

Investigation of Risk Management Changes in Insurance Companies

A thesis submitted in partial fulfilment of the requirements of Brunel University
for the degree of Doctor of Philosophy in Accounting

By

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December 2013

Abstract

This thesis studies the change process of risk management practices associated with the implementation of Enterprise Risk Management (ERM) and the extent to which it can lead to changes in capital allocation practices. The study develops a theoretical framework to study risk management changes, which draws on structuration theory (Giddens, 1979, 1984) and institutional theory, particularly the institutional framework of Burns and Scapens (2000), as well as new institutional sociology theory. A two-stage empirical study was undertaken in non-life insurance companies. The first stage was a field study of 10 listed non-life insurance companies, while the second stage was a case study of a large non-life insurance company. Multiple data collection methods were used including semi-structured interviews, documentary evidence, annual reports, and publicly available data.

Findings show internal, coercive, and normative pressures have mainly driven the ERM adoption decision. The literature supports the impact of coercive, mimetic, and normative pressures on the trend toward ERM in financial industries. However, the study finds that internal pressures related to achieving the company's objectives are either equal to or surpass the external pressures. The study also provides empirical evidence of the changes in risk management practices, which include capital allocation change process associated with ERM implementation. Effective capital allocation requires the incorporation of ERM elements in the whole process of allocating capital. Furthermore, new capital allocation routines and institutions are produced. The study shows that the risk-based capital allocation method is intra- and extra-institutionalised at the company level.

The main contribution of this thesis is to identify the nature of ERM adoption and implementation in insurance companies. More specifically, this study provides a better understanding of the institutional forces driving ERM adoption and offers empirical evidence on ERM implementation and the change in risk management practices (routines) within non-life insurance companies. Moreover, this study avoids the limitations of previous research that was based on surveys, and it does so by conducting an exploratory field study and explanatory case study to address the changes in risk management practices. Practices and process need to be located in their institutional context and hence cannot be reflected in surveys.

Dedication

To my parents (Mai and Mikhael) for their everlasting love and support throughout my journey to complete this thesis, which has helped me to achieve my dream.

Acknowledgements

I would like to acknowledge Professor Magdy Abdel-Kader. It would not have been possible for me to complete this study without the supervision of Professor Magdy Abdel-Kader, who has provided invaluable support, feedback and encouragement throughout the duration of the study.

I would like to take the opportunity to thank Brunel University for giving me the opportunity to carry out this study.

I am also delighted to acknowledge all the support and encouragement that I have received from both academic and administrative staff at Brunel Business School.

My warm and heartfelt thanks to my brother (Fadi) for his continual encouragement which has sustained me in the years it took to bring this work to completion.

Last but not least, my special thanks and love to all my friends and colleagues, who provided priceless help and support.

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 wholly my own work and is solely based on my own research.

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

Mirna Jabbour

List of papers extracted from this thesis

Journal Articles

Jabbour, M., and Abdel-Kader, M. (2013) 'Understanding the Change in Capital Allocation Practices Driven by ERM Implementation – A Case of a Large Non-life Insurance Company', *Management accounting research*, under review.

Conference Papers

Jabbour, M., and Abdel-Kader, M. (2013). Understanding the Change in Capital Allocation Practices Driven by ERM Implementation, *European Accounting Association congress (EAA)*, France, May.

Jabbour, M., and Abdel-Kader, M. (2013). Understanding the Change in Capital Allocation Practices Driven by ERM Implementation, *Annual Conference for Management Accounting Research (ACMAR)*, Germany, March.

Jabbour, M., and Abdel-Kader, M. (2012). The Impact of Enterprise Risk Management on Capital Allocation in Insurance Companies, *European Accounting Association congress (EAA)*, Slovenia, May.

Jabbour, M., and Abdel-Kader, M. (2011). The Impact of Enterprise Risk Management on Capital Allocation in Insurance Companies, *Management Accounting Research Group (MARG) conference*, Birmingham, November.

Jabbour, M., and Abdel-Kader, M. (2011). The Impact of Enterprise Risk Management Strategies on Capital Allocation in Insurance Companies, *British Accounting and Finance Association (BAFA)*, Birmingham, April.

Jabbour, M. (2010). The Impact of Enterprise Risk Management Strategies on Capital Allocation in Insurance Companies, *Management Accounting Research Group (MARG) conference*, Birmingham, November.

Jabbour, M. (2010). The Impact of Capital Allocation through Enterprise Risk Management Strategies on Insurance Companies' Value, *British Accounting Association (BAA) colloquium*, Cardiff, March.

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List of Abbreviations

ADB	Asian Development Bank
COSO	Committee of Sponsoring Organisations of the Treadway Commission
ERM	Enterprise Risk Management
FSA	Financial Services Authority
IFAC	International Federation of Accountants
NYSE	New York Stock Exchange
NIS	New Institutional Sociology theory
OID	Old Institutional Economics theory
RAROC	Risk Adjusted Return on Capital
S&P	Standard and Poor's
SEC	Securities and Exchange Commission
SOX	Sarbanes Oxley Act
TCRP	Transit Cooperative Research Program

Chapter 1

Introduction

1.1 Background to the research

This thesis explores the various rationales for ERM adoption and implementation and investigates risk management practices change, particularly capital allocation that is triggered by ERM implementation within non-life insurance companies. ERM implementation is characterised by complexity and cross-functional nature; furthermore, as ERM has a built-in risk management practices, they are expected to affect the way of doing things, especially in the insurance industry where risk management is a main function.

Risk management is viewed as a process for handling the risks to which an organisation or individual is exposed. The need to manage risks arises from the uncertainty related to the results of any decision. Good risk management helps companies prepare for problems, improve the decision-making process, reduce costs, compare results, and improve both business continuity and competitive advantage (Williams et al., 1998; Degraeve, 2004). Traditionally, risk management is considered to be only applied by large companies because of being an expensive and complicated process. However, it is argued that risk management is a strategic tool which is not necessarily expensive to apply (El Baradei, 2006). Thus, all companies should be able to manage their risks, including small companies that are more vulnerable to risk (Sadgrove, 1996; El Baradei, 2006). Organisational characteristics, such as size, type of business, strategic orientation, professional associations, corporate culture, and management competence (Hussain and Gunasekaran, 2002) can affect the processes applied within insurance companies as well as the emergence and use of management control systems including ERM (Myers et al., 1991; Shields, 1995).

Companies could reach their goals efficiently and quickly with the help of proactive risk management (Williams et al., 1998; Carey and Turnbull, 2001). Following Mehr and Hedges' (1963), the process of risk management was summarised by Dickson (1989), Sadgrove (1996), Williams et al. (1998) and Harrington and Niehaus (2003) into five elements: mission identification, risk assessment, risk control, risk financing, and program administration. They viewed risk management key objectives as protecting the company from severe financial disruption due to accidental losses, and doing this at an affordable and non-

fluctuating cost. These objectives can be achieved through a five-step risk management process (see Figure 1.1).

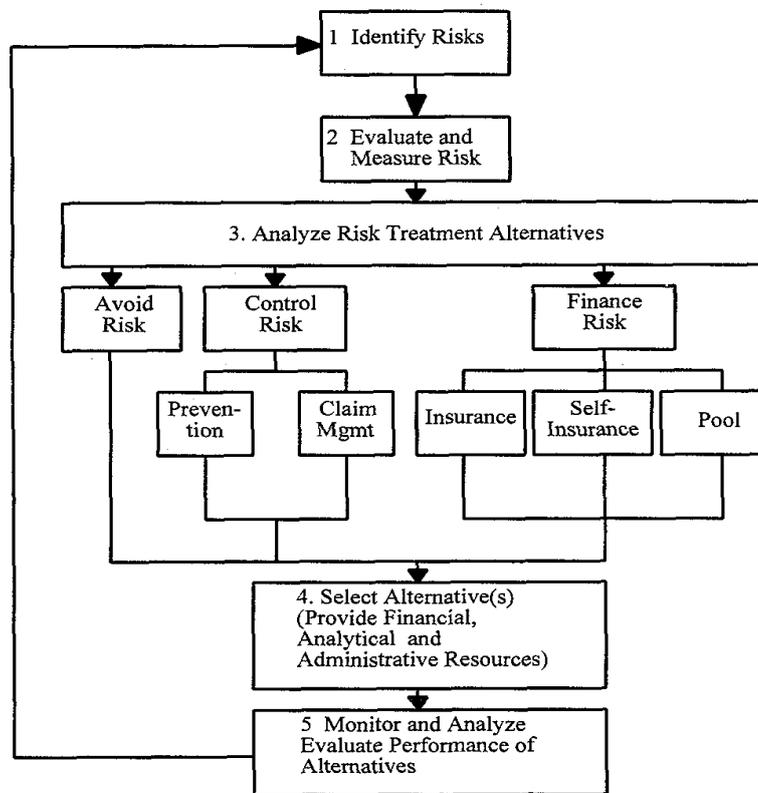


Figure 1.1 Risk management process

(Source: Transit Cooperative Research Program [TCRP] Synthesis 13, 1995, p. 4)

Several definitions of risk management have been presented in the literature (e.g. Rejda, 1998; Williams et al., 1998). The risk management process requires coordination and cooperation of management, staff, and operations (Snider, 1964) as an independent function (Asian Development Bank (ADB), 2002). Consistently, ERM was defined as an initiative involving the active participation of all business units and IT (Salvador, 2007). Shenkir and Walker (2006, p. 5) described ERM as “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”.

For the purpose of this study, and based on the above discussion, the researcher defines risk management as an independent process of identifying, analysing and responding

to pure loss exposures faced by an enterprise that requires the cooperation of a firm's various levels: management, staff and operations. It reduces uncertainty about risks and helps in selecting and implementing the most appropriate techniques for treating loss exposures.

1.2 Generations of risk management

Risk management has developed over time. Based on chronological sequence, the risks addressed and the sophistication of financing methods employed, the progression of risk management is classified into three generations. In the first and second generations, risk management has developed on a silo basis in which risk managers concentrate on one type of risk out of many. These two generations were dominant during the period from the 1960s till the mid-1980s. Such an approach was consistent with the way companies had established their information flows. The second generation differed from the first generation in that the focus of risk management professionals was extended to include external stakeholders (Nielson et al., 2005).

The third generation of risk management, which is the era of ERM and began in the 1990s, moved away from the silo approach toward an approach that takes in a corporate-wide view. The major feature of the third generation of risk management is the rationalisation of management decisions and improved communication regarding risk in the company. ERM requires different functions to be able to communicate with each other properly. The third generation has been an expansion of the external risks facing companies and the intra-company communication. The board and senior management have been involved in the risk communication function (Nielson et al., 2005). More recently, Anderson and Anderson (2009) argued that sustainability risk management (addressing environmental and social responsibility risks) should be a critical part of ERM.

ERM can be viewed as a natural evolution of risk management which looks at all risks across the company not just narrow "silos" of risk as viewed in the past. It is a discipline gaining popularity and recognition with different types of entities (Simkins, 2008). Presentations have been made on ERM at a number of actuarial, risk management, and other insurance meetings. Seminars have been conducted to explain ERM process, provide examples of its applications, and discuss the developments in the field. Research on ERM has been published in journals and books (e.g. Guthrie, et al., 1999; Shimpi, 1999; Davenport and Bradley, 2000; Deloach and Temple, 2000; Doherty, 2000; Lam, 2000). Thus, risk management has progressed from dealing with risks inside a company to an approach that

integrates its function into broader strategic objectives of the company. The major changes involved the scope of risks addressed and the sophistication of financing methods that are employed by risk managers (see Figure 1.2).

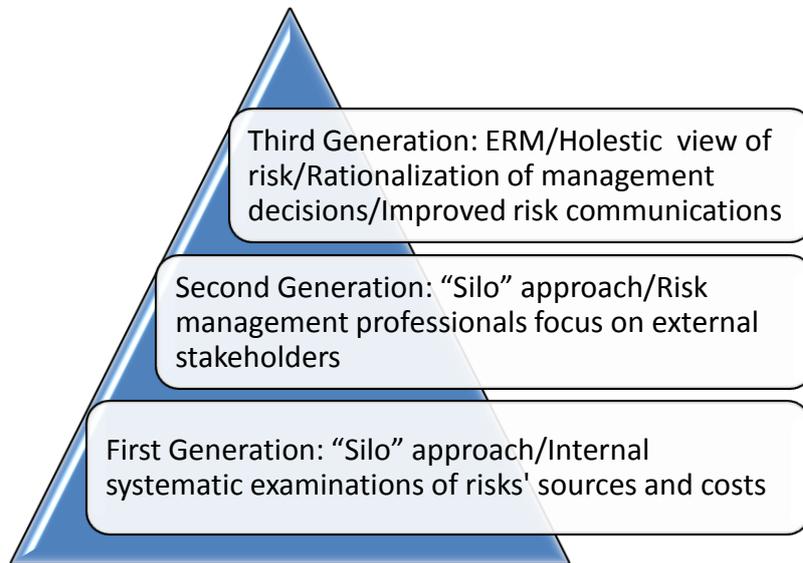


Figure 1.2 Generations of risk management

1.3 Research problem

Efficient strategic decision-making is achieved through a framework that has two parts. First, risk is related to the capital amount which is required by the company to achieve a sufficient protection level against adverse events. Second, risk is used to adjust the business activities returns in order to determine the activities that are value adding and those that are value destroying (Siokis, 2001).

Researchers have conducted only few empirical studies on ERM, despite the great interest in the topic (Liebenberg and Hoyt, 2003). ERM proponents argue that an integrated approach increases the value of the company by reducing inefficiencies that are inherent in the traditional approach, improving capital efficiency, stabilising earnings, and reducing the external capital and regulatory scrutiny expected costs (Miccolis and Shah, 2000; Cumming and Hirtle, 2001; Lam, 2001; CFO Research Services, 2002; Hoyt and Liebenberg, 2011).

ERM was considered to help companies making better risk-adjusted decisions which maximises shareholders' value and makes risk management part of the company's overall strategy (Lam and Kawamoto, 1997; Meulbroek, 2002; Millage, 2005; Nocco and Stulz, 2006; Gates et al., 2012). ERM was recognised to promote increased risk awareness that

facilitates better operational and strategic decision making (O'Rourke, 2005; Hoyt and Liebenberg, 2011) and improves information flows regarding risks (Shenkir and Walker, 2006).

ERM is “an ideology of managing the firm in every respect and aligning it with value creation at each stage of decision making and goes well beyond risk measurement and management” (Rao and Dev, 2006, p. 430). Thus, economic capital allocation is the heart of such new paradigm for financial institutions. ERM can be seen as a change agent for capital allocation, which is the subdivision of the company's aggregate capital across its different constituents (business lines, types of exposure, territories or even individual products) (Dhaene et al., 2012).

Capital allocation has become more important because of the regulatory requirements move towards economic-based measures of risk. Capital is the most expensive and important input in production for financial companies. They deploy capital by holding a large number of financial risk positions which need to be evaluated. Insurers have large underwriting and reinsurance portfolios as well as investment and hedge portfolios (Froot, 2007; Mumford et al., 2005).

Information quality affects capital allocation which appears in companies' cost of capital (Leuz and Verrecchia, 2005). As ERM is argued to improve risk information within insurance companies, ERM is expected to affect capital allocation practices. Risk is the first factor to think about when holding capital. Companies hold capital in order to protect against losses in excess of reserves for risks (Weiner, 1998).

The financial assets constitute a major part of an insurance company's capital, unlike the capital investment. The risk of these assets arises from the uncertainty of the stream of cash flows which are associated with these financial assets. Broad risk categories (credit risk, market risk, prepayment risk, liquidity risk, insurance risk, operational risk, business or strategic risk) need to be managed effectively (Rao and Dev, 2006). This supports the link between capital allocation practices and ERM.

An enterprise-wide approach to capital management across all risk classes was recommended to be adopted by insurance companies (Britton, 2001). Capital allocation should be then used to facilitate and improve businesses' economic profitability measurement with various sources or risks and various capital requirements (Acharyya, 2008). Economic capital has become central to ERM for insurers as they have started to use ERM in financial decision-making including pricing and capital allocation (Yow and Sherries, 2007).

A major part of an ERM framework is the exercise of capital allocation (Dhaene et al., 2012). Determining the economic capital and allocating it to lines of business are an important part of the risk management of an insurance company because these companies need to hold higher levels of capital and use risk-based models to assess economic capital (Sherris, 2006). Insurers have incentives to manage capital costs through risk management. Effective risk management provides protection against unexpected losses which can be primarily obtained by maintaining an appropriate level of economic capital by financial institution (Shim, 2007).

Tillinghast-Towers Perrin (2004) conducted a web-based survey and concluded that insurers have come to recognise ERM as fundamental to creating and improving shareholders' value through better risk-based decision making and capital allocation. Economic capital was a key decision making tool for all companies at all levels. Insurers' business decisions were guided by enhanced risk and capital management approaches.

The 2010 ERM survey conducted by AON showed that advanced ERM practitioners report significant success in applying ERM strategies to board-level responsibilities. About 57 per cent of the companies surveyed use risk management for capital allocation. As the amount of capital to be allocated is finite, companies with more mature ERM programs are able to manage this process in a better way. However, companies in the early stage of the process report that they do not use ERM for capital allocation (AON, 2010).

The discussion above suggests that ERM has an impact on capital allocation processes. Although there is a growing interest in the impact of ERM on risk management practices, the issue of ERM's impact on capital allocation practices has not attracted much attention. It is sufficient to recognise that empirical investigations of the impact of ERM on risk management practices, in particular capital allocation, are needed to understand and explain such impact. The insights that are gained to date should be interpreted with regard to a number of limitations, all of which lead to the principle objectives and research questions of this study (see section 1.4).

First, although previous research indicates that increasing numbers of insurance companies are adopting and implementing ERM, there has been little work exploring the adoption drivers and the determinants of ERM implementation within insurance companies. The increased regulatory drive toward ERM adoption led to the interest in exploring the main drivers for this adoption in this research. In other words, is ERM adopted as a result of regulatory pressure or for economic reasons that are consistent with the goals of ERM?

Second, despite the fact that some research has argued for a positive relationship between ERM implementation and capital (e.g. Lam, 2001; AON, 2010), limited empirical

research has been conducted to address the impact of ERM on risk management practices including capital allocation. This research attempts to address this gap.

Third, only a few case studies have been conducted to study ERM strategies (e.g., Mikes, 2009). The majority of extant research takes the form of surveys examining the success and advantages of ERM implementation, and the risk and capital management issues. These studies are valuable as a source of descriptive information concerning ERM use, but they do not address the fundamental question of how actions and routines have taken place in practice. Qualitative research methods address such actions and determinants. This research addresses this issue using field and case study methodologies. As such, this study responds to the call for further research that uses field study methods (Kaplan, 1983; Scapens and Sale, 1985; Atkinson and Shaffir, 1998; Lillis, 1999; Lillis and Mundy, 2005). Accounting researchers have increasingly recognised the need to study accounting within its organisational context (Hopwood, 1983; Atkinson and Shaffir, 1998, Ahrens, 2010; Baxter and Chua 2008).

Fourth, previous research has not been informed by institutional theory approaches to address ERM various impacts and processes. The theoretical framework draws on structuration, old institutional theory, and new institutional sociology theory. It develops Burns and Scapens' (2000) model to incorporate ERM and risk management practices to provide a general model for risk management change. Old institutional theory is adopted to address the problem of this research because it can give explanation to the accounting evolutionary nature, which is broadly recognised in the accounting literature (Kaplan, 1983; Bromwich and Bhimani, 1989, Chenhall and Langfield Smith, 1998a, 1998b). Old institutional theory mainly considers intra-organisational behaviours. In this study, Burns and Scapens' (2000) model is complemented by new institutional theory to address the effect of extra-organisational institutional pressures on ERM-triggered risk management practices change. Further, structuration theory is adopted as it considers the social context of management accounting, links macro institutional context to micro organisational context, and stresses the dialectic of control importance in social relationships. In this regard, the adoption of ERM by insurance companies and the link between ERM implementation and the change in capital allocation practices could be better informed by structuration and institutional theories.

Finally, little research has studied the impact of ERM on risk management practices in the context of insurance companies. Most of the prior studies were conducted in the wider

financial industry context. Therefore, the findings of the present research offer a starting point for future studies of ERM in the insurance industry.

1.4 Risk and the insurance industry

During the last two decades financial institutions and investors experienced increased volatility in the major and financial commodity markets, with many financial crises. The technological revolution resulted in changes in the operation of markets, increased access to information, changes in the types of services available to investors, and major changes in the production and distribution of financial services (Crouhy et al., 2001). Insurance supervisors, along with banking and other sector regulators and supervisors, play an important role in ensuring a stable financial environment. Therefore, financial institutions and modern businesses concerned with their ability to manage risks see the need for sound programs of risk management as an essential part of corporate responsibility. They also consider the insurance industry as a mirror for the financial stability of a country.

Insurance is an important industry. Most people hold one or more types of insurance policies, and the annual revenues of insurance companies are large. Insurance companies are also a major employer. They are considered financial intermediaries for two reasons. First, they receive investment funds from their customers. Second, they place their money in a variety of money-earning investments (Mishkin and Eakins, 2006). Three main functions create the value of an insurance company: underwriting, investment, and finance. Insurance companies are in a business of assuming risk on behalf of their customers in exchange for a fee (premium). They make a profit by charging premiums that are sufficient to pay the expected claims to the company, plus ensuring a profit.

The most common types of insurance are life insurance and property and casualty insurance. Non-life insurance companies are selected as the context of this research. Property and casualty insurance is different from life insurance. First, policies tend to be short-term. Second, life insurance is limited to insuring against one event while property and casualty companies insure against many different events. Finally, the amount of potential loss is much more difficult to predict for property and casualty insurance than for life insurance. These characteristics cause property and casualty companies to hold more liquid assets than those of life insurance companies (Mishkin and Eakins, 2006). Thus, they are exposed to a wider range of risks, which makes them interesting subjects within which to explore risk

management systems and practices. More details on insurance companies' functions and the types of risk they face are provided in Appendix A.

The importance of the insurance industry, its growing role, and its need for robust risk management systems are the key reasons that led me to choose it as the context in which I will develop my research and conduct my study.

1.4.1 Risk in insurance

As risk is a key issue in financial institutions, regulations have been set to guide risk management in these institutions, including insurance companies. The purpose of most regulations is to protect policyholders from losses due to the insolvency of a company. To accomplish this, insurance companies are restricted as to their asset composition and minimum capital ratio. Also, agents and brokers are required to obtain state licenses to sell each kind of insurance, and these licenses are used to insure that all agents have a minimum level of knowledge about the products they sell. In the UK, the Financial Services Authority (FSA) is responsible for the regulation of all general insurance intermediary activity and any business wishing to sell, advise on, or even introduce customers to sources of general insurance cover will almost certainly have to become authorised by the FSA to do so (Mishkin and Eakins, 2006).

As a result of the business failures, scandals, and frauds over the past years, senior managers are now obligated to comply with a number of laws, regulations, and listing standards that call for strengthened corporate governance and risk management. Corporate scandals, such as Enron, have led to further accounting and governance reforms. The Sarbanes Oxley Act (SOX) was introduced in 2002 to enhance responsibility and financial disclosures and to fight corporate and accounting fraud. The Act requires companies' executives to confirm that evaluation of internal control effectiveness has been undertaken over financial reporting (Woods, 2011). A number of risk-like provisions were produced by SOX in the U.S. and were mainly focused on the weaknesses in either the design or the operation of internal controls rather than on financial reporting. Therefore, current regulations tend to refer to risk management in the financial controls context. Risk management is always pointed out in the UK's Corporate Governance Code conjoined with internal control systems or financial controls. For any company to be able to achieve its strategic objectives and sustainable success in the longer term it needs to maintain internal control systems alongside structure and culture (Van der Stede, 2011).

The Securities and Exchange Commission (SEC) rules show that in order to demonstrate the effectiveness of a business, there should be a suitable internal control framework in place. Therefore ERM frameworks have been released and developed over time. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) 1992 guidelines are an example of a suitable framework (SEC, 2006, p. 5, cited in Woods, 2011, p. 15). This framework was redrafted in 2004 and titled: *Enterprise Risk Management - Integrated Framework*. This version has been used since 2004 to assess the compliance with SOX. The changes incorporated in the new framework served to significantly raise the risk management profile (Woods, 2011). The COSO (2004) framework reversed the importance of risk management and internal control, which is obvious in its title. Hence, enterprise risk management is a term incorporating the internal control framework within it (COSO, 2004). Such changes have an impact on risk professions and the COSO framework has become the dominant guideline used by financial companies. “The regulations in SOX were closely linked to the COSO framework. This linkage served to reaffirm the idea that internal control is fundamental to good governance but also to simultaneously raise the profile of risk management. The COSO (2004) framework placed ERM as the “overall control system within which other internal controls had a subsidiary place” (Woods, 2011, p. 19). It is worth noting that even though the companies investigated are UK based, they are still affected by U.S. regulations such as SOX. These companies are international and have strong relations with American companies and/or listed in the U.S.

1.5 Aims and objectives

In support for a widespread use of ERM in the financial sector, regulators have initiated Solvency II.¹ Solvency II is an example of how regulatory changes have an impact on ERM adoption and implementation in financial institutions. Companies are obligated to comply with regulations that call for strengthened risk management. For instance, Solvency II is pushing financial institutions to adopt ERM even though Solvency II has yet to be announced. It is evident that risk management in the financial sector is regulated. However, the ultimate objective of insurance companies is to create value. ERM adoption could not be only driven by regulations, but must also be driven by the economic needs of a business. Thus, systematic variations are expected in the way ERM is implemented to affect decision

¹ Solvency II is an EU legislative programme for financial institutions that aims to establish a revised set of EU-wide capital requirements and risk management standards.

making within insurance companies. Limited empirical studies have been conducted to explore what the main drivers for ERM adoption and the determinants of ERM implementation are in insurance companies. The implementation of ERM is further expected to force decision makers to take risk considerations in their capital allocation decisions and thus use different ways to allocate capital than the ones they used to have in place. As such, this research aims to investigate the institutional pressures driving ERM adoption and implementation as well as the extent to which ERM implementation changes the capital allocation practices within non-life insurance companies.

To achieve this aim the following objectives have been set:

1. To develop a theoretical framework that helps to understand risk management practices associated with ERM techniques implementation. This framework draws on structuration theory (Giddens, 1979, 1984) and institutional theory, particularly the institutional framework of Burns and Scapens (2000), as well as new institutional sociology theory.
2. To investigate the institutional pressures driving ERM adoption and use within insurance companies.
3. To explore the actual change processes of risk management practices by means of a field study in non-life insurance companies.
4. To explain the change in capital allocation practices associated with ERM implementation and the forces driving this change by means of qualitative case study in a large insurance company.

In order to achieve these objectives, this study addresses three groups of research questions. The first group focuses on the organisational institutions governing the ERM adoption and embedding within insurance companies. It specifically asks:

RQ_{1/1} To what extent do various institutional forces drive ERM adoption?

RQ_{1/2} To what extent do different determinants play a role in ERM implementation process?

RQ_{1/3} How do ERM processes vary among different non-life insurance companies?

RQ_{1/4} How do different challenges face the process of ERM implementation and embedding?

The second group of questions deals with the role of ERM in changing risk management rules and routines:

RQ_{2/1} Why and how are risk management practices reproduced or transformed in the risk management environment?

RQ_{2/2} What is the role of ERM in their reproduction or transformation?

The third group of questions focuses on the role of ERM in changing capital allocation routines and on the changing roles and responsibilities of risk officials due to ERM introduction:

RQ_{3/1} Why and how does capital allocation practice change and what is the role of ERM in that change?

RQ_{3/2} How does ERM change the relationships of risk team with different members within the company?

RQ_{3/3} What are the roles and responsibilities of risk officials in ERM environment?

1.6 Significance of the research

Four reasons make this particular study significant. First, ERM has been increasingly used recently by various companies (Liebenberg and Hoyt, 2003). There has been an increasing interest in studying ERM in the context of financial institutions. Van der Stede (2011) discussed the motivation to study risk management and stressed the need to study financial companies. Insurers have increasing incentives to consider ERM programs because risk management is considered as their main function. Therefore, there is a need to understand the various issues associated with ERM adoption and implementation in the insurance industry.

Second, although ERM is widely used in the UK insurance industry and considered to offer benefits, little research has been conducted to assess these benefits in practice. In addition, this research is one of the first studies that provides evidence on the impact of ERM on risk management practices in the insurance industry.

Third, ERM implementation differs from the implementation of traditional risk management systems, particularly silo approaches (Culp, 2001; D'Arcy and Brogan, 2001). However, a number of qualitative traditional risk management practices are still expected to be used as part of ERM framework. Thus, from expected change perspective, ERM is seen to reinforce some existing risk management practices in non-life insurance companies.

The implementation of ERM is characterised by complexity and cross-functional nature. Often an ERM framework cannot exactly fit an insurance company's structure or the way it had planned to operate. Therefore, changes may be made to organisational business processes and structure to fit with the best practices that are embedded. Consequently, ERM is expected to significantly change existing risk management routines. This research aims to

understand potential differences in ERM processes and changes in risk management practices.

Fourth, previous research on ERM suffers from two limitations. First, there are limited empirical studies regarding whether ERM implementation results in a change in risk management practices, in particular capital allocation practices, within the insurance industry. Secondly, prior empirical research is mostly comprised of quantitative surveys of ERM impacts, which do not provide a rich description of social, cultural, and political contexts. This particular study attempts to avoid these limitations by conducting an exploratory field study and explanatory case study.

In short, this research is one of the first studies to document and understand the change ERM drives in risk management practices, particularly capital allocation. It builds on the existing risk management literature which suggests a range of factors that may influence the decision to employ ERM.

1.7 Structure of the remainder of the thesis

In addition to this chapter, this thesis is divided into nine chapters. Chapter 2 critically reviews the literature on ERM and risk management practices, particularly capital allocation. It identifies the gaps in the literature and highlights the research questions. Chapter 3 develops a theoretical framework, which provides the basis for analysing the empirical data. This framework draws on structuration theory (Giddens, 1979, 1984) and old institutional economics, particularly the work of Burns and Scapens (2000), as well as new institutional sociology theory. Chapter 4 details the methodology and methods used to collect the empirical data. Alternative methodologies and methods are discussed to identify the most suitable methodology and methods to address the research questions. The findings from the field study and are reported and discussed in Chapters 5 and 6. Chapters 7 and 8 give details of the case study and discuss how and why capital allocation routines are modified or changed. Chapter 9 presents a detailed discussion of the research findings informed by the theoretical framework. The final chapter draws conclusions from the findings and makes recommendations. It also discusses the contribution and limitations of the study, and offers suggestions for future research.

Chapter 2

Literature Review

2.1 Introduction

Risk management has evolved over time from a narrow view focusing on evaluating risk from a silo perspective to a holistic view that encompasses all risks. Understanding whether ERM implementation drives a change in risk management practices, particularly capital allocation, is the key objective of this research. This chapter critically reviews the relevant literature of risk management and capital allocation and is divided into five sections. The next section reviews the ERM concept and framework to help illustrate this developed approach to risk management and highlight the key elements of an effective ERM framework. This is followed by a review of the literature on ERM adoption drivers, implementation, and implementation determinants and challenges. Section four critically reviews ERM and the change in risk management practices, specifically capital allocation, in order to identify the gaps in the literature and the research questions. The final section draws conclusions.

2.2 Enterprise risk management (ERM) concept and framework

A review of ERM concept and framework are presented in this section to explain why ERM is a more developed approach to risk management and the basic elements of an effective ERM framework.

2.2.1 ERM concept

ERM differs from the traditional risk management. First, it identifies and classifies both the risks which the company has information or advantage about, and risks that the company has no information or advantage about. Second, ERM analyses risk as part of a company. Third, it merges the various risks and actions of risk management into one internal risk management system (Culp, 2001; D'Arcy and Brogan, 2001). The key differences between ERM and traditional risk management were presented by Banham (2004) in Table 2.1.

Table 2.1 Differences between ERM and traditional risk management

Traditional risk management	ERM
Risk as individual hazards	Risk viewed in 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 measurement of risks
‘Risk is not my responsibility’	‘Risk is everyone's responsibility’

(Source: Banham, 2004, p. 68)

ERM seems to be a superior approach to risk management as it takes into account all types of risk a company faces and manages the overall risks in aggregate rather than independently. In ERM environment, risk is treated as an opportunity for making profit rather than something to be minimised or eliminated. Further, the level of decision making is shifted to the chief executive officer or board of directors, who would be willing to embrace profitable risk opportunities from the insurance risk manager, and who would seek to control risk (Kawamoto, 2001). Thus, ERM is not only a way to quantify risk across a company but also a wider process of decision making and management support.

If ERM is executed effectively, it will be a powerful management tool because this can offer companies rewards including market leadership, robust growth, stock price premiums, and investor confidence (Schneier and Miccolis, 1998). The ERM practice is considered to vary as each company is unique from a risk standpoint. However, ERM has four basic characteristics that should be considered: (1) it is a systematic approach to manage risk internally and externally (2) ERM proposes that shareholders are indifferent to arbitrary risk compartmentalisation (3) it assumes that risk factors typically have multiple effects, which should be all considered by mitigation programs (4) ERM is proactive, which means that implementing it requires a hard work and senior-level commitment (Schneier and Miccolis, 1998).

2.2.2 ERM framework

Senior managers are obligated now to comply with a number of laws, regulations, and listing standards that call for strengthened corporate governance and risk management as a result of the business failures, scandals, and frauds. The ERM framework was released by the Committee of Sponsoring Organisations of the Treadway Commission (COSO) in 2004. ISO 31000 released a similar ERM framework in 2009. ERM framework was further described in Standard and Poor's (S&P) (2005) that gave checklist assessment typical of those used by rating agencies and in Chapman's (2006) book in a most embracing and strategic way. ERM was seen as more than modelling, and not inhibited by inductive logic. However, there is no framework to what ERM best practice is (Tripp et al., 2008).

