnostics and determine the benchmark. But the bottom line is to get to the heart to the bottom of the culture? The end goal would be finding the "hot spots" that need additional attention and the change.	Risk tools that measure what factors drive cultural behaviours Risk culture audits
32	Y			Risk culture means different things to different people. So first the organizations have to understand its risk culture and realize it needs to be defined. It also has to follow organizations' risk appetite and tolerances (i.e. risk profile). The understanding of risk and the increased risk awareness definitely helps to work together cohesively, exploring new opportunities that can drive the sustainability and as a result competitive advantage.	People buy-in Enterprise-wide communication Risk education/workshops/trainings
33	Y			Risk culture is not a precise science and there is no 'recipe book' answer. Organisations should aim to become a risk intelligent organization, and not only do the risk management process for the sake of compliance, that's one. It is critical that an organization first clearly understands its culture, then thinks of a desired 'target culture' and only then drive change in its risk culture. Another thing is to deal with risks risk systemically throughout the organization, and if the opportunity occurs, be able to leverage risks to its own advantage.	Risk training Enterprise-wide communication People's buy-in and trust
34	Y			"Risk Culture", with its implications of a deeply entrenched set of influential and effective risk attitudes, has an obvious appeal as a vehicle for risk-management, potentially opening doors to new possibilities and solutions. The practical difficulties associated with this approach arise from uncertainties concerning the definition of culture and, as a consequence, uncertainties about its mechanisms, its constituent parts, or its processes. When it comes to action, intervention or influence, it is difficult to know where the levers are, which to pull or how to get to grips with culture. Risk surveys may be difficult to analyse as with culture it is easy to lose the details in the process and average out the very details that may best characterise particular divisions, departments or the organisation as a whole.	Various motivational techniques (i.e. incentives system) Regular personality assessments (recruitment, leadership, development) Liaising with HR on cultural matters Balancing out the teams/groups that have a high risk tolerance with some individuals that are more risk averse (developmental workshops)

35	Y			There is no ERM success without a strong risk culture. The way to look at risk culture is how the management does things on a daily basis. It is all about building it into core management activities. The risk culture may be one of the most difficult nut to crack as you need to bring critical people along with you. And everyone needs to be on the same page. Bringing the people with you is the biggest challenge. And sometimes it takes one or two cynics (senior people) along the way who have not bought into it that can diminish the ERM value. And they can colour other people's opinions. So the culture also needs to be sustainable, and it can only be sustainable if you are working on it on a regular basis. You cannot have it wrapped up in a policy.	ERM culture built it into core management activities Understanding of the strategic objectives with ERM People's buy in

Appendix B Sample Interview Transcript

Brunel Business School

Research Ethics

Participant Information Sheet

1. **Title of Research:** Enterprise risk management: Developing a strategic ERM Alignment Framework - finance sector.
2. **Researcher:** PhD Student: Joanna Keith; Management Studies Research, Brunel Business School, Brunel University.
3. Contact Email: E-mail: Joanna.Keith@brunel.ac.uk
4. **Purpose of the research:** This study aims to explore the subject of enterprise risk management and its key areas relevant for this research.
5. **What is involved?** The research involves qualitative semi-structured interviews. The interviews will take approximately 30-60 minutes. The interviewees will be asked approximately 10 questions about enterprise risk management. The questions focus on: 1) ERM, its key areas (general questions) and 2) ERM practises applied in respondent's organisation (specific questions).
6. **Voluntary nature of participation and confidentiality:** All participating organisations and their members will remain anonymous and confidential. The research may reveal the positions held by the participants within their respective organisations, but it will remain unrecognisable to other parties. The identity of all respondents may be revealed but remains anonymous, unless the responded wishes otherwise. The confidential data will be accessible to the university. Participation in this research is entirely voluntary and the participants may refuse to complete the study at any point, refuse to answer any questions with which they are uncomfortable, and ask the researcher any questions they may have.

Enterprise risk management: Developing a strategic ERM Alignment Framework - finance sector.

Answers to all questions can be based on direct examples from the organisation the participant works for or the experiences observed in other organisations.

Date: 28th August 2013
Time: 14:00
Location: Conference call
Name of the interviewee (code): RI8

1. **Can effective transition from 'silo' risk management to ERM be achieved? How? Please share the ERM success stories.**

RI8: There is one thing about the whole concept of 'silos' within an organization. The command and controls structure that is so typical of organizations is never going to go away completely. There is always going to be a vertical hierarchy within any organization. Any time you have a vertical hierarchy, you are going to have the 'silos'. There are functions in every organization. Nothing you can do about it. And when you have functions you have people who are responsible for those respective functions. So I think you need to start with that perspective of that reality that you are going to have 'silos as a part of your organization. These include risk management, compliance management, treasury, HR, health and safety, quality control, etc. The question is how you ensure that the existence and the reality of 'silos' don't compromise the effectiveness of risk management. That to me is the question. And with that perspective, it is very important to integrate ERM into the core management processes at the business.

Every organization should have a risk management process that focuses on risk identification, measurement, evaluation, mitigating and managing risk. There is a lot of information about frameworks available in the public domain like ISO31000, COSO ERM, BS31100, etc. A lot of suitable frameworks exist out there that can help an organization customize its own process. But in designing its own process, an organization has got to integrate that process in such core management activities like strategy setting, business planning, and performance management because those disciplines engage the 'silos' in an organization. Every 'silo' needs to measured and participate in those management

activities. If we can integrate ERM into those core management activities, we can overcome the barrier that 'silos' present. We can also ensure that ERM will be implemented effectively because it will be accepted in the C-suite executives. If we can integrate it with the processes that C-suite executives consider important, we can then ensure that ERM is going to be implemented, it is going to have legs, meaning it is going to be sustainable and we will be able to overcome the tension that the 'silos' existing in an organization create.

RI8: I think there are two things about ERM that I consider very important. The existence of 'silos' has always been associated with traditional risk management. So everything you did around managing people would have an HR function around it, everything you do for managing financial & treasury risks would have a financial function, everything you do around safety, you would have operations for. Traditional risk was built with the 'silo' structure in mind. ERM on the other hand is taking a view of the enterprise as a whole and is attempting to elevate the strategic focus of risk management. So that's why you have to be thinking about integrating ERM into processes that are strategically focused.

2. **Since the global financial crisis (GFC) did financial organisations change their existing approach to managing risk? How?**

RI8: There are two things that come to mind. The financial crisis taught us many lessons. It taught us for example, about the price of CEOs behaving badly. By that I mean shooting the messenger, not listening, not paying any attention to the warning signs posted by the risk management function, not informing his or her board of significant risks, etc. Tt was really pathetic to hear another round of excuses regarding "we didn't know" in the board community. We heard a lot of that talk during and after all the scandals in Enron era…. and here we fast forward to now, and we hear all of that again i.e. the same pathetic four words: "we did not know". It was really disturbing and troubling to hear. So, one of the most predominant trends that have occurred post-crisis is increased emphasis at the board level on the importance of risk oversight. Leading up to the financial crisis, as you can find out from the various studies like McKinsey, for example, directors did not really understand what to look for, in terms of risks. The financial crisis triggered more focus on board level risk oversight that has become more disciplined and robust. We focus a lot on

board risk oversight; we publish on the board risk oversight topic on our website and have done so for a number of years. That is number one.

RI8: The second thing that has happened since the financial crisis is a recognition that an enterprise approach to risk management and risk culture are very important. This includes the positioning of risk and compliance management within the organization so that they can be effective. And the importance of dealing effectively with issues once they are escalated has become even more important now after the financial crisis. The board is also asking more questions that increase the focus on enterprise risk management. Up until the financial crisis, boards asked questions like: ”what are our risks?”, and “how are we managing them?” There were a lot of questions like that discussed at the boardroom. Since the financial crisis, the board started to ask a third question: ”How do you know?” That third question sends a clear signal to the CEO, that you cannot come to the boardroom and answer only the first two questions. You have to have a process that informs your responses to the board’s questions and that process informs the board risk oversight process. So, that increased attention that the process matters and also increased interest in ERM and how you implement it.

3. **What is your experience in ERM? Which stage of ERM have you been involved in?**

RI8: I have been involved with the discipline since the very beginning. I published, what I believe, was the first book ever published on ERM called “Enterprise-Wide Risk Management: Strategies for Linking Risk and Opportunity” (Deloach, 2000). It was published by FT and was based on 100 interviews in NA and Europe. I have seen companies at different stages of ERM all the way from the beginning stage of performing the risk assessment to more advanced stages of integrating risk management with core management processes. I also have seen a lot of companies that didn’t really practice ERM, although they may claim they do. They actually practice enterprise “list” management; they have a list of risks they identify and file away until they find more risks as a part of their next “touchy feely” risk assessment. No attempt is made to impact a business plan.

RI8: I have also been involved with the companies that have ERM and are doing a good job with integrating it with their core management processes. So I have seen both sides of

the spectrum, and what strikes me is that the companies that have done a very good job implementing ERM, there are not many of them. And even having done that, they recognise their vulnerability as the world is a very risky place. Just because you have ERM does not mean you are not going to get hit. Every organization is going to be tested at one time or another. The world is too fluid and stuff can happen. For example, you have a power plant and you lose the grid. You have manufacturing operations and you lose a strategic supplier. You have operations in a way of a hurricane, like Katrina. Again, unpredictable events can hit your organization. We saw the ultimate example at 9/11. 4,000 people were killed that day, and a lot of them just went to work that day, and who would have thought that something like that could happen. The point is that your organization will get tested at some point, regardless of the stage of ERM it is at.