The ERM framework is geared to achieve the following company's objectives (COSO, 2004):

- Strategic – high-level goals, aligned with and supporting its mission
- Operations – effective and efficient use of its resources
- Reporting – reliability of reporting
- Compliance – compliance with applicable laws and regulations.

ERM consists of eight interrelated components which work all together to accomplish the goals of a company and increase its value. These components are (COSO, 2004):

- 1- Internal environment. It encompasses the strategy of a company and sets the basis for how people view and address risk.
- 2- Objective setting. ERM ensures that management sets and chooses objectives that support and align with the company's mission, and are consistent with its risk appetite.
- 3- Event identification. Internal and external events that affect the achievement of a company's objectives should be identified.
- 4- Risk assessment. Risks are analysed in order to determine how they could be managed.
- 5- Risk response, i.e. avoiding, accepting, reducing, or sharing risk.
- 6- Control activities. Management is required to establish and implement policies and procedures to help ensure the risk responses are carried out effectively.
- 7- Information and communication. Relevant information is identified, captured, and communicated to enable people carrying out their responsibilities.
- 8- Monitoring. Monitoring ERM is accomplished through management activities, separate evaluations, or both.

COSO ERM framework was issued to help managers comply with the new regulations and standards. The main objective of this framework is to help companies standardising ERM. Thus, companies can easily benchmark, establish best practices, and have a meaningful dialogue about the risk management critical issue (Ballou and Heitger, 2005). The nature of the COSO ERM framework could appear overwhelming for some companies. Ballou and Heitger (2005) presented an approach to implement the COSO framework that makes it usable to companies regardless of their size or previous experience in risk management. However, there has been little, if any, empirical studies testing the benefits of the COSO approach in practice. Thus, there is no evidence of its efficiency.

Recognising that the appropriate ERM system will vary among companies when developing ERM framework, COSO suggested a contingency perspective for the appropriate ERM system for a specific company. The fact that there is no common ideal ERM system has been discussed in the literature (The Financial Reporting Council's Report, 2005; Beasley et al., 2005; Moeller, 2007). The ERM contingency view is consistent with the literature examining the more generic notion of management control systems (Gordon and Miller, 1976; Otley, 1980; Gordon and Narayanan, 1984; Merchant, 1984; Chenhall and Morris, 1986; Evans et al., 1986; Gordon and Smith, 1992; Mia and Chenhall, 1994; Shields, 1995; Chenhall and Langfield-Smith, 1998b; Luft and Shields, 2003; Gerdin and Greve, 2008).

Various frameworks of ERM have been proposed by academics (D'Arcy and Brogan, 2001; Dickinson 2001; Harrington and Niehaus 2003; Liebenberg and Hoyt 2003; Power, 2004; Aabo et al., 2005; Beasley et al., 2005; Dickinson 2005; Mikes 2005; O'Donnell, 2005; Acharyya and Johnson, 2006; Nocco and Stulz, 2006) and practitioners (Miccolis and Shah, 2001; Miccolis et al., 2001; CAS 2003; COSO 2003; PricewaterhouseCoopers 2004; Shimpi and Lowe, 2005; Ingram 2006). These frameworks mainly consist of identification and profiling of significant risks such as financial, operational and insurance; modelling risks; measuring risks; determining companies' risk appetite; transferring/financing/hedging risks; allocating (economic) capital; measuring of performance; and monitoring the entire process execution (PricewaterhouseCoopers, 2004). It is worth noting that capital allocation was suggested as a part of these frameworks.

Seven internal control and risk management components were suggested by Lam (2006) to be addressed by an ERM framework. Each of them should be developed and linked in order to work as an integrated whole. These components are corporate governance, line management, portfolio management, risk transfer, risk analytics, data and technology resources, and stakeholder management (see Figure 2.1).

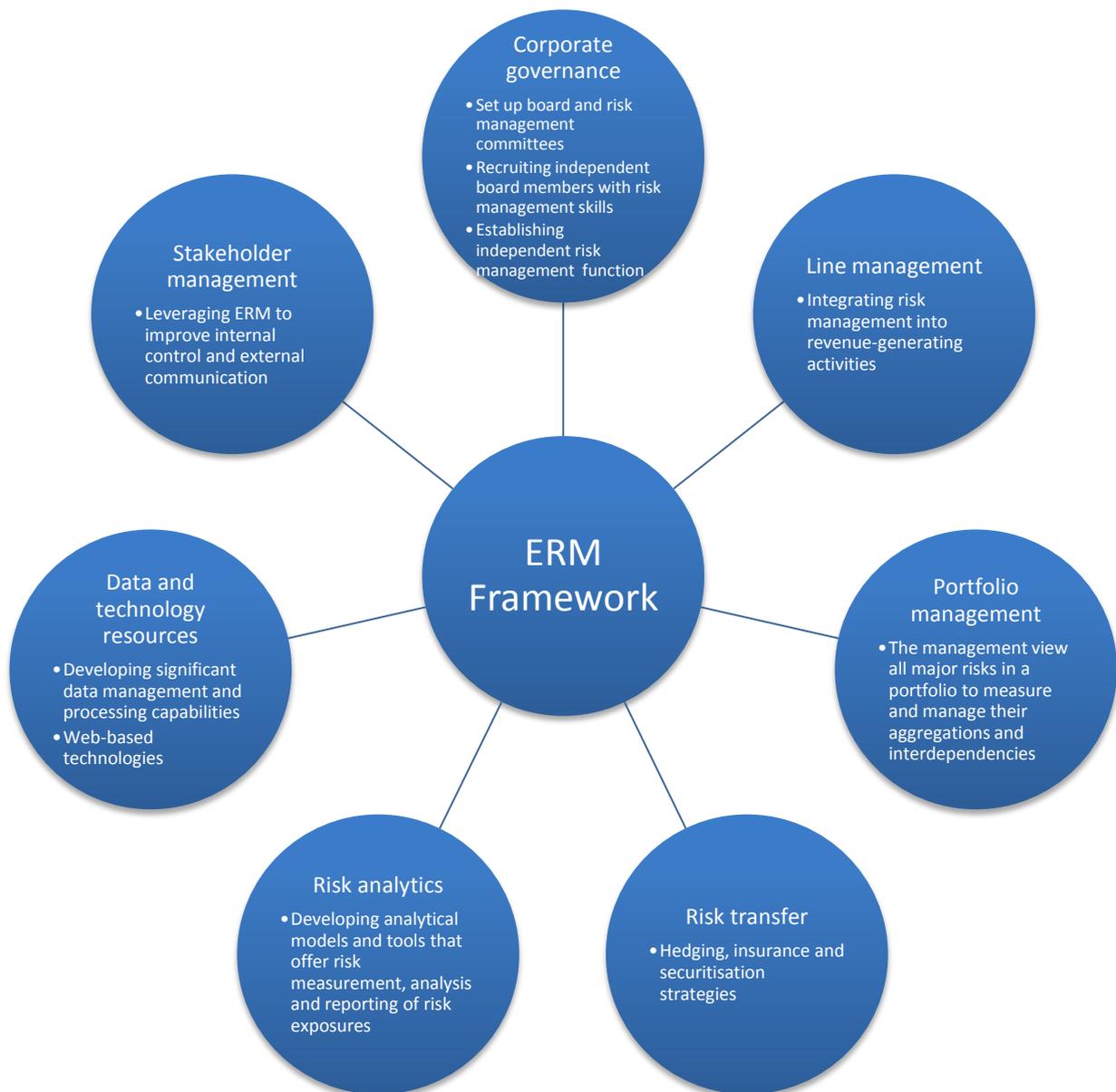


Figure 2.1 ERM framework: Internal control and risk management components

2.3 ERM adoption and implementation

Growing number of companies have implemented or are considering ERM. Specialised ERM units have been established by consulting companies and have been considered in the ratings process by rating agencies. ERM-related courses and research centres have also been developed by universities (Liebenberg and Hoyt, 2003). This section will review the literature related to ERM adoption, implementation and process.

2.3.1 ERM adoption drivers

Various forces could drive the growth in and acceptance of ERM. They comprise: company disasters that have raised the board members and senior executives' awareness level (Walker et al. 2003; Baranoff, 2004; Acharyya, 2008); new regulatory capital and examination requirements; industry initiatives on corporate governance and risk management; and leading companies which have experienced significant benefits from using ERM programs (Lam, 2006). ERM functions were established within companies as a result of organisational oversight, magnitude of problem, increasing business risks, regulatory, market factors, corporate governance, and best-practice (Cowherd and Manson, 2003). The interest in ERM have further increased because quantifying risks more precisely has become possible with the advances in information technology and financial engineering (Miller, 1992; Lam and Kawamoto, 1997; Miccolis and Shah, 2000), and the significant consolidation in the financial services industry followed the wave of mergers (Cumming and Hirtle, 2001).

Destructive events pushed companies to take more risk to make extra profit and add value even in a volatile uncertain business environment. Therefore, large insurers focus on using ERM to manage such risks. The primary effort was directed to only modelling and measuring risk consequences, and managing those using statistical techniques. Internal control and corporate governance concepts were added gradually to the later effort, and risk drivers were extended from insurance to financial, operational, and strategic risks (Dickinson 2001). Insurance companies were also inspired by the regulators' initiatives in the insurers' solvency, measuring area and new rating criterion to design and adopt ERM (Acharyya, 2008).

It was reported by a Tillinghast-Towers Perrin's survey (2001) that almost half of the insurance industry implemented an ERM process and 40 per cent were planning to use it. In addition, 40 per cent had a chief risk officer (Miccolis 2003). Pagach and Warr (2011) found that ERM is adopted for direct economic benefit rather than to comply with regulatory demands. Companies that were larger, more volatile, and had greater institutional ownership were more likely to adopt ERM. A CRO was more likely to be hired if the CEO had incentives to take risk. However, any company needed to adopt one of the risk management frameworks established or developed a customised approach based on its risk profile (Lam, 2006). The financial industry agreed on the importance of this approach to risk management and was ready to make significant efforts to demonstrate the economic rationale behind holistic risk management (Cumming and Hirtle, 2001).

Along with the increasing individual ERM implementation decisions, there has been an increasing regulatory pressure for ERM adoption. The New York Stock Exchange (NYSE) in 2004 revised its corporate governance rules to require audit committees to discuss guidelines and policies used to manage the process of risk assessment and management. Risk management requirements were expanded in the Basel regulatory requirements to include oversight of operational risks alongside credit and market risks as part of the capital adequacy determinations of financial institutions (Basel, 2003). Rating agencies have been advocating for implementing ERM practices. In the insurance industry, A.M. Best and S&P started evaluating ERM practices of companies on an informal basis in 2005. In 2008, S&P's formally decided to start examining the way management teams implement ERM (Cole, 2008). This increased regulatory drive toward ERM adoption led to my interest in exploring the main drivers for this adoption. In other words, is ERM adopted as a result of regulatory pressure or for economic reasons that are consistent with the goals of ERM? If ERM was being implemented as a response to regulatory forces only, there should be no differences other than industry affiliation among the companies that chose to adopt ERM and those that do not (Pagach and Warr, 2011).

Kleffner et al. (2003) concluded that ERM is adopted in response to the influence of the risk manager, encouragement from the board of directors, and compliance with regulatory guidelines. This implies that the regulations are one influence among various influences on companies' risk management strategies. It is worth noting that companies have not been obliged to implement ERM before the announcement of Solvency II requirements, which will not be in force until 2014. Thus, regulations cannot be the only reason behind ERM adoption and implementation as companies, especially large ones, will not be interested in new processes unless they offer economic benefits.

Institutional pressures played a role in the selection and use of ERM practices (Mikes, 2005). Survey evidence showed that the number of U.S. companies implementing ERM tripled to 12 per cent in 2007 from 4 per cent in 2006 (Simkins, 2008). The organisation theory literature has considered the relation between firm size and organisational structure (Lawrence and Lorsch, 1967). In accounting, firm size has also been found by researchers as an important factor when considering the design and use of management control systems (Haka et al., 1985; Myers et al., 1991; Shields, 1995). For ERM system, Beasley et al. (2005) and Hoyt and Liebenberg (2011) found firm size to be positively related to ERM adoption. The importance of firm size when designing an ERM system was presented by COSO (2004). However, ERM could provide benefits to all companies regardless of their size in the current

competitive business environment. Recent regulations such as Solvency II advocated the adoption and implementation to all companies because of the benefits it offers.

Effective risk management affect the likelihood of ERM becoming widely practiced. Risk managers incorporate risk management principles into a stronger system of corporate governance in response to the demands of increasingly sophisticated shareholders of increasingly sophisticated management (Nielson et al., 2005). It was suggested that some industries (banking and energy) are more likely to adopt an ERM approach to manage their risks as a result of the high correlation between the financial risk silo and the operational risk silo in such companies (Colquitt et al., 1999; Kleffner et al., 2003). The insurance industry is a good example.

Deloitte (2011) conducted a survey of CROs in financial companies and indicated that ERM is gaining ground and the CRO role is more prevalent and prominent (reporting to higher levels in the company and playing a more ‘strategic’ role). However, many companies were having difficulties putting in place a risk infrastructure and to integrate risk data across the whole company. Adapting the programs of risk management to changing business models at the same time as meeting regulatory requirements was another difficulty.

The discussion above shows that very little empirical research has been conducted on the adoption drivers of ERM in the context of insurance industry. Considering that risk is the key function of insurance companies that are highly regulated, there is a need to gain understanding of the drivers behind ERM adoption in this industry.

2.3.2 ERM implementation

The International Federation of Accountants’ (IFAC) global survey of senior managers revealed that the board in most companies lead the ERM development. A number of case studies and surveys examined the implementation process and explored ERM benefits. Aabo et al. (2005) found that at Hydro One, a Canadian utility, the ERM process begins with identifying all the risks facing the business and then assessing the consequences of these risks along with the controls in place in order to respond to those risks. Management then makes the decision on whether tolerate or mitigate a risk. This process is consistent with traditional risk management. However, ERM differs as it attempts to manage all risks, including operational and reputational risks which cannot usually be hedged (Pagach and Warr, 2011). A survey of senior finance and risk management executives concluded that

ninety per cent of companies that implement ERM were very confident in their ability to manage risk (Ng, 2008; Nocco and Stulz, 2006).

Four areas of analysis were suggested by Lermack (2008) when implementing ERM. First, companies need to understand the long-term strategic objectives and focus their effort on creating value prior to initiating ERM processes. Second, examining the competitive landscape in which the companies operate to benchmark against others operating under similar circumstances. Third, organisational culture is important. It helps dictating how well any management initiative changes will be received and what approach should be taken towards strategic initiatives. Finally, understanding perceived primary risk exposures on attaining long-term strategic objectives is required prior to implementing ERM. Such analysis could help companies in achieving their objectives and lead to a successful ERM implementation. However, limited empirical evidence has been provided on how to implement ERM strategy effectively and the related determinants.

There is a need to employ both quantitative and qualitative elements to implement ERM frameworks as not all risks can be quantified, and people and companies are involved in this process. Intangible issues; cultural of the company; and market economics also play a major role. There should at least be a convergence among five academic disciplines in order to build and execute an ERM framework. These are: economics, finance and accounting, management, psychology, and sociology (Acharyya and Johnson 2006). Power (2007) stated that there has been a shift from the calculative concept of risk management towards the managerial concept of risk management.

Two alternative types of ERM implementation models were introduced. The first one is driven by a strong shareholder value imperative (value-based ERM). The second corresponds to the demands of the risk-based internal control imperative (strategic ERM) (Mikes, 2005; 2009). Both commitment and a hard effort are required when implementing ERM practices. Schneier and Miccolis (1998) stated that there are two major phases for applying ERM: risk identification and assessment (risk scanning) and risk mitigation and financing (risk shaping). The objective of risk scanning phase is to identify, prioritise, and aggregate all the risks. It encompasses six elements: infrastructure review, qualitative risk threshold assessment, preliminary risk definition, preliminary quantification, risk prioritisation, and strategy outline. In risk shaping phase, managers need a more substantive measure of their company's risk factors before designing risk shaping programs. They need a firm understanding of the way their company works and change its behaviours. It consists of four components: modelling, risk quantification, organisation change, and risk financing. Lam (2006) identified four stages

for the ERM implementation process: ERM foundation setting, risk identification and assessment, risk measurement and reporting, and risk mitigation and management (see Figure 2.2).

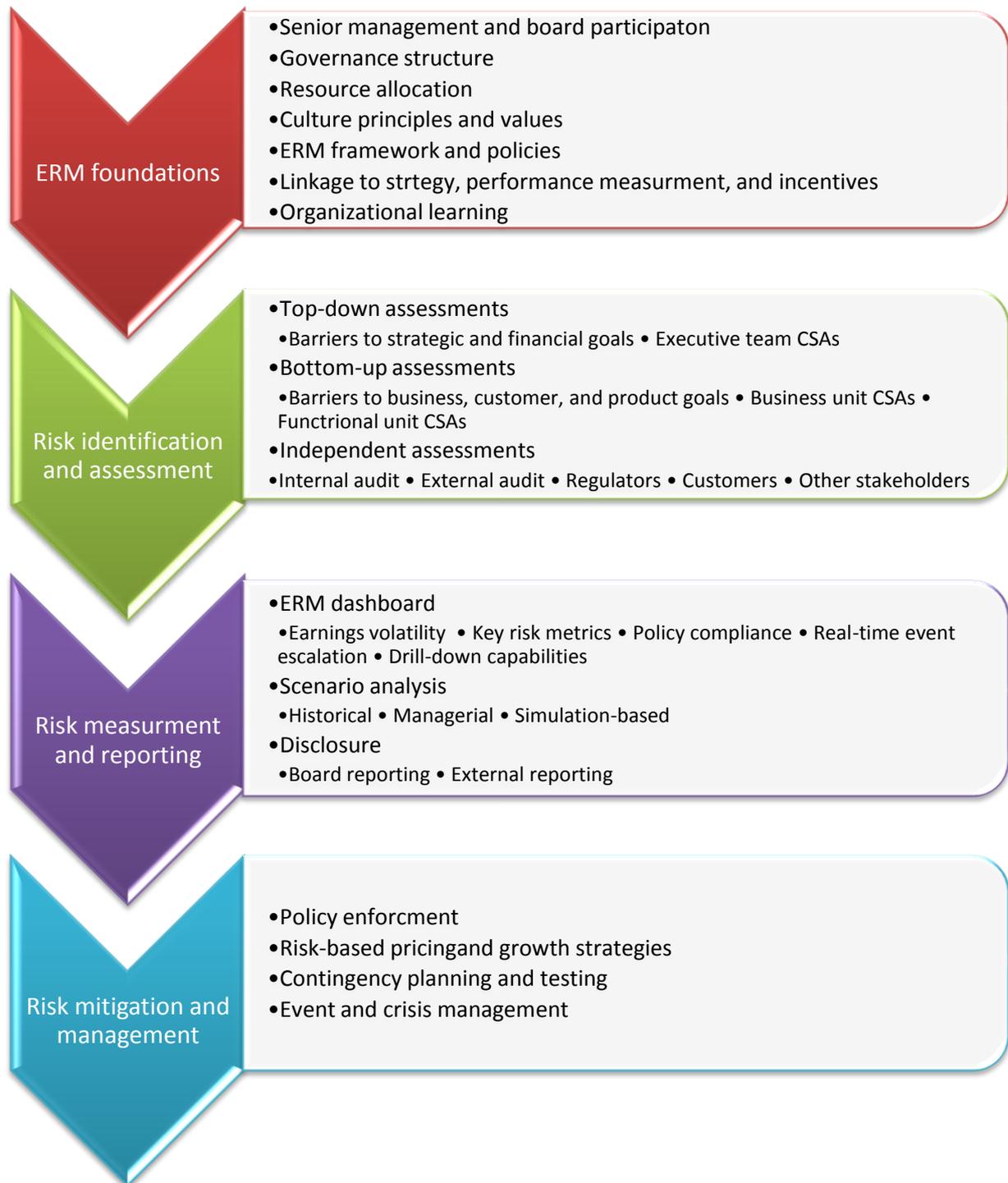


Figure 2.2 Stages in the ERM process

(Adapted from Lam, 2006, p. 13)

It is not necessary to implement the four stages of the ERM process in a sequential way although they are discussed in turn. A sequential approach means that a company spends the first year establishing the ERM foundation, the second year identifying and assessing risks, and so on. Management needs to concentrate on the most critical risks and apply the overall ERM process to them instead of taking a sequential approach (Lam, 2006).

There has been significant empirical research in ERM implementation. Walker et al. (2003) reported the efforts of ERM at five large companies. Kleffner et al. (2003) reported ERM uses by Canadian risk and insurance management companies. Lynch-Bell (2002) reported survey results of 52 companies with respect to risk management practices. Beasley et al. (2005) reported results of a survey. Stroh (2005) reviewed ERM process at United Health Management (UHM). ERM was viewed as a discipline that is embedded within the organisational philosophy, intended to identify risk factors of the business, assess their severity, quantify them and mitigate them. Management accountants have played an important role in ERM projects. They were usually asked for leading cross-functional teams to implement critical enterprise-wide initiatives. Important opportunities were provided to these accountants by ERM to help them to implement a systematic process and maximise the company's value (Shenkir and Walker, 2006).

The constraints which have slowed the implementation of ERM in financial institutions were attributed to information and regulatory costs which affect the trade-off between the value that is derived from consolidated risk management, the expense of constructing such complex systems, and to the hurdles that are involved in developing risk management programs which compose a wide range of business and types of risk (Cumming and Hirtle, 2001). Organisational structure was seen to be a major deterrent to ERM (Colquitt et al., 1999; Kleffner et al., 2003; Hoyt and Liebenberg, 2011). The lack of a common risk language was considered as prevention to the widespread implementation of ERM (Nielson et al., 2005).

De La Rosa (2007) stated that some companies, which have attempted to implement ERM, have failed or experienced setbacks that prevent the gaining of expected benefits. The main cause of these failures is the lack of buy-in from senior management and oversight committees such as audit committees. Other causes were also indicated such as lack of theoretical ERM knowledge; a poorly customised ERM approach; incorrect or incomplete set-up of oversight structures to support the ERM initiative; poor tone at the top level, including ethical culture and lack of formalised business strategies; insufficient financial and human resources to support implementation and maintenance of the ERM process; inability

to maintain the momentum of the ERM implementation project beyond the first year; poorly defined ERM language; and inefficient supervision of consultants.

The failure of ERM was attributed to the lack of a uniform approach to ERM, newness of the ERM practice, inability to properly aggregate risks and lack of qualified risk professionals. The self-regulating aspects of the industry which allowed companies to take maximum advantage of financial leverage led to the current problems in the financial sector (Moody, 2009).

Forty three per cent of a 2002 survey of directors stated that their boards had an ineffective process of risk management or no process to identify and manage risk. It was also indicated that 36 per cent of directors feel that their understanding of the risks their companies are exposed to is incomplete. The absent or poor implemented risk management programs lead to enormous shareholder losses. The failures of risk management differ in degree from accounting irregularities or law violations (Bainbridge, 2009).

The above discussion shows that while there have been much discussion on the concepts and components of ERM, little has been introduced on how these concepts and components work in practice. The trend toward risk management integration has been continuous, which means that the key role of risk management in companies has become more critical (Colquitt et al., 1999). Van der Stede (2011, p. 615) stated that:

“The difficult issue to tackle is how risk management is embraced throughout the organisation. For example, what is the role of risk managers, functions or departments in terms of authority and status, as well as of everyone else to voice risk matters? Are risks ‘externalised’ (someone else’s responsibility) or ‘personalised’ (everyone’s responsibility)? Are the risk managers ‘enthusiasts’ or ‘sceptics’ of risk numbers and analyses (Mikes, 2011)? Do they perform ERM ‘by the numbers’ or ‘holistically’ (Mikes, 2009)? Is risk management and reporting seen as merely a ‘compliance’ exercise or is it deemed invaluable in planning, budgeting, the selection of performance measures, and the design of incentive systems? Variations in the answers to these questions will go a long way in explaining whether risk management is merely perfunctory or value-added; cosmetic or potentially effective.”

Because of not addressing all the mentioned issues, it is strange how the extensive performance measurement in management accounting literature has been unaware of the risk notion, because it could be argued that performance and risk are two sides of one coin (Van der Stede, 2009).

2.3.3 Determinants of ERM implementation

Two aspects of risk management integration were subject to surveys. These were on the risk managers' involvement in managing pure and financial risks which face their companies, the non-operational risks which are handled by risk managers, and the techniques used to handle a wider set of risks (Wojcik, 1994; Banham, 1995; Cenicerros, 1995; McLeod, 1995). Risk managers are now involved in the management of a broader spectrum of risks. Historically, non-operational and financial risks have been avoided, passively retained, or managed by a different unit within the company. Cenicerros (1995) stated that “enterprising risk managers are increasing their value and their influence on the employer’s bottom line by looking beyond ‘pure’ risks to managing speculative risks”. The structure of risk management within companies has been affected by this broadened focus which also affects the tools of risk management that are being used. Thus, risk managers should enhance their financial skills in order to effectively deal with the broadened set of risks which they are required to manage.

Further, some surveys considered the effect of various factors such as the company’s size, the company’s industry, and the risk manager’s background and training on participation in the activities of ERM (Colquitt et al., 1999). Liebenberg and Hoyt (2003) found out that companies with greater financial leverage were more likely to appoint a CRO. Pagach and Warr (2011) improved upon Liebenberg and Hoyt (2003) and supposed that CRO hiring coincides with the decision to follow an ERM program by any company. For instance, the Economist Intelligence Unit (2005) reported that a number of companies appoint a member of the senior executive team, often called the CRO, to supervise ERM process. Walker et al. (2003) indicated that ERM needs significant support from senior management as a result of its scope and impact. Beasley et al. (2005) illustrated that a CRO's presence is related to a greater stage of ERM adoption. Three major enablers for ERM in financial institutions were presented as board-level support; management processes which make the whole company aware of risk; and putting the right people and systems in place in order to make sure that risk-aware decisions can be taken (PricewaterhouseCoopers/Economist Intelligence Unit, 2002).

Beasley et al. (2005) found that the stage of ERM implementation is positively related to the presence of a chief risk officer, board independence, CEO and CFO apparent support for ERM, the presence of a Big Four auditor, entity size, and entities in the banking, education, and insurance industries. Further, ERM has required cultural change, which is

driven from the top down and adopted from the bottom up. Therefore, the task of promoting risk management and compliance culture should be addressed by the CEO, CRO, and the risk governance function (Salvador, 2007). ERM was considered to be necessary and applicable to all types of companies. In this regard, its framework should be adapted with relation to the company's culture specifics (Shenkir and Walker, 2006; El Baradei, 2006; Jablonowski, 2006; Yilmaz, 2009). Hoyt and Liebenberg (2011) showed that ERM usage is related to the company's size and institutional ownership positively, and to reinsurance use and leverage negatively. ERM implementation process differs in practice as each company has its own characteristics that determine the ERM usage and program.

The obstacles facing many risk professionals were classified as the following: the lack of buy-in from the board, senior executives, or line managers; ineffective and inconsistent risk measurement and reporting; redundancies and gaps across risk and oversight functions, insufficient human, systems, and data resources; and failure to clearly demonstrate early wins and sustainable benefits (Lam, 2006).

The discussion above shows that most previous studies were either theoretical or based on survey results. They also do not specifically consider the insurance industry as a context. There is a need to explore these determinants and actions taken in practice.

2.4 ERM and the change in risk management practices

A practice refers to the way that something is done. Practices are commonly the acts of repeating something over and over with the deliberate aim of learning and gaining experience. Work practices can be defined as ways of structuring things one must do or ways in which things are done. It is worth noting that practices are not implemented by technologies. Processes, patterns, decision and benchmarks are examples of work practices. As discussed earlier in this chapter, research argued that the implementation and use of a holistic approach to risk management drives a change in the way of doing things. Therefore, risk management practices are expected to be either reinforced or changed in order to guarantee a full embedding of ERM. The literature related to these issues is reviewed in this section.

Cumming and Hirtle (2001) pointed out that risk management is a series of business decisions that is accompanied by a set of checks and balances in which risk measurement plays a significant role. Therefore, ERM involves not only a way to quantify risk, but also a wider process of business decision making and support to management. Further, Lam (2006)

indicated that business decision making could be supported, and risk-adjusted profitability could be optimised by an effective ERM process. ERM enabled companies to make better risk-adjusted decisions which maximises shareholder value and makes risk management part of the company's overall strategy (Lam and Kawamoto, 1997; Meulbroek, 2002). Millage (2005) concluded that companies which had fully implemented ERM could achieve a strategic planning in a better way and understand risk trade-offs better. Companies have been able to select investments that are based on a more accurate risk-adjusted rate than was available under the traditional risk management approach (Meulbroek, 2002). ERM programs could improve the information about the company's risk profile (Meulbroek, 2002). Applying ERM in a better way gives more benefits from information and resource sharing to the various parts of the company (Peterson, 2006).

Meulbroek (2002) indicated that ERM reduces the expected costs of regulatory scrutiny and external capital by improving risk management disclosure. Survey results of senior finance and risk management executives showed that ninety per cent of companies which implement ERM were very confident in their ability to manage risk. They believed that ERM could improve their companies' P/E ratios (Ng, 2008). ERM reduces the probability of great negative cash flows and hence creates value (Nocco and Stulz, 2006). ERM helped by providing a coordination of risks and ensuring that no project risk has an adverse influence on the company (Stulz, 1996, 2003).

ERM has been recognised as a way to promote increased risk awareness, which facilitates better operational and strategic decision making in financial companies (O'Rourke, 2005; Hoyt and Liebenberg, 2011). O'Rourke (2005) stated that ERM contributes to companies by driving more information which leads to better decisions that lead to better financial results. Risk culture was promoted as being important to make people think about risk and manage it efficiently (O'Rourke, 2005). Duncan (2004) presented an opposite view. He contended that it is easy for financial companies to quantify risks while there is a need for a more comprehensive approach to manage qualitative risks for non-financial companies.

Hoyt and Liebenberg (2011) assessed the ERM value implications for U.S. insurers. Integrating decision making across all risk classes prevented duplication of risk management expenditure by exploiting natural hedges. ERM could lead companies to better understand the aggregate risk inherent in various business activities (Hoyt and Liebenberg, 2011). Individual risk management activities reduced the probability of catastrophic losses and thus might reduce earnings volatility. ERM strategy could reduce volatility by avoiding risk aggregation across different sources and adds value to insurers as it improves information about the risk

profile (Hoyt and Liebenberg, 2011). Hoyt and Liebenberg (2011) differs from prior studies as it focused on the company's overall risk management posture at the company level and not on the assessment of the potential value-relevance of specific forms of hedging or risk management.

ERM has improved information flows regarding risks between the company and the board, enhances discussions of strategy and risks between executives and the board, and monitors key risks by accountants and management with reports to the board. ERM identified acceptable levels of risk to be taken and assumed, focused management on the identified risks, and improved disclosures to stakeholders about both risks taken and risks yet to be managed. It further reassures the board that management knows which of the company's goals is at greatest risk (Shenkir and Walker, 2006).

The categorisation of the objectives of a company to strategic, operations, reporting and compliance allows a focus on separate aspects of ERM, and distinctions between what can be expected from each category of objectives (COSO, 2004). The operations objective clearly links ERM to the effective and efficient usage of any company's resources, which is capital allocation. Further, a key component of the ERM conceptual frameworks presented in the literature is allocating (economic) capital (PricewaterhouseCoopers, 2004). Progressing with the assumption that the ERM drives a change in risk management practices, particularly capital allocation, capital allocation in insurance companies and its relation to ERM is reviewed in the next sub-sections.

2.4.1 Capital allocation in the insurance sector

Capital can be seen as an ideal metric to aggregate risks across different asset classes and different risk types (Aziz and Rosen, 2004). Economic capital (risk capital) is a concept for measuring and managing risks in various portfolios of a financial company. It is defined for all risk types in terms of a single currency. Capital is the most expensive and important input in production for financial companies. They deploy capital by holding a large number of financial risk positions which need to be evaluated (Acharyya, 2008).

The role and importance of capital for insurers

The role of capital in financial institutions is different from that in a typical company as it is not primarily for providing a source of funding for the company. The key role of capital in financial institutions is to be a buffer to absorb large unexpected losses; protect

depositors and other claim holders; and provide enough confidence to external investors and rating agencies on the financial health and viability of the company (Aziz and Rosen, 2004).

Capital allocation has become an important issue as a result of the regulatory requirements concerning risk economic-based measures. Capital allocation is used to facilitate and improve the business economic profitability measurement with various sources of risks and capital requirements (Acharyya, 2008). Economic capital has become central to ERM and played a role in building the ERM framework for insurers (Rao and Dev, 2006) because ERM has been used in financial decision-making including pricing and capital allocation (Yow and Sherries, 2007). The capital level should be determined such that the company could meet its financial obligations (Venter, 2004; Zanjani, 2002; Zeppetella, 2002). Rating agencies assess the company's financial strength according to its level of available capital. Both shareholders and investors are concerned with their capital investment risk and the generated return (Dhaene et al., 2012).

Capital allocation is of special interest to insurers as they have distinct features. First, the debt holders of an insurer are more credit-sensitive than traditional debt holders as they are also customers (Merton and Perold, 1993). Second, insurance policyholders, unlike traditional debt holders, cannot protect themselves against the insolvency of an insurer by holding a diversified portfolio of insurance contracts. They purchase insurance contracts from a single insurer for a particular line of business (Cummins, 2000). Third, insurance companies are complex and their operations are less well understood by investors and policyholders.

Capital is held to secure policyholders' unexpected claims as most policyholders purchase insurance policies to protect against adverse financial contingencies (Merton and Perold, 1993). Thus, the main role of holding capital in the insurance company is to keep the probability of bankruptcy low by increasing ability to pay insurance claims. Shareholders demand an additional return on their investment and to be profitable (Hancock, et al., 2001; Myers and Read; 2001). As capital is very important for insurers, it should be then allocated efficiently in order to keep the business continuity. Economic capital is allocated to business lines, product categories, portfolios, and individual assets according to their contribution to the overall capital needed. This is completed to assess the performance in terms of return on capital, and to direct the pricing of recent financial contracts taken by the enterprise (Jokivuolle, 2006).

The main objective of companies is to increase the market value of equity capital. In the insurance industry, businesses are defined in terms of lines of insurance. The

underwriting operation is considered as a funds-generating business in which money is being borrowed from policyholders. Then the underwriting operation lends the funds to the investment business in return for a transfer price. The primary link between capital allocation and value maximisation is to enable the company to measure performance by line of business in order to determine whether each business is contributing sufficiently to profits to cover its cost of capital and add value (Cummins, 2000).

The credit rating is seen as a measure of companies' capital adequacy. It is usually linked to a certain probability that the company may face default over a period of time. Holding more capital allows taking on riskier assets than holding less capital with similar credit rating (Aziz and Rosen, 2004). Therefore, insurers are concerned about their credit ratings and financial quality since this must be of the highest standing in order to successfully compete for business. In pricing, the cost of capital is allowed for by using an allocation of capital to lines of business and charging an expected return on allocated risk capital. (Hancock et al. 2001).

Recently, financial institutions as well as consulting companies have departed from the standard corporate finance approach while introducing the economic capital concept. It has been also applied in nonfinancial companies (Stein et al., 2002; Tierny and Smithson, 2003). It is worth noting that capital is costly to insurers. Insurance is a heavily regulated industry in the economy, which faces stringent solvency and price regulations in important business lines.

Capital allocation methods

Various capital allocation methods have been discussed in the literature and summarised in Figure 2.3.

Regulatory Risk-Based Capital or Regulatory Guidelines

- It is used to specify the minimum capital a company must hold to satisfy regulatory standards (Cummins, 2000).
- This method is simple and helps companies to recognize how regulators view their capital adequacy.
- It applies only to assets, addresses risk only and bears little resemblance to reality (Weiner, 1998).
- However, regulatory charges do not consider key risk sources such as interest rate risk, and the transactions of insurer's transactions in the derivatives market (Cummins, 2000).

The Capital Asset Pricing Model (CAPM)

- It involves using the capital asset pricing model (CAPM).
- Its usage helps managers to compare between the preferred method and the results that are generated by a classic technique (Cummins, 2000).

Value at Risk (VaR)

- It is the amount the company may lose with a specified small probability in a specified period of time.
- VaR is likely to be useful to insurers and is related to the concepts of time-honoured insurance and actuarial such as the maximum probable loss.
- However, the application of sophisticated VaR techniques requires very frequent data updates, but the prices and losses of insurers are not observed either with sufficient frequency or in a market context.
- Using VaR needs an integration of the capital allocation methodology with data processing and information systems.
- Such integration helps ensuring that relevant and valuable data is generated to offer inputs for VaR models (Cummins, 2000).

Marginal Capital allocation

- It is applied to techniques proposed by Merton and Perold (1993) and Myers and Read (1999).
- These techniques are based on the firm option pricing model.
- The firm options view states that the value of the policyholders' claim on the firm is equal to the present value of losses minus the value of the insolvency put option (Cummins, 2000).

Percentage of Average Assets

- It is the simplest approach to allocate capital which uses the same ratio for all units, products, and customers.
- Either the institution's actual capital ratio or a targeted capital ratio can be used.
- This method is easy to apply and can be used to translate the requirements of company's overall regulatory capital specified to individual units, products, and customers.
- However, it does not distinguish between the risk various levels, capital investment, or growth. Different fixed assets levels should also require different capital levels. Units, products, and customers, which are growing faster, require extra amount of capital because of the step-fixed nature of most financial institutions costs (Weiner, 1998).

The Top-Down

- It breaks the capital down into its components based on all units, products, and customers applicable to a specific institution.
- It provides variability to the process of capital-allocation and communicates organizational priorities for the employment and use of capital.
- There are some difficulties associated with this method arising from two factors: (1) Firstly, some managers will arbitrary perceive and prioritise the components; (2) an institution still has to choose a method for allocating each component after defining and prioritising them (Weiner, 1998).

The Relative-Ranking

- It starts with defining and prioritising capital components, similar to the top-down method.
- Then it applies a measure of perceived relative risk to each source of risk.
- This method is somewhat arbitrary similar to the top-down method, but it helps to accomplish the capital allocation main goal (Weiner, 1998).

The Market Comparables

- It looks at the capitalisation of other companies that are engaged in the same line of business.
- This method provides an objective, external view of capital allocations. It can be used for any line of business, product, or customer.
- But, it is sometimes difficult to find exactly comparable businesses and this business might not be capitalized in an equivalent way. Deriving appropriate capital ratios for certain parts of a financial corporation depending on stand-alone businesses ignores the portfolio effect that reduces the capital which is required for two complementary lines of business (Weiner, 1998).

Risk Adjusted Return on Capital (RAROC)

- It was developed by large financial institutions as a common risk language and quantitative technique.
- RAROC is an approach used by practitioners to allocate risk capital to business units and individual transactions with the objective of measuring economic performance. An obvious trade-off between risk and reward for a capital unit is made by this approach.
- Senior managers are enabled by the RAROC information to better understand where shareholders' value is being created or destroyed (Crouhy et al., 2006).
- It assists strategic planning, risk-adjusted profitability reporting, proactive resources allocation, better concentration risk management, and better product pricing (Crouhy et al., 2006).

Figure 2.3 Capital allocation methods

The methods included in Figure 2.3 show that the idea of incorporating risk into capital allocation methods has been in the literature since the late 1990s. However, the advantages of such methods have not been clearly investigated. The wide range of capital allocation methods is confusing. They are sometimes proposed in an ad-hoc fashion with a lack of economic justification, and are viewed as arbitrary. Thus, some authors doubted the legitimacy of the goal of the exercise of capital allocation (Grundl and Schmeiser, 2007). Some allocation methods could be best suited to address specific issues, but it is not clear what these issues are. This is important because specific allocation techniques can lead to misinformed financial decisions (Grundl and Schmeiser, 2007), and affect the value of the company. Therefore, enhancing capital allocation decisions will enhance the company value. A number of studies indicated that in some circumstances the models deliver similar capital allocations, while they produce different allocations in others (Gordy, 2000; Koyluoglu and Hickman, 1998).

There may be a little agreement about which capital allocation method to use, while there is an agreement about the importance of allocating capital to different business units, products, and customers as a main part of the process of profitability-measurement. There should be mechanisms to allocate capital fairly and equitably within a profitability-measurement process. It was indicated that no one method could be applicable to all companies. Some companies could need to use more than one method (Weiner, 1998).

However, allocating capital by line of business was seen to be inappropriate. It was stated that “prices are predicted to vary across firms depending upon firm default risk, but prices of different lines of business within a given firm are not expected to vary after controlling for liability growth rates by line” (Phillips et al., 1998). It was also shown that there is no need to allocate capital for the purposes of pricing insurance contracts and determining surplus requirements (Grundl and Schmeiser, 2007).

Many reasons induce most financial corporations to allocate their capital across their lines of business. First, the total cost that is associated with holding capital should be redistributed across business lines, which leads to a transfer back of this cost to the depositors or policyholders in the form of charges. Secondly, the expenses allocation across various lines of business is an important activity for financial reporting objectives. Finally, capital allocation helps assess and compare the business line performances by determining the allocated capital return for each line (Dhaene et al., 2012).

Various approaches to allocate capital can be used in insurance companies. However, the efficiency of these methods and their role in creating value has not been empirically

examined. Researchers have suggested approaches that link capital allocation to risk and risk management. However, most of these approaches did not consider the risk wide view and the risks according to the lines of business. There is no empirical research that helps in the understanding of how ERM affects the change in capital allocation methods.

2.4.2 Risk management as a change agent for capital allocation in the insurance industry

Merton and Perold (1993), Matten (1996) and Kupiec (1999) described a number of allocation processes, but did not provide concrete algorithms to solve the allocation problem, unlike Straßberger (2006). Saita (1999) brought the issue of risk capital allocation into discussion. Froot and Stein (1998) and Stoughton and Zechner (2007) developed the procedures of shareholder value maximizing allocation using risk-adjusted profitability measures. Unlike usual statements, it was shown that this is not necessarily the case. Denault (2001) compared the allocation of risk capital problem with the cost allocation and indicated that the optimum allocation of risk capital across the divisions is produced by the gradient of the positive homogenous and differentiable risk measure.

The approach to risk presented by Froot and Stein (1998) is seen to be applicable to some important problems facing the daily management of an insurance portfolio. Such approach could cause a close co-operation between the actuarial and financial departments. A way to combine capital allocation and pricing of insurance policies and to evaluate the capital price for a single policy using a performance measure of return on capital were presented (Mumford et al., 2005).

With the emergence of risk-based capital as a common currency in which all risks can be expressed, it is natural that this concept will be leveraged in order to establish the main basis of ERM (Rao and Dev, 2006). The economic capital determination and allocation is important for pricing, risk management, and insurer financial decision making (Sherris and Hoek, 2006). Economic capital allocation needs a thorough understanding of the risk that is inherent in a business and the capacity to get a good understanding of the market prices and the competitive landscape (Rao and Dev, 2006). Strategic planning with allocation and use of economic capital as the main driver “is another major component of aligning strategic business decisions squarely with shareholder interests” (Rao and Dev, 2006, p. 428). The adoption of a wider approach to risk to help enhancing shareholder value through capital risk management is rational and irrefutable (Britton, 2001).

Leuz and Verrecchia (2005) developed a simple model analysing the link between information quality, company capital investment decisions and their cost of capital. It was found that lower cost of capital results from a higher information quality as it affects expected cash flows. The coordination between companies and investors was improved by better information with respect to the decisions of capital investment. This model extends the literature as it provides a direct link between cost of capital and the quality of information. As ERM is argued to improve risk information within insurance companies, ERM is expected to affect capital allocation practices. Risk is the first factor to think about when holding capital (Weiner, 1998).

Providing better information for better decisions is seen as the main objective of any profitability-measurement process. This makes the capital-allocation process most useful when it provides information regarding the level of capital that is held by the company compared to the used amount of its lines of business, products, and customers. Companies should think about the capital actual amount that is used by each unit, product, or customer to support its revenue-generation activities, although there are difficulties in actually allocating capital (Weiner, 1998).

Hoyt and Liebenberg (2011) showed that ERM leads companies to a better understanding of the aggregate risk inherent in various business activities, which could give them a more objective basis for allocating resources and thus improving their capital efficiency and return on equity. Companies are most likely to obtain benefits because of the ability to decide on investments based on a more accurate risk-adjusted rate (Meulbroek, 2002).

Determining the economic capital and allocating capital to lines of business are considered as an important part of the financial and risk management of an insurance company. Higher levels of capital are held by insurance companies and risk-based models are used to assess economic capital. When taking risk into account, many alternative methods of determining regulatory and economic capital have been introduced. In banking and insurance, the ruin probability is used as a common risk measure in order to determine regulatory capital (Sherris, 2006).

Insurers have come to recognise enterprise risk management as fundamental to creating and improving shareholder value through better risk-based decision making and capital allocation. Tillinghast-Towers Perrin (2004) conducted a web-based survey on risk and capital management issues. A total of 150 insurance industry executives worldwide responded. The survey indicated that the principal objectives for ERM are seen by insurers as

helping them create and improve shareholder value through better risk-based decision making and capital allocation. In addition, economic capital is a key decision making tool for insurers at all levels in their companies. Risk and capital management are making a difference. Insurers' business decisions are guided by enhanced risk and capital management approaches which are likely to do so more frequently as their use increases in a wide variety of areas. The reporting practices of risk management and the level of success that insurers have experienced when integrating risk and capital management with performance management were also documented in this report. How satisfied insurers are with their main capabilities which underlie effective risk and capital management was also shown.

It is argued that the best way to form an integrated risk management strategy is the interaction between the operations, capital structure and financial instruments of a company. Some of the company's individual risks will cancel each other by aggregating risks together (Meulbroek, 2002). Three fundamental ways are required by a company to implement the objectives of risk management, which are: modifying the operations of the company, adjusting its capital structure, and employing targeted financial instruments. These ways interact to form the risk management strategy. The advantages and disadvantages of any specific approach should be weighed by managers to find an optimal mix of the three (Meulbroek, 2002). Effective risk management is correlated with well-managed business.

More specifically, insurers have an incentive to manage capital costs through risk management. Effective risk management provides a protection against unexpected losses which can primarily be obtained by maintaining an appropriate level of economic capital by financial institutions. How much risk each business segment contributes to the total risk of the company and thus to overall capital requirements is estimated by the risk management process. More(less) risky lines may require more(less) capital and thus demand higher (lower) prices (Shim, 2007). This is not clearly investigated or examined empirically in the literature.

Risk management matters to financial institutions because holding capital is costly and they face convex costs of raising external capital. The existence of frictional costs (corporate income taxation, agency costs, and regulatory costs) makes holding capital costly (Froot and Stein, 1998). Merton and Perold (1993) discussed the rationale for the capital allocation by financial institutions. Customer aversion to insolvency risk provided the motivation for capital allocation, which is similar to Froot (2007). Merton-Perold (1993) adopted an "incremental" approach to allocate capital. Introducing a marginal capital allocation model which allocates 100 per cent of the intermediary's capital is a major

contribution. It is argued that capital should be allocated in a way that the marginal contribution of each business line to the insolvency put value is equal (Myers and Read, 2001). Therefore, there would be no cross subsidisation across lines of insurance (Phillips et al., 1998). Zanjani's (2002) model incorporated elements from the Froot-Stein (1998), Froot (2007), and Myers-Read (2001) models as well as from other capital allocation studies.

The 2010 ERM survey conducted by AON showed that advanced ERM practitioners report significant success in applying ERM strategies to board-level responsibilities. It indicated that 57 per cent of the companies surveyed embed risk management within the process of capital allocation. This implies that ERM is affecting the capital allocation practices and driving the whole process. The survey results also revealed that companies with more mature ERM programs are able to manage this process in a better way bearing in mind that the amount of capital to be allocated is finite. However, companies in the early stage of the process report that they do not use ERM for capital allocation process (AON, 2010). Thus, ERM maturity level can be considered as affecting the level of its usage for allocating capital processes.

Further, Ai et al. (2012) provided a conceptual framework and mathematical tools for operationalising strategic ERM in a general insurance company in order to make ERM implementation more concrete. They employed a risk-constrained optimisation approach to study the capital allocation decisions under ERM whereby the problem of managing enterprise-wide risks holistically is treated, with consideration given to decision maker's risk appetite, by maximizing the expected total return on capital while simultaneously trading off risks in Value-at-Risk sort of constraints.

More recently, Ashby et al. (2013) stated that despite the insurers' efforts to launch ERM, underwriters and actuarial support has traditionally been at the center of organisational risk thinking. This implies that risk has been always a key issue considered by the people who mainly deal with capital. Thus, ERM is expected to drive a change in capital allocation practices as it changes the way of viewing and dealing with risks.

Regulator or statutory supervisors, as well as credit ratings agencies, focus on that any re/insurance company should remain solvent, which requires that company to measure and manage all risk types across the company. This supports the argument that an enterprise-wide approach to capital management across all risk classes (liability or hazard risk, asset or financial risk, and business risk) should be adopted by re/insurance companies (Britton, 2001).

Although academics and practitioners have shown considerable interest in ERM and survey evidence has been largely presented on ERM prevalence and characteristics (see, e.g., Miccolis and Shah, 2000; Hoyt et al., 2001; CFO Research Services, 2002; Kleffner et al., 2003; Liebenberg and Hoyt, 2003; Beasley et al., 2005), there is an absence of empirical evidence concerning the effect of ERM on capital allocation practices. Despite the fact that some research has been conducted to theoretically address the link between ERM implementation and the change in capital allocation methods, there is limited interest in explaining this issue empirically. This lack of apparent empirical evidence on the impact of ERM continues to limit its growth (Hoyt and Liebenberg, 2011). Therefore, the main aim of this study is to further understand and explain how and why ERM drives a change in capital allocation in the context of insurance companies.

A number of studies considered the risk capital allocation and its effects on companies (Harris and Raviv, 1991; Myers, 2001). However, theoretical arguments alone cannot unequivocally predict such relationships. It is argued in this research that ERM leads to a change in capital allocation practices and incorporates risk into it on wide basis. Therefore, previous studies should be extended and further empirical evidence is needed to illustrate whether ERM is leading to a risk-based capital allocation, which is argued to be a useful way of allocating capital.

2.5 Gaps in the literature and research questions

The discussion in this chapter shows that there is an emerging and growing interest in studying the impact of ERM on companies, in particular the changes to risk management practices. However, the insights that are gained to date should be interpreted with regard to a number of limitations. First, there has been little work examining the adoption drivers, the deterrents of ERM implementation. Mostly, the research on ERM has focused on the ERM process itself and the potential gains from its adoption. For instance, Nocco and Stulz (2006) concluded that an integrated holistic risk management approach can be used to create shareholder's value. ERM was discussed in other papers in broad terms, which mostly assumed that ERM has or will be adopted. For example, an implementation road map was provided by Aabo et al. (2005), and the factors related to the degree of adoption were examined by Beasley et al. (2005). There has, however, been little work examining the adoption drivers, the deterrents of ERM implementation within companies, and its relation

with risk management practices within companies. This research attempts to avoid this first limitation.

Second, as far as is known, there is no empirical research conducted to address the impact of ERM on risk management practices, particularly capital allocation. Although there has been considerable interest in ERM and there is survey evidence on ERM prevalence and characteristics (e.g. Miccolis and Shah, 2000; Hoyt et al., 2001; CFO Research Services, 2002; Kleffner, Lee, and McGannon, 2003; Liebenberg and Hoyt, 2003; Beasley et al., 2005), there is little empirical evidence on the effect of ERM on companies' risk management practices. Although some research has been conducted to theoretically address the relationship between ERM implementation and the change in capital allocation methods, there has been no empirical investigation of this relationship. The lack of empirical evidence on ERM-related impacts continues to limit the growth of ERM (Hoyt and Liebenberg, 2011).

Third, only a few field and case studies have been conducted to study ERM strategies (e.g. Mikes, 2009). The mainstream of extant research takes the form of surveys. Survey evidence has been largely presented on ERM prevalence and characteristics (e.g. Hoyt et al., 2001; Kleffner et al., 2003; Liebenberg and Hoyt, 2003; Beasley et al., 2005). These studies are valuable as a source of descriptive information concerning ERM use but do not answer the fundamental question of whether ERM drives change in risk management practices. My research addresses this issue using a field study methodology.

Fourth, many previous research has not used institutional frameworks to address the issue of either ERM or capital allocation. This study extends existing studies by using Burns and Scapens' (2000) framework complemented with some concepts from structuration theory and new institutional sociology theory. The focus of Burns and Scapens' (2000) framework is at micro level, and thus focuses on management accounting practices only within companies. Therefore, it is supplemented by a macro level analysis in order to consider the coercive, mimetic and normative effects on risk management practices and the profession. Institutional pressures were found to play a main role in the decision to implement and use ERM in banks (Mikes, 2005). Structuration theory links the micro and macro analysis. It also provides a detailed analysis of human agents' behaviours and relations, which does not exist in Burns and Scapens' (2000) framework.

Finally, little research has addressed the impact of ERM on risk management practices in insurance companies' context. Recently, there has been an interest in studying ERM in the context of financial institutions and not specifically in insurance. Thus, my analysis offers a starting point for further research on ERM in the insurance industry. Van der

Stede (2011) presented a number of reflections on opportunities and challenges for the research on management accounting that follow from the financial crisis, particularly the regulatory reforms and augmented disclosures which has emerged as a result of the crisis. Van der Stede (2011) discussed the motivation to study risk management and stressed the need to study financial companies. Thus, the crisis has given a good motivation to lots of researchers, including me, to look into various important risk management issues.

The literature reviewed in this chapter highlights a number of issues which needs to be further considered with regard to the changes in risk management practices, particularly capital allocation. This research aims to overcome some of the limitations mentioned above. As stated earlier, the aim of this study is to understand ERM drivers and processes, as well as understand and explain how and why ERM drives a change in capital allocation in the context of insurance companies. This study considers three groups of research questions. The first group addresses the various forces that drive ERM adoption, and the determinants of ERM implementation and embedding. The second group deals with the role of ERM in changing risk management rules and routines. These questions deal with the changes in risk management practices and the role of ERM in their occurrence. The third group includes why and how ERM changes capital allocation rules and routines within a large insurance company. It also addresses the forces driving this change. These questions mainly deal with the changes in capital allocation rules and routines and the role of ERM in their occurrence.

The present research is believed to be one of the first studies to analyse the relationship between ERM and risk management practices, particularly capital allocation. It builds on the existing risk management literature which suggests a range of factors that may influence the decision to employ ERM.

2.6 Conclusions

This chapter has reviewed the literature on ERM and the risk management practices change related to ERM implementation. Based on this review, a recently increasing interest in ERM has been shown by practitioners and academics. The previous ERM studies mainly concentrated on defining, designing and implementing ERM. However, the change in risk management practices driven by ERM implementation is still not investigated. This could be attributed to the lack of a suitable framework and technique. Further complexities are also added because of the attempts to integrate the corporate risk management approach with corporate governance issues in a coherent ERM framework. No clear effort has been done to

provide evidence on ERM adoption drivers and determinants although much has been made to design and implement ERM. The literature reviewed indicates that ERM can be described as a change agent of risk management practices, specifically capital allocation.

There has been also a growing interest in the change in management accounting. Various theories have been used in studying the change in management accounting. However, there is a tendency for combining research theories to understand the change processes. The next chapter develops a theoretical framework which will inform the empirical study on ERM and change in risk management practices in insurance companies. This framework will be based on structuration theory, old institutional economics and new institutional sociology theory.

Chapter 3

Theoretical Framework

3.1 Introduction

The literature reviewed in the previous chapter provides support to the notion that ERM usage affects risk management practices, particularly capital allocation. In this regard, ERM is seen as a driver to change in capital allocation practices. Various theoretical perspectives have informed the research on management accounting change. However, just one part of the picture is given by each approach and thus there is a need to complement it by other approaches in order to gain a better understanding of the change in management accounting as a complex phenomenon. This research draws upon Giddens' structuration theory and institutional theories. As the purpose of this study is to examine risk management practices triggered by ERM implementation and use, this research primarily draws upon institutional theory and a number of structuration theory concepts in management accounting.

This chapter explains the theoretical perspectives that provide the basis to inform this research. It is structured as follows. The next two sections illustrate structuration and institutional theories that inform this research and their relation to the current study. Then an overview of the theoretical perspectives selected in relation to this specific research is provided. This is followed by presenting and explaining the theoretical model developed to achieve research objectives. The fourth section outlines the research questions in the light of the theoretical framework to explain how this framework can inform and help addressing these research questions. The chapter concludes with a summary given in the last section.

3.2 Structuration theory

This section introduces the core concepts of structuration theory, discuss how structuration theory deals with social change or discontinuity, and present the criticisms of Giddens' treatment of change and stability.

3.2.1 Core concepts

Structuration theory was introduced by Anthony Giddens to use the duality of the structure notion instead of the dualism nature of conventional approaches that address the relationship between human agency and social structure (Giddens, 1976, 1977, 1982, 1984).

In the structuration concept “the relation between structure and agency is one of duality not dualism” (Kholeif et al., 2008, p. 63). Giddens (1982, p. 8) argued that neither the subject (the individual) nor object (society or institutions) should be regarded as having primacy. Social systems are distinguished from social structures. The core concepts of structuration theory are presented in Table 3.1. Giddens (1984) argued that social structure enables and constrains the agents’ daily actions, but does not determine them entirely because of the existence of some actions unacknowledged conditions and some actions unintended consequences. The agents’ choices are not independent of the structure that they take their actions within, although they can act in a way which will either reinforce or modify this structure. Change then emerges in not totally predictable ways as a result of such duality. In this regard, ERM implementation can be recognised as an event for structuration, and the subsequent risk management practice changes can be illustrated using structuration theory.

Table 3.1 Structuration theory core concepts

Core concepts	Definition
Structuration concept	It considers objectivity and subjectivity with respect to the social structure constitution, as constitutive of each other, but not as being mutually exclusive.
Duality of structure	“The concept of structuration involves that of the duality of structure, which relates to the fundamentally recursive character of social life, and expresses the mutual dependence of structure and agency” (Giddens, 1979, p. 69).
Social systems	“Reproduced relations between actors or collectivities, organised as regular social practices” (Giddens, 1984, p. 25). Regularised relations of interdependence between individuals or groups are included in social systems as recurrent social practices. They exist in time and space.
Social structures	Social systems show structures that are “rules and resources, or sets of transformation relations, organised as properties of social systems or collectivities” (Giddens, 1984, p. 25). Such structures are implicated in social systems recursively. They are out of time and space and their main character is the absence of the subject (Macintosh, 1994).
Rules	The first part of Giddens’ duality is social structure; rules and resources. The social life rules refer to the “techniques or generalisable procedures applied in the enactment/reproduction of social practices” (Giddens, 1984, p. 21). They could be classified as either normative or interpretive (Dillard and Yuthas, 1997).
Normative and interpretive rules	Normative rules represent legitimation structure. Actors translate and verbalise such rules as norms, specific rights and obligations accompanied with sanctions/rewards in interaction. Interpretive rules produce signification structure or symbolic systems, which give techniques for agents to interpret social events. Interpretive schemes such as stocks of knowledge are used by agents to communicate with others (Kholeif et al., 2008).

Resources	Refer to the media through which power is exercised and domination structure is reproduced. Domination structure involves asymmetries of resources that are used in the sustaining of power relationships in social practices. There are two types of resources: allocative and authoritative (Giddens, 1979). Resources are the power bases, so power is not a resource (Giddens, 1979).
Allocative and authoritative resources	Allocative resources are material or economic resources resulting from the domination of human over nature such as raw materials. Authoritative resources are non-material resources and the outcome of human domination over other human actors.
Agency	The other half of Giddens' duality, agency, is the actions that are taken by a social system individual members or agents within a period of time. "Agency concerns events of which an individual is the perpetrator, in the sense that the individual could, at any phase in a given sequence of conduct, have acted differently. Whatever happened would not have if that individual had not intervened" (Giddens, 1984, p. 9).
Reflexivity	Reflexive monitoring of day-to-day refers to the ability of agents to monitor their actions and the actions' settings and contexts. Monitoring is an essential characteristic of agency
Modalities of Structuration	Agency is linked to social structure by the modalities of structuration, which represent the key dimensions of the duality of structure in the production of interaction (Giddens, 1984). These dimensions of action/structure duality are the communication of meaning (paired with signification structure); the exercise of power (paired with domination structure); and the application of moral sanctions (paired with legitimation structure). Action and structures act together along each of the mentioned dimensions through three modalities, which are interpretive schemes, facilities and norms (see Figure 3.1).
Interpretive schemes, facilities and norms	"The interpretive schemes are the shared stocks of knowledge drawn upon in processes of meaning (re)production. Resources represent the facilities through which actors draw upon the domination structure in the exercise of power. Norms refer to the actualisation of rights and the enactment of obligations" (Kholeif et al., 2008, p. 66).
Routine situations	The main characteristics of routine situations are that the social structures tend to dominate agency and most actions of actors are at practical level of consciousness. Consequently, agents perform things in a regular way but are not able to express them discursively (Giddens, 1984).
Critical situations	Critical/crisis situations are "a set of circumstances which - for whatever reason - radically disrupt accustomed routines of daily life" (Giddens, 1979, p. 124). The institutionalised social order during such situations could be disrupted drastically. Routines are also suspended whilst actors try consciously to change their circumstances for coping with the new situation.

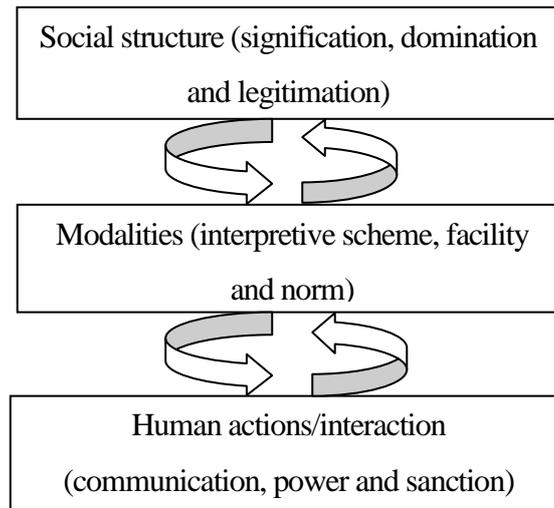


Figure 3.1 Structure, interaction and modalities

(Adapted from Giddens, 1984, p. 29)

3.2.2 Criticisms of Giddens' treatment of change and stability

Criticisms of structuration theory mainly focus on the imbalanced treatment between subjectivity and objectivity. Layder (1987) argued that Giddens is anti-objectivism because of treating structure as having virtual existence in the agents' minds. This is theoretically problematic in the sense that there is no need for structuration theory to be incompatible with realism (Kholeif et al., 2008). It is also claimed that structural power is "not simply a negotiable outcome of routine and concrete interactions and relationships" (Layder, 1985, p. 146). Thus, some structural constraints could be 'relatively independent' (Layder, 1987). Similarly, Storper (1985) argues that structure aspects could not be modifiable to agency evenly.

Another problem is the conflation which focuses on reducing structure to action problem, or vice versa, and documenting the structure existence apart from social activities and associated difficulty (Archer, 1982, 1995; Layder, 1987; Mouzelis, 1991). Giddens (1984) argued that structure is conflated with action in cases where structure exists to the extent that it is represented in daily activities. It is hard to understand the mutual effects of structure and action unless they are analytically and temporally separated. Archer (1995, p. 65) argues that "structure and agency can only be linked by examining the interplay between them over time, and without the proper incorporation of time, the problem of structure and agency can never be satisfactorily resolved."

Archer (1995, p. 76) suggested a model in order to overcome this problem. In this model, structure and action operate sequentially whereby structure pre-dates the actions transforming it. Structural elaboration post-dates these actions. The latter proposal argued for the analytical dualism, realism, synchrony/diachrony distinction, and pre-existence of structure that is separated from action. Most of these aspects are inconsistent with structuration theory. However, this solution might contribute to reducing the conflation problem with the help of Archer's solution which primarily draws on several concepts of structuration theory.

Another solution is suggested by Barley and Tolbert (1997) which is a less problematic solution. They recommended complementing structuration theory with new institutional sociology theory (NIS). Archer's (1995) suggestion was consistent with NIS. Barley and Tolbert (1997) argued that it is necessary to observe humans' behaviours in order to extract the structures that constrain and enable their actions before and after a specific event.

Consequently, combining structuration theory with NIS is seen in this research as a reasonable solution for the problems of both theories. It helps objectivising structuration theory as well as subjectivising NIS theory while keeping most of their doctrines. Recently, NIS has been indicted to have a tendency towards the positivistic approach. Bowring (2000, p. 258), for instance, aimed to "illustrate how (new) institutional theory, with its interpretive beginnings, has become a structuralist positivist vehicle". Thus, structuration theory can overcome this problem as it has been criticised for giving superiority to the interpretive approach. As will be presented in Section 3.4.5, one of the classical NIS studies, DiMaggio and Powell (1983), is grounded in structuration theory.

3.3 Institutional theory

This section provides an overview of the core concepts of institutional theory, old institutional economics theory (OIE), and NIS.

3.3.1 Basic concepts

Researchers have discussed whether management accounting has not changed, has changed, or should change (Ezzamel et al., 1993; 1996; Drury et al., 1993; Bromwich and Bhimani, 1989; 1994). Linkages between institutional variables and some management accounting practices have been studied in the literature (Mezias, 1990; Mezias and

Scarselletta, 1994). Accounting practices are viewed by institutionalism as one of the features legitimising companies through an appearance of rationality and efficiency construction (Carruthers, 1995). Institutional theorists contributed to the study of companies primarily by their re-conceptualisation of companies' environments. They showed that companies are not just technical systems. They work in an institutional environment defining and delimiting social reality (Scott, 1987). The symbolic elements of rules and roles can affect organisational forms independently from resource flows and technical requirements (Meyer and Rowan, 1977). Several aspects of companies' formal structure, policies and procedures work in a way conforming to institutionalised rules in order to gain the continued support of society (Meyer and Rowan, 1977; Scott, 1987; DiMaggio and Powell, 1983, 1991).

An increasing interest has been shown in institutional theory across the social sciences (Scott, 1995). In the accounting literature, three institutional theories are used (Miller, 1994), which are: OIE (Scapens, 1994); new institutional economics (Walker, 1998); and NIS (Carruthers, 1995). All these theories share the same concern for institutions and institutional change, despite the fact that they have different origins as well as intellectual roots. Each of these theories provides insights that are useful for conceptualising management accounting change. OIE and NIS are discussed in details in sections 3.3.3 and 3.3.4. Thus, risk management change can be conceptualised using OIE and NIS.