RI8: It is my experience that most organizations that claim they have ERM may not really have it the way it is intended. I have a couple of standards regarding the proper implementation of ERM: 1) it needs to get integrated with the strategy setting process and the other is 2) it really needs to be applied across the enterprise. Both I believe are very important. Both of those standards are captured in COSO's definition of ERM. So why are those standards important? If ERM is not established and integrated as a part of the strategy setting, it will not be a process that will sustain the interest of the CEO or his or her executive team. It just won't. The reality is the CEO expects that the people who are hired to run and manage the day-to-day operations are fully equipped to manage the day-to-day risks as a part of their day job. And if he doesn't see a focused list of 4-5 risks to use in engaging the executive management team, he may have a less strategic view of the contribution of risk management. An enterprise-wide view of risk that underlies the execution of the strategy is what captures of the interest of the C-suite. The other aspect is ERM is it has got to be applied across the enterprise. An example of failing to do that is documented very well in a book called: "All the Devils are Here," which is a very good articulation of how the financial crisis occurred. The book describes what happened to AIG. And what happened in AIG was you had a rogue unit that was issuing the credit swaps. Unknown to the CEO, the board and the rest of the organization, those credit swaps had contractual triggers linked to AIG's AAA rating that would give the holder of a credit swap the right to call on and cash out the swap if the credit rating of AIG dropped below AAA status. No one knew that. And one of the reasons why no one knew that was that the

leader of that unit he was a guy who everybody was afraid of, even the CEO. Nobody would challenge him, he would not let anybody come into his unit to look at anything he was doing; he would not give the access to the internal auditors. So that is a good illustration of what happens when you don't apply ERM across the enterprise. When you have got a guy operating a unit in which nobody has transparency, as in AIG's case, it almost brought the whole company down contributing to a disaster in the financial markets.

4. **Does your organisation have ERM? If yes, please describe it briefly, and provide key reasons for adopting it.**

RI8: So as I said, to implement ERM, organizations need to make sure it is applied in the strategy setting and is applied across the enterprise. And I just don't believe that a lot of companies do that and do it well. That all said you can look at the statistics and you see companies raise their hands and assert that "we apply ERM" but the question is "what is it that you really do?" Do you have a risk register that nobody in operations cares about or do you apply ERM in segments of your organization by not across your organization? In many instances you see organizations that have some risk management but it is not ERM. That said you need to look at it cautiously when you see the statistics and studies about the companies that say they have ERM. So that is in a nutshell how I have seen various organizations applying ERM

5. **How important is the alignment of ERM and key organisational areas such as: strategies, objectives, governance, risk appetite & tolerance, culture, technology, risk and performance measures, risk adjusted compensation, and changes in internal & eternal environments?**

RI8: All those attributes are extremely important and depend on the complexity of the risk environment. I have experienced that most of the organizations are very different in terms of structure, strategy, culture, objectives and the financial wherewithal (budget) they have for implementing those objectives in respect to ERM. So it depends on what these objectives are as it can influence certain aspects of ERM you have outlined. For example, if you have companies that want to improve their board risk oversight process as a primary objective. What they end up doing is implementing clear policies that delineate management responsibility and the board risk oversight

responsibility, develop reporting that is submitted to senior management and the board, and develop processes that support that reporting. With other companies, the objective centers around interconnecting ERM with the strategy setting process and you decide how you define risk strategy in the context of the overall corporate strategy, how do you define risk appetite, and the statement of risk appetite is articulated in the context of strategy setting. How you integrate the enterprise risk assessment process with strategy setting which may require you redesign your enterprise risk assessment process and ultimately how do you integrate with performance management which means you are balancing the performance metrics that currently exist (typically they are "lag" metrics which look back at historical performance), by adding risk indicator metrics that look forward, focusing on trends and monitoring of the external environment (lead indicators of a predictive nature). For example, deferred maintenance can be a lead indicator of potential safety issues. That has been going on for a long time. You see a plant explosion. We had one here in Texas City 5-6 years ago and it turns out the main issues was the deferred maintenance authorized by corporate headquarters that caused safety issues down the road. So the objective, the reason why you implement varies depending on your objectives.

RI8: I worked with one company in late 90s, which is now called Holsom Ltd that requested an assessment of ERM and the objective that the CEO, and the Chairman of the board had for implementing ERM was to improve the governance process. So the focus was on improving dialogue between senior management and the board, dialogue between various business units and group management (i.e. senior management). It was one way of keeping risk from being a word to avoid. They wanted more of an open, communicative environment. They wanted people to speak more freely about risks they take. And in doing so, they wanted their people to identify the soft spot in their business plan; i.e. the potential issues that could keep them from accomplishing strategic goals, and that's all about linking risk and opportunity. So I think there is a huge connection between why organizations implement ERM and the key point of emphasis in their ERM solutions.

RI8: And there is one more attribute you mentioned i.e. risk-adjusted compensation. That is an area that is really important. The tools that we have available to implement

this concept are like performing brain surgery with a hammer and a chisel. In the financial service industry, we have claw backs. We saw claw back provisions applied with the London whale incident to the woman who was thrown under the bus. I think she had a compensation of GBP2m claw back, you have to look that up if that is what you are interested in but that is the result of avoiding compensation structures based solely on short term gains. In the light of the financial crisis, we learnt that people were incentivized by their compensation and acted upon it when they had an opportunity to do so. So if taking risk for the short term is emphasized, people will look at this as an opportunity to maximize their compensation even if the risks they take are not in the long-term interests of the shareholders. So the claw back provisions are an attempt to balance the compensation scheme to reward long term thinking and treat employees fairly in terms of a short term performance.

RI8: You have also mentioned the changed in internal and external environment. Companies have an objective to enhance the strategy setting process with ERM. I recommend reading two white papers on "Early Movers". They describe how based on the analysis of your strategy, you analyze strategic risk using contrarian analysis, and how you take the results of this analysis and identify the vital signs that you need to model the external environment to determine whether one or more of the critical assumptions underlying your strategy have become, or are becoming, invalid. So what we learnt in the recent financial crisis was that if you are not using ERM to position your organization as an early mover, then when the music stops and you got to revisit your obsolete strategy, it will be too late to do anything about it. So in the financial crisis, there were financial institutions that attempted a quick exit from the sub-prime market. So they started exiting the market "before the music stopped" in late 2006 and early 2007 and they were well positioned to survive when the bubble burst. Those organizations that "kept dancing until the music stopped" they made a lot of money up until that point but once the credit markets dried up and when there was no more liquidity in the market, they were in a world of trouble.

RI8: I think all those factors included in your questions are very important. But what I said that most companies that implement ERM the interest they have in those factors is

depending on the objective they have in implementing ERM which also tells us that all organizations are different, and therefore their implementation of ERM is different.

6. Can ERM be sustainable in the long term? How? What factors are critical to effective ERM?

RI8: I think that the important point here is this: if you want to have your ERM solution to be sustainable, you have to have senior management support. CEO has to be supportive. You have got to have the buy-in from the operators so your line of businesses (i.e. your operating people have to buy into it). You also need cross functional cooperation. That answers your 'silo' question. The people need to cooperate. So those sorts of things such as top management support, buy-in from the operators, and cross functional cooperation are vital to a sustainable ERM solution. There are two others things I can think of: 1) ERM approach has to be relatively straightforward it cannot be too complicated especially if you are just starting up and 2) it needs to leverage what the organization already does i.e. it needs to be incremental to what the company's already doing. So the risk management process and the reporting mechanisms already in place should be leveraged if they are effective. Finally I think the integration point is very important. Integrating ERM with the core management processes gives ERM a lot of "legs".

7. Why do organisations implement ERM? What are key ERM benefits?

RI8: There are many reasons I can think of. One is *improving business performance*. A good illustration of that is JPMorgan. They have been under attack lately about the London whale case, and some other stuff that has been going on as articulated in the press. But they were one of those institutions that saw the financial crisis coming in 2006-2007 and as a result they were early in exiting the sub-prime market. And their returns in 2007 were lackluster relative to the returns of other financial institutions that were still gorging on subprime investments as the housing market continued to build-up to incredible proportions. And they were criticized for it as they exited the subprime portfolio. And in 2008, their balance sheet was much stronger than anyone's. And when it came to continuing operations in 2009, they did well. They've had their problems over the last year, with some regulatory issues, and the London whale, but nonetheless, the point is their risk management positioned them to survive the financial

crisis while a lot of the other financial institutions were acquired, ran out of business and were substantially weakened. ERM can improve long term business performance of an organization.

RI8: Second example is *gaining a competitive advantage*. You can read one of the bulletins that talks about what it takes to be an early mover. For example, like JPMorgan was at the beginning of the 2008 financial crisis. The article talks about three things: (1) recognizing the vital signs (looking at the changes in the external environment) and (2) acting on those signs, as well as (3) learning from mistakes. And ERM can position an organization to become an early mover, which means that it can help them establish and/or sustain a competitive advantage. If you can take an early move to take advantage of new opportunities in the marketplace or significant risks that emerge in the marketplace, then you are in a position of having an advantage over your peer competitors who either do not recognize the early signs or do not act upon them. Knowing what the signs are is not good enough; you need to act on them. Steve Ballmer, the CEO of Microsoft, he had his finger on the tablet market except the others moved faster. All this time he had the prototype, the pilot, he had it right in from of him, and reports indicate that he pulled a plug on it in favour of investing in the company's software products. They knew there was a potential market but they could not move into it and act upon it. That is one of the reasons Steve Ballmer is out. So being an early mover is critical, and ERM can help position a company as one, and therefore establish a sustainable competitive advantage because organizations that are more nimble in acting on emerging opportunities and risks, and have the ability to move quickly will most likely be those organizations that will be successful over time in this rapidly changing world.

RI8: The other observation of lesser importance is the *optimization of the cost of risk management*. By taking more of an enterprise view, a more of a portfolio view of risk, you can identify opportunities to reallocate resources in ways that help optimize the cost of risk management. That to me is not as big of a deal as improving business performance or establishing a sustainable competitive advantage, but it is a factor nonetheless.

I think one last benefit is *enhancing and improving communication between senior management and the board.*

8. What are biggest challenges in implementing ERM? How do you think could those challenges be overcome?

RI8: I think the biggest challenge is by far figuring out what ERM is. People try to explain it but ERM remains an enigma. It means different things to different people for all the reasons we have discussed, and therefore CEOs are distrustful of the concept. What they don't want is a time consuming initiative placed on top of everything else that the organization does, and something that is implemented as an appendage consuming people's valuable time. I have never met a CEO who wouldn't blink if his/her operating people look at him/her and say "what do you want us to do, do you want us to do this ERM stuff, and do you want us to run the business and serve customers?" So it is very important that the CEO understand why ERM is being implemented. That's why I emphasized the importance of the integrating and understanding the "why". I describe it as "defining the problem we are trying to solve". Otherwise ERM is a solution in search of a problem. And we work really hard to make sure we go to the top of the organization and find out what is the problem that we are trying to solve. So we have a well-defined problem, to which there is a solution. So once you do that, then you are talking about the integration; you integrate the solution into core management processes. And then you focus on getting the buy in from the operators so that it does not become something they have to do in addition to everything else they do, but it is something that positions them to be successful and improves their communication with the C-suite. I think that it leads to a buy-in from the operators as it is not seen as an appendage. That is one of the reasons I mentioned risk registers. Risk registers may be useful to some people but if operators see them as a burden to provide data and information for the sake of it without a clear purpose, that kind of ERM approach is not going to be sustainable.

9. How does the board of directors of your organisation support ERM? How important is the ERM support from senior management?

RI8: I think that the board is really helpful in setting the tone. An engaged board helps establish the risk accountability of the CEO. And so I think that an effective risk

oversight process helps set the stage for an ERM approach that is integrated with the strategy setting process and applied enterprise-wide. What the board really wants to know is what are the most important issues from the risk perspective, so that they can focus the risk oversight process on those issues. Without the board's suppor, thet ERM process in not sustainable and if it is only emphasized at the middle management level, it never goes anywhere and there is no exception to that. It goes nowhere without senior management support.

10. Do you think ERM can generate value and ensure competitive advantage? If so, how?

RI8: The clearest articulation I can give you is that early mover example: "how to position your organization as an early mover?" I think that as a distinctive point of view; we call it an early mover and differentiate it from the first mover concept which is mostly a marketing concept i.e. the first mover in terms of entering the market first. Here we talk about not being a first or second mover; we talk about being an early mover. If you are following the herd, and the herd is moving down a path from which you have no chance to recover. The early mover concept is about recognizing the vital signs and taking action before the herd realizes the opportunity or risk exists, and I think that is generally how ERM works. One thing we are doing now, we are working with a major healthcare provider. Their CEO was trying to figure out what ERM was. I told him that I did not know a whole lot about operating a healthcare provider e.g. how to run and manage it but I do know he didn't know what was going to happen in the future. And when we look at the top risks, we see: regulatory uncertainty, political uncertainty, and economic uncertainty. And again, nobody really has a clear view about what is going to happen in the future in the industry in the United States. That kind of uncertainty strongly suggests that an organization needs to be agile, adaptive, able to move quickly to respond to change, and to do that, it has got to recognize what the vital signs are. So the concept of early movers involves analyzing strategic risks and aligning your competitive intelligence function to address the vital signs that matter. And you may not have a competitive intelligence function per se, but you got someone or a group that focuses on being the "ears and eyes" of the CEO and looking out at the external environment. What are they looking at, what are they looking for

and why? You need to be able to answer those questions. So this is a way of making sure that what they are looking at is aligned with the critical assumptions underlying the strategy. That's how ERM can create value and generate competitive advantage.

11. What is the role and importance of risk culture in ERM implementation? Is a strong enterprise risk culture critical to full effectiveness of ERM implementation? Please share your experiences.

RI8: We have done a lot of thinking about risk culture; I am personally fascinated by the notion of risk culture. We are trying to figure out how to make it relevant to real people and how to make it actionable. We just recently did a study (we have not published it yet) of financial institutions that was focused on risk culture. One of the major takeaways was that 57% of the people that responded to the study said that their organizations made no attempt to measure or evaluate their risk culture. And of the 43% that did not say that, only a third said they were confident that their risk culture was effective in minimizing significant issues. So yes I think there is a role for risk culture, and it is very important. But the question is how do you make it actionable? For example, is risk culture something you should measure and monitor or on the other hand is it something you drive and influence, meaning you don't want to necessarily measure it but rather you seek to shape it by implementing effective processes, articulating clear policies, identifying and delineating risk responsibilities and making sure people know what their roles and accountabilities are, designing compensation structure that incentivises the right behaviours, and having risk tolerances and limits in place to require revisiting strategies when breaches or near misses occur.

RI8: Organizations have risk culture whether you try to shape it or not. Organizations that ignore the question of risk culture are leaving the opportunity on the table, as there is a potential to look at risk culture and shape it in positive ways. Otherwise, it evolves on its own.

RI8: I am from the school of thought that believes that you really need to look at what influences risk culture and concentrate on those factors that implement risk culture as that is more actionable in the marketplace. Measuring risk culture may be useful from time to time as a checkpoint and get a perspective on what people's attitudes are. It can be a part of your employee survey. Have a risk culture section in your annual or bi-

annual employee survey, that is to me is how you can "check" the culture to see what it is, from the vantage point of employees, and to make sure that top management perspective about risk culture is validated or not from the bottom and middle of your organization. I think risk culture is very important but still underrated, as people still don't know what to do with it, and the key is to make it actionable.

RI8: So going back to the risk culture survey we just did… it suggests that less than 15% of financial institutions have established that the risk culture matters. That is not a very impressive stat.

12. Based on your observations, what is the current state of ERM implementation in financial organisation?

RI8: It has improved but still has a ways to go. More work needed in defining risk appetite and improving risk culture. More work needed to position risk management effectively in the organization. Boards need to further upgrade their understanding of the industry so they improve their risk oversight.

Demographic Profile

1. What region does your organisation operate primarily? What is your organisational area, and current position? RI8: Global; Managing Director; Global operations - ERM;
2. What type of organisation do you work at? What is the size of the organisation based on the number of employees? RI8: ERM Consultancy;
3. How many years have your worked in risk management or ERM, and what is your prior background if applies? RI8: >40 yrs

Appendix C Research survey

Enterprise Risk Management: Developing Strategic ERM Alignment - finance sector

Brunel Business School - Research Ethics - Participant Information Sheet

1. Title of Research:
Enterprise risk management: Developing Strategic ERM Alignment Framework - finance sector

2. Researcher:
PhD Student: Joanna Keith; Management Studies Research, Brunel Business School, Brunel University.

3. Contact Email:
E-mail: Joanna.Keith@brunel.ac.uk

4. Purpose of the research:
This study aims to explore the subject of enterprise risk management and its key areas relevant for this research.

5. What is involved?
The research involves quantitative survey questionnaires consisting of approximately 30 questions. The survey will take approximately 10 minutes. The questions focus on:1) ERM, its key areas (general questions) and 2) ERM practises applied in respondent's organisation (specific questions).

6. Voluntary nature of participation and confidentiality:
All participating organisations and their members will remain anonymous and confidential. The research may reveal the positions held by the participants within their respective organisations, but it will remain unrecognisable to other parties. The identity of all respondents may be revealed but remains anonymous, unless the responded wishes otherwise. The confidential data will be accessible to the university. Participation in this research is entirely voluntary and the participants may refuse to complete the study at any point, refuse to answer any questions with which they are uncomfortable, and ask the researcher any questions they may have.

* Required

1. I have read the participant information above and hereby indicate my agreement to participate in the research and for the data to be used as specified *
Mark only one oval.

- ◯ Yes, I agree *Skip to question 2.*
- ◯ No, I do not agree *Stop filling out this form.*

Demographic profile

2. Please indicate which geographical region your organisation operates in primarily. *
Mark only one oval.

- EMEA
- North America
- South America
- Asia Pacific
- Other:

Enterprise Risk Management: Developing Strategic ERM Alignment - finance sector

3. In which industry sector does your organisation predominantly operate? *
Mark only one oval.

- ◯ Banks, Credit Union, Savings Organisations
- ◯ Management Consultancy
- ◯ Insurance Companies
- ◯ Asset Management
- ◯ Hedge or Investment Funds
- ◯ Stock Brokerages
- ◯ Other

4. Please indicate the size of your organisation measured in a number of employees. *
Mark only one oval.

- ◯ Under 1,000
- ◯ Between 1,000 and 10,000
- ◯ Between 10,000 and 50,000
- ◯ More than 50,000

5. How many years have you been involved in ERM or risk management? *
Mark only one oval.

- ◯ I do not have risk management experience
- ◯ Less than 1 year
- ◯ Between 1 and 5 years
- ◯ Between 5 and 10 years
- ◯ Between 10 and 20 years
- ◯ More than 20 years

6. What is your position in the organisation you currently work at? *
Please provide a short job description

_____

_____

_____

_____

_____

7. Please select the level of seniority that applies to you most. *
Mark only one oval.

- ◯ Entry level (Analyst)
- ◯ Associate
- ◯ Middle Management (AVP, VP)
- ◯ Senior Management (ED, MD)
- ◯ Top Management (CEO, CFO, CRO, COO)
- ◯ Other: _____

8. Which organisational area do you work in? *
*This includes any credit, market, and operational risk management
Mark only one oval.

- ◯ Front Office
- ◯ Enterprise risk management
- ◯ Risk management*
- ◯ Audit
- ◯ Business management
- ◯ Finance
- ◯ IT Management
- ◯ Operations
- ◯ Other: _____

Enterprise Risk Management

By selecting 'NO' in the next question, you will be directed to 'Risk Management' section, and will not be asked to answer any ERM related questions.

9. Are you familiar with the concept of enterprise risk management? *
Mark only one oval.

- ◯ Yes
- ◯ No *Skip to question 27.*

Enterprise Risk Management

10. How would you rate your understanding of ERM? *
Mark only one oval.

- ◯ Poor *Skip to question 27.*
- ◯ Fair
- ◯ Good
- ◯ Very Good
- ◯ Excellent

Enterprise Risk Management

This section includes questions about enterprise risk management practices specific to the

respondent's organisation.

11. Do you have direct experience in any of the stages of ERM cycle (including risk/ERM framework)? *
Please select ALL that apply.
Check all that apply.

- [ ] No, I have no direct experience
- [ ] Yes, at the design stage
- [ ] Yes, at the specification stage
- [ ] Yes, at the developing stage
- [ ] Yes, at the validation stage
- [ ] Yes, at the implementation stage
- [ ] All of the above
- [ ] Other: _____

12. Does your organisation have ERM? *
Mark only one oval.

- ◯ Yes
- ◯ No *Skip to question 18.*
- ◯ Other: _____

Enterprise Risk Management

This section includes questions about enterprise-wide risk management practices specific to the respondent's organisation.

13. How would you describe the current state of ERM in your organisation? *
Please select ONE that applies.
Mark only one oval.