Companies are the way they are, from the institutional perspective, because it is the legitimate way to organise (Meyer and Rowan, 1977; Zucker, 1987). The main idea of institutional theory is that a pattern of doing things is reflected by most organisational actions. Over time, such patterns evolve and become legitimate within a corporation and an environment (Pfeffer, 1982). Thus, the legitimate behaviour perceptions, which are derived from industry tradition, company history, cultural values, and so on, help to predict practices within companies (Eisenhardt, 1988). The institutional literature argued that organisational structures and processes are the same as the accepted norms for a particular type of company (DiMaggio and Powell, 1983). Therefore, specific ways of organising become legitimate by an environment (Rowan, 1982; Kaplan, 1984).

The relationship between companies and their broader institutional context is examined by institutional theory. The legitimacy forces and conformity activities can be very powerful in the institutional environment and result in risky conformist strategy (Vit, 1996). Isomorphism is referred to the institutional process by which companies become homogeneous and resemble each other (DiMaggio and Powell, 1983; 1991). Three forms of isomorphism are presented: “coercive isomorphism, mimetic isomorphism and normative

isomorphism” (DiMaggio and Powell, 1983, p. 150). These forms will be illustrated in subsection 3.3.5.

Institutional perspectives, which are classified to competition, technological advancement, economic conditions, socioeconomic and political regulatory, and organisational characteristics, such as size, type of business, strategic orientation, professional associations, corporate culture, and management competence (Hussain and Gunasekaran, 2002), can affect the processes and techniques applied within an insurance company. This is a central question in my research. Accounting practices have changed because of several institutional influences that include economic ones, and not in order to increase continuing efficiency in a neo-classical sense. The micro-processes of change in the institutional context that consists of a large number of institutions operate in individual companies (Scapens, 1994). It is also necessary to understand such micro-processes to recognise the institutional context within and outside companies (Burns, 1998; Burns and Scapens, 2000).

Although institutional theory has received large empirical support, some useful criticisms have been presented. DiMaggio (1988) argued there is a paradox in the two senses of using the term institutionalisation. As an outcome, institutionalisation puts societal expectations, as well as organisational structures and practices beyond the reach of power and self-interest, so acceptable practice expectations are taken for granted (Perrow, 1985; Powell, 1985). As a process, institutionalisation could be political and reflects the power of organised interests (Tolbert, 1988; DiMaggio and Powell 1991). DiMaggio (1988) indicated that power and group interests’ allusions are smuggled into the institutional perspective instead of focusing on a sustained theoretical analysis.

3.3.2 Institutions, rules and routines

Over time, management accounting can assert the taken-for-granted ways of thinking and performing in a specific company (Mouritsen, 1994). The notion that risk management practices can shape and be shaped by the institutions governing organisational activity is a main point in my institutional framework. Institution was defined as “a way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of a people” (Hamilton, 1932, p. 84). They are established thinking ways that are common to a community such as the members of a company (Burns, 1997). Therefore, institutions are seen as social coherence and imposing form upon human activity. Thus, a

duality between human activity and the institutions structuring that activity exists. This duality is the agency-structure relationship that has been argued in the social sciences (Bhaskar, 1975; Giddens, 1984; Archer, 1995). Institutions “define the meaning and identity of the individual and the patterns of appropriate economic, political, and cultural activity engaged in by those individuals” (Meyer et al., 1987, p. 12). Institutional theory illustrated that institutional rules compel companies’ actions extensively (Meyer and Rowan, 1977; Zucker, 1987).

Individual actors usually give reasons for their behaviour and actions, although they might not pursue rational choices consistently. Such reasons generally include following established and accepted behavioural rules (Boland, 1982; Giddens, 1984). Rules are important to co-ordinate and provide coherence to the groups of individuals’ actions (Scapens, 1994). In the management accounting context, rules consist of the formal management accounting systems; while routines are the accounting practices that are actually in use. The systems that are selected in the procedure manuals might not be replicated by the practices of management accounting that are in use (Roberts and Scapens, 1985). Routines are the habits of a group and the institutions components (Hodgson, 1993). It should be noted that not all risk management becomes routinised and institutionalised, but there is a potential for routinisation and institutionalisation to happen and change in these established ways.

It is assumed by institutional theory that companies adopt structures in order to be aligned with institutions in their external environments; and not to improve efficiency in their internal operations. Structural controls stress companies and their participants’ characteristics instead of process or outcome measures. Companies gain legitimacy with external stakeholders who may invest resources in the companies by adopting structures which mirror institutions, and thus enhance their survival ability. At the interior level of companies, institutional theory posits that companies separate structure from activity in order to avoid the contradiction between these two organisational dimensions and the legitimacy of potential losses. Participants also act consistently with adopted institutions in order to keep the organisational appearances and validate companies to both internal and external stakeholders (Ogawa, 1992, p. 16).

Institutions incorporate general, societal rules, ideologies and prescriptions (Meyer et al., 1987). Institutions “define the meaning and identity of the individual and the patterns of appropriate economic, political, and cultural activity engaged in by those individuals” (Meyer et al., 1987, p. 12). Such rules are largely shared and are broadly taken for granted. Therefore, “from the institutional perspective, action is the enactment of broad institutional scripts,”

(Ogawa, 1992, p. 16). Institutions, according to institutional theory, are involved in decision making, which cannot be illustrated accurately without taking into account institutional contexts (Heikkila and Isett, 2004). If the actions of companies are consistent with the social norms and society sake, they get legitimacy and it is rewarded with support consequently (Elsbach, 1994). Legitimacy is defined by institutional theory as the result of the evaluations of the social actors who compare between a company's practices and institutional norms (Suchman, 1995).

Institutional perspectives have been adopted by an increasing number of organisational researchers to conceptualise and explain management accounting change (Covaleski and Dirsmith, 1983; Covaleski et al., 1993; Mezas, 1990) as a result of the challenge to traditional wisdom and the prevailing beliefs of research, stressing that companies are bounded, relatively independent, and consist of rational actors (Abernethy and Chua, 1996). This research draws on institutional theory to understand the extent of change as a way to evaluate the relative institutionalised practices' roles and to assess the organisational influence of the new risk management systems. Along with the macro-institutions effects, this research explores the relation between these influences and actions by analysing organisational routines. In this regard, the strand of institutional theory developed out of the structuration concept informs this study (Giddens, 1984; Willmott, 1987; Barley and Tolbert, 1997).

3.3.3 New institutional sociology theory

The NIS perspective explores the role of macro economic, political and social institutions in shaping organisational structures, policies and procedures (Scott, 2001). Companies respond to these external macro pressures to receive both support and legitimacy (Covaleski, et al., 1996; Modell, 2002). Researchers have adopted NIS to explain homogeneity and persistence (Granlund and Lukka, 1998; Dacin et al., 2002), the interaction between institutional pressures and intra-organisational power relations (Burns and Scapens, 2000; Modell, 2002; Tsamenyi et al., 2006), conflicting institutional demands (Meyer and Rowan, 1977; D'Aunno et al., 1991), and the information technology (IT) usage in institutionalising organisational practices (Orlikowski, 1992; Soh and Sia, 2004).

Core concepts

Meyer and Rowan (1977), DiMaggio and Powell (1991) and Carruthers (1995) developed NIS. NIS in accounting research focused on the extra-organisational institutions

effects (social, economic, and political) on the companies' accounting practices (Covaleski et al., 1993; 1996; Carruthers, 1995; Fligstein, 1998). New institutional theorists implicitly argued for the existence of a relationship between the economic and institutional perspectives, so they did not analyse this relationship explicitly (Meyer and Rowan, 1977; DiMaggio and Powell, 1991; Carruthers, 1995).

Early institutionalists argued that formal structures used to secure the extra-organisational institutions legitimacy can become decoupled or loosely coupled from the companies' technical aspects (Dambrin et al., 2007). Decoupling was viewed by accounting studies that have adopted an NIS perspective as an organisational response to external pressure to employ new accounting routines (Meyer and Rowan, 1977; Carruthers, 1995). Companies generally implement the new accounting routines in order to secure legitimacy from external constituencies, but they decouple them from daily operations to preserve the company's technical efficiency (Siti-Nabiha and Scapens, 2005). Such argument stemmed from the early NIS writers' work.

The decoupling notion has been used to inform organisational and accounting studies (Collier, 2001; Johnsen, 1999; Modell, 2001). Although decoupling was seen by the early NIS writers as a largely given attribute of institutionalised companies, recent work suggested that decoupling needs a level of resistance (Oliver, 1991; Brignall and Modell, 2000). Little attention has been given to the processes in which this decoupling happens within companies.

The NIS core tenet is that companies are pressured to become isomorphic with, or conform to a set of institutionalised beliefs (Scott, 1987). The concepts of NIS theory have been presented by two classical articles. Drawing on Berger and Luckmann's (1966) work, institutionalisation is discussed by Meyer and Rowan (1977) as a process in which institutional structures are legitimated apart from the effectiveness of those structures and of the organisational members' thoughts about their efficiency. Similarly, DiMaggio and Powell (1983, p. 148) addressed the issue of organisational structure and institutionalisation and stated that "in the long run, organisational actors making rational decisions construct around themselves an environment that constrains their ability to change in future years".

DiMaggio and Powell (1983) introduced the organisational fields' concept as a type of extra-organisational institutions and link it to structuration theory. They define the organisational field as "the organisations that constitute a recognised area of institutional life such as suppliers, customers and regulatory agencies" (Kholeif et al., 2008, p. 86). The companies within the field have a tendency to make organisational changes and adopt similar formal structures in order to accept legitimacy. Duality, in structuration concepts, exists

between the actions as acts in the field and social structure (the field). It is argued by DiMaggio and Powell (1983) that the organisational field structuration process leads to homogeneity within the field, that is, the companies in the field have a tendency towards making organisational changes which make them similar to each other.

The analysis in this study draws on the deinstitutionalisation concept, as well as on DiMaggio and Powell's (1983) concept of organisational field and applying them to risk management. Deinstitutionalisation is "the process by which institutions weaken and disappear... the weakening and disappearance of one set of beliefs and practices is likely to be associated with the arrival of new beliefs and practices" (Scott, 2001, p. 182, 184). Three key pressure sources for deinstitutionalisation are identified by Oliver (1992). They are functional, political and social sources. Functional pressures occur as a result of perceived problems in performance levels or the perceived utility that is accompanied with institutionalised practices. Political pressures arise mainly from shifts in the interests and underlying power distributions which have supported and legitimated existing institutional arrangements. Social pressures are related to the differentiation of groups, the existence of heterogeneous divergent or discordant beliefs and practices, and change in laws or social expectations that might deter the continuation of a practice (Kholeif et al., 2008).

Burns and Scapens' (2000) framework experienced combining OIE and structuration theories. However, their work was primarily based on Barley and Tolbert's (1997) work, which is a combination of structuration theory and new institutional sociology theory. Even though Burns and Scapens' (2000) model did not explicitly incorporate new institutional theory into their work, they were aware of the significance of extra-organisational institutional pressures influencing management accounting practices. Burns and Scapens' (2000) model will be complemented in this study with new institutional theory to address the effect of extra-organisational institutional pressures on ERM-triggered risk management practice change.

Coercive, mimetic and normative isomorphism

Three mechanisms (structural properties), through which institutional isomorphic change occurs, were identified. First, coercive isomorphism stems from political effects and the legitimacy problem. It is the outcome of formal and informal pressures that are exerted on companies by other companies which they are dependent on, as well as by the society cultural expectations within which companies function. Such pressures could be recognised as forced, persuasive, or invitations to participate in a responsibility (DiMaggio and Powell, 1983).

Secondly, mimetic isomorphism results from the normal responses to uncertainty. Uncertainty is a great force for encouraging imitation. When organisational technologies are not well understood, goals are unclear, or the environment generates symbolic uncertainty, companies may form themselves on other companies (DiMaggio and Powell, 1983). The mimetic behaviour in the economy of human action produces significant advantages. When a company is exposed to a problem with unclear causes or vague solutions, a practical solution with slight expense could be resulted from problematic search (Cyert and March, 1963). Commonly, modelling is a response to uncertainty, in which companies copy other companies' practices. Companies have a tendency to model themselves after similar companies. Models could be spread unintentionally, indirectly through for example employee transfer, or explicitly by companies such as consulting (DiMaggio and Powell, 1983).

The third isomorphic organisational change source is normative isomorphism which results mainly from professionalisation. Professionalisation was defined as "the collective struggle of members of an occupation to: (1) define the conditions and methods of their work; (2) to control "the production of producers" (Larson, 1977, pp. 49-52); and (3) to "establish a cognitive base and legitimisation for their occupational autonomy" (DiMaggio and Powell, 1983, pp. 152). Similarly to companies, professions are exposed to the same coercive and mimetic pressures. Professionals show resemblance to their professional counterparts in other companies although they could vary from each other within a company. The state primarily assigns professional power as it is generated by the professions' actions. Two professionalisation aspects are key sources of isomorphism, and thus imitative behaviour. The first one is the resting of formal education and legitimisation in a cognitive base that is presented by university specialists. The second aspect is the professional networks growth and elaboration, which extend companies and across which new models distribute quickly (DiMaggio and Powell, 1983).

DiMaggio and Powell's (1983) work has some applications in accounting (Amat et al., 1994; Hoque and Alam, 1999; Modell, 2001; Granlund and Malmi, 2002). For example, in management accounting, Granlund and Lukka (1998) argued that economic, coercive, normative and mimetic pressures are the main drivers of management accounting practices' convergence or divergence.

Criticisms of NIS

NIS has a number of problems. First, it is criticised for its deterministic nature and for its neglect of the active agencies role and power and interest issues at the micro-level (Carruthers, 1995; Carmona et al., 1998). Barley and Tolbert (1997) argued that NIS has

mostly concerned with the role of institutions in shaping and constraining the actors' actions. Recent institutional studies have addressed this criticism. They focused on the actors' ability to react to institutional pressures (Oliver, 1991; Greenwood and Hinings, 1996; Barley and Tolbert, 1997; Burns and Scapens, 2000; Collier, 2001; Modell, 2002; Tsamenyi et al., 2006; Dambrin et al., 2007). NIS has been extended by these studies to include power relations. Second, the assumption that practices which are designed to secure external legitimacy were just symbolic and decoupled from internal operating systems has been critically questioned (Abernethy and Chua, 1996; Carruthers, 1995; Mouritsen, 1994; Zucker, 1987). Third, NIS does not take into account the change path in the organisational realm. It concentrated on change at an extra-organisational level (Dillard et al., 2004). Finally, Zucker (1991, p. 106) said that "institutional theory is always in danger of forgetting that labelling a process or structure does not explain it". DiMaggio (1988) argued that this theory does quite weakly at understanding the agency role in the creation, maintenance, and demise of institution.

These criticisms show that NIS suffers from insufficient concern of the relationship between environment/institutional determinism and cultural and political factors within companies. Therefore, NIS needs to be complemented by other perspectives that factors internal organisational dynamics into the explanation of NIS (DiMaggio, 1988; Fligstein, 1998; Scott, 1987; Zucker, 1988). OIE could enhance the capacity of NIS to analyse the complex dynamics of change at micro-level and explain conflict and actors' struggle for power.

3.3.4 The concepts of OIE

Veblen (1898; 1909; 1919) introduced OIE, which has been widely used in research (Hodgson, 1993; Tool, 1993). It contradicted the static rational-actor economic theorising, and should not be confused with new institutional economics (NIE) (Williamson, 1975; 1985; 1996; North, 1990, Covalski et al., 1993; 1996; Carruthers, 1995) employed in accounting research formerly (Spicer and Ballew, 1983; Johnson, 1983; Spicer, 1988; Colbert and Spicer, 1995). OIE tried to illustrate phenomena in procedural terms, showing why and how over time things become what they are (or are not). Power and politics are a key part of the main methodological underpinnings of OIE (Burns, 2000).

Accounting can be viewed from an OIE perspective (Scapens, 1994; Burns, 1997; Burns and Scapens, 2000). Accounting change can be seen as a change in accounting routines that could (or could not) be embedded in the company taken-for-granted assumptions and

beliefs (Burns, 2000). These assumptions and beliefs that are common to organisational members are called 'institutions'. Routines comprise programmatic, rule-based behaviour grounded in repeatedly following such rules. Through time, tacit knowledge, which individuals acquire through reflexive monitoring of past behaviour, makes routines to become increasingly underpinned. Thus, routines are the habits of a group and the components of institutions (Hodgson, 1993). OIE focus on organisational routines and their institutionalisation. It also deals with a number of the difficulties of using the structuration theory produced by Giddens (1984) in accounting research and management accounting change research especially (Burns and Scapens, 2000).

There should be no confusion between OIE and NIS (DiMaggio and Powell, 1991; Scott, 1995). Even though there are a number of overlaps between OIE and NIS, given institutions are assumed by the latter, while the institutions emergence, continuity and change over time are the main concerns of the former (Scapens, 1994). NIS focused more on macro institutions which refer to the commonly accepted principles of accounting at society level (Mezias, 1990), while OIE concentrated on micro institutions within companies (Scapens, 1994; Burns, 1997).

In brief, an institutional framework that incorporates OIE and NIS can help explaining how institutions at both macro- and micro-levels shape and constrain the behaviour of individuals and companies, and analysing how individuals modify and transform the institutions and companies. By taking such perspective, the analysis may provide a clearer picture of different organisational phenomena.

3.4 The selection of the theoretical framework in relation to the current study

Organisational or sociological theories are adapted by management accounting research in order to examine management accounting practice development, maintenance and change. It is recognised that social control and coordination issues in companies are central, so the problematic aspects of organisational and social context using intellectual approaches of management accounting was studied (Covaleski et al., 1996). Various organisational and sociological perspectives have been used in management accounting research such as institutional theory (Meyer and Rowan 1977; DiMaggio and Powell 1983), resource dependency theories (Pfeffer 1981), political perspectives (Edelman, 1977; Wildavsky, 1964), and the sociology of professions (Abbott, 1988; Freidson, 1986).

The use of multiple theories to explain a particular phenomenon can complement each other as there is no single approach that is able to give an inclusive understanding of management accounting phenomena (Mouck, 1990; Neu, 1992; Mangos and Lewis, 1995). However, when using various theories together, caution should be exercised. Although such syntheses can overcome the difficulties of some theories, they may produce other problems as a result of losing sight of their main features. This research draws on structuration theory, OIE, and NIS, to examine the change in risk management practices occurred as a result of implementing ERM in insurance companies. The use of multiple perspectives emphasises complementary facets, and thus contributes to robustness in explaining a specific phenomenon (Feyerabend, 1981; Kuhn, 1970). It provides alternative ways of understanding the multiple roles played by risk management. Each theory has received a good attention in its base discipline, but not much empirical research has been undertaken within risk management area.

This study benefits from Giddens work as ERM implementation can be conceptualised as an event for structuration which is consistent with what Giddens (1984, p. 13) calls “the cumulation of events deriving from an initiating circumstance without which that cumulation would not have been found”. In addition, the introduction of ERM is similar to the introduction of rules in the framework of Burns and Scapens (2000, p. 7) in which “rules are normally changed only at discrete intervals; but routines have the potential to be in a cumulative process of change as they continue to be reproduced”. Burns and Scapens (2000, p. 10) treat rules (or ERM rules as will be used here) as modalities. They also argue that rules could be positioned closer either to actions or to structures. The new ERM rules are considered in this research as an action in the implementation phase and the new emergent routines as modalities in the use phase.

Institutional theory fits my argument as its general theme is that a company’s survival requires it to conform to social norms of acceptable behaviour as much as to achieve levels of production efficiency. It extends the focus of contingency theory and suggests that companies’ norms and traditions define the processes and techniques applied by managers (Covaleski et al., 1996). Such study should have important implications for participants in the industry, regulators, consumers and investors. In general, applying specific ERM strategies in the insurance company context is under the choice of its managers, who should choose the most appropriate techniques to be implemented in order to provide benefits for their companies and thus gain support and legitimacy.

Archer (1995) and Barley and Tolbert (1997) suggested a number of solutions to the structuration theory apparent difficulties in addressing social and organisational change. Subsequently, Burns and Scapens (2000) introduced their model as a way to overcome a number of the problems in dealing with management accounting change. Their framework is grounded in structuration theory and OIE theory. As such, combining structuration and OIE has been experienced (see Burns and Scapens, 2000). However, NIS has not been introduced in a framework to study risk management change.

The theoretical framework that is used for this research is based on Burns and Scapens' (2000) work. Their theory offers a general model of organisational change. Various possible approaches could be used in this study, but recent institutional theory versions provide important extra features. First, Meyer and Rowan (1977) stressed the legitimacy importance in explaining organisational structures and working practices. Therefore, in this case, ERM was selected either because it is the most efficient technique for meeting the perceived need of insurance companies for better risk information or because it is the fashionable innovation that is promoted by consultants and academics. Second, a more sophisticated view of structure has been adopted by the new institutionalism, which helps researchers to analyse the organisational process dynamics. Drawing on Giddens (1984), structure is considered as a duality, as the result of interaction between structure and action. The organisational outcomes of implementing ERM are likely to be uncertain (Soin et al., 2002).

Burns and Scapens (2000) applied OIE theory to accounting practices in order to clarify the stabilising role of information systems and the evolutionary change possibility, similarly to Scapens (1994) and Ahmed and Scapens (2000). In this regard, OIE theory is chosen to address the problem of this research as it is able to illustrate the accounting evolutionary nature which is broadly recognised in the accounting literature (Kaplan, 1983; Bromwich and Bhimani, 1989, Chenhall and Langfield Smith, 1998a, 1998b). However, Burns and Scapens (2000) by mainly using OIE consider intra-organisational behaviours and do not take into account extra-organisational institutions.

The above limitation is overcome in this research by NIS, which is concerned with the role of macroeconomic, political and social institutions in determining organisational structures, policies and procedures (Scott, 2001). Generally, organisations respond to these external, macro pressures to obtain support and legitimacy. Thus, NIS is selected to address extra-organisational institutions which affect the use and implementation of ERM. Commonly, coercive pressures play a key role in insurance companies, which are the context

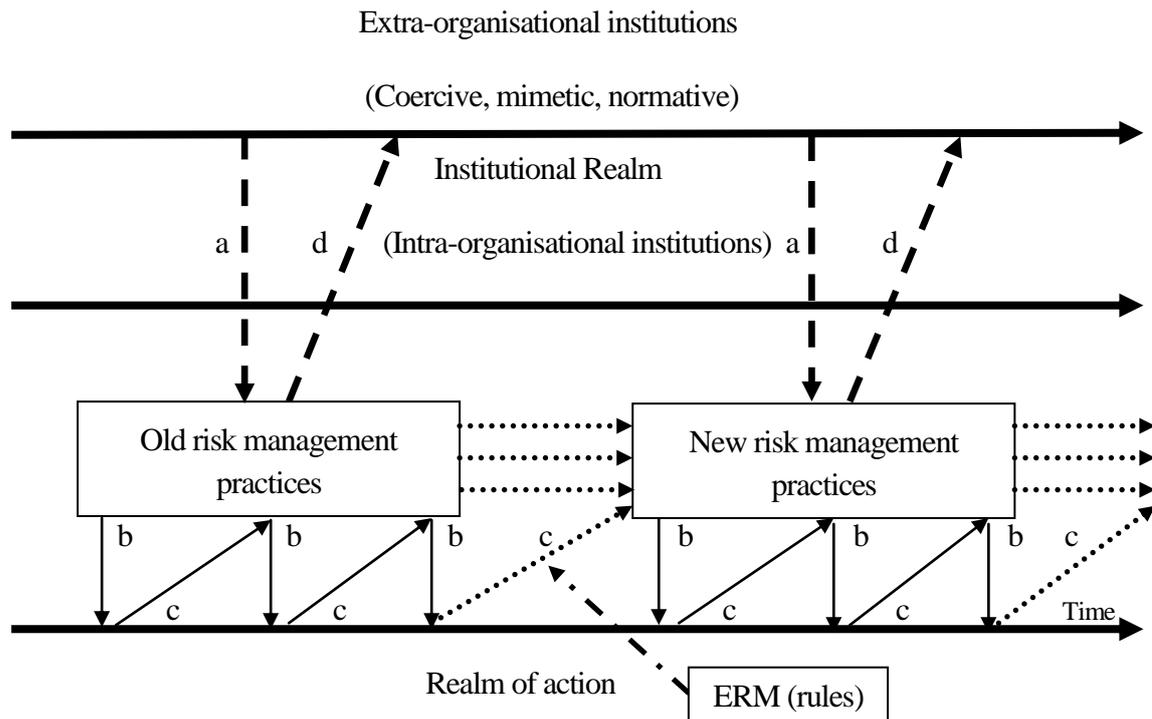
of this research. Further, ERM and risk management issues were not addressed by Burns and Scapens (2000). Thus, incorporating them to the model presents a significant extension.

The work of Barley and Tolbert (1997) constituted the basis of Burns and Scapens' (2000) framework. The former work is a combination of both structuration theory and new institutional theory. Burns and Scapens' (2000) model recognises that extra-organisational institutional pressures significantly affect management accounting practices although it does not incorporate new institutional theory explicitly. Burns and Scapens' (2000) model is complemented by new institutional theory in this research to address the effect of extra-organisational institutional pressures on ERM-triggered risk management practice change. Structuration theory can further help in the sense that it considers the social context of management accounting, links macro institutional context to micro institutional context, and stresses the dialectic of control importance in social relationships. It is capable to illustrate revolutionary change in crisis conditions and evolutionary change in routine situations.

The above discussion shows that the adoption of ERM to insurance companies, as well as the link between ERM implementation and the change in risk management practices, in particular capital allocation, could be better informed by institutional and structuration theories.

3.5 Theoretical underpinnings

In order to achieve the research objectives, a research model has been developed and presented in Figure 3.2. It provides the theoretical framework of this research. This section evaluates and extends Burns and Scapens' (2000) model.



- (a) Encoding
- (b) Enacting
- (c) Reproduction
- (d) Institutionalisation

Figure 3.2 Theoretical framework for the study

(Adapted from Burns and Scapens, 2000, p. 9)

Burns and Scapens institutional approach is chosen as the starting point for the development of the framework in this research as it seeks to explain accounting change processes in quite general terms. They developed their model drawing on both structuration theory and OIE. It should be noticed that Burns and Scapens (2000) do not clearly deal with the causes and mechanisms of accounting change. Although Burns and Scapens' (2000) framework is used in this study to understand the processes of change within insurance companies, the external effects to which these companies are exposed and their influences on change processes within the company cannot be ignored. For this purpose, the perspective of NIS is adopted. Burns and Scapens' (2000) framework is highly linked to structuration theory and NIS theory. As a result, it presents a coordinating tool for further theories and models. However, there are differences between Burns and Scapens' (2000) model and some structuration theory main ideas such as analytical dualism, synchrony/diachrony distinction,

and pre-existence of institutions separated from actions. Therefore, it is not totally consistent with structuration theory, but uses the core of structuration theory.

Burns and Scapens' (2000) institutionalisation model has been used to inform many case studies (Bogt and Helden, 2000; Burns, 2000; Soin et al., 2002; Burns et al., 2003; Granlund, 2003). It has been applied in some of these studies directly without modifying the original framework (Soin et al., 2002; Burns et al., 2003). Burns and Scapens' (2000) original model was extended by other studies through complementing it with other concepts and theories including power developed concept in structuration theory, a pragmatic approach and a behavioural approach (Bogt and Helden, 2000; Burns, 2000). A modification to the basic model of Burns and Scapens (2000) is introduced by Burns (2000). Burns (2000) used Burns and Scapens' (2000) institutional framework that is grounded in the power developed concept in structuration theory. In this research, it is used to inform both a field study and case study to address the changes in risk management practices (routines) that are shaped by the introduction of ERM as new rules.

The framework developed in this research uses a number of major structuration theory concepts including modalities, reflexivity, and crisis and routine situations (see Table 3.1). Giddens (1979, p. 66) defines structuration as the "conditions governing the continuity or transformation of structures, and therefore the reproduction of (social) systems. It is the process whereby social systems sometimes work to almost automatically reproduce the status quo, while at other times they undergo revolutionary change." Social structure enables and constrains the agents' daily actions, but does not determine them entirely because some unacknowledged conditions and unintended consequences of actions exist. The agents' choices are not independent of the structure they take their actions within although they can act in a way which will either reinforce or modify this structure. Then change emerges in unpredictable ways as a result of such duality. The actions of actors allow changes to emerge. Some of the outcomes could be planned, but others are unexpected because the actors' knowledgeability is restricted by unconscious, unacknowledged conditions of actions, and unintended consequences of actions (Giddens, 1984). Therefore, the structure and actions roles in changing the status quo in interaction are situationally oriented (Kholeif et al., 2008). Two situations under which change may take place (Giddens, 1979; 1984) are: routine situations and critical situations. ERM implementation is seen in this research to be related to either evolutionary change (routine situations) or revolutionary change (crisis situations). Giddens (1976, p. 128) explained that "every act which contributes to the reproduction of a structure is also an act of production ... and as such may initiate change by altering that

structure at the time as it produces it. ”According to Macintosh (1994), critical situations open the chances for radical change whereby many people in the social system are affected. This social change can be unexpected and inconstant. Predominant social structures are mostly reshaped (Giddens, 1984).

The framework developed in this research uses some of institutional theory concepts including actions, institutions, deinstitutionalisation, organisational fields and institutional isomorphic mechanisms. “Institutions can be regarded as imposing form and social coherence upon human activity, through the production and reproduction of settled habits of thought and action” (Burns and Scapens, 2000, p. 6). Therefore, organisational change claims should rely on the presentation of changes in routines or that of the reproduction of new behavioural patterns. The introduction of action helps tracing both change pathways, how change tracked its way through the company, and the timings of this change. Institutions are distinguished from actions in the sense that “institutions constrain and shape action synchronically (i.e. at a specific point in time), while actions produce and reproduce institutions diachronically (i.e. through their cumulative influence over time)” (Burns and Scapens, 2000, pp. 9-10). Organisational resistance in the enactment of rules and routines could affect the change extent and type. “Unconscious/unintended change may occur in the absence of systems to monitor the execution of the routines and where the rules and routines are not sufficiently understood and/or accepted by the actors” (Burns and Scapens, 2000, p. 10).

The framework further uses the concepts of rules and routines introduced by Burns and Scapens (2000). Rules are distinguished from routines. Whereas rules are “the formalised statement of procedures”, routines are “the procedures actually in use” (Burns and Scapens, 2000, p.7). The everyday risk management practices are shaped to a large extent by routines, as rules (ERM) are set by individuals into practice. Routines could also affect the rules as established practices could be formalised in new rules. Therefore, rules and/or routines could be adopted habitually, but they could also be chosen according to proper deliberation. The institutional logics, which agents adopt in the specific context, shape the rationality of this deliberation. In turn, institutions will form these logics (Burns and Scapens, 2000).

Rules and routines are not linked in a unidirectional way. The routines may be formalised in the shape of rules. Routines could be derived from the formerly adopted rule modifications or from the practice adoptions without shaping them. Such emergent routines could be shaped to preserve the knowledge that is embedded in them, to train new organisational members, or to avoid undesired modifications (Burns and Scapens, 2000). Risk management systems could be conceptualised, following Burns and Scapens (2000), as

rules because they consist of the formal procedures that are adopted by companies. In this study, risk management practices are conceptualised as routines because they express the actual procedures in use, which could vary from the formal systems.

Following Scapens (1994) and Burns and Scapens (2000), the main idea, on which my approach is based, is that a risk management system can shape and be shaped by institutions in companies. Thus, risk management practices can be conceptualised as organisational routines encoding the company's existing institutions. ERM and risk management practices are conceptualised in this framework as organisational rules and routines respectively. Risk management change is conceptualised as a change in organisational rules and routines. Thus, the complex and ongoing relationship between actions and institutions is explored. This illustrates the significance of organisational routines and institutions in shaping the risk management change processes. The new and ongoing routines are argued in this research to embed meanings, norms and powers. Prevailing institutions shape all such routines and, over time, the new routines may be institutionalised.

OIE is applied to risk management practices in my framework to clarify the stabilising role of ERM and the evolutionary or revolutionary change possibility and to understand organisational routines and their institutionalisation. It also deals with a number of the difficulties that arise because of using the structuration theory in accounting research and management accounting change research especially (Burns and Scapens, 2000). The main concern of OIE is the intra-organisational processes of change. It does not take into account extra-organisational pressures like social, economic and political institutions which exist in the organisational field and society. These macro institutional pressures vary from one country to another.

DiMaggio and Powell's (1983) concept of organisational field and three forms of isomorphism, presented as coercive, mimetic, and normative; are mainly used for the development of this framework (DiMaggio and Powell, 1983, p. 150). Therefore, employing NIS theory is a useful extension to the basic model as it helps in understanding the extra-organisational pressures of change alongside the intra-organisational pressures. Risk management issue is not addressed in Burns and Scapens' (2000) model. Developing Burns and Scapens' (2000) model to incorporate ERM and risk management practices is seen as a specific application of the model within risk management change.

Drawing on OIE, Burns and Scapens (2000) suggest three dichotomies: formal versus informal change, that is, conscious design as against tacit change; revolutionary versus evolutionary change, or in other words, fundamental disruption as opposed to gradual change;

regressive versus progressive change, that is, ceremonial as opposed to instrumental change. Revolutionary versus evolutionary change is used in this model. Institutions are defined as the shared taken-for-granted assumptions that identify particular groups and their proper activities and relationships (Burns and Scapens, 2000; Burns et al., 2003). Thus, institutions can constrain and shape change processes. In this regard, a distinction between revolutionary and evolutionary change can be drawn (see Nelson and Winter, 1982; Burns and Scapens, 2000). Revolutionary and evolutionary change is linked to the structuration theory concepts of routine situations and their related possibility of stability or evolutionary change, and critical situations and their related possibility of revolutionary change.