- ◯ Currently investigating the concept of enterprise-wide risk management, but have made no decisions yet
- ◯ No formal enterprise-wide risk management in place, but have plans to implement one
- ◯ Partial enterprise-wide risk management in place
- ◯ Comprehensive formal enterprise-wide risk management in place
- ◯ Other: _____

14. What is the current level of ERM maturity in your organisation? *
Mark only one oval.

- ◯ Undeveloped (aware of risks but no structured approach applied)
- ◯ Formalised (basic risk framework & processes partially implemented but lacking enterprise-wide consistency)
- ◯ Established (formal & consistent enterprise-wide processes)
- ◯ Embedded (integrated processes embedded within business planning)
- ◯ Optimised (risk management with clear knowledge-sharing & continuous improvement)
- ◯ Strategic (well-defined, balanced, dynamic & transparent alignment between key risk, strategic, & business functions)
- ◯ Other: _____

15. What major risk areas in your organisation does ERM cover? *
Please check ALL that apply.
Check all that apply.

- ☐ Operational risk
- ☐ Credit risk
- ☐ Market risk
- ☐ Liquidity risk
- ☐ Strategic risk
- ☐ Regulatory/Compliance risk
- ☐ Legal risk
- ☐ IT risk
- ☐ Hazard risk
- ☐ Reputation risk
- ☐ All of the above
- ☐ Other: _____

16. Which of the following organisational factors apply to ERM in your organisation? *
* KPIs - - Key Performance Indicators; KRIs - - **Key Risk Indicators
Check all that apply.

- [ ] Support for ERM from senior management/board
- [ ] Enterprise level statement of risk appetite aligned with risk tolerance
- [ ] Chief risk officer/ risk committee oversight
- [ ] ERM framework
- [ ] Risk management process, tools and techniques
- [ ] ERM alignment with core organisational strategies &key objectives
- [ ] Aligned risk and performance measures (KPIs &KRIs)
- [ ] ERM alignment with corporate risk governance
- [ ] Enterprise risk culture & awareness
- [ ] Consolidated ERM infrastructure
- [ ] Monitoring and considering internal and external changes in strategic planning
- [ ] All of the above
- [ ] Other: _____

17. In your opinion, what is the level of senior management support for ERM in your organisation? *
Mark only one oval.

- ◯ Poor
- ◯ Fair
- ◯ Good
- ◯ Very Good
- ◯ Excellent
- ◯ Other: _____

Developing a strategic ERM Alignment Framework

This section includes questions specific for developing a strategic ERM Alignment Framework for the finance industry.

18. Which of the following organisational factors are critical to establishing a strategic ERM framework? *

Please select ALL that apply.

Check all that apply.

- [ ] Support for ERM from senior management/board
- [ ] Enterprise level statement of risk appetite aligned with risk tolerance
- [ ] Chief risk officer/risk committee oversight
- [ ] ERM framework
- [ ] Risk management process, tools and techniques
- [ ] ERM alignment with core organisational strategies &key objectives
- [ ] Aligned risk and performance measures (KPIs &KRIs)
- [ ] ERM alignment with corporate risk governance
- [ ] Enterprise risk culture & awareness
- [ ] Consolidated ERM infrastructure
- [ ] All of the above
- [ ] Other: _____

19. Please rate the importance of the following factors in establishing a strategic ERM. *

Mark only one oval per row.

	Unimportant	Slightly important	Important	Very Important	Critical	Not applicable
Support for ERM from senior management/board						
Enterprise level statement of risk appetite aligned with risk tolerance						
Chief risk officer/risk committee oversight						
ERM framework						
Risk management process, tools and techniques						
ERM alignment with core organisational strategies & key objectives						
Aligned risk and performance measures (KPIs &KRIs)						
ERM alignment with corporate risk governance						
Enterprise risk culture & awareness						
Consolidated ERM infrastructure						
Other (when applied to previous question)						

20. Which of the following organisational factors drive a sustainable ERM? *
Please select ALL that apply.
Check all that apply.

- [ ] Understanding how ERM generates value & how to resolve potential ERM challenges
- [ ] ERM aligned with core organisational strategies &key objectives
- [ ] ERM culture & awareness
- [ ] Well-defined ERM structure & ownership
- [ ] Top-down & bottom-up ERM communication
- [ ] Monitoring constant changes in the internal & external environments and considering them in strategic planning
- [ ] All of the above
- [ ] Other: _____

21. What benefits do you expect as a result of the ERM implementation? *
Please select ALL that apply.
Check all that apply.

- [ ] Enhanced shareholder value & competitive advantage
- [ ] Enabling long-term sustainable profitability & growth
- [ ] Optimised risk & business cost
- [ ] Improved business performance & effectiveness
- [ ] Increased regulatory compliance
- [ ] Achieving strategic view of key risks
- [ ] Dynamic ERM culture & enterprise-wide risk awareness
- [ ] ERM alignment with core organisational strategies &key objectives
- [ ] Strong corporate risk governance & reputation
- [ ] Risk-adjusted decision making
- [ ] Better preparedness for future market unpredictability & volatility
- [ ] All of the above
- [ ] Other: _____

22. Please rate ERM benefits expected as a result of ERM implementation in order of importance. *

Mark only one oval per row.

	Unimportant	Slightly Important	Important	Very Important	Critical	Not applicable
Enhanced shareholder value & competitive advantage	⬭	⬭	⬭	⬭	⬭	⬭
Enabling long-term sustainable profitability & growth	⬭	⬭	⬭	⬭	⬭	⬭
Optimised risk & business cost	⬭	⬭	⬭	⬭	⬭	⬭
Improved business performance & effectiveness	⬭	⬭	⬭	⬭	⬭	⬭
Increased regulatory compliance	⬭	⬭	⬭	⬭	⬭	⬭
Achieving strategic view of key risks	⬭	⬭	⬭	⬭	⬭	⬭
Dynamic ERM culture & enterprise-wide risk awareness	⬭	⬭	⬭	⬭	⬭	⬭
ERM alignment with core organisational strategies & key objectives	⬭	⬭	⬭	⬭	⬭	⬭
Strong corporate risk governance & reputation	⬭	⬭	⬭	⬭	⬭	⬭
Risk-adjusted decision making	⬭	⬭	⬭	⬭	⬭	⬭
Better preparedness for future market unpredictability & volatility	⬭	⬭	⬭	⬭	⬭	⬭
Other (when applied to previous question)	⬭	⬭	⬭	⬭	⬭	⬭

23. On a scale of likeliness, please rate in what areas is ERM likely to create value? *
Mark only one oval per row.

	Won't happen	Might happen	Likely to happen	Very likely to happen	Sure to happen	Not applicable
Cost reduction creating competitive advantage						
Increased ability to escalate critical issues to senior management						
Strategic view of key enterprise-wide risks						
Improved regulatory compliance						
Improved understanding of risk and controls on an enterprise level						
Enhanced culture & awareness						
Streamlined business and risk processes enterprise-wide						

24. From your experience, please provide recommendations on how to overcome the biggest challenges in implementing ERM. *
The answer to this question can be based on your risk expertise in current or previous organisations.

_____

_____

_____

_____

_____

25. Please select what the biggest challenges in implementing ERM are. *
Please select ALL that apply.
Check all that apply.

- [ ] Lack of managerial support & clear ERM implementation guidelines
- [ ] Time & cost required to implement
- [ ] Issues with developing & implementing the right risk technology & systems
- [ ] Issues with integrating risk data across the organisation
- [ ] Lack of alignment of ERM with the core organisational strategies & key objecitves
- [ ] Lack of ERM culture & awareness
- [ ] Lack of in-house ERM expertise & skills to oversee the implementation
- [ ] Having the appropriate risk methodologies & risk metrics
- [ ] Lack of understanding of ERM benefits & challenges in the long term
- [ ] All of the above
- [ ] Other: _____

26. If there is no ERM in your organisation, please select reason(s) why. *
Please select ALL that apply.
Check all that apply.

- [ ] Lack of managerial support & clear implementation guidelines
- [ ] Cost
- [ ] Lack of clarity what ERM benefits are
- [ ] Time required to capitalise on ERM benefits
- [ ] Lack of risk culture & awareness
- [ ] Lack of qualified employees to support the implementation process
- [ ] All of the above
- [ ] Other: _____

Section IV Risk Management Section

Risk Management

This section applies to risk management professionals that do not have a direct expertise in ERM, but can share their risk management experience.

27. How is risk management defined in your organisation? *
Mark only one oval.

- ◯ Clear definition of what risk is; well-integrated into mainstream business policies across the entire organisation considering the change in internal and external environment
- ◯ Some risk terms are used but not communicated clearly enterprise-wide
- ◯ No clear risk definitions is used
- ◯ Other: _____

28. If there is no ERM in your organisation, please select reason(s) why. *
Please select ALL that apply.
Check all that apply.

- [ ] Lack of managerial support & clear implementation guidelines
- [ ] Cost
- [ ] Lack of clarity what ERM benefits are
- [ ] Time required to capitalise on ERM benefits
- [ ] Lack of risk culture & awareness
- [ ] Lack of qualified employees to support the implementation process
- [ ] All of the above
- [ ] Other: _____

29. Is a risk framework used in your organisation? *
Mark only one oval.

- ◯ Enterprise-wide risk framework is promoted by risk management team
- ◯ Each department defines and uses its own risk framework
- ◯ No formal standardised risk framework is used; free-form risk approach is promoted
- ◯ Silo risk management
- ◯ Other: _____

30. Please select ALL that apply to your organisation: *
Check all that apply.

- ☐ Senior management supports and is actively involved into risk management
- ☐ Enterprise level statement of risk appetite aligned with risk tolerance
- ☐ Chief risk officer/ risk committee oversight
- ☐ Well-integrated risk management & business objectives setting
- ☐ Strong corporate risk governance
- ☐ Aligning risk and performance measures (KPIs &KRIs)
- ☐ Risk culture & awareness
- ☐ Consolidated risk infrastructure
- ☐ Monitoring constant changes in the internal & external environments and considering them in strategic planning
- ☐ All of the above
- ☐ Other: _____

31. Since the Global Financial Crisis (GFC) which of the following actions has your organisation taken to improve risk management? *
Please select ALL that apply.
Check all that apply.

- ☐ Established Chief Risk Officer/risk committee functions
- ☐ Improved reporting to board & management risk committee
- ☐ Formed risk management board level committees
- ☐ Updated risk appetite statement
- ☐ Reformed risk culture to improve risk oversight effectiveness
- ☐ Added board and management risk committee members with risk expertise
- ☐ Monitoring constant changes in the internal & external environments and considering them in strategic planning
- ☐ All of the above
- ☐ Other: _____

32. How are critical risks analysed in your organisation? *

Please select ALL that apply.

Check all that apply.

- [ ] Quantitative modelling (e.g. "at-risk" models, assessment of loss events, backtesting, sensitivity analysis, scenario analysis, stress testing)
- [ ] Qualitative risk methods (e.g. probabilistic risk assessment (PRA) matrix, risk categorisation, risk registers (logs), or expert judgment)
- [ ] PESTLE/SWOT/Cost-benefit analysis used to evaluate the impact of potential internal/external influences on the business
- [ ] Both risk threats & opportunities are considered
- [ ] Limited quantitative and qualitative estimation tools available
- [ ] No defined process or specific tools used
- [ ] All of the above
- [ ] Other: _____

33. How would you rate the importance of the potential risk management benefits? *

*This may affect any costs associated with compliance/risk management/process streamlining etc ** This may include the more efficient use of resources and capital, reduce the likelihood of operational losses, and fewer risk surprises due to earlier detection of low probability/high impact events

Mark only one oval per row.

	Unimportant	Slightly Important	Important	Very Important	Critical	Not Applicable
Increased regulatory compliance	◯	◯	◯	◯	◯	◯
Enabling long-term sustainable profitability and growth	◯	◯	◯	◯	◯	◯
Optimised risk & business cost*	◯	◯	◯	◯	◯	◯
Increased business performance & effectiveness**	◯	◯	◯	◯	◯	◯
Enhanced shareholder value and competitive advantage	◯	◯	◯	◯	◯	◯
Stronger risk culture and enterprise-wide risk awareness	◯	◯	◯	◯	◯	◯
Risk management aligned with organisational strategies & objectives	◯	◯	◯	◯	◯	◯
Strong corporate risk governance & reputation	◯	◯	◯	◯	◯	◯
Risk-adjusted decision making	◯	◯	◯	◯	◯	◯
Better preparedness for future market unpredictability & volatility	◯	◯	◯	◯	◯	◯
Other (when applied to previous question)	◯	◯	◯	◯	◯	◯

34. How would you rate the importance of the following factors in establishing a long-term SUSTAINABLE risk management? *

Mark only one oval per row.

	Unimportant	Slightly Important	Important	Very Important	Critical
Good understanding of risk management including its key challenges & benefits	◯	◯	◯	◯	◯
Cost reduction	◯	◯	◯	◯	◯
Risk culture & awareness	◯	◯	◯	◯	◯
Risk aligned with core organisational strategies & key objectives	◯	◯	◯	◯	◯
Well-defined risk structure & risk ownership	◯	◯	◯	◯	◯
Top-down & bottom-up risk communication	◯	◯	◯	◯	◯

35. Which of the following do you consider challenges of risk management? *

Please select ALL that apply.

Check all that apply.

- [ ] Lack of managerial support
- [ ] Cost
- [ ] Lack of strategic risk management framework
- [ ] Growing business complexity, market volatility & unpredictability
- [ ] Organisational silos prevent effective integration of risk management
- [ ] Lack of risk management alignment with the core organisational strategies & key objectives
- [ ] Lack of risk culture or awareness
- [ ] Difficulty in effective measuring & assessing risks
- [ ] Issues with effective integrating, managing & reporting risk data
- [ ] All of the above
- [ ] Other: _____

36. In your experience, how can some of the biggest challenges risk managers face be overcome effectively? *

_____

_____

_____

_____

_____

Appendix D Quantitative data analysis (surveys)

Appendix Table D 1 Quantitative data analysis (surveys)

Section I

Q2
ERMREG

Geographical area of operation descriptives	
Mean	2.043478261
Standard Error	0.125590173
Median	2
Mode	1
Standard Deviation	1.346804564
Sample Variance	1.813882532
Kurtosis	0.266098213
Skewness	1.213287208
Range	5
Minimum	1
Maximum	6
Sum	235
Count	115

Q3
ERMSEC

Industry Sector descriptives	
Mean	2.895652174
Standard Error	0.202340958
Median	2
Mode	1
Standard Deviation	2.169865034
Sample Variance	4.708314264
Kurtosis	-0.424053895
Skewness	1.001521183
Range	6
Minimum	1
Maximum	7
Sum	333
Count	115

Q4
ERMSIZE

Organization size descriptives	
Mean	2
Standard Error	0.101099976
Median	2
Mode	1
Standard Deviation	1.08417646
Sample Variance	1.175438596
Kurtosis	-0.818705029
Skewness	0.71452067
Range	3
Minimum	1
Maximum	4
Sum	230
Count	115

Q5
ERMEXP1

How many years have your worked in risk management or ERM?	
Mean	4.556521739
Standard Error	0.104214255
Median	5
Mode	5
Standard Deviation	1.117573376
Sample Variance	1.248970252
Kurtosis	1.414786396
Skewness	-1.045941719
Range	5
Minimum	1
Maximum	6
Sum	524
Count	115

Q6
ERMPOS

Organisational Position descriptives	
Mean	5.052173913
Standard Error	0.106137713
Median	5
Mode	6
Standard Deviation	1.138200166
Sample Variance	1.295499619
Kurtosis	1.887057867
Skewness	-1.048183555
Range	6
Minimum	1
Maximum	7
Sum	581
Count	115

Q7
ERMSEN

Seniority Level descriptives	
Mean	3.939130435
Standard Error	0.105737003
Median	4
Mode	5
Standard Deviation	1.133903029
Sample Variance	1.285736079
Kurtosis	-0.350575815
Skewness	-0.393168396
Range	5
Minimum	1
Maximum	6
Sum	453
Count	115

Q8
ERMAREA

Organisational Area descriptives	
Mean	2.626086957
Standard Error	0.096039711
Median	2
Mode	2
Standard Deviation	1.029911166
Sample Variance	1.06071701
Kurtosis	3.505348899
Skewness	1.639699213
Range	5
Minimum	1
Maximum	6
Sum	302
Count	115

Appendix Table D 2

Section II

Q9
ERMFAM

Familiar with ERM?	
Mean	1.886956522
Standard Error	0.029656609
Median	2
Mode	2
Standard Deviation	0.318031704
Sample Variance	0.101144165
Kurtosis	4.205985321
Skewness	-2.47651605
Range	1
Minimum	1
Maximum	2
Sum	217
Count	115

Q10
ERMUNDRST

Understanding of ERM	
Mean	2.469565217
Standard Error	0.151434402
Median	2
Mode	1
Standard Deviation	1.623953045
Sample Variance	2.637223494
Kurtosis	0.049456069
Skewness	1.043436824
Range	5
Minimum	1
Maximum	6
Sum	284
Count	115

Q11
ERMFRK

Experience in developing a risk	
Mean	3.260869565
Standard Error	0.109144762
Median	3
Mode	4
Standard Deviation	1.170447182
Sample Variance	1.369946606
Kurtosis	-0.691102473
Skewness	-0.391197413
Range	4
Minimum	1
Maximum	5
Sum	375
Count	115

Q12
ERMADP

Does org have ERM?	
Mean	1.939130435
Standard Error	0.052818294
Median	2
Mode	2
Standard Deviation	0.566413099
Sample Variance	0.320823799
Kurtosis	0.163476648
Skewness	-0.01450946
Range	2
Minimum	1
Maximum	3
Sum	223
Count	115

Q13
ERMSTATE

Current state of ERM	
Mean	4.017391304
Standard Error	0.112514163
Median	4
Mode	3
Standard Deviation	1.206579977
Sample Variance	1.45583524
Kurtosis	-0.810732397
Skewness	0.393054056
Range	5
Minimum	1
Maximum	6
Sum	462
Count	115

Q14
ERMMAT

ERM maturity	
Mean	4.652173913
Standard Error	0.212156656
Median	4
Mode	2
Standard Deviation	2.275126672
Sample Variance	5.176201373
Kurtosis	-1.46743372
Skewness	0.08534295
Range	7
Minimum	1
Maximum	8
Sum	535
Count	115

Q17
ERMSUPRT

ERM Implementiation Guidelines	
Mean	4.147826087
Standard Error	0.166281849
Median	4
Mode	3
Standard Deviation	1.783174177
Sample Variance	3.179710145
Kurtosis	-1.048932147
Skewness	0.169843019
Range	6
Minimum	1
Maximum	7
Sum	477
Count	115

Appendix Table D 3

Section III

Q19

ERMBOD	
Mean	1.956521739
Standard Error	0.163108301
Median	1
Mode	1
Standard Deviation	1.749141666
Sample Variance	3.059496568
Kurtosis	1.141123193
Skewness	1.658997058
Range	5
Minimum	1
Maximum	6
Sum	225
Count	115

Q19

ERMAPPT	
Mean	2.504347826
Standard Error	0.15296406
Median	2
Mode	1
Standard Deviation	1.640356792
Sample Variance	2.690770404
Kurtosis	0.133139523
Skewness	1.114676518
Range	5
Minimum	1
Maximum	6
Sum	288
Count	115

Q19

ERMCRO	
Mean	2.6
Standard Error	0.151171373
Median	2
Mode	1
Standard Deviation	1.621132374
Sample Variance	2.628070175
Kurtosis	0.056292652
Skewness	1.036952855
Range	5
Minimum	1
Maximum	6
Sum	299
Count	115

Q19

ERMFRMK	
Mean	2.434782609
Standard Error	0.150326588
Median	2
Mode	1
Standard Deviation	1.612073062
Sample Variance	2.598779558
Kurtosis	0.509030339
Skewness	1.244695703
Range	5
Minimum	1
Maximum	6
Sum	280
Count	115

Q19

ERMTOOLS	
Mean	2.704347826
Standard Error	0.143495596
Median	2
Mode	2
Standard Deviation	1.538818828
Sample Variance	2.367963387
Kurtosis	0.269139218
Skewness	1.039756083
Range	5
Minimum	1
Maximum	6
Sum	311
Count	115

Q19

ERMSTR	
Mean	2.286956522
Standard Error	0.153656286
Median	2
Mode	1
Standard Deviation	1.647780098
Sample Variance	2.715179252
Kurtosis	0.761109724
Skewness	1.408345124
Range	5
Minimum	1
Maximum	6
Sum	263
Count	115

Q19

ERMMET	
Mean	2.67826087
Standard Error	0.140581676
Median	2
Mode	2
Standard Deviation	1.507570522
Sample Variance	2.272768879
Kurtosis	0.544847944
Skewness	1.159197503
Range	5
Minimum	1
Maximum	6
Sum	308
Count	115

Q19

ERMGOV	
Mean	2.634782609
Standard Error	0.148899054
Median	2
Mode	2
Standard Deviation	1.596764463
Sample Variance	2.549656751
Kurtosis	0.092726537
Skewness	1.02635699
Range	5
Minimum	1
Maximum	6
Sum	303
Count	115