Revolutionary change exists when a major disruption of the prevailing rules and routines occurs in the existing institutions, as well as a challenging and re-evaluation of the assumptions that are taken-for-granted. This change is most likely to require key threats to the company's survival, and/or to specific sub-groups in the company's survival. It is argued by Busco et al. (2006) that such change could occur when there is a threat to what Giddens (1984) labelled 'ontological security' or Schein (1992) called 'psychological safety' of the organisational members. However, evolutionary change is incremental with slight disruptions to the existing routines and institutions. This change builds on, adapts, and modifies the existing routines in a process drawing on the prevailing institutions. Therefore, institutions form the change process but they could themselves be modified in that process. However, it is improbable that they will be challenged and re-evaluated largely (Scapens and Jazayeri, 2003).

Drawing on OIE (Tool, 1993; Bush, 1987; Dugger, 1990), it could be suggested that risk management routines can be institutionalised in a ceremonial or instrumental way. "Ceremonially institutionalised accounting routines are organisational rituals, which are used to preserve the status quo and the power or interests of specific groups or individuals, rather than to aid decision-making. In contrast, instrumentally institutionalised accounting routines are used to make informed decisions" (Siti-Nabiha and Scapens, 2005, p. 47). If risk management is institutionalised ceremonially, or instrumentally; it relies on the wider institutional setting within the company. Hence, institutions within a company are the basis for the way in which risk management is practiced, the way in which risk management information is used, and the risk officials' role.

This developed framework suggests that the institutionalisation process "involves a dissociation of patterns of behaviour from their particular historical circumstances". Therefore, the rules and routines become simply the way things are, i.e., institutions. Then

such institutions will be encoded into the on-going rules and routines and will form new rules, and so on. Thus, institutions are the structural properties comprising the assumptions regarding the way of doing things that are taken-for granted. They shape and restrict the rules and routines, and decide the individual actors' meanings, norms, values, and powers (Burns and Scapens, 2000). Deinstitutionalisation is seen to be equivalent to de-routinisation in structuration theory. Giddens (1979, p. 220) introduced the de-routinisation concept that refers to "any influence that acts to counter the grip of the taken-for-granted character of day-to-day interaction".

The framework of Burns and Scapens (2000) provides useful analytical tools to inform the approach that is adopted by this study. First, this model is a sequential one, which analytically separates the institutions synchronic effects on actions from the actions diachronic effects on institutions. Such separation facilitates the examination of change processes from the introduction of new rules as an action, which is formed by existing institutions to the institutionalisation of such rules. Second, the routines concept, as programmatic rule-based behaviours, gives the connection explaining how the new rules turn out to be institutions over time (Kholeif et al., 2008).

Following Burns and Scapens (2000), understanding the application of the model can start from the institutional realm analysis, which identifies the initial set of rules and routines characterising a firm's management accounting. Then, the analysis of the realm of action can identify the key actors and their relationships with the wider institutional realm. Encoding, enactment and reproduction are continuing processes introducing the new ERM rules. The question now is 'do the changes become incorporated into new routines?' In other words, does ERM drive a change in capital allocation pathways and methods? The analysis takes into account whether the new routines (capital allocation practices) have implications for the wider institutional realm of the whole firm beyond the limited field of a specific department.

3.6 Theoretical framework and research questions

According to the limited availability of empirical research on the motives of ERM adoption, ERM determinants, and the change in risk management practices driven by ERM usage in insurance companies; the research questions are presented in this section. A number of issues that requires further considerations with respect to the changes in risk management practices associated with ERM implementation were highlighted in the literature reviewed in Chapter 2. In particular, this study addresses three groups of research questions.

The first group of research questions focuses on the institutional pressures driving ERM adoption and implementation within insurance companies, ERM implementation determinants, ERM strategies and frameworks, and the challenges facing ERM implementation and embedding. The second group of research questions deals with the role of ERM in changing risk management rules and routines. The third group of research questions focuses on the role of ERM in changing capital allocation routines and on the changing roles and responsibilities of risk officials due to ERM introduction.

In order to address the changes in risk management systems and practices, the concepts of rules and routines that are introduced by Burns and Scapens (2000) are drawn on. Giddens' concepts of routine situations and critical situations will be used to supplement Burns and Scapens' (2000) concepts as they help in understanding the conditions and reasons for changing risk management systems and practices. These concepts indicate that ERM strategies may be considered as a change driver for risk management practices in the insurance industry. Concepts of new institutional sociology theory such as deinstitutionalisation, organisational fields and institutional isomorphic mechanisms will be used to address the macro institutions' role in inducing or impeding the implementation and use of ERM, as well as changes in risk management practices related to ERM implementation. The inclusion of deinstitutionalisation into the analysis overcomes a major limitation of new institutional sociology theory.

In addressing the changes in roles, responsibilities and relationships of risk management team, I draw on the structuration theory concept of the dialectic of control or the relations of autonomy and dependence. New institutional sociology theory will also be used to address the macro institutions' role such as board of directors, senior management, and consultants, in imposing changes in roles, responsibilities, and relationships of people who deal with risk.

3.7 Conclusions

The theoretical perspectives used as the basis of this research, were discussed in this chapter. It discussed the core concepts of structuration theory and its extensions in accounting literature. OIE and NIS concepts are also presented. Structuration theory is identified as a meta-theory providing a way of thinking about the world. It could help in transcending objectivism and subjectivism positions. This chapter also provides a detailed discussion of the institutional model developed in this research that is based on Burns and Scapens' (2000)

model. Their model is complemented, on one hand, by ERM strategies to deal with risk management practices changes, and on the other hand, by NIS to consider extra-organisational institutional pressures. As structuration theory forms the key theoretical foundation of Burns and Scapens' (2000) model, the model developed cannot stand alone without consulting structuration theory. The next chapter discusses the research methodology and methods of the empirical study.

Chapter 4

Research Design

4.1 Introduction

This chapter describes and justifies the research design adopted to investigate the research questions addressed by the study. The next section describes the research approach and this is followed by a discussion of the methodologies used in the field study and case study. Then the data analysis methods used in this research is presented, followed by highlighting the issues of validity and reliability, and ethical considerations. The last section draws conclusions.

4.2 Research approach

“A research design describes a flexible set of guidelines that connect theoretical paradigms first to strategies of inquiry and second to methods for collecting empirical materials” (Denzin and Lincoln, 2008, p. 33). The research approach will provide the largest framework within which this research takes place (Maykut and Morehouse, 1994). Research paradigms can be classified very broadly into positivist (quantitative) and interpretive (qualitative) (Collis and Hussey, 2003).

This study is based on the interpretive approach to explore the changes in risk management practices that are triggered by ERM implementation. The reality is seen within the interpretive approach, as a social construction, which is consistent with the nature of this research aim and objectives. It provides an appropriate approach for investigating the problem of this research as it is defined in terms of social phenomena. Although the positivistic approach can measure the phenomenon under study, it is grounded in the belief that studying humans should be conducted similarly to the way of conducting studies in the natural sciences that is not consistent with the objectives of this research. Furthermore, the interpretive approach is subjective in nature. It examines and reflects on perceptions to gain understanding of various social and human activities (Collis and Hussey, 2003). Therefore, it is adopted for this research as it seeks to understand human behaviour from the participant's point of view (Collis and Hussey, 2003), which is consistent with the aim of this research.

The ontological and epistemological assumptions of the interpretive approach have significant implications for the way in which this research is conducted (Maykut and

Morehouse, 1994). The ontological assumption characterising the interpretive approach is that the world is socially constructed, and could be understood via examining the perceptions of human actions. Thus, the reality is both subjective and multiple according to the participants in a particular study (Collis and Hussey, 2003). The epistemological assumption of the interpretive approach considers the researcher and reality to be inseparable and interdependent. Thus, the researcher's beliefs are considered to mediate and shape understanding within the interpretive (Lincoln and Guba, 1985). Maykut and Morehouse (1994) showed that epistemological assumptions directly affect the way researchers understand the reality nature. Interpretive axiological assumption is that research can be value-laden and biased by the values of a researcher that determine what is considered as facts and interpretations.

Previous research in the accounting and management control discipline, and specifically in the risk management area, has often been conducted under the interpretive approach (Mikes, 2005; 2009, Woods, 2011). Hopwood (1985) argued that it is necessary to explore accounting practice in its wider context without only emphasising its technical aspect. Therefore, these practices need to be located in their historical, economic, organisational, social and institutional contexts (Burns, 1996). As such, this research studies ERM in its natural settings to interpret this phenomenon in terms of the meanings people bring to it. However, interpretive research suffers from problems linked to rigour and subjectivity (Collis and Hussey, 2003).

As stated in Ahrens and Chapman (2006), "what distinguishes the interpretive field researcher is a particular way of knowing the field". Interpretive field researchers agree that "[s]ocial reality is emergent, subjectively created, and objectified through human interaction" (Chua, 1986, p. 615). However, Lincoln and Guba (1985, pp 289-290) laid out the charges which are frequently thrown against interpretive research. He stated that the researcher "soon becomes accustomed to hearing charges that naturalistic studies are undisciplined; that he or she is guilty of "sloppy" research, engaging in "merely subjective" observations, responding indiscriminately to the "loudest bangs or brightest lights." Rigor, it is asserted, is not the hallmark of naturalism. Is the naturalist inevitably defenceless against such charges? Worse, are they true? "

Adopting an interpretive mode of enquiry that is based upon "exploratory" study and "inspection" can overcome some drawbacks of the interpretive approach (Blumer, 1978). In "exploration", a close contact is formed by the researcher with the field of study while also "developing and sharpening his enquiry so that his problem, his directions of inquiry, data,

analytical relations and interpretations arise out of, and remain grounded in, the empirical life under study” (Blumer, 1978, p. 39). Then “inspection” occurs, which “involves a gradual deepening of the enquiry following themes which emerge from flexible, but close, observations of specific decision contexts” (Tomkins and Groves 1983, p. 363). Following the interpretive research approach in this study can help linking academic research with practitioners and their views of the world. It can further provide a way to develop reliable theories about risk management in action and theories about the effects of different risk management procedures.

4.3 Research methodology: The field Study

“Methodology refers to the overall approach to the research process, from the theoretical underpinning to the collection and analysis of the data” (Collis and Hussey, 2003, p. 55), which is distinct from research method. “Methods refer to a set of procedures and techniques for gathering and analysing data” (Strauss and Corbin, 1998, p. 3). Interpretive and positivist paradigms are generally associated with various types of methodologies. These two can be considered as two extremities of a continuum. They direct the adoption of specific methodologies, which are to an extent shifted on that continuum in relation to the research problem assumptions and the research questions framing (Collis and Hussey, 2003; Richardson, 1996). The complexity of ERM and the significance of its related contextual issues in various companies directed the researcher to employ a combination of two research methodologies in this study; field study and case study. The term of ‘field study’ has generally been used either to refer to a type of methodology that involves visits to companies and concentrates on the contextual influences of specific theoretical constructs (see Lillis and Mundy, 2005), or used as a synonyms to the more general term of ‘empirical study’ referring to the study that is based on empirical setting. In this thesis, the term field study is used as a methodology and the term ‘field-based research’ is used to describe the empirical study as a whole. The field study methodology and its related sampling and methods are discussed below.

4.3.1 Field study methodology

Accounting researchers have increasingly recognised the need to study accounting within its organisational context (Hopwood, 1983; Atkinson and Shaffir, 1998; Ahrens, 2010; Baxter and Chua 2008). Therefore, many researchers have called for further research, which

uses field study methodology and methods such as participant observation, informant and respondent interviewing and document analysis (Kaplan, 1983; Scapens and Sale, 1985; Atkinson and Shaffir, 1998; Lillis, 1999; Lillis and Mundy, 2005). Field studies are considered as means of studying management accounting within its organisational context (Ferreira and Merchant 1992; Keating, 1995). There is also a need for detailed studies concerning the day-to-day use of management accounting and particularly risk management to understand its role in practice. A superficial view could be given by both questionnaires and interview surveys. These methods suffer from not being able to provide an intensive picture of management accounting in practice. Some researchers realised these problems (e.g. Kaplan, 1984), which led to a shift towards more detailed field work and/or case studies. Richer descriptions of management accounting practice could be offered (Ryan et al., 1992). Researches also showed a tendency not only to describe management accounting in practice, but also to explain the determinants of specific practices (Ryan et al., 1992). In replying to the call for further field-based research, field study and case study methodologies were chosen to address the questions of this research. Surveys would have allowed studying a larger sample, yet they would have missed the contextual interpretations of the research findings (actions of different actors and institutional logics).

In surveys, there is no access to respondents by researchers that helps to “mine human experience” (Atkinson and Shaffir 1998, p. 45). It could be difficult to replicate identified contradictions or ambiguities because replications unavoidably happen at the expense of analysis depth in case studies (Ahrens and Dent, 1998). A cross-sectional field-based research offers an effective means of capturing complex phenomena in a confined field to researchers. It helps them to discover reasons, which might illustrate conflicting results, ambiguities, or tensions in previous research (Lillis and Mundy, 2005). Elaborated responses that researchers get from data collection techniques such as semi-structured interviews could highlight formerly un-hypothesised associations between variables (Spicer 1992; Lillis 1999).

Further, the use of the qualitative methodologies; exploratory field study, in this research is consistent with institutional theories and Burns and Scapenes’ model. This specific methodology is best suited for studying risk management systems as the role of accounting and other controls cannot be understood in isolation (Lukka, 2005; Otley and Berry, 1994). Field study methodology is useful because field studies are mostly used to explore relationships, which are the relationships between ERM implementation and risk management practices in this research.

In the first empirical phase of this study, the researcher focused on selected relevant elements of ERM in the insurance companies investigated, and compensate this limited data depth by using a larger sample of companies. This study is designed to collect data in different companies at the same time. The usage of this specific methodology in studying ERM in the insurance industry should allow for theoretical generalisation; generalising theory that is applied to a particular set of circumstance. Studying different cases helps determining whether theory can be generalised, extended or modified. Further, using a multiple companies facilitates the identification of the patterns and/or variations in empirical observations. Field studies improve the understanding of the theoretical constructs that are studied empirically. They concentrate on the contextual influences of the constructs (Lillis and Mundy, 2005). The social and organisational nature of the phenomenon under study justifies the choice of field study methodology to explore ERM adoption drivers and implementation determinants in the context of non-life insurance companies. As such, 10 listed large or medium-sized non-life insurance companies were purposively selected for this research. Cross-sectional validation of theoretical constructs enhances credibility and generalisability of field study findings.

An interpretive approach emphasises words rather than quantification in the data collection and analysis. The qualitative methodologies are related to particular ontological and epistemological views that helped the researcher in selecting the appropriate research methods to investigate the phenomenon under study (Morgan and Smircich, 1980; Bryman, 1984; Laughlin, 1995). Data was collected through multiple methods including semi-structured interviews, documentary analysis, and publicly available data analysis. As field and case studies seek theoretical generalisation, purposeful sampling was employed to get information-rich cases (Yin, 1994).

4.3.2 Sampling method

Purposive sampling was used in the selection of the sample in this research. It allows the researcher to choose the appropriate cases for the purpose of the study because it illustrates some features and processes in which the researcher is interested. However, this does not provide a simple preference to any case that is chosen, but requires the researcher to think critically about the parameters in which the interest lies and choose the sample on this basis. As Denzin and Lincoln (1994, p. 104) put it, “many qualitative researchers employ purposive and not random, sampling methods. They seek out groups, settings and individuals

where the processes being studied are most likely to occur”. Therefore, sampling in this research was theoretically grounded (Mason, 1996). The chosen setting is ‘intrinsic’ and ‘instrumental’ at the same time (Silverman, 2009, p. 139). It is intrinsic because there is a clear lack of knowledge about how ERM affects risk management practices. It is also instrumental because, in studying insurance context, there is a potential to contribute to the literature on ERM in an uncertain and rapidly changing environment.

FAME and Data Stream databases were mainly used to search for the listed non-life insurance companies. The researcher chose to study 10 general insurance companies based in the UK because the financial sector including insurance is well developed in the UK. There were 1,147 non-life insurance companies. Consultant companies and subsidiaries of a main company specialised in offering different services were excluded. General insurance company is the research setting as indicated previously. However, preference is given to study large insurance companies. This is because there is evidence from prior accounting research that firm size is an explanatory factor for the emergence and use of management control systems (Haka et al., 1985; Myers et al., 1991; Shields, 1995). Similarly, for ERM systems, Beasley et al. (2005) and Hoyt and Liebenberg (2011) found firm size to be positively related to ERM adoption and use. Thus, the researcher targeted the largest 10 non-life insurance companies that pointed out adopting ERM and reported on their ERM systems, out of which four risk officers agreed to meet. Then the researcher moved to the following five companies. Three of the risk officers interviewed have put me in contact with other four risk officers. Two of them are from large insurance companies and the other two are from medium-sized insurance companies. Thus, 10 listed large/medium-sized general insurance companies were chosen for the purpose of my research (see Table 4.1).

Considering that there was not any contact with anyone within the insurance sector, it was harder to get access to the companies. For each sampled company, the researcher targeted the suitable people who have relevant experience in the research area; ERM and risk management. Thus, the research subjects are mainly risk officers and directors of non-life insurance companies. The respondents are presented in Table 4.1. This sampling procedure rests on the assumption that “with good judgment and an appropriate strategy, one can handpick the cases to be included in the sample and thus develop samples that are satisfactory in relation to one’s needs. A common strategy of purposive sampling is to pick cases that are judged to be typical of the population in which one is interested...” (Kidder, 1981, p. 427). An online search was conducted to identify the names and contact details of the risk officers of each insurance company. In many cases it was difficult to find their names on the company’s

website, thus annual reports were further reviewed to check whether any names are stated. After that emails were sent out to request for participation in this study and arrange for the interviews. Phone calls were also used and proved to facilitate the access to participants just when the name of the participant is known and uttered when contacting the companies' reception. Repetitive contact via emails and phone calls was conducted to get appointments because some potential participants were either reluctant to reply or took a long time to set up a date and time for the interview. When there was a possibility to talk to someone else from the same company or further information was required from another person, the researcher arranged or tried to arrange for interviews with them. Thirteen semi structured interviews were conducted for the field study.

Table 4.1 The field study interviewees

Case	Type	Size*	Interviewee	Code
AC	Ltd	Large	Chief Risk Officer	CRO - AC
BC	Ltd	Medium	Chief Risk Officer	CRO - BC
			Chief Financial Officer	CFO - BC
CC	Ltd	Large	Chief Risk Officer	CRO - CC
			Chief Underwriting Officer	CUO - CC
			Chief Underwriting Europe	CUE - CC
DC	PLC	Medium	Chief Risk Officer	CRO - DC
EC	PLC	Large	Head of Operational Risk and Fraud	HORF - EC
FC	PLC	Large	Chief Risk Officer	CRO - FC
GC	PLC	Medium	Chief Risk Officer	CRO - GC
HC	PLC	Large	Enterprise Risk Director	ERD - HC
JC	Ltd	Medium	Enterprise Risk Director	ERD - JC
KC	PLC	Large	European Chief Enterprise Risk Officer	ECRO - KC

* The companies are classified as large or medium according to Argus de l'Assurance, December 2006 and CEA estimates.

4.3.3 Data collection methods

In general, informal interviewing is a preferred method for “getting to the heart of the respondent's opinion” and can range from being non-directive to guided or focused (Moser, 1969, p. 204-206). Face-to-face interviews were chosen as the most appropriate method given the aims to cover a broad range of the subject. However, two were conducted as telephone interviews due to the participants’ busy schedules. Each interview lasted approximately 45 to 60 minutes and was recorded using a digital audio recorder.

An interview schedule was designed. Thus, the interviews were not completely free-flowing. The interview schedule was piloted with academics and professionals. A qualitative component was embedded in the interview schedule in the form of open-ended questions. This format was useful in the sense that it permitted exploring new areas or ones that the researcher has limited knowledge in, offered flexibility to discuss the issues of concern to the interviewees, helped generating supplementary questions, and produced rich data on the phenomenon under study. This interview structure led to change the questions order according to the flow of conversation, and to extend the discussion on the topics/issues of interest to interviewer and interviewee (Creswell, 2009). Some strategies and tactics stressed in prior research (e.g. McKinnon, 1988) were followed when conducting the interviews to help overcoming the interviewer bias encompassing observer-caused effects (the reactive effects of the observer's presence on the phenomenon under study) and observer bias (tendency to observe the phenomenon in a manner that differs from the true (Simon and Burstein, 1985, p. 224). The strategies used were controlling the researcher's behaviour while in the setting, and reactions to the responses in order to avoid any effects on the interviewees' answers.

The questions asked concern issues related to the role of the interviewees, their risk management experience and their involvement in the adoption decision and implementation of ERM; ERM adoption timing, adoption drivers, implementation processes and problems, and maturity levels; the change in risk management practices triggered by ERM implementation and use; and interviewees' background information. The interview schedule is presented in Appendix B.

The interviews were not fully structured, as well as the conversation often wandered from the pre-set guidelines, given the inductive nature of this empirical research and the specific interview mode. The interviewees wandered in their responses because of discussing some further relevant issues that required more explanation and elaboration. Further, this study aimed at exploring processes and practices and hence most of those had no pre-set answers. The first three interviews did not cover the issue related to ERM maturity level at companies AC, BC and CC. Following up interviews were conducted over the phone with the risk officers at companies AC and BC, and via emails with the risk officer at company CC to investigate the latter further issue.

Generally, the process of collecting data can lead to divergent findings among data sources. This is referred to as divergence (Jick, 1979; Lever, 1981). "What do we make of and what do we do about contradictions and divergence? This is in part a validity question."

(Connidis, 1983, p. 347). In order to overcome such divergence, data triangulation method was used. Internal and external documentations were analysed. Internal documentary evidence was generated through investigating ERM frameworks and policies, business plans, and financial reports. Most of the documents were given to me as a hardcopy or sent via email. A number of ERM frameworks and processes were reviewed at the company while or after conducting the interview. It worth noting that data access limitations were faced in a number of the companies investigated. External documents such as annual reports and published information were also analysed. Reference to publicly available data sources such as the company's published accounts is also made. A number of published papers from S&Ps and A. M. Best rating agencies, which is focused on the insurance industry, were also analysed.

4.4 Research Methodology: The case study

Case study methodology is appropriate for studying risk management systems as the role of controls cannot be understood in isolation, and it allows for a more comprehensive in-depth examination of the empirical target over a considerable period of time (Lukka, 2005; Otley and Berry, 1994). Furthermore, the use of an explanatory case study is consistent with institutional theories and Burns and Scapens' model (2000) that underpin the present study.

Case study methodology is useful when studying complex social phenomena such as ERM and the related processes. It implies the use of various data collection methods (Yin, 2009). Case studies help understating the dynamics of a specific phenomenon within a particular context (Eisenhardt, 1989; Yin, 1994). It further implies focusing on a single analysis unit, and collecting in-depth, contextualised data on that particular unit. A case study is relevant to this research because the research questions in this study seek to explain various current circumstances and hence how and why the social phenomenon works. The research questions need an extensive and in-depth description of the specific social phenomenon (Yin, 2009). Case study approach is seen to be very useful for the study of actual practices and the details of significant activities (Cooper and Morgan, 2008). As this research aims to understand ERM process and explain how and why ERM drives a change in capital allocation practices, and thus, a single large insurance company within which ERM is considered to be at a mature level was selected for the second stage of the empirical study. An interpretive case study is used. It adopts a holistic approach in which the relationships between various parts of the system under study and the system's own relationship with its context serve to

explain the system. Interpretive case studies aim to provide theoretical generalisations so that theories give explanation to the observations made.

Case studies are widely accepted as an appropriate methodology for management accounting research and an increasing number of case studies have emerged in the accounting literature (Ryan et al., 1992). A large number of management accounting empirical studies, which are informed by structuration theory, are based on the interpretive approach and a case study methodology (e.g. Scapens and Roberts, 1993; Granlund, 2001). It seems that case study methodology better suits the core of structuration theory (e.g. Macintosh and Scapens, 1990). A developed version of Burns and Scapens' (2000) framework has been adopted as the theoretical framework of this study. As stated, Burns and Scapens' (2000) framework is complemented by ERM, risk management practices, and NIS. Burns and Scapens (2000) suggest using their framework for informing cases, that is using the interpretive approach. They stated that "it should be emphasised that this framework is not intended to provide operational constructs for empirical research and hypothesis testing. Rather, its purpose is to describe and explain analytical concepts which can be used for interpretive case studies of management accounting change. These concepts will be useful in so far as they focus the attention of researchers (and also possibly practitioners) on the fundamental characteristics of change processes" (p. 9). As a result, a case study methodology has been chosen for the empirical work.

The importance of the context is essential and Yin (1994, p. 13) pointed out that it is necessary for the case study to include data linked to that context as the researcher "deliberately wanted to cover contextual conditions". However, the context has different meanings in different research methodologies. Cross-sectional field studies are different from multiple case studies (Lillis and Mundy, 2005; Yin, 2009). Cross-sectional field studies draw on a larger number of observations than in-depth case studies. According to Lillis and Mundy (2005), such studies deliberately limit the depth of the data collected to focus more clearly on the contextual elements that the researcher considers a priori to be of interest. Similar to multiple case studies, cross-sectional field studies normally involve a larger number of units of study.

The uses of case studies vary according to the theoretical and methodological perspectives used. Ryan et al. (1992) identify five types of accounting case studies: descriptive, illustrative, experimental, exploratory and explanatory case studies. The distinctions between different case study types are not necessarily clear-cut. The nature of this research and the researcher's approach determine the specific uses made of case study

research methodology. This research aims to explain the reasons for observed capital allocation practices within a specific case, which is consistent with the definition of explanatory case studies. Further, due to the lack of empirical published research on ERM effect on capital allocation in the insurance companies' context, there is a need to investigate such relationships using detailed case studies. In response to this need, this research conducts an explanatory case study investigating ERM process, as well as how and why ERM usage affects capital allocation in insurance industry. More specifically, it aims to address the research questions related to why and how capital allocation practices change and what the role of ERM is in their occurrence; How ERM changes the relationships of risk team with different members within the organisation; and what the roles and responsibilities of risk officials in ERM environment are. The core of all types of case study is that it tries to illustrate a decision or set of decisions: why they were taken, how they were implemented, and with what result (Schramm, 1971, cited in Yin, 2009, p. 17). Explanatory case study is seen to be the most appropriate method to be used in my research. Further, little research has adopted this methodology in previous ERM studies. A case study protocol and database were also developed.

4.4.1 Data collection methods

Multiple data collection methods are used in the case study research to get a rich set of data that surrounds the specific research issues and to capture the contextual complexity (Benbasat et al., 1987). Various sources can provide case study evidence, which includes documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts. Each source is related to a group of data or evidence. Thus, a good case study will want to use as many sources as possible (Yin, 2009).

Semi-structured interviews and documentary evidence were used in this study. A digital audio recorder was used to record the conversations which were transcribed subsequently and validate by the interviewees. Notes were also taken during the interview, and more detailed notes were written up as soon as possible following the interview. Interviews are considered as a fundamental source of case study evidence because generally case studies are about human relationships or behavioural events. Significant insights into such relationships or events can be provided by well-informed interviewees. However, interviews are considered as verbal reports only. Therefore, the interviewees' responses are exposed to the general problems of bias, poor recall, and poor or inaccurate articulation. To avoid such

problem, there is a need to corroborate interview data with other sources of information (Yin, 2009).

Both internal and publically available sources of data were used in this research. The internal company documents accessed were ERM policies and framework documents, business plans, operating performance records, a CFO report, management analysis reports, and documents concerning training programs - either general ones or those directed to specific people such as underwriters. Some other computerised processes were viewed at the company at the time of the interviews or after conducting the interview. Reference to publicly available data sources such as annual reports and the company's published information is made. Such triangulation helps improving the internal validity of research as stated earlier. Data collection sources are selected in order to obtain the type of data which is required to answer each research question.

Fifteen face-to-face semi-structured interviews were conducted with a number of officers and staff from different levels within the company. The respondents are presented in a chronological order according to the interview date in Table 4.2. Getting access to the potential participants was facilitated by the company's CRO because he showed interest in providing help and put me in contact with other officers, who, in turn, put me in contact with people from various departments in the company (a snow balling approach). Both phone calls and emails were used to contact the participants. Persistent contact was needed to get appointments with a number of the interviewees. Three potential participants were reluctant to be interviewed either because the researcher met their colleague who has similar knowledge and information to theirs or they think they are not the most appropriate people to participate. All the trials to convince them failed. The participants were interviewed for an average of 45 – 60 minutes. The questions asked were directed to get detailed information about ERM implementation and embedding processes, and how this is affecting the company structure and the risk officials' roles and responsibilities. The interview schedule was prepared to suit the role and background of each participant with regard to risk (see Appendix C). In the subsequent interviews, a number of issues were discussed, which represent an extension of questions asked in the first interview. These issues provide a main basis to determine whether additional explanation was given in the following interview. Some other issues were not addressed in the first interview. Thus, the second interview by its design would provide new and further information on the issues under the study.

Table 4.2 The case study interviewees

Non-life insurance company	Interviewee	Code
VC	Chief Risk Officer	CRO - VC
	Chief Underwriting Officer	CUO - VC
	Chief Underwriting Europe	CUE - VC
	Chief Actuary	CAC - VC
	Operations Manager	OM - VC
	Chief Accountant	CA - VC
	Actuarial Analyst 1	AA/1 - VC
	Risk Manager, 1	RM/1 - VC
	Chief Financial Officer	CFO - VC
	Actuarial Analyst 2	AA/2 - VC
	Risk Manager, 2	RM/2 - VC
	Chief Operating Officer	COO - VC
	Executive Operations Officer	EOO - VC
	Management Accountant	MA - VC
	Senior Corporate Underwriter	SCU - VC

4.4.2 Choice of the setting and case

Ahrens and Chapman (2006, p. 827) argued that “for qualitative field researchers the field as a social reality can only be made sense of if it is defined with reference to theories that can illuminate its activities”. The chosen setting is intrinsic because there is a clear lack of knowledge about the effect of ERM on capital allocation, considering the special characteristics of the setting: the insurance industry. “One rationale for a single case is when it represents the critical case in testing a well-formulated theory. The theory has specified a clear set of propositions as well as the circumstances in which the propositions are believed to be true. The single case can then be used to determine whether a theory's propositions are correct or whether some alternative set of explanations might be more relevant” (Yin, 2009, p. 47).

The choice of a case to conduct the second empirical phase was already in mind when conducting the field study. There was an intention to locate my case in the non-life insurance company in which capital allocation practices are affected the most. The choice of this specific company, which will be referred to as VC, was made for four reasons. Firstly, it is a large global insurance company. The size of this company is very good to use as ERM outputs could significantly affect decision making at such size. Second, the company has announced implementing ERM and reported its risk management strategy in its annual

reports. Third, ERM is considered by the company officers to be more mature and fully implemented across the company. This is also obvious in the annual reports. A more mature company helps covering all the aspects of ERM throughout its evolution process. Fourth, capital allocation appeared as a main practice that undergoes a significant change as a result of implementing ERM in this specific company.

The choice of interviewees was based on the assumption that ERM is at a mature level and hence embedded across all departments and all levels of the company. Therefore, the researcher targeted people from almost all departments and at different levels (senior and non-senior), who are expected to have risk responsibilities and use ERM in their day-to-day job. This helped covering various views on ERM and the way it has been used by different people and different levels.

4.4.3 Limitations of case study research

Even though case study method has its rigour and provides key opportunities to study management accounting, it suffers from a number of weaknesses and problems. Firstly, it is difficult to draw boundaries around the subject-matter of the case (Ryan et al., 1992; Collis and Hussey, 2009). It is important to relate the case to the larger society which they are part of. Scapens (1990) and Ryan et al. (1992) suggest that researchers should put some limits on the subject-matter and these limits should be placed on the area of study. This allows a detailed study of the area, as well as permits extending the work to other areas by other researchers. For instance, the impact of ERM on other risk management practices was left for future research.

Second, there is a problem associated with the nature of the social reality that is being researched. It is not possible to understand social systems independently of human beings and thus the case study researcher cannot be considered as a neutral independent observer. This study uses both data and investigator triangulation methods that mitigate the researcher bias problem in interpreting social reality. Data triangulation is the term used for the process of collecting multiple sources of evidence on an issue. The researcher assessed the validity of one source of evidence via collecting other evidence about the same source. The researcher assessed each piece of evidence validity through comparing it with other type of evidence about the same matter. Other participants from different levels of the company were interviewed, and internal and external documents were analysed. The researcher discussed the evidence and the findings from the analysis with the supervisor in order to enhance the

validity of the findings. This investigator triangulation could help achieving an agreed interpretation of the case and thus avoid the one biased interpretation that stems from the personal characteristics of an individual researcher. Third, case studies are criticised for their inability to generalise (Burns, 1996). Considering that case study is a small sample, it is hard to make a statistical generalisation on the population from which it was chosen. However, it is recognised that case studies could play a role in producing hypotheses that can be tested at a later stage in research based on larger samples (Ryan et al., 1992). In this regard, case study research should involve looking for theoretical generalisations rather than statistical generalisations (Scapens, 1994). Burns (1996, p. 50) stated that “interpretive theories can be generated only in relation to the firm being investigated”. Theoretical generalisations seek to generalise theories with the intention that they explain the observations made. On the other hand, statistical generalisations are mainly concerned with statements about statistical occurrences in a selected population. These statements mostly lack the ability to explain individual observations even though they may help researches making predictions about occurrences (Ryan et al., 1992).

The difference between the two types of generalisations, theoretical and statistical, offers a means of the difference between exploratory and explanatory case studies. “Researchers who adopt a sampling logic and seek to produce statistical generalisations will inevitably regard case studies as no more than an exploratory research method. However, case studies can be explanatory and their real potential will be realised when they are used in conjunction with the logic of replication to produce theoretical generalisations” (Ryan et al., 1992, p. 117).