Q19

ERMCULI	
Mean	2.391304348
Standard Error	0.154117478
Median	2
Mode	1
Standard Deviation	1.65272583
Sample Variance	2.73150267
Kurtosis	0.378731178
Skewness	1.239016453
Range	5
Minimum	1
Maximum	6
Sum	275
Count	115

Q19

ERMINFRA	
Mean	2.956521739
Standard Error	0.133252056
Median	3
Mode	3
Standard Deviation	1.428969107
Sample Variance	2.041952708
Kurtosis	0.294220602
Skewness	0.97710989
Range	5
Minimum	1
Maximum	6
Sum	340
Count	115

Q22
ERMBENFT1

Enhanced shareholder value & competitive advantage	
Mean	2.643478261
Standard Error	0.146763354
Median	2
Mode	2
Standard Deviation	1.573861629
Sample Variance	2.477040427
Kurtosis	0.225314405
Skewness	1.063054725
Range	5
Minimum	1
Maximum	6
Sum	304
Count	115

Q22
ERMBENFT2

Enabling long-term sustainable profitability & growth	
Mean	2.408695652
Standard Error	0.153224011
Median	2
Mode	1
Standard Deviation	1.643144462
Sample Variance	2.699923722
Kurtosis	0.390080489
Skewness	1.214952377
Range	5
Minimum	1
Maximum	6
Sum	277
Count	115

Q22
ERMBENFT3

Optimised risk & business cost	
Mean	2.747826087
Standard Error	0.142358621
Median	2
Mode	2
Standard Deviation	1.526626129
Sample Variance	2.330587338
Kurtosis	0.239911355
Skewness	1.053422221
Range	5
Minimum	1
Maximum	6
Sum	316
Count	115

Q22
ERMBENFT4

Improved business performance & effectiveness	
Mean	2.67826087
Standard Error	0.146428535
Median	2
Mode	2
Standard Deviation	1.570271102
Sample Variance	2.465751335
Kurtosis	0.146313725
Skewness	1.033267058
Range	5
Minimum	1
Maximum	6
Sum	308
Count	115

Q22
ERMBENFT5

Improved regulatory compliance	
Mean	2.634782609
Standard Error	0.148899054
Median	2
Mode	2
Standard Deviation	1.596764463
Sample Variance	2.549656751
Kurtosis	0.092726537
Skewness	1.02635699
Range	5
Minimum	1
Maximum	6
Sum	303
Count	115

Q22
ERMBENFT6

Achieving strategic view of key risks	
Mean	2.460869565
Standard Error	0.14784852
Median	2
Mode	2
Standard Deviation	1.58549874
Sample Variance	2.513806255
Kurtosis	0.673156244
Skewness	1.315957442
Range	5
Minimum	1
Maximum	6
Sum	283
Count	115

Q22
ERMBENFT7

Dynamic ERM culture & enterprise-wide risk awareness	
Mean	2.765217391
Standard Error	0.146315248
Median	2
Mode	2
Standard Deviation	1.56905623
Sample Variance	2.461937452
Kurtosis	-0.061294325
Skewness	0.938659628
Range	5
Minimum	1
Maximum	6
Sum	318
Count	115

Q22
ERMBENFT8

ERM alignment with core organizational strategies & key objectives	
Mean	2.452173913
Standard Error	0.150890304
Median	2
Mode	1
Standard Deviation	1.618118239
Sample Variance	2.618306636
Kurtosis	0.441662822
Skewness	1.20623505
Range	5
Minimum	1
Maximum	6
Sum	282
Count	115

Q22
ERMBENFT9

Strong corporate risk governance & reputation	
Mean	2.634782609
Standard Error	0.147870949
Median	2
Mode	2
Standard Deviation	1.58573927
Sample Variance	2.514569031
Kurtosis	0.152453383
Skewness	1.091833892
Range	5
Minimum	1
Maximum	6
Sum	303
Count	115

Q22
ERMBENFT10

Risk-adjusted decision making	
Mean	2.347826087
Standard Error	0.153794358
Median	2
Mode	1
Standard Deviation	1.64926075
Sample Variance	2.720061022
Kurtosis	0.577436476
Skewness	1.324507619
Range	5
Minimum	1
Maximum	6
Sum	270
Count	115

Q22
ERMBENFT11

Better preparedness for future market unpredictability & volatility	
Mean	2.504347826
Standard Error	0.151963459
Median	2
Mode	1
Standard Deviation	1.629626548
Sample Variance	2.655682685
Kurtosis	0.268166004
Skewness	1.161701347
Range	5
Minimum	1
Maximum	6
Sum	288
Count	115

Q23
ERMVAL1

Cost reduction creating competitive advantage	
Mean	3.530434783
Standard Error	0.140458951
Median	4
Mode	4
Standard Deviation	1.506254441
Sample Variance	2.268802441
Kurtosis	-0.465434079
Skewness	-0.239659641
Range	5
Minimum	1
Maximum	6
Sum	406
Count	115

Q23
ERMVAL2

Increased ability to escalate critical issues to senior management	
Mean	2.452173913
Standard Error	0.151897974
Median	2
Mode	1
Standard Deviation	1.628924294
Sample Variance	2.653394355
Kurtosis	0.36534362
Skewness	1.208358588
Range	5
Minimum	1
Maximum	6
Sum	282
Count	115

Q23
ERMVAL3

Strategic view of key enterprise-wide risks	
Mean	2.330434783
Standard Error	0.150626325
Median	2
Mode	1
Standard Deviation	1.615287379
Sample Variance	2.609153318
Kurtosis	0.838364403
Skewness	1.404347749
Range	5
Minimum	1
Maximum	6
Sum	268
Count	115

Q23
ERMVAL4

Improved regulatory compliance	
Mean	2.695652174
Standard Error	0.144660318
Median	2
Mode	2
Standard Deviation	1.551309085
Sample Variance	2.406559878
Kurtosis	0.204941526
Skewness	1.096932631
Range	5
Minimum	1
Maximum	6
Sum	310
Count	115

Q23
ERMVAL5

Improved understanding of risk and controls on an enterprise level	
Mean	2.417391304
Standard Error	0.149743034
Median	2
Mode	2
Standard Deviation	1.605815138
Sample Variance	2.578642258
Kurtosis	0.66103938
Skewness	1.348603964
Range	5
Minimum	1
Maximum	6
Sum	278
Count	115

Q23
ERMVAL6

Enhanced culture & awareness	
Mean	2.669565217
Standard Error	0.147038779
Median	2
Mode	2
Standard Deviation	1.57681524
Sample Variance	2.486346301
Kurtosis	0.109641822
Skewness	1.068226501
Range	5
Minimum	1
Maximum	6
Sum	307
Count	115

Q23
ERMVAL7

Streamlined business and risk processes enterprise-wide	
Mean	2.939130435
Standard Error	0.142596044
Median	3
Mode	2
Standard Deviation	1.529172213
Sample Variance	2.338367658
Kurtosis	-0.258468756
Skewness	0.778195354
Range	5
Minimum	1
Maximum	6
Sum	338
Count	115

Appendix Table D 4

No	Geographical area of operation	Frequency	Relative Frequency
1	EMEA	55	48%
2	North America	34	30%
3	South America	3	3%
4	Asia Pacific	13	11%
5	Global	9	8%
6	Other	1	1%
	Total	115	100%

Appendix Table D 5

No	Financial industry sector	Frequency	Relative Frequency
1	Banks, Credit Union, Savings Organisations	42	37%
2	Insurance Companies	24	21%
3	Management Consultancy	22	19%
4	Other	20	17%
5	Hedge or Investment Funds	7	6%
6	Asset Management	0	0%
7	Stock Brokerages	0	0%
	Total	115	100%

Appendix Table D 6

No	Organisation size (No. Employees)	Frequency	Relative Frequency
1	Under 1,000	50	43%
2	Between 1,000 and 10,000	32	28%
3	More than 50,000	17	15%
4	Between 10,000 and 50,000	16	14%
	Total	115	100%

Appendix Table D 7

No	Participants' experience	Frequency	Relative Frequency
1	Between 10 and 20 years	49	43%
2	Between 5 and 10 years	30	26%
3	More than 20 years	20	17%
4	Between 1 and 5 years	10	9%
5	I do not have risk management experience	3	3%
6	Less than 1 year	3	3%
	Total	115	100%

Appendix Table D 8

No	Organisational Position	Frequency	Relative Frequency
1	ERM Managers	41	36%
2	Risk Managers	37	32%
3	C-Suite (CEO/COO/CFO/CRO)	25	22%
4	Finance	5	4%
5	Business Managers	3	3%
6	Auditor	2	2%
7	Board Member	2	2%
	Total	115	100%

Appendix Table D 9

No	Seniority Level	Frequency	Relative Frequency
1	Top Management (CEO, CFO, CRO, COO)	39	34%
2	Middle Management (AVP, VP)	33	29%
3	Senior Management (ED, MD)	28	24%
4	Associate	7	6%
5	Other	5	4%
6	Entry level (Analyst)	3	3%
	Total	115	100%

Appendix Table D 10

No	Organisational Area	Frequency	Relative Frequency
1	ERM	54	47%
2	Risk management*	45	39%
3	Front Office	6	5%
4	Finance	5	4%
5	Business management	3	3%
6	Audit	2	2%
7	IT Management	0	0%
8	Operations	0	0%
9	Other	0	0%
	Total	115	100%

Appendix Table D 11

ERMFAM			
No	**Are you familiar with ERM?**	**Frequency**	**Relative Frequency**
1	Yes	102	89%
2	No	13	11%
	Total	115	100%

Appendix Table D 12

ERMUNDRST			
No	**How would you rate your understanding of ERM?**	**Frequency**	**Relative Frequency**
1	Excellent	43	37%
2	Very Good	27	23%
3	Good	21	18%
4	Not familiar with ERM	13	11%
5	Fair	9	8%
6	Poor	2	2%
	Total	**115**	**100%**

Appendix Table D 13

ERMFRMK			
No	**Do you have direct experience in any of the stages of ERM cycle (including risk/ERM framework)?**	**Frequency**	**Relative Frequency**
1	Yes, at the specification stage	3	3%
2	Yes, at the validation stage	5	4%
3	Yes, at the developing stage	11	10%
4	Yes, at the design stage	15	13%
5	No, I have no direct experience	26	23%
6	Yes, at the implementation stage	30	26%
7	All stages	40	35%