Finally, the researchers' ethics in the relation with their subject. When conducting this risk management case study, there was a need to access companies' confidential information. When confidentiality is assured to all participants, access may be secured. Subjects may provide more information if they are assured that the information which is disclosed will be treated with confidentiality both within and outside the company. In order to maintain getting access to potential participants by the researcher, it is necessary to respect all confidences (see section 4.7).

In conclusion, this study follows the interpretive approach using field and case studies to explore the changes in risk management practices that are triggered by ERM implementation. The argument above indicates the appropriateness of these methodologies to the issues investigated and their consistency with the theoretical framework informing this research. Further, several scholars have highlighted the need for more management

accounting case studies (Kaplan, 1983). Little research has adopted these methodologies for investigating the implementation of ERM.

4.5 Data analysis methods

The data collection and analysis methods were chosen for their appropriateness to a study designed under an interpretive paradigm. The analysis of the interview transcripts and other qualitative data collected involved building themes and patterns through organising the data into more abstract units of information (Creswell, 2009). There are several techniques for analysing qualitative data. Lee and Lings (2008) classifies them into content analysis, semiotics, discourse analysis, narrative analysis, feminism, and the internet. Two approaches are commonly used for analysing open-ended interviews; realist approach and narrative approach (Silverman, 2009). Realist approach tends to treat the answers of respondents as describing either external reality such as facts and events or internal experience such as feelings and meanings. It is called realist approach to interview data as it contains elements of positivism and emotionalism (Silverman, 2010). In this research, narrative analysis is used for analysing data from semi-structured interviews. This approach “treats interview data as accessing various stories or narratives through which people describe their world” (Silverman, 2010, p. 225). Narrative approach argues that by not treating the respondents’ accounts as true representations of reality, there is a chance to analyse the culturally rich methods through which both interviewers and interviewees create reasonable world accounts (Silverman, 2010).

The interviews were transcribed, mostly by the researcher in a verbatim way. Two interviews were transcribed by a professional transcription service. The data was continuously reviewed and coded using non-numerical methods. The interview transcripts were visited around five times when conducting and writing the analysis of the data, which was further discussed with the supervisor.

The main stages in the analysis of qualitative data are data reduction, data display, conclusion drawing and verification of the validity of the conclusions (Miles and Huberman, 1994). Coding and verification procedures are used in this research as they can be quite appropriate for management accounting research and help presenting results in a more comprehensive way. The interview data was coded according to categories that were pre-defined in the theoretical framework. However, the analysis identified new categories that were also coded. Thus, there were codes to begin with then more codes were added when

revealed throughout the analysis. Following Strauss and Corbin (1998) and Yin (1994), the data was synthesised by identifying the relevant themes and concepts. The research should start with a structure not a set of unrelated codes (Lee and Lings, 2008). In order to detect the emergent different themes that are linked to specific categories, connect the categories to each other, summarise the categories into various themes, and refine them in relation to explanatory concepts, axial and selective coding was utilised. Such process allowed the comparison with previous research findings. Following Lee and Lings (2008), a second analyst check was carried out for the coding developed. Avoiding the researcher interpretation on the data and letting data speak was also considered while conducting the analysis. Through the theorising process, connections with existing theory were made. Through the induction process, the theory was extended/refined with the emergent developments.

Recognising the speed and rigour which the computer assisted analysis of qualitative data carry (Silverman, 2009); the data analysis process was supported by using Nvivo software for textual analysis. Nvivo was a helping hand tool as the researcher was feeling more comfortable to go back the actual transcripts. It facilitated the process through applying mapping techniques when structuring the data. As such, “the software will not do any analysis for you, but it may serve as an able assistant and reliable tool” (Yin, 2009, p. 128). Silverman (2009) contends that NVivo is better to be used when having large data. However, it helps theory testing regardless of the data size.

Using qualitative coding and analysis software provides a means of identifying themes in the data, categorising them, quantifying their regularity, and representing this quantification in network diagrams. Such systematic form of analysis provided two advantages in establishing the analytical protocol rigor. “First it promotes “completeness” in assessing the presence/absence of constructs and relations in all cases. Completeness enhances credibility by giving the reader a greater sense of discipline and rigor in the assessment of significant findings in the data. Second, it allows the researcher to maintain an audit trail through data (documents, interview transcripts), coding, arrangement in matrices, and interpretation of findings” (Lillis and Mundy, 2005, p. 136).

4.6 Validity and reliability of research

One constraint to field studies is being subjected to common and global criticisms of their obvious inability to attend to research criteria (validity and reliability), considering the

researcher's effect during data collection in semi-structured interviews, and the lack of randomness and generalisability for the sample size. Following McKinnon (1988), Silverman (2000) and Lee and Lings (2008), some strategies and tactics were used in this research to counter the threats to validity and reliability classified as observer-caused effects, observer bias, and data access limitations. The strategies used were to have long interviews (one hour) with the respondents in the research settings to yield an appropriate amount of information, using multiple methods to verify the evidence, and controlling the researcher's behaviour while in the setting, and reactions to the responses in order to avoid any effects on the interviewees' answers. Further, investigator triangulation was conducted¹. Two tactics were conducted when interviewing people including note taking and probing questions.

The issues of validity and reliability have little been discussed earlier in the literature specific to cross-sectional field research design. However, the earlier studies (e.g. Bruns and McKinnon, 1993; Lillis, 1999), which have adopted this research approach have followed Yin's (2009) four criteria – construct validity, internal validity, external validity, reliability. Eisenhardt (1989, p. 534) noted that the field study focuses on understanding the dynamics that are existing within single settings. Lillis and Mundy (2005, p. 123) contended that “cross-sectional field studies represent an underexploited means to focus specifically on credible theory refinement with high construct, internal, and external validity”.

The aspects of validity and reliability of my study can be also evaluated using the positivist terms (construct, internal and external validity, and reliability) to validating qualitative management research discussed earlier (Atkinson and Shaffir, 1998; McKinnon, 1988). The following analysis of reliability and validity issues illustrates how the researcher addressed the critique of the findings quality.

As often suggested in the prior literature, construct validity is not just about establishing appropriate measurement of the concepts being studied but also deals with ensuring whether interviewees understand what is being asked of them (Yin, 2009, p. 40, 64). As Yin (2009) recommended, the researcher used multiple sources of evidence, established chain of evidence, asked the informants to review the transcript and a summary of their interviews analysis to address the test of construct validity. Data triangulation was also conducted by interviewing people from various organisational levels and functions (mainly in the case study phase). Issues related to construct validity can be addressed with data triangulation as multiple measures of the same phenomenon are provided by the multiple

¹ To check the logicity of analysis, it was discussed with the supervisor and another academic.

sources of evidence. Debriefing was done where the transcripts and a brief analysis were sent to the interviewees to get feedback, which helped confirming the results generated from the interviews. It was found by one analysis of case study methods that case studies which use multiple sources of information are rated more highly concerning their overall quality than case studies that use single sources of evidence (Yin, 2009). These tactics occurred in data collection and composition phases.

According to Yin (2009), internal validity is a test for those studies which seek to establish causal relationships (only for explanatory or causal studies and not for exploratory or descriptive studies). Internal validity refers to the results legitimacy in relation to the adoption of accurate sample and good and consistent data collection and analysis processes. Following Yin (2009), three tactics were employed in the data analysis process to address the test of internal validity including pattern matching, explanation building, rival explanations addressing and logic thinking application. To assure the internal validity in this study, the sample was purposively and carefully selected and the processes of data collection and analysis were diligent. Further, a sound theoretical foundation was developed by the researcher prior to conducting the field-based research, and the concepts of the theoretical framework were identified to be investigated. This procedure helps avoiding the criticisms linked to the poor theoretical grounding associated with interpretive research. The interview schedule was linked to the theoretical concepts to assure collecting relevant data, which improves data credibility. According to (Lillis and Mundy, 2005, p. 136), the usage of analytical protocol rigor promotes “completeness” in assessing the presence/absence of constructs and relations in all cases. Completeness enhances credibility by giving the reader a greater sense of discipline and rigor in the assessment of significant findings in the data.”

External validity refers to defining the domain to which the findings of a study can be generalised (Yin, 2009). Interpretive studies are highly contextualised and hence questions can be raised about the generalisability of their findings. In order to address the test of external validity, Yin (2009) suggested the use of theory in single case study and the use of replication logic in multiple case studies. Such tactics were used in this research design. Yin (2009) contended that qualitative research can be generalisable to theoretical propositions (theoretical generalisation) rather than wider populations (statistical generalisation). Providing rich contextualised data in this study could outweigh this limitation to an extent in the sense that it permits conceptual developments in insurers' ERM area. There is a possibility to generalise from a number of cases if the analysis pointed out that it is possible to generalise from few cases if the analysis could significantly capture the phenomena

characteristics, and generated patterns, concepts and theories which, even though yielded in a specific environment, can be applicable to other environments (Denzin, 1970). Therefore, a sampling strategy was utilised to maximise the variability in the sample, and to acquire a meaningful comparisons. Further, the data was analysed in a systematic way, which helps identifying patterns across the different cases. The results identified the institutional pressures driving the adoption of ERM that may be relevant to other organisational fields.

Reliability involves demonstrating that the operations of the study, such as the data collection procedures, can be repeated, with the same results (Yin, 2009). The field study method is considered to lie between survey and case study research on the continuum (Lillis and Mundy, 2005). Thus, the method bias is minimised. Efforts were taken by the researcher through conducting the research in a systematic, rigorous, and well documented way, and hence assuring sufficient reliability of this research. Following Yin (2009) recommendations, a case study protocol was used, framework for data analysis was employed, and a case study database was developed to address the test of reliability. The data analysis protocol was utilised through coding procedures and using Nvivo software.

Lukka and Modell (2010, p. 462) argued that “validation of some kind is a necessary condition for any scholarly research endeavour to be taken seriously”. They explain validation as “the ways through which the credibility of a piece of research is developed and legitimised in front of relevant audiences”. The topic of quality in interpretive research has been emphasised as a result of its related criticisms (e.g. Baxter and Chua, 2008; Silverman, 2009). Several criteria have been discussed for evaluating the quality of interpretive research (Ahrens and Chapman, 2006; Ahrens and Dent, 1998; Baxter and Chua, 2008; Charmaz, 2008; Golden-Biddle and Locke, 1993; Klein and Myers, 1999; Lukka and Model, 2010; Silverman, 2009). Some recent discussions and contributions on the topic of quality considerations in management accounting literature are outlined hereby.

Highlighting the descriptive and explanatory roles of interpretive research, Lukka and Modell (2010) explained that authenticity and plausibility are central aspects of validation in interpretive research and share an intricate relationship. Baxter and Chua (2008) argued that quality in interpretive research is judged based to a large extent on the way the field is narrated. They stated that “we aim to write ‘convincing’ texts that will persuade readers that our stories are credible and truthful” (p. 104). Drawing on Golden-Biddle and Locke (1993), Baxter and Chua (2008) characterised “convincingness” in terms of three dimensions: authenticity, plausibility, and criticality.

Clearly, it is not possible to meet or satisfy all the criteria discussed in the literature. Some of them may be favourable to others. However, the preference should be provisional, self-conscious, and reluctant (similarly to Whittington (2011) argument while discussing meeting the six methodological themes for practice based studies). As such, the authenticity criterion was applied in this study for measuring the quality of the interpretive research adopted in this study. “Rich” descriptions of the insurance field and the phenomena under study were provided to ensure authenticity (Ahrens and Dent, 1998; Baxter and Chua, 2008; Charmaz, 2008). Multiple theories were also mobilised to collect multiple interpretations of evenly valid facts and hence enhance the study authenticity. Plausibility criterion was applied in this study through mobilising the main aspect of institutional theory to explain the data alongside abductive thinking. In this inductive research, ERM-related issues were inferred from the interviews data while reflecting on the theoretical framework and considering that this data gave a good reason to accept the ERM-related issues. Criticality criterion was achieved through discussing the data analysis with another academic to check whether the text can convince the readers.

4.7 Ethical considerations

When discussing the ethical issues associated with any research, a number of common questions are posed in relation to whether the research offered benefits/practical relevance and whether the researcher ensured that the study does not cause any harm to anyone (including himself) or group of people (Berry and Otley, 2004). Considering that this research is based on interviews with participants, thus it provides the benefit of rethinking about their practices by way of reflection (Nicolini, 2009).

This research did not raise issues related to personal safety because it was conducted in the offices of the insurance companies investigated. There was not any potential harm (physical and/or psychological) or distress to the interviewees. Further, the questions asked were not personal, yet completely professional and/or technical in nature. In this section, the ethical issues considered by the researcher in relation to the selection of participants and informed consent, and confidentiality and anonymity will be discussed.

4.7.1 Selection of participants and informed consent

As stated earlier, the potential participants were initially contacted via email and/or phone. In this communication a brief on the research was explained and an appointment for

face-to-face meeting was requested. Once an appointment was agreed with one person in a company, the snowball approach was used to recruit more participants to this study. Each participant was given an information sheet with brief information about this research, confidentiality of the data, and their rights as a part of the interview schedule. Each participant was requested to confirm their consent and willingness to participate in the interview. Participants were made clear that they may withdraw from the interview at any time during the interview and shortly after; prior to any publication of the data.

Some documents used for this research were publicly available on the insurance companies' website or at the company and hence no consent is required to use them. The documents, which were not publicly available, the researcher assured obtaining the requisite permissions of the participants, who provided these documents, to use them for the purpose of this research. In order to ensure that participants receive relevant information about the study, participant debriefing was undertaken at a specific stages of the research.

4.7.2 Confidentiality and anonymity

The right of all participants to privacy encountered during this research was completely respected. To ensure confidentiality and anonymity, it was referred to individuals in this thesis using codes. The ethical approval for this research was obtained from Brunel Business School research ethics committee and thus followed its procedures. Empirical data was collected after ensuring interviewees that all their names, companies' names, and responses will be treated as anonymous and confidential; ensuring anonymity is believed to have increased the veracity of the findings from the study. Further, the interviews were digitally recorded and transcribed verbatim shortly afterwards to ensure a high level of accuracy.

4.7.3 Data security

Steps were taken to ensure the security of the data held. The data was stored in encrypted files on the researcher's password controlled personal laptop and external hard drive. The transcription of the interviews was conducted by the researcher with the exception of two that were transcribed by professional transcription service. Although two interviews were transcribed by a professional transcription service, the person who transcribed these interviews was requested to confirm that this data will be treated with high confidentiality and thus no one else can access it. Further, this person was asked to delete the data straight

after the full transcription is done. All data will be safely destroyed as soon as this research and its publications have been completed. Meanwhile, the data is stored securely as indicated above.

4.6 Conclusions

This chapter has described and justified the design of the empirical work. This study follows the interpretive approach using field and case studies to explore the changes in risk management practices that are triggered by ERM implementation. These methodologies were selected because of their appropriateness to the issues investigated in this research and their consistency with the theoretical framework informing this research. Interpretive approach is the one adopted by structuration theory and Burns and Scapens' framework, which is the theoretical base of this study. Several scholars have highlighted the need for more management accounting case studies (Kaplan, 1983). Little research has adopted these methodologies for investigating the implementation of ERM. The design of this study uses multiple data collection methods. However, semi-structured interviews and documentary evidence were considered as the main methods of collecting data.

The next chapter presents the findings from the field study.

Chapter 5

Field Study: Investigating ERM Adoption and Implementation

5.1 Introduction

Drawing on the theoretical framework, this chapter explores the institutional pressures driving ERM adoption and use within insurance companies. It explains ERM processes, the intra- and extra-organisational institutions of risk management, the determinants of ERM implementation, and the challenges facing ERM implementation and embedding process in 10 large/medium-sized insurance companies.

The insurance industry in the UK is heavily regulated with particular emphasis on risk management, and there has been a transition from traditional risk management techniques to more holistic approaches to risk management, i.e. ERM. An increasing number of insurance companies have adopted these regulations, which seems to have caused a significant change in their operations. Such regulations create new extra-organisational institutions, which shape and constrain, among other things, risk management routines in insurance companies.

The analysis in this chapter is based on new institutional sociology theory concepts including organisational fields and institutional isomorphic mechanisms that were introduced by DiMaggio and Powell (1983), and path-dependent change processes described by Burns and Scapens (2000). Drawing on these concepts, the drivers of convergence or divergence of risk management practices are divided into coercive pressures, normative pressures and mimetic processes (Granlund and Lukka, 1988). The analysis is conducted at various levels including, action, routines, intra-institutionalisation and extra-institutionalisation.

The remainder of this chapter is divided into three sections. The next section presents intra- and extra-organisational institutions driving the ERM adoption decision. This is followed by explaining ERM implementation and embedding processes whereby ERM technique is seen as an action that encodes institutional principles. Then ERM processes and the determinants of and the challenges facing ERM implementation and embedding process are illustrated. The last section provides discussion and draws conclusions.

5.2 Institutions governing the ERM adoption decision in insurance companies

The ERM adoption decisions in the insurance companies under study were driven by various institutional forces. These forces can be classified into internal and external institutional pressures (see Figure 5.1). The adoption period of ERM varies among the companies investigated, see Table 5.1. It is noticeable that some companies are far ahead in adopting ERM, specifically HC, CC, FC and AC. It seems that the firm's size affects to an extent the longevity of ERM adoption, but cannot be considered as the key driver. For example, a medium-sized insurance company, BC adopted ERM 7 years ago, while a large company, EC adopted ERM 6 years ago.

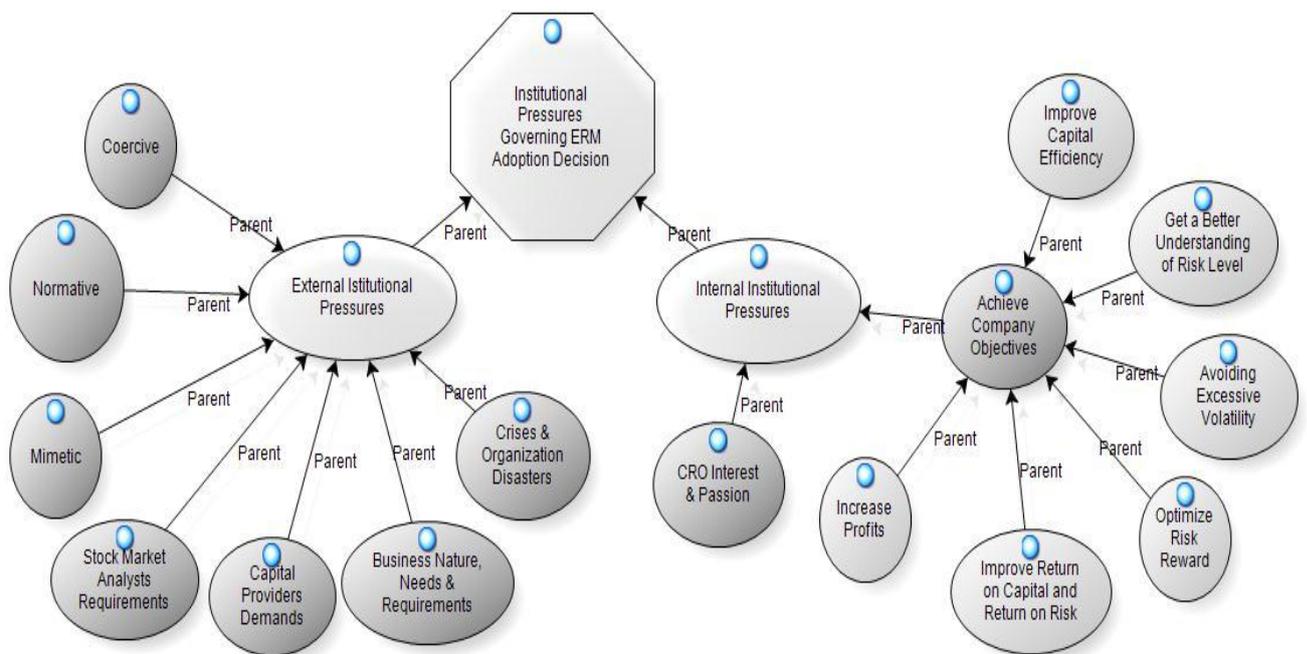


Figure 5.1 Institutional pressures driving ERM adoption

Table 5.1 Longevity of ERM adoption

Company	ERM adoption in years
HC	12
CC	10
FC	10
AC	9
BC	7
DC	6
EC	6
KC	4
GC	2.5
JC	2

5.2.1 External institutional pressures

Even though regulatory requirements and rating agencies demands have been increasing pressures on insurance companies to institute robust risk management systems, ERM was revealed to have been adopted for direct economic benefit rather than to comply with regulatory guidelines (Pagach and Warr, 2011). Senior managers are obligated now to comply with a number of laws, regulations, and listing standards, which call for strengthened corporate governance and risk management (i.e. as stipulated by Solvency II). However, a significant number of insurance companies have adopted ERM earlier to the announcement of such regulations (e.g. Liebenberg and Hoyt, 2003). The stakeholders of an insurance company are with direct interests in the risk management of a firm. Thus, companies should meet the main stakeholders' demands for risk transparency they seek to communicate their risk profiles more effectively (Lam, 2006). Further, a number of reasons such as organisational oversight, magnitude of a problem, increasing business risks, regulatory and market factors, corporate governance, and industry best-practices have lead to establishment of ERM functions within corporations (Cowherd and Manson, 2003).

Coercive pressures

Regulatory requirements and rating agencies demands have prompted insurance companies to create robust risk management systems, particularly after the recent financial

crises and the failure of the systems that had been in place. However, the intensity of these coercive pressures influence was clearer in the companies AC, DC, EC, GC, and KC than in the companies BC, CC, FC, HC and JC.

CRO-FC raised the notion that regulations highlight the importance of ERM. They speed up the adoption of ERM rather than affecting the risk management programs and processes of companies that have adopted ERM for relatively long periods. He stated:

"...we are pretty much ahead in the game in terms of these issues. For smaller businesses it is pushing them to make risk more embedded." (CRO – FC)

CRO-DC pointed out that the influence of rating agencies on ERM adoption decisions is less significant than that of regulations. She attributed this to the fact that that regulations are becoming even more intrusive to a point where companies have to be able to demonstrate that they have got actual processes in practice. She said:

"Undoubtedly regulation is the key driver I think. The rating agencies are less of a driver. We've got our annual rating agency review coming up. We line our ERM processes to them but it's undoubtedly the regulation." (CRO – DC)

However, financial strength rating can be seen as a key pressure, because recently rating agencies have begun to appreciate the existence of well controlled risk management frameworks in insurance companies. Their effect is highlighted alongside the recent regulations by ERD-JC and ECRO-KC. ERD-JC is convinced that it is not just the compliance. He believes that if JC has got a superior model of a risk management framework and a superior model of a decision making framework within which to use, then that is a competitive advantage. Thus, beyond the need to comply there is a desire to go beyond compliance. Further, ECRO-KC pointed out that strong financial rating is an important factor for their customers, and so it is very important for KC to preserve the strong rating. As explained:

"Well, regulatory push for Solvency II purposes is a big consideration; that need to demonstrate that we are using the Solvency II internal model in our decision making... The other driver to consider this was our financial strength rating because the rating agencies are very interested in seeing good risk management practice embedded but they haven't faulted us for not having a risk-based capital embedded." (ERD – JC)

"For us is twofold. The external credit rating agencies, S&Ps, provide an ERM rating. We are rated as strong which is the second category down, which only 11% of insurers would get into. For our customers, that is an important factor for them. So that is very

important for us to keep that. And then secondly, the sort of regulations driving it. So we need to demonstrate to our regulators that we meet regulations." (ECRO – KC)

Solvency II is then an example of how regulatory changes have an impact on ERM adoption and implementation. For instance, Solvency II requires insurance companies to adopt ERM and calls for more experienced professionals. An increasing number of insurance companies have already started to take this into consideration even though Solvency II is yet to be announced. ERD-HC stressed the effect of such regulations and claimed that insurance companies are obliged to demonstrate that they have adopted ERM since 2004. As known, Solvency II imposes on companies the adoption of ERM starting in 2014.

"The regulatory regime in the UK introduced in 2004 required all companies to have a capital assessment that considered all risks defined as market, credit, liquidity, life insurance, general insurance and operational risks. So an enterprise's view of risk in a single metric. So all the insurance companies in the UK that were authorised insurance companies in 2004 should, at least say I have been doing ERM since 2004." (ERD – HC)

On the other hand, CUE-CC believed that although it is necessary to comply with regulations, these should be applied more productively, and thus drive the management of CC's business in a way that perhaps has not been understood clearly before. This creates many interesting challenges for CC. He gave capital requirements as an example of an issue related to the usage of regulations. This implies how ERM could help the process of capital allocation.

"Undoubtedly, it is predominantly to comply with regulation but also with that to use the regulations in a productive and active way to manage our business... and in particular the relationship of holding enough capital to run all the risk that we have." (CUE – CC)

Regulatory requirements are seen to have little impact on the adoption decision by CRO-BC. However, CFO-BC stated that these requirements significantly affected the adoption decision. The CRO is generally considered to have a clearer view of the adoption drivers as he is the director of ERM processes.

It could be inferred from the above results that the longer the ERM adoption, the lesser the coercive pressures impact on the adoption decision. Thus, regulatory requirements were seen to have less impact on the adoption decision of the insurance companies which are far ahead in adopting ERM, such as CC and FC. However, CUE-CC considered regulations to be a key driver for ERM adoption decision. It should be recognised that CUE-CC joined

the company when the decision has been already made¹. Although regulatory requirements are regarded one of the drivers for ERM adoption, it was indicated by ERD-HC that the company was going to adopt ERM anyway as it expected the system to provides benefits.

Interestingly, HORF-EC explained that the political decision was made by the main companies alongside regulators, because the government would never have imposed such regulations if they do not have a sort of lobbying. As such, the CEOs of the main companies in Europe have had long discussions with governments, and thus they have been heavily involved in introduction of the regulations. Officials in EC believed it would be beneficial to foster the requirements of Solvency II and to put more effort on their implementation. Therefore, the business and government environments should not stand on opposite sides in the debate over new regulatory framework, but should rather collaborate in development of a common ground of shared interests. She said:

"You cannot apply Solvency II without a strong buy-in from the main CEOs of this planet, in this case European people; it is like as in Sarbanes and Oxley again, without any buying from the companies. The company will spend millions in that type of framework if they see benefit and the benefit was we saw the credit crunch we saw so lots of our risks, which were not managed properly." (HORF – EC)

Mimetic pressures

Evidence to support the effect of mimetic pressures could barely be found. Successful competitors and their feedback have driven the ERM adoption only to a small extent. The effect of such mimetic pressures was noticeable in companies AC, BC, DC, HC and KC, yet it was not noticeable in companies CC, EC, FC, GC and JC. CUO-CC expressed a different opinion to that of CRO-CC, as he indicated that competitors affect the decision to adopt ERM and its implementation in the sense that they provide information related to the way of doing things. In this regard, mimetic effects can be seen as affecting the implementation process rather than the adoption decision.

"Yes [mimetic pressures affected the adoption decision]. And they have been kindly providing us with a lot of good feedback, how we are doing these kind of things. Good thing is or difficulty is." (CUO – CC)

¹ It might be questioned that CUE-CC's views shouldn't be taken with regard to ERM adoption drivers. However, he was asked because he undertook training programs on ERM and the reasons behind its adoption in the company. He also has a wide view about the processes subsequent to ERM adoption.

ECRO-KC considered successful competitors and their feedback as strongly affecting the ERM adoption decision within KC. This could be attributed to the fact that KC tends to have high ratings compared to other industry players. Thus, KC's officers look at the actions of their peer companies. If many of them are rated as strong or excellent in terms of risk management by the rating agencies, KC works toward a similar or a higher rating in this field in order to gain competitive advantages. He stated:

"So, we definitely look at what others are doing. If all of our peers were rated excellent, we push for excellent... If one which is rated excellent risk management and one which is rated adequate you probably would go for the excellent. It is the human nature."
(ECRO – KC)

These different opinions provided by the participants indicate that although competitors may not directly affect the adoption decision, they still may have an indirect effect through people who have moved from one insurance company to another implementing ERM. CRO-HC illustrated that competitors have an indirect effect on the adoption decision in the sense that some of the people who work for the company had worked in the competitor companies before. These people could suggest implementing the initiatives they observed elsewhere and which proved beneficial. Further, the good practice identified by rating agencies and regulators in some insurance companies could affect the way other insurance companies work. Therefore, the practices could be replicated and enhanced.

One way in which the competitors can directly affect the adoption and implementation of ERM is that the CROs of various insurance companies meet and provide each other with feedback about how they manage ERM and the difficulties faced throughout the process. However, there should be a clear understanding of ERM prior to comparing one's processes with that of other companies, as stated by CFO-BC.

"To some extent, but I think in doing it for ourselves - I think is more important to actually get that understanding yourself and see what it involves and then it evolve from there the more you understand about it and the more you use it within your business the more you see it is important. So, I think it is more important to be doing it and understand it rather than seeing others doing it." (CFO – BC)

The discussion above indicates that the effect of mimetic pressures is more relevant within the process of implementing ERM rather than the adoption decision itself. Participants of this study reported following the best practice and benchmarking with the initiatives of other companies, rather than blindly replicating decisions of their competitors to adopt ERM.

Normative pressures

The findings provided evidence that the adoption decision of ERM and its implementation were driven by the risk directors' education and professional qualifications. The CROs and risk directors came from different backgrounds and acquire different professional qualifications (see Table 5.2). CRO-AC, CRO-CC and ECRO-KC stated that education and professional qualifications pressures significantly affected the adoption decision in their respective companies. ERM is emerging as a professional discipline and an academic discipline simultaneously. ECRO-KC stated:

"We have the Institute of Risk Management where I drove the creation of the risk management for financial services papers and I am the lead examiner... So, I am very much on the sort of we need to bring as to people's attention as recognised discipline and skill set and competence." (ECRO – KC)

Table 5.2 Risk officials' backgrounds and professional qualifications

Risk officials	Background	Professional qualifications
CRO - AC	Mathematics	Qualified actuary
CRO - BC	Mathematics	Qualified actuary
CRO - CC	Law	MBA
CRO - DC	Arabic and German studies	Chartered accountant
HORF - EC	Economics and finance	PhD in finance
CRO - FC	Actuarial mathematics	Qualified actuary
CRO - GC	Engineering	MSc; Diploma in risk management
ERD - HC	Mathematics	Qualified actuary
ECRO - KC	History	MBA; Chartered insurer; Fellow of IRM
ERD - JC	Mathematics	Qualified actuary

Background and professional qualifications, which were not only limited to qualifications in risk management but also included accounting, auditing, and management qualifications, were argued to have had an impact on the adoption decision of ERM and its implementation. CRO-DC considered herself as one influence amongst many and said that different professions including actuarial and risk management can contribute to ERM. CRO-DC explained:

"...my sort of background which is principally coming up through the accounting and the auditing route, enables us, me to be able to look more broadly at what the risks and the risk profile might be." (CRO – DC)

Analysis of the Table 5.2 and of its linkage to the discussion above provides evidence that professional qualifications including actuary, accounting and MBA degrees have had an effect on the ERM adoption decision in the analysed cases. This shows a strong relation between risk management and actuarial, accounting and management practices. Actuarial qualifications have not affected the adoption decision in the company BC; even though some CROs came from backgrounds different to risk management, they acquired professional qualifications that prepared them for the positions. This result emphasises the link between professional qualifications and ERM adoption decision. CRO-AC and ERD-HC illustrated the latter conclusion, and through the following quotations exemplified that the professional bodies in charge of professional educational schemes have been pushing for ERM for quite some time.

"For example, the actuarial professions have been pushing ERM for a while, so actuaries within insurance companies have been aware of it for now and over a decade, so it is not a new thing; it is something that they have studied it and as a result I think it becomes known." (CRO – AC)

"The actuarial profession within the UK insurance industry required things called 'financial condition assessment reports', and that was part of the standard actuarial practice for our training." (ERD – HC)

Background and professional qualifications were considered not only as affecting ERM adoption but also ERM implementation process. These qualifications helped in the sense that the CROs were heavily involved in the ERM process in terms of being responsible for building the risk management models and then adopting them in all areas of business that includes insurance and investments. ECRO-KC explained that many of the current regulation governing the insurance industry relate to how CROs should evidence ERM processes and how to ensure that it is taking place.

"So, I am one of the people shouts 'we need to write this down, we need to document this or we need to build true evidence', and a lot of the last two years is actually we've spent not necessarily changing things but actually thinking about if somebody came in to look at it how we evidence that we are doing it." (ECRO – KC)

ERD-HC and ERD-JC shared ECRO-KC's view and expressed that their qualifications had supported them in designing and building the ERM framework. As stated:

"So it came to me first and then my job was to push it out across the division that I worked in. In my current role I'm much more closely involved in the start of the process and trying to build that framework." (ERD – JC)

Although the professional qualifications contributed to ERM adoption, the adoption itself called for people with certain educational backgrounds and professional qualifications. CRO-BC and CRO-GC were recruited for the purpose of setting ERM policies and implementing it. This supports the argument that professional qualifications facilitate and support ERM processes.