Appendix Table D 14

No	Has your organisation adopted ERM?	Frequency	Relative Frequency
1	No	22	19%
2	Yes	78	68%
3	Not familiar with ERM	15	13%
	Total	**115**	**100%**

Appendix Table D 15

ERMSTATE			
No	**How would you describe the current state of ERM in your organisation?**	**Frequency**	**Relative Frequency**
1	Currently investigating the concept of enterprise-wide risk management, but have made no decisions yet	1	1%
2	No formal enterprise-wide risk management in place, but have plans to implement one	3	3%
3	Partial enterprise-wide risk management in place	46	40%
4	Comprehensive formal enterprise-wide risk management in place	29	25%
5	Not familiar with ERM	15	13%
6	No ERM	21	18%
	Total	**115**	**100%**

Appendix Table D 16

ERMMAT			
No	**What is the current level of ERM maturity in your organisation?**	**Frequency**	**Relative Frequency**
1	Undeveloped	4	3%
2	Formalised	26	23%
3	Established	15	13%
4	Embedded	15	13%
5	Optimised	7	6%
6	Strategic	12	10%
7	No ERM	21	18%
8	Not familiar with ERM	15	13%
	Total	**115**	**100%**

Appendix Table D 17

ERMAREAS			
No	**What major risk areas in your organisation does ERM cover?**	**Frequency**	**Relative Frequency**
1	Operational risk	51	44%
2	Market risk	49	43%
3	Legal risk	42	37%
4	Hazard risk	42	37%
5	Regulatory/Compliance risk	41	36%
6	IT risk	37	32%
7	Reputation risk	37	32%
8	Liquidity risk	37	32%
9	Credit risk	35	30%
10	All of above	23	20%
11	Strategic risk	11	10%
12	Other*	3	3%

Appendix Table D 18

ERMALGNT			
No	**Which of the following organisational factors apply to ERM in your organisation?**	**Frequency**	**Relative Frequency**
1	ERMBOD	51	44%
2	ERMTOOLS	48	42%
3	ERMCRO	44	38%
4	ERMGOV	44	38%
5	ERMFRMK	43	37%
6	ERMAPPT	39	34%
7	ERMSTR	35	30%
8	ERMMET	34	30%
9	ERMCUL1	29	25%
10	ERMINFRA	17	15%
11	ERMALL	12	10%
12	ERMENV	1	1%

Appendix Table D 19

ERMSUPRT			
No	**What is the level of senior management support for ERM in your organisation?**	**Frequency**	**Relative Frequency**
1	Excellent	6	5%
2	Very Good	22	19%
3	Good	33	29%
4	Fair	11	10%
5	Poor	7	6%
6	No ERM	21	18%
7	Not familiar with ERM	15	13%
	Total	**115**	**100%**

Appendix Table D 20

ERMALGNT			
No	**What is the level of senior management support for ERM in your organisation?**	**Frequency**	**Relative Frequency**
1	ERMBOD	84	73%
2	ERMFRMK	69	60%
3	ERMSTR	67	58%
4	ERMAPPT	63	55%
5	ERMCUL1	62	54%
6	ERMTOOLS	60	52%
7	ERMCRO	55	48%
8	ERMMET	55	48%
9	ERMGOV	54	47%
10	ERMINFRA	34	30%
11	ERNENV	16	14%
12	ERMALL	15	13%

Appendix Table D 21

No	**Organisational factors?**	**Factor Codes**
1	Support for ERM from senior management/board	ERMBOD
2	Risk appetite statement	ERMAPPT
3	Chief risk officer/ risk committee oversight	ERMCRO
4	ERM framework	ERMFRMK
5	Risk management process, tools and techniques	ERMTOOLS
6	ERM alignment with core organisational strategies & key objectives	ERMSTR
7	Aligned risk and performance measures (KPIs &KRIs)	ERMMET
8	ERM alignment with corporate risk governance	ERMGOV
9	Enterprise risk culture & awareness	ERMCUL1
10	Consolidated ERM infrastructure	ERMINFRA
11	Monitoring and considering internal and external changes in the strategic planning	ERMENV
12	All of the above	ERMALL

Appendix Table D 22

ERMSUPRT			
No	**What is the level of senior management support for ERM in your organisation?**	**Frequency**	**Relative Frequency**
1	Excellent	6	5%
2	Very Good	22	19%
3	Good	33	29%
4	Fair	11	10%
5	Poor	7	6%
6	No ERM	21	18%
7	Not familiar with ERM	15	13%
	Total	**115**	**100%**

Appendix Table D 23

ERMBENFT			
No	**What benefits do you expect as a result of the ERM implementation process?**	**Frequency**	**Relative Frequency**
1	Enabling long-term sustainable profitability & growth	85	74%
2	Risk-adjusted decision making	72	63%
3	Improved business performance & effectiveness	67	58%
4	Optimised risk & business cost	66	57%
5	Enhanced shareholder value & competitive advantage	64	56%
6	Increased regulatory compliance	61	53%
7	Achieving strategic view of key risks	61	53%
8	Strong corporate risk governance & reputation	56	49%
9	ERM alignment with core organisational strategies & key objectives	54	47%
10	Dynamic ERM culture & enterprise-wide risk awareness	51	44%
11	Better preparedness for future market unpredictability & volatility	50	43%
12	All of above	14	12%

Appendix Table D 24

ERMCHLNG			
No	**What are the greatest challenges of implementing an effective ERM?**	**Frequency**	**Relative Frequency**
1	Lack of managerial support & clear ERM implementation guidelines	68	59%
2	Lack of ERM culture & awareness	55	48%
3	Lack of understanding of ERM benefits & challenges in the long term	54	47%
4	Issues with integrating risk data across the organisation	50	43%
5	Time & cost required to implement	46	40%
6	Lack of alignment of ERM with the core organisational strategies & key objectives	46	40%
7	Lack of in-house ERM expertise & skills to oversee the implementation	40	35%
8	Issues with developing & implementing the right risk technology & systems	32	28%
9	Having the appropriate risk methodologies & risk metrics	26	23%
10	All of the above	5	4%

Appendix Table D 25

ERMREAS			
No	**If there is no ERM in your organisation, please select reason(s) why.**	**Frequency**	**Relative Frequency**
1	Too small	8	7%
2	Lack of managerial support & clear implementation guidelines	7	6%
3	Lack of clarity what ERM benefits are	7	6%
4	Lack of risk culture & awareness	7	6%
5	Cost	5	4%
6	Time required to capitalise on ERM benefits	4	3%
7	Lack of qualified employees	3	3%
8	All	1	1%

Appendix E Chi-square computation

Appendix Table E 1 Chi-square computation between two variables ERMEXP and ERMSEN

Pivot table	ERMEXP1						
ERMSEN	**I do not have risk management experience**	**Less than 1 year**	**Between 1 and 5 years**	**Between 5 and 10 years**	**Between 10 and 20 years**	**More than 20 years**	**Grand Total**
Entry level (Analyst)	1	2	0	0	0	0	3
Associate	0	0	4	2	1	0	7
Middle Management (AVP, VP)	2	1	2	13	10	5	33
Senior Management (ED, MD)	0	0	1	6	14	7	28
Top Management (CEO, CFO, CRO, COO)	0	0	3	7	22	7	39
Other	0	0	0	2	2	1	5
Total	3	3	10	30	49	20	115

Appendix Table E 2

Independent Count	ERMEXP1						
ERMSEN	**I do not have risk management experience**	**Less than 1 year**	**Between 1 and 5 years**	**Between 5 and 10 years**	**Between 10 and 20 years**	**More than 20 years**	**Grand Total**
Entry level (Analyst)	0.07826087	0.07826087	0.260869565	0.782608696	1.27826087	0.52173913	3
Associate	0.182608696	0.182608696	0.608695652	1.826086957	2.982608696	1.217391304	7
Middle Management (AVP, VP)	0.860869565	0.860869565	2.869565217	8.608695652	14.06086957	5.739130435	33
Senior Management (ED, MD)	0.730434783	0.730434783	2.434782609	7.304347826	11.93043478	4.869565217	28
Top Management (CEO, CFO, CRO, COO)	1.017391304	1.017391304	3.391304348	10.17391304	16.6173913	6.782608696	39
Other	0.130434783	0.130434783	0.434782609	1.304347826	2.130434783	0.869565217	5
Total	3	3	10	30	49	20	115

Appendix Table E 3

Chi-Square computation	ERMEXP1					
ERMSEN	**I do not have risk management experience**	**Less than 1 year**	**Between 1 and 5 years**	**Between 5 and 10 years**	**Between 10 and 20 years**	**More than 20 years**
Entry level (Analyst)	10.85603865	47.18937198	0.260869565	0.782608696	1.27826087	0.52173913
Associate	0.182608696	0.182608696	18.89440994	0.016563147	1.317885664	1.217391304
Middle Management (AVP, VP)	1.507334212	0.022485727	0.263504611	2.240008783	1.172805249	0.095191041
Senior Management (ED, MD)	0.730434783	0.730434783	0.845496894	0.232919255	0.359006211	0.932065217
Top Management (CEO, CFO, CRO, COO)	1.017391304	1.017391304	0.045150502	0.99015236	1.743503288	0.00696767
Other	0.130434783	0.130434783	0.434782609	0.371014493	0.007985803	0.019565217

Appendix Table E 4

Chi-square test	
chi square =	**97.747**
df = (total rows-1)*(total columns-1)=	**25.0000**
Probability =	**0.00000000015**
Chi-square value from the table	**37.65248**

Appendix Table E 5

Pivot table	**Understanding ERM**						
Experience	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**	**Not familiar with ERM**	**Grand Total**
I do not have risk management experience	0	0	0	1	0	2	3
Less than 1 year	0	0	0	1	0	2	3
Between 1 and 5 years	1	2	3	1	0	3	10
Between 5 and 10 years	6	7	6	5	2	4	30
Between 10 and 20 years	23	14	9	1	0	2	49
More than 20 years	13	4	3	0	0	0	20
Total	43	27	21	9	2	13	115

Appendix Table E 6

Independent Count	Understanding ERM						
Experience	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**	**Not familiar with ERM**	**Grand Total**
I do not have risk management experience	1.12173913	0.704347826	0.547826087	0.234782609	0.052173913	0.339130435	3
Less than 1 year	1.12173913	0.704347826	0.547826087	0.234782609	0.052173913	0.339130435	3
Between 1 and 5 years	3.739130435	2.347826087	1.826086957	0.782608696	0.173913043	1.130434783	10
Between 5 and 10 years	11.2173913	7.043478261	5.47826087	2.347826087	0.52173913	3.391304348	30
Between 10 and 20 years	18.32173913	11.50434783	8.947826087	3.834782609	0.852173913	5.539130435	49
More than 20 years	7.47826087	4.695652174	3.652173913	1.565217391	0.347826087	2.260869565	20
Total	43	27	21	9	2	13	115