"It is the other way around. When the company decided to adopt it, it was my professional qualifications made me qualified to the job for them." (CRO – BC)

HORF-EC and CRO-GC considered the various background and professional qualifications to be affecting the ERM implementation process more than its adoption decision because they increase the awareness and sensibility about certain aspects of the business, which consequently leads to better management of risks. For instance, HORF-EC indicated that the big risk when companies start implementing an ERM framework is the adoption of an extremely theoretical approach. There are many models available and there is a lot of theory about ERM, but the question remains on what companies want to do with that type of theory. Thus experiences in both fields (theoretical and practical) could enable risk directors to provide their companies with different ways to execute the process. ERD-HC considered education and professional qualifications to be mainly affecting the design of ERM framework. As stated:

"I've got that background about risk, audit and also background in very operational part of the business... the board saw me as a person who has experience both in operational management and also risk and audit, which is the start." (HORF – EC)

"...it's mainly affecting the implementation process itself, because you were recruited in this company because of your qualifications." (CRO – GC)

Further, professional experience alongside professional qualification was considered to have a significant effect on ERM implementation. Experience could be considered a key factor providing the best ways and practices of doing a specific work or running a particular system. CRO-FC supported the latter notion saying:

"...what influence it [ERM implementation] is more the roles I have done in the last 10 years rather than my professional background." (CRO – FC)

Risk management experience is linked to actuarial experience, which suggests risk and actuarial functions are becoming ever more related; it also supports the argument that not

only the risk management profession, but also other professions facilitated ERM adoption and implementation. ERD-HC said that his actuarial background had positively affected the designation of the risk management framework in his respective company. The link between the actuarial and risk management experience was also established in the response of ERD-JC, who when asked about his risk management experience, answered with regard to his actuarial experience. He reported that actuary work experience provided him a good understanding of quantitative risk management. A similar argument was provided by CRO-DC; his actuarial skill set proved relevant in terms of understanding of financial risks and of the modelling and measurement of risks. This showed the link between ERM and capital practices in insurance industry. Therefore, risk management and capital management can be seen as significantly interrelated. CRO-DC and ERD-JC stated respectively:

"So, in our own business the actuarial skill set is particularly important, in terms of understanding some of the financial risks and some of the modelling, and MI that you might do around that." (CRO – DC)

"I've been working in... insurance business where I was very focused on the technical and market risks of our annuities business and protection businesses. So, quite experienced on quantitative risk management and the classical actuarial space." (ERD – JC)

On one hand, some CROs highlighted a very positive view about their qualifications having an impact on ERM adoption, as stated above. The HORF-EC had an alternative point of view. She indicated that ERM has not been taught to elder people in universities, and thus it is not easy to find an elder experienced person qualified in ERM. She expressed this notion in the following quotation:

"But that is probably for a very young student. I left university quite a while and at that time ERM was not a topic." (HORF – EC)

However, as argued above, it was not only the risk experience which helped in ERM processes, but also other types of experience. Further, in my opinion, people continuously seek to upgrade their knowledge and qualifications in relation to advances in contemporary issues and professional techniques, and this upgrade can be acquired from various specialised institutes.

Evidence supporting the effect of consultants' suggestions as another normative pressure was less obvious. Consultants were not considered capable to provide quality information to insurance companies with advanced implementation of ERM, such as BC, FC and AC. This could be explained by the fact that these companies have acquired significant

experience with ERM by engaging in its different processes, and consultants are often seen as far less experienced in actual implementation of ERM. CRO-AC, CRO-FC and CRO-BC indicated they do not tend to engage consultants in ERM-related decisions. They stated:

"No, it [consultants] is not; internal, regulatory and rating agencies. But we do use consultants." (CRO – AC)

"...now things are changing so quickly in the market that put them behind the curve when it comes to the best practice. They try to catch up. So it is quite hard to find consultant they can genuinely give you something you don't already know." (CRO – FC)

"No, we are happy to make up our own minds" (CRO – BC)

However, ECRO-KC stated that suggestions from consultants accelerated the process of ERM adoption and implementation but did not bring anything new. Consultants also helped in the sense that they had provided helpful information in terms of outlining best practices and thus of the thinking methodology. CRO-GC pointed out appointing consultants for discussions related to Solvency II. Further, ERD-HC showed that consultants had been engaged mainly in the review of the old risk management framework, and in the very high level design of the new framework. Then the risk function decided on how it should look like. This notion is exemplified in the quotations below:

"Of course they have provided us with a very good framework of the thinking methodology. But the decision itself... most of the decisions have been made by ourselves." (CUO – CC)

"They were involved, but it wasn't like a formal recommendation. There were discussions about the whole impact of Solvency II on the direction." (CRO – GC)

CRO-DC said that consultants' input might be helpful if, for example, DC considered setting a risk appetite statement and the company would be advised on how to approach the task and how to express the statement in quantitative rather than qualitative terms. ECRO-KC indicated that there has always been some extra support from consultants. He explained it by saying when KC would approach the leadership team with an argument, it never harmed to have on its report consultants saying that all KC's customers have already done this. Although consultants' suggestions have accelerated the process, they have not necessarily changed the direction that KC was going in. As stated:

"...they've been quite helpful in terms of outlining things like what best practice or good practice is looking at... But the organisation was going to adopt ERM whether a consultant said to do it or not." (CRO – DC)

"OK they didn't tell us anything we didn't know. They helped link the gaps we had. They helped us articulate those in the context of the emerging regulation." (ECRO – KC)

ERD-JC said that consultants should have a little effect. He believed that many people would have been asking JC about what it has been done regarding ERM and thus that would have encouraged senior management internally to ask the questions themselves. So they might have got the questions on the agenda and relied to an extent on discussions with consultants to get the answers.

"...discussions with consulting actuaries, with investment banks, with our own brokers and with the stock analyst community would all have had an impact." (ERD – JC)

It is obvious that even though consultants had provided helpful information, the ERM adoption decision was most likely to be taken by the companies regardless of consultants' recommendations. Thus, they helped companies in getting things through faster without changing the direction in which the companies were going. There is also an inverse link between engaging risk consultants and the longevity of ERM implementation and ERM maturity level because in the companies with mature ERM programs consultants were seen to be behind the curve in relation to familiarity with best practice. However, it is also linked to the interest of the insurance company in using consultants or not. The size of the company's operations affects the interest in engaging external consultants; if the necessary expertise and resources are available in-house, companies may prefer to conduct the assessments internally rather than relying on consulting services.

Other external institutional pressures

Evidence was found to support the assertion that other external institutional drivers have significant influence on ERM adoption decision. These drivers can be divided into four main classifications according to the responses of the people interviewed.

First, capital providers' demands were found to drive the adoption decision of ERM. CRO-BC, CUO-CC and ERD-HC were convinced that capital providers' main concern lies in improving return on capital. In this regard, higher return on capital was seen as an outcome of implementing ERM. CUE-CC argued that ERM facilitates capital management to run all the risks that face the company and improves the efficiency of its use. As said:

"We did it because our capital providers want it, and it's just happened that rating agencies and regulators like it as well."

(CRO – BC)

"It is the expectations of our key stakeholders not just regulators but our shareholders, our bond holders, investors, rating agencies, analysts and customers." (ERD – HC)

Secondly, stock market analysts' requirements were also recognised as a driver of ERM adoption decision. CRO-BC and ERD-HC raised the issue that strong ERM rating is required by stock market analysts. This led various insurance companies to consider improvements in their ERM programs, in order to preserve or improve their financial positions and remain competitive. CRO-BC stated:

"So, competitors, capital providers, rating agencies and stock market analysts - they all wanted it to happen." (CRO – BC)

Third, evidence was found that crises and organisational disasters influence the ERM adoption decisions of insurance companies. CFO-BC and HOR-EC saw ERM as a logical response to all the recent crises and market turmoil. Insurance industry has always suffered from losses that have come out. The better the insurance companies understand their potential risks, the more confidence can be built in the industry. Therefore, ERM in the insurance industry to some extent has been driven by the willingness of insurance companies to assure their investors of effective control over the risks faced. CFO-BC further explains:

"...for many years without that knowledge the industry suffered from not being able to explain its risks to investors and the more that we can explain the potential upsides and downsides to our investors the more attractive it will be to the capital markets... it's been driven by the industry looking to get itself into modern age and actually be able assure its investors that it has a good control of what these risks are." (CFO – BC)

Fourth, business nature, needs and requirements were found to be other external drivers to ERM adoption decision. CRO-BC, CFO-BC, CUE-CC and ERD-HC pointed out that insurance is a very volatile and highly regulated business. Managing risks is the heart of insurance business, which is specialised in insurance risks. There is a need to know the cost of risk at a very granular level because companies need to appraise quite actively their positions in the different markets. Therefore, insurance companies seek to pursue more sound and robust risk management systems. The reason why they invest in risk management is because that is what differentiates insurance companies; that is what they do. As explained in the quotations below:

"It is all part of how this industry has evolved. Because we are such a volatile business, the understanding of those risks, the built to model those risks and understand the impact of those risks just as the others in the market as well I think has moved everyone forward to it." (CFO – BC)

"The reason why we invest in risk management is because insurance companies are all about, our entire business propositions that we take risks from our people. You are selling policies to customers who don't want to bear the risk of the cost of their house burning down so they want to pass it to someone else or the potential loss of future income like they die and they couldn't provide for their family or the risk that they run out of cash on retirement. They are transferring risks to insurance companies. So, by investing in risk management we are investing in our business." (ERD – HC)

5.2.2 Internal institutional pressures

The analysis provided evidence of some internal institutional drivers having a significant influence on the ERM adoption decision and on the implementation of ERM. These drivers encompass first, the CRO's interest and passion. The importance of this driver was indicated in the interviewees' responses on the role played by the CROs in promoting ERM across their respective companies. CFO-BC, CUO-CC and CUE-CC stressed that the CRO's interest in ERM facilitates promoting risk-intelligent culture and embedding ERM across different organisational levels. As CFO-BC stated:

"...a big driver for it is our chief risk officer who is very passionate about it and has really spent a lot of time educating us about the benefits of ERM." (CFO – BC)

The second internal driver was achieving various company objectives. These objectives include increasing profits, optimising risk rewards, gaining a better understanding of risk and making risk-based decisions, improving return on capital and return on risk, improving capital efficiency, and avoiding excessive volatility by managing the risk accumulation. CUO-CC stressed that CC's target has never been the approval by the FSA, although this is a very important issue. Instead, the main driver according to him is the achievement of company's objectives. CC's main concerns are how to use ERM, how to improve the company's performance, and how to provide greater confidence to policyholders. This argument was confirmed by CRO-CC, CRO-AC and CRO-FC in the quotations below:

"We have of course various strategies and specific objectives like increasing profits of the company; to be precise we have increasing return on equity and return on risk objectives. We also manage our risk accumulation to avoid excessive volatility."
(CRO– CC)

"It is to optimise risk reward, regulatory requirements, Solvency II, and also rating agencies." (CRO – AC)

"And now it is becoming much more about helping to balance risk and reward, and make sure you get good money out of our risks rather than super control." (CRO – FC)

According to ECRO-KC, the reason behind adopting ERM is that it facilitates sharing of risk-related information, what leads to making risk-intelligent decisions. Thus, basically the overall aim of adopting ERM in insurance companies is to achieve sustainable profit through improved risk control.

"One of the objectives of the risk framework is to demonstrate the link between the business strategy and the risk management strategy. So, how we show that these things are not kind of operating in different directions." (ECRO – KC)

ERM is further perceived by CRO-CC and HORF-EC as a social responsibility issue, particularly in case of world's largest businesses which have major economic effect on the markets in which they operate; a failure in risk management leading in an extreme case to bankruptcy, which might provoke a great knock up effect on the global economy. This was stressed in the following quotation:

"You probably heard a lot on the newspapers about corporate responsibilities about the way we deal with people, social responsibilities, and I think managing the risk due to the size of what we are managing is crucial. It is really crucial." (HORF – EC)

The influence of the internal pressures on ERM adoption decision was considered to be approximately equal to the influence of coercive and other external pressures by CRO-AC, CRO-DC, HORF-EC and CRO-GC. CUO-CC stated that internal and regulation drivers affect the ERM adoption decision in equal proportions.

CUO-CC stated that there has been strong advocacy of ERM from a range of authorisation entities including FSA, but the real reason for ERM adoption is to benefit from improved understanding of risks and enhance company's performance. This implies that internal pressures surpass external ones. Similar arguments supporting the notion that the desire to achieve business objectives is a more relevant ERM adoption driver than the influence of coercive and other external drivers were provided by CRO-BC, CRO-CC, CRO-FC and ECRO-KC. As stated:

"The main drivers are internal drivers rather than external competitors and also regulatory and rating agencies drivers." (CRO – AC)

"Definitely, we are not doing all these things because it's good for S&P's or good for a regulator, but because it is good for our business. We don't care too much (Laugh)."

(CRO – CC)

"Probably it should be decisions first, rating second, regulations third. We don't actually think because regulators tell us to." (ECRO – KC)

Internal institutional pressures are considered to be the key drivers for ERM adoption by CFO-BC, while both external and internal pressures are considered to be the key drivers by CRO-BC. This could be explained by taking into account that different people may consider different adoption motives as a result of their job nature and ERM ultimate objectives.

The significant effect of internal drivers could be explained in the light of variations in the longevity of implementing ERM and the objectives pursued by each insurance company. Regulations put more pressure on the companies which have adopted ERM more recently.

In short, a combination of internal and external drivers has shaped the adoption decisions in the companies investigated, with additional emphasis on the internal drivers. Table 5.3 summarises respondents' views on the adoption drivers for ERM and their intensity.

Table 5.3 ERM adoption drivers

Driver \ Company	A	B	C	D	E	F	G	H	I	J
External institutional pressures										
Coercive pressures: • Recent regulations • Government demands • Rating agencies	The main drivers are regulatory and rating agencies	It just happened that rating agencies and regulators like it as well	Not too much for the largest players because all we do we are convinced we need to do	Undoubtedly regulation is the key driver	There is also regulation purpose. So we have to have an ERM	I say not much. We already have best practice in place before regulations have come out	It's more like regulations and rating agencies affected this decision	Regulations are subsidiary things	The external credit rating agencies. Secondly, the sort of regulations driving it	Regulatory push for Solvency II purposes is a big consideration. Because the rating agencies are very interested in seeing good risk management practice embedded.
Mimetic pressures	The main drivers are internal drivers rather than external competitors	To some extent. It is more important to be doing it and understand it rather than seeing others doing it	No, for me it is about the market	It wouldn't be the right stance that we were behind the pace	So we can say they do not have any effect	No, I don't think so	No, I think it was an internal decision	Not directly, but indirectly	Definitely we look at what our peer companies are doing	I personally still want to be convinced that other firms are getting the big benefit from ERM
Normative pressures										
<i>Education and professional qualifications</i>	ERM is something that they have studied and as a result it becomes known	It was my professional qualifications made me qualified to the job	A background is a real plus in that business	I'm one influence amongst many	No, I will not say on the adoption	I don't think my background would have influenced it	They decided to recruit me because they decided to do ERM	The design is influenced	ERM as a professional discipline or an academic discipline is emerging	I am not high enough at the organisation from my own perspective to have an influence
<i>Consultants' suggestions</i>	No, it is not. Internal, regulatory and rating agencies	We are happy to make up our own minds	Yes, in some way	They've been quite helpful. But the organisation was going to adopt ERM whether a consultant said to do it or not	We are not very convinced about the appropriateness of their proposition	Now things are changing so quickly in the market that put them behind the curve when it comes to the best practice	There were discussions going on with PWC, but I don't think it was the key factor	We use reasonably. And what we do then is review, change and decided on what it should look like	I think did they tell us everything we didn't know? Probably not	I don't know firsthand but I would expect that discussions with consultants would have had an impact

Other external institutional pressures											
Capital providers' demands	Not stated	We did it because our capital providers want it	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	It is the expectations of our key stakeholders; our shareholders, bond holders, investors, and customers.	Not stated	Not stated
Stock market analysts' requirements	Not stated	Stock market analysts required of them	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	It is the expectations of our analysts	Not stated	Not stated
crises and organisation disasters	Not stated	This area has always suffered from surprises in terms of losses that have come out	Not stated	Not stated	It was a sort of very logical output of all the crises and all what was going on in the market	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Business nature, needs and requirements	Not stated	Our business is specialised in insurance risk. We need to know the cost of risk at a very granular level	Many companies just don't understand how important is to know the business before you quantify the risk.	Not stated	Not stated	Not stated	Not stated	Not stated	The reason why we invest in risk management is because insurance companies are all about our entire business propositions that we take risks from our people	Not stated	Not stated

Internal institutional pressures											
CRO interest and passion	Not stated	A big driver for it is our Chief Risk Officer	That part is heavily relied on the CRO	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Achieving the company objectives											
<i>Avoid excessive volatility</i>	Not stated	Not stated	We manage our risk accumulation to avoid excessive volatility	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
<i>Optimising risk reward</i>	It is to optimise risk reward	Not stated	Not stated	Not stated	Not stated	Not stated	Helping to balance risk and reward and make sure you get good money out of our risks	Not stated	Not stated	Not stated	Not stated
<i>Increasing profits</i>	Not stated	Not stated	We have specific objectives like increasing profits of the company	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated

<i>Getting a better understanding of risk and risk-based decisions</i>	Not stated	The driver for us has been to better understand the level of risk within our book	Not stated	A desire by the board to understand the risks that they're facing	The first one is to understand better our risks	Not stated	Better decision making that's really what we are trying to do	Not stated	We are able to make better decisions. So better risk information helps us making better decisions	We believe that we can get a superior model of the risk and a superior decision making framework within which to use that
<i>Improving ROC and return on risk</i>	Not stated	Not stated	Return on equity, return on risk we have objectives of increasing	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
<i>Improving capital efficiency</i>	Not stated	Not stated	In particular the relationship of holding enough capital to run all the risk that we have	Not stated	Not stated	Not stated	Not only better risk-based decision making, but also better capital efficiency	Not stated	Not stated	Not stated

Legend:

 = Clearly evident

 = Evident

 = Not evident

5.3 ERM implementation and embedding processes: ERM technique as an action that encodes institutional principles

In the various insurance companies investigated, ERM was seen to be an action that encodes institutional principles. This argument is explained as follows.

5.3.1 Risk management prior to ERM implementation

Before adopting ERM, traditional approaches to risk management were being used within the insurance companies investigated. Table 5.4 presents the different approaches used. These risk management approaches are classified into first, silo approach, in which particular risks are managed independently without any consideration of the interrelationships between different risks. For instance, a company has an investment team who only considers volatility of investments. There is a separate team who only considers the impact of earthquakes, hurricanes, and everything related to the insurance book of business, as well as a separate team who only deals with security and credit risk of the reinsurers. Thus there is no kind of layer bringing all the risks together. ECRO-KC explained this by giving the following example:

"...If we look for example at the impact of a pandemic, we will look at the pandemic impact on what they will cost us in paying out insurance claims. Separately, somebody else what will be the impact on the investment portfolio, how much would that value change. Separately, somebody else might think if there is a pandemic, what we do about telling people to work at home and this stuff. But, they would not necessarily be using the same assumptions. This one might assume '1 in 10 people die', this one might assume 'one in 20 people die', and this one might say 'we don't know, let's just you know'. So we never had that kind sort of line of sight across all the bits." (ECRO – KC)

The second approach is a traditional approach which focuses on operational risks. CRO-CC illustrated that it is a traditional risk management regarding incidents and having risk registered or any sort of compliance issues. Thus, risk management was very much sort of a day-to-day job and underwriting or credit risk was really under the hand of chief underwriter and chief financial officer respectively.

Third, a traditional approach which is guided by one performance metric; IFRS profits. In this case assessment of risks would concentrate on the issues that could impair the achievement of target IFRS profits. ERD-JC explained this particular approach:

"We have a history of being guided by one dominant performance metric, and up until grappling with ERM that would have been IFRS profit... Before that, we were heavily driven by embedded value, so the way that the decisions were made would be what does this decision do to profit or to embedded value creation, and qualitatively speaking what are the risks that could derail that outcome, but not putting a clear quantification around the size of the risks in the outcome." (ERD – JC)

The main characteristic of the above risk management structures is the division of risks into particular silos, each of which is managed independently. The problem with this approach is that it ignores possible interaction between risks. Risks can be correlated positively or negatively. Thus, the total risk exposure is not the sum of all individual risks. Assessing the aggregate risk exposure is challenging, but ERM provided a framework, procedures and culture facilitating this process.

Fourth, a control assessment process was used in one case whereby companies looked at the controls almost independently from risks. The officials treated controls as separate issues to risk management. Thus, this approach can be better described as an internal control process aiming to detect what might go wrong and how to control it. CRO-JC stated:

"There was a process, there was a tool, there was approach from Deloitte, and it was called DOORS. It dates back to 2000-2001, and it was very much control assessment. So, they were really looking at the controls, independent almost from the risks. So, our approach is very much to say ok, what could go wrong? And how do we control it?" (CRO – JC)

Based on the above it is evident that none of these four approaches considered risk appetite; neither were there any key risk indicators used, and there was no clear vision of the risks and no addressing of the effects of risks on one another.

Fifth, a more developed approach to risk management named risk-based capital approach was applied in another case, which used factor based formulator assessment. The company had a capital measurement system already in use, where capital was allocated to lines of business, as explained by CRO-BC:

"When I joined the company, they had a capital model which they used to assess return on equity by sub-product and sub-business. What I've done is kind of embedding that more into the business. I bring it to use in risk management straight and we also look at the whole EP curve not just the capital part of the EP curve." (CRO – BC)

Finally, similarly to the previous approach, a number of processes and controls linked to ERM had been already in use in one case long before implementing ERM, including an audit committee and an internal capital model. HORF-EC stated:

"...it is not because ERM is becoming fashion that we never had something before. I think we had the internal capital; we had things since the last 10 years." (HORF – EC)

It was indicated by CRO-BC and HORF-EC that some managers had a sort of intuition that one risk could affect various aspects of their companies, but the big difference is now they have a framework and have to report on their risk management processes.

"You had a sort of intuition that if you have a risk there, that will have an impact there. Before ERM, managers were understanding that hypothesis... the big difference is now we have got a framework and we have to report on that type of topic." (HORF – EC)

Table 5.4 Traditional risk management approaches used prior to ERM adoption

Company	Prior risk management approach
AC	Silo approach
BC	Risk-based capital approach
CC	Traditional approach focusing on operational risks
EC	Process and controls linked to ERM
FC	Traditional approach focusing on operational risks
GC	Control assessment process
KC	Silo approach
JC	Traditional approach guided by one performance metric

Note: The risk directors in companies DC and HC were not aware of the traditional risk management approaches used in the company prior to ERM.

As stated above, the risk management system before ERM was silo based in the company KC, whereby market risk was mainly managed. However, ECRO-KC illustrated that the company had adopted parts of ERM years before the formal full adoption. As they insure companies against big losses, they have used risk management techniques for many years. Modelling equipments and modelling software were used to protect the outcome of any unexpected disasters. Thus, important elements of ERM had been done for a long time, but risk management was not formally conducted under a holistic ERM framework. He said:

"We've had all the parts of the framework. If you say risk appetite part of the framework, yes, we've had risk appetite. If you say an emerging risks process as parts

of it, yes we've had that. If you say risk reporting as parts of it, yes we've had that. We've had risk committees but we have revised those and changed them. What we've done over the last 2 years is if those are parts of the framework we've actually documented in the framework document." (ECRO – KC)

CFO-BC indicated that the risk management system preceding ERM was based on informal practices performed as part of the jobs. Beforehand, risk management had never been formalised; different practices had been performed which today would be called risk management. However, it is not clear if all the practices used comprise a part of the current ERM framework. CUO-CC also provided a different answer to the one provided by CRO-CC when asked about the risk management system before ERM. He said it was mostly scenario-oriented approach. CUE-CC has had no idea about what the risk management system was before implementing ERM as a result of being new to the company. The well experienced CROs at the companies BC and CC have been with the companies for longer periods of time than CFO-BC or CUO-CC, and thus they are supposed to be better informed with regard to risk management practices in their respective companies before and after ERM. Further, CRO-DC and ERD-HC did not know much about the risk management systems prior to ERM, as they were appointed to the companies after ERM had been implemented. Since ERM has been implemented in the companies for a relatively long time, it may be hard to find anyone who could answer that question.

These variations and lack of knowledge offer an indication that risk management systems and processes had not been so clear and sound earlier to ERM implementation, and thus CFO-BC, CUO-CC and some people across the companies are not familiar with risk aspects and management before ERM. It could be inferred that during the period before adopting ERM, little consideration was given to risk management systems, which were mostly very operational risk-focused, very controls-focused, and less connected to the other risks. As CFO-BC explained:

"Informal. It wasn't called risk management before... in terms of good running of the business then you will automatically do risk management but did you really call it risk management? And I think that is what the change has been over the last five years, is very much the term risk management is used much more widely, and actually has a framework around it." (CFO – BC)

CRO-FC was not quite sure about the system used by the company to manage risks before ERM, but he said that there had not been any effective risk management framework in place. He indicated that the focus of the risk management team had moved away from

operational risk and risk reporting towards monitoring and managing risks. This indicated that the company had moved towards a holistic risk management approach and the responsibilities of the risk team had also changed and expanded.

"There would have been a risk team, but would have been a very operational risk focused and more about reporting risks, rather than actually monitoring and managing and happy to manage." (CRO – FC)

5.3.2 ERM strategy

The process of ERM adoption was described in companies AC, CC, DC, EC, GC, HC, KC and JC as incremental changes within existing systems. It generally starts with building a capital model and then incremental steps are regularly taken in adopting ERM. ERD-JC illustrated that they started very technically focused because they needed to build a new risk and capital model and that had been the major focus of their efforts for two years. But having got that technical development substantially done, the next major stage is to align the thinking and the behaviour of the organisation around those concepts and those metrics. CRO-DC and ERD-JC confirmed saying:

"For us, it's incremental. Because as a regulated insurer we'd already developed things like individual capital assessment, and it's simply a development of that type of process." (CRO –DC)

"So first technical infrastructure second organisational knowledge third management and decision processes and I suppose fourth mustn't wait too long would be communication of the outcome of all of that." (ERD – JC)

ERD-HC and ECRO-KC expressed that there were capital models in place prior to ERM adoption. These models have been enhanced over time since the adoption of ERM. ECRO-KC explained that they were used to set how much capital was needed. Then the company started to further use the capital model to set risk appetite. After that, they started communicating risk appetite down along the business. Once risk appetite had been set and communicated, the companies focused on determining the amount of capital needed in each bit of the business. He explained:

"Incremental changes because we've been quite advanced. So take the capital model, we've had a capital model for a number of years... There are little enhancements so when people get used to it and you push it a little bit more, a little bit more, and a little bit more... There are very few bits where we just don't have X. There's always been OK,

we've got this; we need just to enhance this bit or we need to push it out over here, or we need to make sure that bit better joint that bit so it is consistent. So, it has not been 'oh my goodness, there is nothing here, let us start again and go with the big bang'"
(ECRO – KC)

The companies also have had an emerging risk process for a number of years, but it has changed over time. When it first started, they were looking at what emerging issues could mean that they would have to pay insurance claims they had not expected to pay. This process was exemplified by ECRO-KC in the quotation below:

"...for example, Nanotechnology it is kind of one of hot topics. So first of all, we did studies on what Nanotechnology means, is it covered by insurance policies, would we have to pay claims. Next stage is you say, OK, we think it is an issue, so actually let us start recording on policies, and when we think we might be exposed to it. Next step is OK, we start to looking about emerging risks for insurance, but actually what would be the impact on other risk categories. So, if that happened, would we have an operational risk claim? Could we have a loss on our assets? Could we have what is the kind of almost going horizontal? Again, we have had that process but over five years, it is kind of changing." (ECRO – KC)

The size of the insurance company is linked to the need to implement ERM incrementally. According to ERD-HC and ECRO-KC, it is not possible to apply many related changes simultaneously, so there is a need to have a very structured programme of improvements to the existing processes and introduce some new process as basis for a successful ERM implementation. It is not rational to completely change everything for people. It is necessary to explain each and every step of change so that company members can understand the benefits added as a result of the change required.

"...the benefit of that is the adoption is slightly easy because you never completely changing everything for the people, they've just been given something extra. You know we used to do X well, now we are doing X+Y, and this is the reason why we are doing X+Y, and here is the benefit for you in terms of overcoming the gaps." (ECRO – KC)

On the other hand, CRO-BC described the ERM process as revolutionary system changes where large steps were undertaken in a relatively short period of time. He stated:

"I'd call it a quiet revolution. When you look back over last five years or so, what I called risk adjustments inventions, they were completely different. But, I never say those are going to be a big bang or a big binge. We just made medium size changes every year, and people just take it for granted now." (CRO – BC)

CRO-GC referred to that the adoption decision of ERM was revolutionary, while the implementation process was incremental. CFO-BC said that the ERM process is an evolutionary one. However, the way he described the whole process indicates that it is a revolutionary system changes. The quotation below supports the latter argument:

"...in terms of the first step is having capital and that capital model was put in place in 2005 and then it's moved up in steps but also some large steps. If I looked back five years, I think it has been a huge movement in terms of understanding risks, our ability to talk about risk and our analysis of risk. That movement I say it is pretty evolutionary. It didn't feel like this at that time, if you know what I mean; it was regularly taking steps, but if you look back in a relatively short base of time, a lot has happened." (CFO – BC)

Further, ERD-HC showed that the step pre-2009 and the system today is somewhere between revolution and evolution. The company utilises some familiar processes, cycles and committees but it makes more uniform the approach across the group. He explained:

"...there were holistic risk committees; there was an economic capital that brought together operational, financial, and insurance risks into one metric. That was used for some decision making. So, there are many hallmarks of ERM already in place, but I would potentially argue that there was a significant step initiated in 2009, and a lot of work was done in 2010 and 2011 to change the way we look at and manage risk." (ERD – HC)

ERD-JC described the process as mostly incremental. He thought that most parts of the framework would eventually change and they did not do everything at once. They started by redefining the risk appetite statements in an ERM way and then moved on to risk-based capital metrics for performance monitoring and tactical decision, such as pricing of company products. Then they moved on to risk-based capital in processes like business planning and strategic decision making. He said:

"Mostly incremental; although I think most parts of the framework will eventually change, we are not doing everything at once... So, in the end the whole decision making framework will be refreshed into proper ERM state, but it will take us probably a couple of years." (ERD – JC)

Therefore, we can infer from the analysis above that the changes mostly happened in an evolutionary way. It has to be noted that in some cases interviewees described the change as a revolutionary. However, their explanations indicated that the change was in fact

evolutionary as it was not consistent with the revolution definition, which is the process of successive changes that takes place in a short period of time.

5.3.3 Roles and responsibilities for ERM requirements: Risk function and other functions

Almost all departments including finance, actuarial, strategy etc. assist in ERM implementation process mainly within their departments by taking their own part and bringing ERM into their staff's day-to-day job. For example, the finance function generates quantitative elements of the ERM framework including models and metrics. However, the CRO and his department are primarily responsible for ERM implementation across the whole company. Their role is to design the risk management framework and to roll it out to all areas of the business. Thus they set the rules, the framework and the expectations, but they work with other departments to agree on specific issues.

The officers of different departments have started to take on more responsibilities in terms of ERM implementation and embedding within their units. They are in charge of this process in their respective departments, under the oversight of the CRO. CRO-FC confirmed the latter discussion. Similarly, the CRO-CC stressed the need to involve everyone in the implementation of ERM, because there are sponsors for each risk category and there are particular risks like operational or reputational where all operations are concerned. As there are some risks that everybody is concerned with, everybody should participate to that. He added:

"And more than that, each of our staff have in his task description a reference to the risk." (CRO - CC)

CRO-GC said that the process started off with the risk department running it. More recently, apart from the risk department members from other departments have got involved in the process. This is considered as a part of the evolution process. Even though all company's members are involved now, different functions or divisions of the business arrived to that point at different times. That is the embedding criteria. He further argued this point of view and illustrated it:

"The key question is – 'Would they keep doing it if we weren't here?' Well, we can be more or less honest, but... they would, maybe not as rigorously, but they would keep going on. They are accountable for it being done in their area... Well, we still work with them, because there may be some slight changes to what we want or we are saying to them- 'well actually you have not done this very well' or whatever." (CRO - GC)

On the other hand, CRO-BC expressed that some divisions chose to do it themselves, while others prefer the risk department to do it for them. They stated:

"So, it just depends on personality. We are the engines of the activities taking place."
(CRO - BC)

"Risk management at our company is controlled through our Chief Risk Officer... there are joint people from other areas but predominantly it is driven from the risk management function." (CFO – BC)

CRO-HC indicated that the burden falls primarily on the finance function and the risk function. The finance function is substantially involved because most of the framework is comprised of quantitative aspects generated by this function. However, he carried one explaining how everyone is involved. He stated that the target operating model they follow is that the risk management framework is designed and enhanced by the risk function team. It is then absolutely a day-to-day job in relation to the identification, measurement, monitoring, management and reporting of risk. This should exist within the business with the risk function reviewing and continuously challenging the premises of the framework.

"The risk function within... is our role to design risk management framework and to roll it out to business, but it is operated by the business at the first line of defence, so it impacts everyone." (CRO – HC)

Although CRO-KC said that all departments are involved in risk management, he highlighted that the one Risk Management Department work most closely with is the technology department, as many of the enhancements at the moment are related to automating processes. They aim to streamline data generation processes in order to obtain consistent, timely, complete and accurate information. Second, the actuarial department is also strongly involved as there is a lot of working with the actuaries in terms of them providing information and reviewing the output. Third, there is a lot of working with the business department particularly when doing things like stress tests.

New risk responsibilities have been added and further knowledge about risk has been provided since implementing ERM. For example, CFO-BC was previously responsible for financial reporting, assets, capital of the company and investment policy. Now, he is responsible for managing a number of risks including liquidity, market and credit risks. Thus, risk responsibilities have been added to his role.