Appendix Table E 7

Chi-Square computation	Understanding ERM						
Experience	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**	**Not familiar with ERM**	**Grand Total**
I do not have risk management experience	1.12173913	0.704347826	0.547826087	2.494041868	0.052173913	8.13400223	3
Less than 1 year	1.12173913	0.704347826	0.547826087	2.494041868	0.052173913	8.13400223	3
Between 1 and 5 years	2.006572295	0.051529791	0.754658385	0.060386473	0.173913043	3.091973244	10
Between 5 and 10 years	2.42669363	0.000268384	0.049689441	2.995974235	4.188405797	0.109253066	30
Between 10 and 20 years	1.194544066	0.541384863	0.000304221	2.095553584	0.852173913	2.261265443	49
More than 20 years	4.077098079	0.103059581	0.116459627	1.565217391	0.347826087	2.260869565	20
Total	43	27	21	9	2	13	115

Appendix Table E 8

Chi-square test	
chi square =	**57.433**
df = (total rows-1)*(total columns-1)=	**25.0000**
Probability =	**0.00023**
Chi-square value from the table	**37.65248**

Appendix F Correlation Matrices

Appendix Table F 1 Correlation Matrix for ERMALGNT variable

	ERMFAM	*ERMSTATE*	*ERMMAT*	*ERMBOD*	*ERMAPPT*	*ERMCRO*	*ERMFRMK*	*ERMTOOLS*	*ERMSTR*	*ERMMET*	*ERMGOV*	*ERMCUL1*	*ERMINFRA*
ERMFAM	1												
ERMSTATE	N/A	1											
ERMMAT	N/A	0.8298 47198	1										
ERMBOD	0.8288 92504	0.3453 40013	0.5538 46531	1									
ERMAPPT	0.7641 13683	0.2791 78079	0.4822 51278	0.8331 68792	1								
ERMCRO	0.7520 18497	0.2592 07996	0.4661 51579	0.8104 99919	0.8088 32912	1							
ERMFRMK	0.7929 93048	0.2621 54843	0.5031 9073	0.8311 50162	0.7688 70066	0.8022 13285	1						
ERMTOOLS	0.7679 30581	0.2957 09683	0.5090 61227	0.7382 31478	0.7337 6324	0.7960 96291	0.8620 36503	1					
ERMSTR	0.8079 76754	0.3195 47043	0.5065 29337	0.8382 81136	0.7638 07312	0.7427 96788	0.8475 32033	0.8190 49887	1				
ERMMET	0.7900 52534	0.3792 48709	0.5629 78774	0.7930 17802	0.7827 16548	0.7329 16958	0.8304 7161	0.8320 94871	0.8814 40697	1			
ERMGOV	0.7556 84215	0.2719 52999	0.4742 10278	0.7888 67086	0.7809 30034	0.8004 15895	0.8494 22332	0.8088 97273	0.7969 80571	0.7998 07311	1		
ERMCUL1	0.7829 20251	0.3616 61195	0.5194 16441	0.8464 58885	0.8131 22569	0.7399 19196	0.7817 24914	0.7598 53574	0.7926 54037	0.8149 42389	0.7958 674	1	
ERMINFRA	0.7636 8709	0.2395 61385	0.5025 60502	0.7888 78338	0.8027 96179	0.7838 3414	0.8231 72535	0.8358 22211	0.7839 54002	0.7833 93766	0.8079 97953	0.7946 88674	1

Appendix Table F 2 Correlation Matrix for ERMVAL variable

	ERMFAM	*ERMSTATE*	*ERMMAT*	*ERMVAL1*	*ERMVAL2*	*ERMVAL3*	*ERMVAL4*	*ERMVAL5*	*ERMVAL6*	*ERMVAL7*
ERMFAM	1									
ERMSTATE	N/A	1								
ERMMAT	N/A	0.8298471 98	1							
ERMVAL1	0.58788 2	0.2796486 11	0.37427 5	1						
ERMVAL2	0.78096 1	0.2682138 42	0.47832 9	0.691499	1					
ERMVAL3	0.81457 8	0.3075804 18	0.51370 9	0.662819	**0.869523**	1				
ERMVAL4	0.76375 8	0.2793510 56	0.49415 7	0.606522	0.780446	0.824628	1			
ERMVAL5	0.79996 7	0.2180605 04	0.45546 1	0.6076	0.8226	0.883124	**0.857816**	1		
ERMVAL6	0.75733 5	0.2658516 83	0.45182 5	0.646908	0.816851	0.807815	0.822764	**0.858671**	1	
ERMVAL7	0.71772 2	0.2240288 49	0.43005 5	0.714883	0.799981	0.810811	0.764957	0.803479	0.824678	1

Appendix Table F 3 Correlation Matrix for ERMBENFT variable

	ERMFAM	*ERMSTATE*	*ERMMAT*	*ERMBENFT1*	*ERMBENFT2*	*ERMBENFT3*	*ERMBENFT4*	*ERMBENFT5*	*ERMBENFT6*	*ERMBENFT7*	*ERMBENFT8*	*ERMBENFT9*	*ERMBENFT10*	*ERMBENFT11*	*ERMBENFT12*
ERMFAM	1														
ERMSTATE	N/A	1													
ERMMAT	N/A	0.8298472	1												
ERMBENFT1	0.76469984	0.29430717	0.46236502	1											
ERMBENFT2	0.78369044	0.37688966	0.52877047	0.87769608	1										
ERMBENFT3	0.76385189	0.25479765	0.45943144	0.783698101	0.80027961	1									
ERMBENFT4	0.75850591	0.26687911	0.46438304	0.85117506	0.82654891	0.84772854	1								
ERMBENFT5	0.71849916	0.19620269	0.40469895	0.655680863	0.6459027	0.75544901	0.68769183	1							
ERMBENFT6	0.80038465	0.22962669	0.45823128	0.794091545	0.80587412	0.85660405	0.81759881	0.75003103	1						
ERMBENFT7	0.73922165	0.34041446	0.49294766	0.793455447	0.8098812	0.78437869	0.8164146	0.77526862	0.79140307	1					
ERMBENFT8	0.78617667	0.31044131	0.45054781	0.818188763	0.8371658	0.78162417	0.79310154	0.72750885	0.8378123	0.82646288	1				
ERMBENFT9	0.76093827	0.28301313	0.44346762	0.780370466	0.77823383	0.80590238	0.77320997	0.79505416	0.80021845	0.80783771	0.82728067	1			
ERMBENFT10	0.79401775	0.34517202	0.5141043	0.757866621	0.83723275	0.81554954	0.8226295	0.74544943	0.84054449	0.80130677	0.85103908	0.81373015	1		
ERMBENFT11	0.76914497	0.30332228	0.52801335	0.826567067	0.82649661	0.80612084	0.85239299	0.72867559	0.86324791	0.77400029	0.8042781	0.81529886	0.85127281	1	
ERMBENFT12	0.24228364	0.21028305	0.23405023	0.296150232	0.25986695	0.20427289	0.26991781	0.25175892	0.19120084	0.27286858	0.22105226	0.21046386	0.17041879	0.23794102	1

Appendix G Risk Assessment

Appendix Table G 1 Examples of risk assessment tools and techniques

<table>
<tr><td colspan="2">Risk assessment Tools and Techniques</td></tr>
<tr><td>Qualitative research</td><td>Quantitative research</td></tr>
<tr><td>Risk probability and impact assessment

Requires investigating the likelihood that each specific risk will occur and the potential effect on a project objective such as schedule, cost, quality or performance (negative effects for threats and positive effects for opportunities)</td><td>Data gathering and representation techniques
• Interviewing
• Probability distributions
➢ Continuous probability distributions are used extensively in modelling and simulations to represent the uncertainty in values.

> Discreet probability distributions can be used to represent uncertain events.</td></tr>
<tr><td>Risk urgency assessment

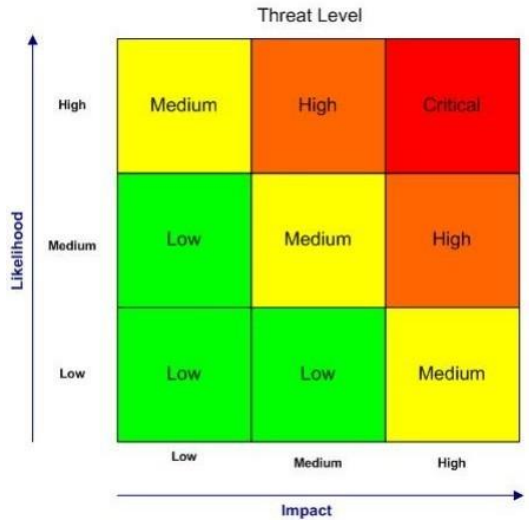
• can be combined with the risk ranking determined from the probability and impact matrix to give a final risk sensitivity rating.</td><td>Quantitative risk analysis and modelling techniques
• sensitivity analysis can highlight risks of largest potential impact on the project
• Expected Monetary Value analysis (EMV) can help to calculate the average outcome of scenarios that may or may not happen that can be used in a decision tree analysis
• Modelling and simulation can translate detailed uncertainties into a potential impact on the objectives (e.g. Monte Carlo)</td></tr>
<tr><td>Probability and impact matrix

It can rate the risks for further quantitative analysis using a probability and impact matrix;</td><td>Cost risk analysis

It can calculate total cost based on cost estimates inputs;</td></tr>
<tr><td>Risk categorisation

It can group the risks by common root causes t develop effective risk responses;</td><td>Schedule risk analysis

It can verify the probability of completing the project by a certain date or within a certain cost constrain;</td></tr>
<tr><td colspan="2">Expert judgement</td></tr>
<tr><td>The judgement of individuals who have experience with similar projects can be used through interviews or risk facilitation workshops.</td><td>The judgement can be used to identify potential cost and schedule impacts, to evaluate probabilities, to interpret the data, and to indicate the weaknesses of the tools used.</td></tr>
</table>



Appendix Table G 2 Risk impact matrix

Source: Neil (2005)