"My main function is being a member of the steering committee and being responsible for market, credit, and liquidity risks within that framework." (CFO – BC)

Further, HORF-EC and CRO-GC expressed that internal auditors are involved in the ERM implementation process. External auditors are also quite involved in the implementation process of ERM, which is an interesting but unexpected result. They are involved in slightly different ways because they evaluate some of the controls, but they also do audit of the ERM framework. As stated:

"We've got also, which is not internally, external auditors who are quite involved in that as well." (HORF – EC)

"They don't do risk management at all. They are there to say this is good, this is bad and you need to fix this." (CRO – GC)

The discussion above implies that the more mature ERM becomes, the more CRO's responsibility focuses on supervising and monitoring of the embedding process rather than doing it. Thus, CROs generally set the ERM manuals and policies, and then the process is taken forward by them and people from their departments. After that, different divisions and people are considered to be doing it themselves

5.3.4 ERM models and frameworks

The process of ERM was described in various ways. It varies from semi-structured in companies BC, EC and JC - where there is an ERM framework but no detailed information or procedures, to fully-structured in the rest of the companies investigated, where there are detailed policies laid out and frameworks in operation.

The way HORF-EC explained the ERM process implied that it was semi-structured. The first and main step was realising that risks exist outside of company's core business. Following was the need to understand the processes and the types of risks they carry, and to understand which controls to put in place to mitigate the risks. That was a mechanical classical step to implement ERM. Finally, the company needed to make sure that the executives would use the risk indicators or risk performance indicators to make their decisions for the future.

CRO-BC stated that the risk department just made ERM well embedded without following specific any steps or procedures.

"I've just made it more deeply inside every department's working practices. But, we didn't do any actual steps." (CRO – BC)

ERD-JC stressed that ERM is still evolving. It is well controlled but not tightly structured. Some parts of it have been clearly defined while others will be approached on an

adaptive basis. They have a strong preference for defining their theories according to what works.

"...Rather than letting the theory tell us what's right, we want to apply some commercial judgement and make sure that theory and practice work together... Strongly controlled but not very tightly structured we want the opportunity to learn some lessons." (ERD – JC)

Therefore, even though the process is semi-structured in both companies, they present different levels of process structure. CRO-AC listed specific clear steps of implementation which resembles the high level of ERM process structure. He explained:

"We see it as three steps. First step is having a risk registered, so identifying all the risks that company faces and classifying them and categorising them. The second step is quantifying risk and building distributions around those, and then using those quantifications for setting economic capital and looking at profit and loss volatility. The final and third step is to use those to set your risk appetite, and use that risk appetite to optimise the value of the company." (CRO – AC)

The structured frameworks are very similar in the cases studied. This risk management framework is set out in a number of documents and includes key components such as governance framework, risk appetite framework, own risk and solvency assessment, risk reporting, and culture and communications framework. In general, ERM process is seen to have both qualitative and quantitative elements. It has similar components and is geared to achieve similar objectives to the ones addressed by the ERM frameworks released by COSO (2004) and ISO 31000 (2009). Combining both elements ensures achieving conscious business decisions. CFO-BC stressed the latter discussion by saying that having both qualitative and quantitative aspect helps in seeing across the board what the key risks are in the company and whether people are able to measure those risks and get an understanding of whether they fit within risk tolerance over time. He illustrated:

"...there are two aspects to it; one is the quantitative aspects and one is the qualitative aspects... The other pieces are more around documentation and understanding policies and procedures, which again should be driven from the owners of those particular risks who will understand those areas better, but making sure that they are appropriately documented, and there are controls to support that they are clearly identified and there is somebody said bring them together." (CFO – BC)

CRO-DC stated that ERM embedding has got to be done in a way that can be used in the business, which means having the two aspects; he confirmed the CFO-BC's point of view by adding:

"So, a lot of people started with qualitative statements, which we did. But if you are actually going to embed into the organisation and make financial decisions based on a risk appetite, then you need to have that expressed in a quantitative way." (CRO – DC)

Regardless of whether the ERM process is semi-structured or structured, evidence was found that a major part of ERM framework is considered to be the exercise of capital allocation. CRO-CC stated that the internal capital model is used in the company to quantify the risk. ERD-HC pointed out that the capital model had been brought into the risk management system, which had been enhanced instead of building a risk management system around it. Thus the capital model and the risk management system are more integrated.

"As people have increased the robustness and liability, model thing is involved. It becomes more sensible to integrate the metrics and measurement with the qualitative risk management system aspects." (ERD – HC)

The risk capital framework was considered a key component of the risk-based decision making process. Therefore, greater integration between ERM and capital management has been achieved. ERD-JC further illustrated:

"To make decisions on a risk basis so taking into account our risk-based capital metric and the risk capital framework that we defined and making sure that the components of that are all in good working order so that various managers can use the right material in the right way when they are making decisions." (ERD – JC)

The quantitative pieces were shown by CFO-BC to be very much driven by the calculation of the capital requirements, the calculation of the risks, the modelling of the potential impact of certain scenarios etc. He carried on explaining:

"So, that involves quite a lot work around the data and making sure that you've got the right assumptions going to it, and you are using the right models. So, there is a lot of work around getting that quantitative aspect right and to be able to understand, and for people to understand what the output from these quantitative pieces are." (CFO – BC)

CRO-GC expressed that there is a very good business case in terms of capital generated by embedding ERM into the internal capital model. He said:

"If we get our Internal Model approved based on having the risk management we save, I can't say the exact amount, but hundreds of millions of pounds in terms of the amount

of capital we have to hold to write the business we are already doing, what we are really doing. " (CRO – GC)

In BC, ERM was deeply integrated in the working practices of each and every department, including the capital measurement system. This particular system facilitated allocating capital to lines of business. CRO-BC indicated that this system was found to be useful. However enhancements were made to it as a part of the ERM implementation process.

5.3.5 Internal determinants of ERM implementation in insurance companies

The ERM system implementation and embedding reflects and responds to a number of powerful internal determinants. In all the companies studied, these determinants are mainly related to the influence of the CRO and senior management who are responsible for promoting ERM culture, control systems, and organisational structure. Figure 5.2 summarises the findings in a diagram generated from NVivo, which is a software program widely used to aid the analysis of qualitative data.

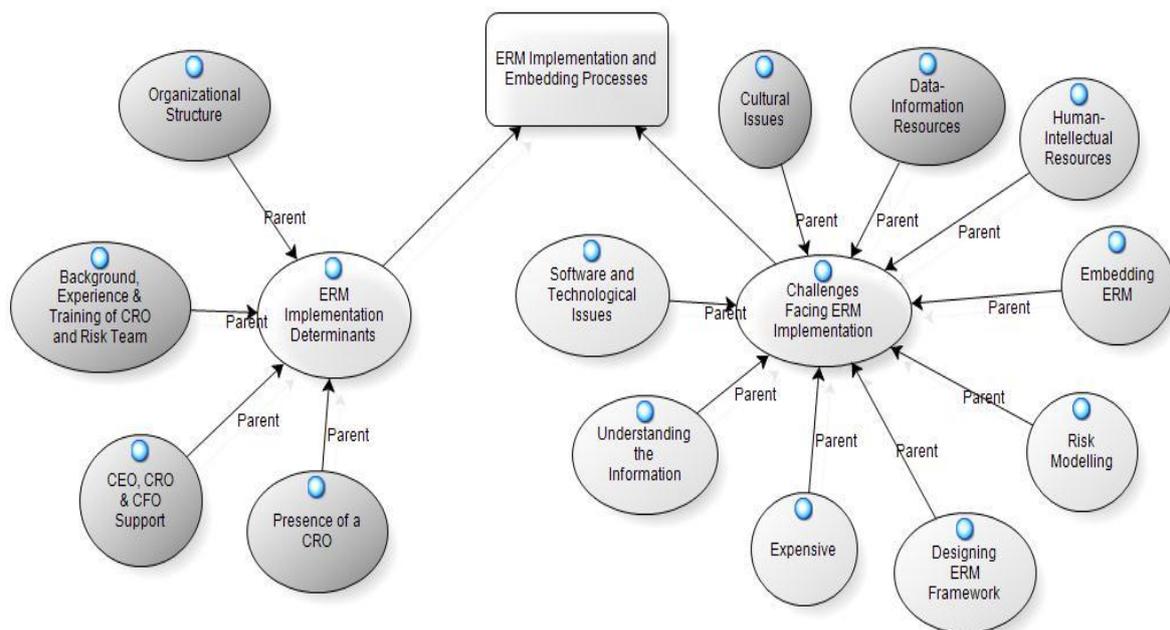


Figure 5.2 ERM implementation determinants and challenges

The presence of CROs, and the risk management experience and skills of the CROs and their teams have a significant influence on the ERM implementation process. This experience has been obtained through the CROs' significant prior experience in risk

management in the insurance industry, as well as from ERM training programs. Such experience could have significantly affected the process of ERM implementation and embedding within these insurance companies, because the CROs were heavily involved in the implementation process.

HORF-EC and CRO-FC expressed that the companies had not have any CRO position prior to ERM implementation, unlike the rest of the companies investigated. The presence of CROs should be accompanied with recognition of the CROs' role and delegation of appropriate authority to them, allowing the CROs to fully implement and embed ERM in the insurance companies; this was illustrated by ECRO-KC:

"...recognising the role given to risk officers, an appropriate voice to them. I report to global CRO... so he has an equal voice with the CFO, with the Chief Actuary, with the head of investments, and with the head of underwriting. He is absolutely at that table. He doesn't report to the CFO or the Chief Actuary. He is equal to them. I kind of have a criterion looking at whether he reports to the Chief Actuary, because I don't think that is right. Their state should be the same." (ECRO – KC)

CFO-BC, CUO-CC and CUE-CC confirmed that the CROs and their teams are still responsible for ERM implementation and supervise this process in the finance and underwriting departments, although each one of them has specific risk responsibilities and has recently led the implementation in his department partially. The CROs and their teams are responsible for ERM implementation, as well as sponsoring and monitoring these processes in terms of building the capital models and integrating ERM issues with day-to-day operations. However, the companies BC and EC have had capital models in place prior to ERM implementation, and thus the CROs' main responsibility lied in embedding ERM more into their businesses.

Another important determinant for ERM adoption and implementation is the significant support provided by the CRO, CEO and CFO. This support was described in different ways as perceived by the people interviewed, and classified as financial support, educational support and/or promoting the culture.

"The CRO owns our ERM process through ourselves, and the CEO who has been just appointed previously CFO is very keen to sponsor that. So, there is quite high visibility of CEO interest in successful adoption of ERM. He helps us to get everybody engaged in it." (ERD –JC)

In the companies investigated, there was an indication that the CRO, CEO and CFO were all involved in the adoption decision and were convinced of the need to implement

ERM. CRO-AC, CRO-BC, CRO-CC, CRO-FC and ERD-JC confirmed that the CROs, CEOs and CFOs were very convinced of the strength of ERM and of how it could help the companies, what explains their willingness to strongly support the whole implementation process. As stated:

"There are three things the CEO highlighted within our results; one of them was ERM. So, he is very publicly supportive of it. We had a 'risk away day' in March and he, the CEO, came down and sort of spoke to us for an hour, and said, you know, 'this the value you guys bring', 'this is what I want you to do for next year'. So absolutely he recognises the strength of ERM and keeping the company competitive. So he is very supportive." (ECRO – KC)

"What they've both done actually is providing a lot of challenge, a lot of thought on what we are actually putting in place, and really kicked the tiers to make sure it is going to help the business. I think he could quite quickly rule out and really take the framework." (CRO – FC)

CUE-CC said that the nature of the business had pushed the CRO and CEO to get convinced and implement ERM. Although the CROs, CEOs and CFOs were aware of the need to implement ERM, it was obvious that CRO-DC and CRO-GC, who have had implemented ERM three or four years ago, had to implement ERM anyway because of the recent regulations and rating agencies demands. These regulations and demands pushed such companies to adopt ERM in order for them to comply with the regulative framework in the near future.

CUE-CC, CRO-FC, CRO-GC, ERD-HC, ECRO-KC and ERD-JC provided support to that the members of senior management offer educational support and promote the culture. They have run lots of training programs - general and specific ones, in order to make all the people from all levels within the company and any new staff familiar with ERM and its requirements. ERD-JC stated:

"So, we have a training programme for our Board, for the top management team, for the wider management community, both technical and non-technical, and they've got different versions of the training that suit their own professionalism and their own interest. So, in all we've estimated that over 500 people in the firm are being trained in one way or another." (ERD – JC)

One extra reason for why executives provide an increasing support to ERM, as expressed by ERD-HC and ECRO-KC is that a significant part of their remuneration and bonuses has been recently linked to a successful execution of enhancements to the ERM

program. Further, HORF-EC and ECRO-KC reported on senior management's support in financial terms. Financial support is directed to provide educational support and create appropriate structures. The quotations below illustrate the latter argument:

"If you do not have the support of your CEO and CFO, you do not have an ERM, because that costs money. You need teams. You need to give training to your teams. You need a lot of things like that, so that is a budget. If it cost money, you have to have a certain interests from the CEO and CFO." (HORF – EC)

"...another example, in terms of the regulatory requirements; I run the Solvency II program. They have been very supportive in terms of supporting the budget, supporting the resources, supporting what we do." (ECRO – KC)

It is sufficient to recognise that ERM cannot be successfully implemented and fully embedded in companies unless there is a support from the top management as it should come from the top. ERM should be advocated internally and externally by executives. ECRO-KC illustrated this point of view:

"There are still people saying they do the right things and then their behaviours indicate something different. People are not fully comfortable with some concepts. One of my criteria moving out of consulting into industry, I could look at a wide range of companies and I can only see a handful, why I thought they actually mean it. They recognise the role, they recognise the framework. Others you could see 'oh yeah yeah, we need a risk officer', but they did not really want one. They are only having one because they thought they are going to be told to have one." (ECRO – KC)

Previous knowledge and/or training of most underwriters have taught them about risk in a different manner than what is required as per ERM. Therefore, continuous internal risk management training programs were carried out in all the companies investigated in order to educate people at all organisational levels about ERM. The intensity and quantity of these training programs were substantial in the companies CC, GC, EC and HC. ECRO-KC stated that training is one of the things they have not done as much as they should have. At the senior level and the managing director level in the company much training was done on internal capital models, as these have been used in performance measurement. On lower organisational levels online trainings were provided, but were not monitored that kind of use. He said that company target was to provide online training for all staff by the end of that year. He explained:

"So literally, creating it as you speak, so we do an annual compliance training which is monitored and managed to treat full staff and we'll be doing an equivalent thing for risk

management... There is going to be a booklet for new joiners, which cover similar things. We hopefully kind of that senior community, we are giving them more specific technical training around the sort of capabilities in the risk management framework, so that is going to be at different level of... Because we believe that sort of managing director community all is about to explain why we are doing risk management and what we are going to get out of it." (ECRO – KC)

Two lines of compulsory training have recently been launched in the company; CC. One was led by the CRO's area of business. The other was led by underwriting, which was tailored in underwriter terms but then showed and explained the ERM that sits behind it.

The organisational structures have changed after ERM had been implemented in all the companies investigated. The companies reported on setting up risk management departments directed by CROs at approximately the same time when ERM was adopted. In the company HC, some functions were transferred from the notional risk function to the finance function. The risk function moved out from under the CFO to under the CEO as the CRO. CRO-DC saw the launch of the risk function as a response to FSA requirements, while ERD-HC believed it was a result of adopting of a new view of risk. The longevity of ERM implementation could have played a role in presenting such different views in the two companies. They stated:

"If you look at insurance companies, there has been a requirement, particularly from the FSA, to have a risk function, so a controlled function as it's called, for about the past 10 years. Different companies have approached that in different ways, but it's now very much a commonplace that you have a separate risk function." (CRO – DC)

"Those CROs of the group, the CRO in combination with the external control of the board, designed a target operating model and organisational structure that supported this new view of risk." (ERD – HC)

However, CRO-CC said that the risk department was set up two years later after the ERM adoption. This could be attributed to the fact that the company's management has sought for and has moved to a stronger ERM over time. Having a strong risk management system requires specialists to deal with risks.

"I was the Chief Risk Officer but without having a team. We started to develop a team from 2004-2005." (CRO – CC)

There was not any risk function as CRO-GC stated. This means risks had not been of main interest to the company officers till they realised the need to manage risks and implement ERM as a part of complying with the new regulations. Having a department

responsible for risk management provides evidence on the increasing awareness concerning how risks and their interrelations could affect the company as a whole if they are not managed properly.

There has been a coordinated effort towards ERM in a number of companies. For instance, CRO-CC, CRO-DC, CRO-FC, ERD-HC and ECRO-KC expressed that they have risk committees participated by risk sponsors such as CRO, CFO, COO, CUO, and Chief Actuary - whose specific risk responsibility is to develop the risk management function and to prepare it for Solvency II requirements. These people produce information about the risks and the CROs oversee and manage it. They also provide information to the boards, in order to make them more familiar with the risk management processes. As stated:

"...the whole governance side. So right from the board down and having to set up, we've got a sub-committee of the board, that's essentially our top risk committee. And that has had an impact because we've now got non executives on board, who are more expert at risk management than we otherwise would have had." (CRO – DC)

CRO-GC said that there are risk coordinators in every department, who comprise the risk function with the rest of the risk team. Having risk committees or coordinators is not linked to the longevity or maturity of ERM; for example, the ERM program of the company GC had only been running for two and a half years, and the company had risk coordinators. The company KC had a risk committee prior to adopting ERM.

5.3.6 Challenges facing ERM implementation and embedding

Figure 5.2 in the previous section also shows the challenges faced in the ERM implementation process. The challenges encountered during the implementation of ERM were cultural issues, getting specialised people, limitations to data recourses, risk modelling, understanding the information and having sufficient output, designing ERM framework, software and technological issues, making sure that ERM is actually embedded throughout the company, and ERM being expensive to implement.

First, cultural issues. People are often reluctant to change; they need to be convinced to perform their jobs as advised in the ERM frameworks, and of the value the change can add to their companies. One of the key difficulties with implementing ERM, as expressed by CFO-BC, is achieving the buy-in across all levels of the company. Apart from having risk management people passionate about ERM and a strong engagement of the board, it is also necessary to make sure that ERM is integrated throughout the company, so there is a

thorough understanding of risks across all organisational levels. TCRO-BC confirmed CFO-BC's view by saying:

"...often our recommendations led to change request to the way the departments run the processes, and then you get the normal human change issues." (CRO – BC)

CRO-CC explained that his role is to make sure that everything takes place smoothly, and people always understand ERM is not a burden or an administrative task, but that it is there to serve the company's objectives. Thus, ERM required the risk team to explain to people why they were doing things, and why people needed to get information. The risk team also needs to provide company members with useful feedback, and hence foster the change in their way of doing things. This facilitates dealing with cultural issues alongside the support of the board and management. He stated:

"This new risk approach is a change in company culture, and this definitely takes time, but it is not impossible if you get Board and management support." (CRO – CC)

ECRO-KC supported the above discussion and gave the following example:

"There are some cultural aspects; the one where it comes across most obviously is operational risk. We have internal process for collecting operational risk losses, so if the processes have failed or fraud has taken place, then we want to know. That is an interesting one, because you are asking the business to say 'yes, something went wrong, and this is what it costs, here you go', will tell you. That is a cultural challenge." (ECRO – KC)

The second challenge was related to difficulties of getting specialised people. It was indicated by CRO-AC, CRO-BC, ERD-HC, and ERD-GC that there is a great demand for more experienced people. CRO-AC reported that resources and people pose a major difficulty, in the sense that Solvency II has a great demand for experienced people. This falls in line with the tendency of the recent regulations requiring insurance companies to create sound and well-structured risk management frameworks. CRO-BC stressed that even though the risk management team can be quite small, it can still perform on high basis if it encompasses highly qualified professionals. It is difficult to find experienced manpower because the whole industry is facing this demand. He stated:

"I've got a small team of highly qualified professionals and they have convinced the rest of the company to agree to the concepts and use them." (CRO – BC)

ERD-HC and ERD-JC confirmed that getting the right people into risk management positions is very important, but it requires lots of effort. ERD-JC added that it had not been for unavailability of specialist knowledge, but for inability to dedicate the specialist

knowledge. This means that JC resorted to external contractor resources. Therefore, it is very hard to free the internal experts because JC needs them to do a day job at the same time as building all of ERM aspects. As stated:

"They say, lots of institutions make good progress in putting the hardware in place, but the hardware for good governance and running of the companies risk management is only a part of the story. If you've got bad software, bad culture, not the right people, and then it's not going to work." (ERD – HC)

"So the cost and human resources have been a significant issue." (ERD – JC)

Third, CRO-AC, CRO-BC, CRO-CC and ERD-HC faced limitations to data recourses when implementing ERM. CRO-CC illustrated that experienced difficulties in instant collection of a proper data. When implementing ERM, there is a need for more detailed information for the figures to make sure they mean something. CRO-FC engaged in a similar discussion and considered the day to day challenge to revolve around conflicting data and lack of quality data.

"It is mainly recourses and people because of Solvency II have lots of demand for experienced people." (CRO – AC)

"The day to day is a challenge, as well as getting the right data at the right time in a way that is consistent, and perform proper leading risk indicators that don't take two weeks or three weeks or a month to produce different data sources." (CRO – FC)

CRO-BC and CFO-BC stated that obtaining quality data has always been a challenge. To truly understand and quantify risks, the data feeding the risk management system needs to be appropriate. CFO-BC further gave the following examples in order to illustrate how data constituted a major challenge for ERM implementation in the insurance industry.

"If you take earthquakes for example, there is quite a small sample of earthquakes around the world to choose from for your modelling, so you try to understand what impact a portfolio of properties across the US a particular earthquake might have. It is very difficult giving the small sample of earthquakes to choose from, so there is quite a heavy reliance on the modelling of firms like RMS to actually help come up with expectations of what the insurance risk is, and that is still very much a challenge for industries without a large history of events to choose from." (CFO – BC)

Fourth, risk modelling poses problems to companies. CRO-BC stressed that BC's big issue is still to model risk properly, although, they have pretty robust systems in place. However, he indicated that this issue has been often faced the insurance industry area. He supported his point of view by giving the following example.

"We are trying to measure '1 in a 100' risk, and nobody has a database of '1 in a 100' experience, because there are changes to the world every 5 years. So, you have to build a system based upon rare events, when you have a reliable data that there is nothing consistent about it" (CRO –BC)

CRO-DC expressed that quantitative risk appetite statements have been very difficult to do. CRO-FC added:

"Risk adjusted, risk taking, that is still the biggest challenge thing that we still find within our framework." (CRO – FC)

Fifth, problems related to understanding the information and generating sufficient output have been experienced by CRO-BC and CFO-BC. It is very difficult to really make sure that the output from risk models you choose to use is appropriate and hence it is appropriate for the business as a whole. So that challenge can always be there throughout different processes.

Sixth, some companies reported problems with designing ERM frameworks. ERD-HC and ERD-JC indicated their companies have tried to make sure their frameworks comply with regulations, yet that has been very difficult to achieve, as the regulations have been changing. The other concern was introducing some elements to the framework that would work in a contrary way, or would give a different view of the business than the one incentivised by the local regulatory regime. ERD-JC stated that because of the Solvency II context, it has been very difficult to define exactly the framework requirements and to keep that stable. JC is still on the way to find out what the regulatory rules are. For more than two years now, JC's risk team has worked towards complying with what they expected the regulatory standards would impose, having to occasionally redirect their efforts along the way. ERD-H further explained:

"With that contradictory view, local management go: 'well, I understand what you are telling me for the enterprise risk framework, but also I have to live with my local regulations, and everyone else is adherent to local regulations'. So if it tells me something different about the business model it is harder to implement it. If you have alignment between regulation and the way you look at the business, then it is easier." (ERD – HC)

Seventh, companies are concerned about software and technological issues with regard to ERM. CRO-GC considered the software in use in the company to be acceptable but not perfect. There are aspects of the software mostly related to the ease of updating it, which still need to be improved. ECRO-KC stressed that information and communications

technology are fundamentally important to the maintenance of the risk management control system. Improving technology helps in getting accurate and fast data. He stated:

"So, a lot of the effort at the moment is working with the technology people to make sure that we can get the data faster." (ECRO – KC)

Another challenge faced by the companies was to make sure that ERM is actually embedded throughout the company. CRO-DC saw the embedding piece of a puzzle as getting the organisation to use a common risk vocabulary and to talk about risk every time a decision is made. CFO-BC, CRO-DC and HORF-EC indicated their concern about and importance of making sure that when people say ERM is implemented, it should be done so by the point of being fully embedded. As illustrated:

"I still think that the question is ERM embedded throughout the organisation. So I'd say most organisations have got ERM implemented but is that ERM embedded within the organisation? And I think there is a big difference between the two. I would say, if it is not embedded, it is not implemented. To be fully implemented, it needs to be across the organisation." (CFO – BC)

"Again, we are not in a theoretical world; you have to convince the operations which are underwriters, HR people, claims and law that they will have to use that type of indicators or measurements." (HORF – EC)

One aspect related to making sure that ERM is really embedded is giving it priority and spending an appropriate amount of time on producing the information required by the Risk Department to run ERM processes. People across KC recognised the importance of ERM, but there has always been a tension between the time spent on collecting data for the risk management team, and the time people actually want to spend on closing deals. ECRO-KC gave an example:

"If we had an ideal world we might want to do 50 stress test but we have to do half of that because we just cannot take that much time out of the business. And actually, would we really get a value from the other 25? Probably not. The sort of risk manager purest will go like: 'What about this one?', 'What about that one?' But you have to kind of learn how to prioritise with the business; what is really going to give us the answer." (ECRO –KC)

In terms of the embedding of ERM in all parts of the company and its activities, the view of the CRO's team, which initiated the project, seems to be 'yes' technically, whereas when it comes to the operational level (e.g. underwriters), it seems to be 'no' operationally. CUE-CC considered ERM to be at an early stage of implementation at lower levels of the

company, and at a more mature level at the board and senior levels; nevertheless, CRO-CC and CUO-CC were confident about having mature, well embedded ERM across all organizational levels. As pointed out:

"Whereas reporting at actuarial level and risk and control level is now an active part of our business. If you went downstairs and talk to a frontline underwriters, some of them would not understand what we are talking about, and that is the process that we started through a compulsory training." (CUE – CC)

"We have been very close to completion of the internal model itself. Of course, we realise we need some brush up, minor change or upgrade, but the basics structure already is already completed." (CUO – CC)

CUE-CC considered the frontline underwriters to be unfamiliar with ERM concepts. However, training programs for underwriters had been put in place for a relatively long time, and CRO-CC indicated that their target was to get 100 per cent of all their staff to have had completed, at least, one full training on ERM by the end of 2012. This indicates that different people from similar levels in a company perceive different levels of embedding of ERM. This could be attributed to that CUE-CC had been with the company for a relatively short period of time and might not have had yet a clear view about the ERM embedding process. Further, different people could have different views according to their job nature and responsibilities. As stated:

"Because of the concept in delivering the ideas to the business, we have only just started. Whereas the board has been talking about this for two years plus three years, I cannot say how long since I have not been here for so long. There's one thing is creating it, and then is the next thing putting it into the business." (CUE – CC)

Finally, ERM was seen as expensive to implement. CRO-BC, HORF-EC and ERD-JC consider ERM to be expensive because it calls for new teams, new skills and training, as well as changes in the company culture. CRO-BC explained that often risk team's recommendations imply changes to the way the departments run the processes, and then issues arise related to this being expensive. Implementation of the ERM system sometimes causes difficulties, forcing companies to redirect their efforts mid-way through the process, which often requires extra money being spent on it. ERM calls for significant changes in terms of education and operations. HORF-EC and ERD-JC added that going through periods of crises could have led insurance companies to face relatively poor investment returns, low interest rates and low growth environment, and thus less money might be available to invest in enhancing ERM. The latter discussion is explained in the following quotations:

"It is expensive because of two aspects. The first one is you need new teams, you need new skills, and because it is so new you need to train them. You cannot find in the market somebody just having this degree or PhD fully efficient in a work environment. So, that is aspect to it cost a lot. And it costs also because it is changing the culture. If you speak to an underwriter in the past, they will speak about gross and premium, then we move to profit, and now we are moving to capital." (HORF – EC)

"Well, cost for a start. We've spent very substantial amount of money just in developing the technical framework." (ERD – JC)

The discussion above shows that the companies investigated have faced similar problems with ERM implementation processes. This indicates that ERM requires certain changes, procedures and information to be fully implemented. Cultural issues, limitations to data recourses and making sure that ERM is actually embedded proved to be prevalent challenges in the companies investigated. However, each insurance company has its unique culture and business environment, which determine the case-specific procedures and characteristics associated with the ERM framework.

5.4 Discussion and conclusions

This chapter addressed the first group of research questions, which focused on the forces driving ERM implementation and embedding in insurance companies. It reported on an analysis of 10 large and medium-sized general insurance companies. Drawing on the concepts of new institutional sociology theory such as deinstitutionalisation, organisational fields and institutional isomorphic mechanisms, this chapter provided an analysis of the intra- and extra-organisational institutions that have had influences on insurance companies due to the change of their main orientation and to the new regulations related to risk management.

The findings show that various institutional forces have played a role in the ERM adoption decision. Internal and external institutional drivers have shaped the adoption decision of ERM in the insurance companies under the study. This particular study shows that ERM adoption decision is driven by internal pressures plus external pressures including coercive, normative and the business nature, needs, and requirements rather than mimetic ones. Thus, institutional pressures play a role in the selection and use of ERM practices (Mikes, 2005). Similarly, the literature supports the impact of coercive and normative pressures on the trend toward ERM in both insurance and other financial industries (e.g. Colquitt et al., 1999; Kleffner et al., 2003; Liebenberg and Hoyt, 2003; Lam, 2006;

Acharyya, 2008). The internal pressures are revealed in this study to be either equal to or surpass the external pressures. The existence of various combinations could be attributed to different ultimate objectives and views of the insurance companies and their managements.

There are variations in ERM practices in the insurance companies investigated. The ERM processes vary from being semi-structured to fully-structured. Each insurance company has unique framework and policies which are consistent with the company's nature and ultimate objectives. This result is consistent with Mikes (2005; 2009) and Woods (2011).

Companies face various problems with the implementation and embedding processes of ERM. They are mainly attributable to cultural issues, human and intellectual resources, limitations to data recourses, problems with designing the ERM framework, problems with risk modelling, understanding the information and having sufficient output, as well as software and technological issues. Similar problems with the ERM implementation process were indicated by a number of researchers (e.g. Lam, 2006; Shenkir and Walker, 2006; Lee, 2008; Yilmaz, 2009). Another challenge is to make sure that ERM is actually embedded at all levels of the company, which is consistent with the arguments provided by Van der Stede (2011) and Mikes (2009; 2011). Finally, ERM is also perceived to be expensive.

Such challenges threaten the completion of ERM implementation and embedding processes. However, a number of determinants have been found to support the implementation and use of ERM. These determinants are primarily linked to the appointment and risk management experience of CRO, the support provided by CRO, CEO and CFO in terms of financial and educational resources and promoting ERM culture, and organisational structure. The findings on determinants of ERM implementation and embedding are consistent to some extent with arguments from previous academic research (e.g. Beasley et al., 2005; Munich Re Group, 2006).

In conclusion, the theoretical framework has helped understanding the link between the motives for ERM adoption and ERM use within insurance companies, and the relation between ERM determinants and its use. This was achieved through exploring these relations using a field study methodology within insurance companies' context. Research findings related to ERM and the change in risk management practices are presented and analysed in the following chapter. A detailed discussion of the research findings is provided in Chapter 9.

Chapter 6

Field Study: ERM and the Change in Risk Management Practices

6.1 Introduction

The previous chapter presented and analysed the intra- and extra-organisational institutions of ERM adoption, ERM strategies and models, and the determinants of and the challenges facing ERM implementation and embedding process. This chapter aims to examine the change in risk management rules and routines associated with ERM implementation and use.

Deinstitutionalisation according to Scott (2001, p. 182, 184) is the “processes by which institutions weaken and disappear... the weakening and disappearance of one set of beliefs and practices is likely to be associated with the arrival of new beliefs and practices.” The analysis in this chapter is based on the deinstitutionalisation concept, and on structuration theory and institutional theory concepts including organisational fields and path-dependent change processes. The analysis is based on the use of different theoretical concepts (Burns and Scapens, 2000) in explaining the empirical evidence, and conducted at various levels: action, routines, intra-institutionalisation and extra-institutionalisation.

The remainder of this chapter is divided into four sections. The next section describes the levels and aspects of ERM maturity across the companies investigated. This is followed by an analysis of the change in risk management rules and routines associated with ERM implementation. ERM and the institutionalisation of risk management routines are discussed next. Discussion and conclusions are presented in the last section.

6.2 ERM maturity: the levels and aspects

Having a mature ERM means that ERM should be well advanced, have clear framework and policies, and be actually used and embedded into all levels of the company. ERM was expressed to be at a mature level by CRO-AC, CRO-BC, CUO-CC, HORF-EC, CRO-FC, ERD-HC, and ECRO-KC. The risk officials showed confidence about being at a mature level of ERM implementation, and supported their views by saying that they are getting benefits from using the ERM system. This can be conceived as the more mature ERM becomes, the more benefits could be gained by insurance companies. The benefits were described as having a better understanding of risks and being able to reduce the capital

needed as a result of having a proper control environment. According to CUE-CC, ERM leads insurance companies to come back to a more basic and simpler notion concerning the communication aspect and structure as this would be easier to manage. Therefore, this can lead to a more successful business.

However, the ultimate advantage of the ERM system was still not clear to HORF-EC and ERD-JC. ERD-JC wanted to be convinced that other firms were getting the big benefit from ERM. There was a good talk about ERM and about some firms, which have very strong ERM frameworks. However, he expressed that he has not yet seen that ERM has transformed any companies' fortunes. He added:

"It has probably kept some companies out of trouble, which is good. I would be really interested to see instances of good ERM moving a company forward, enabling it to see opportunities, not just avoid major risk events." (ERD – JC)

CRO-BC said that ERM is not at early stages of implementation but more mature. He explained this with regard to having a fully established risk management team, and a fully fledged capital modelling team. He further added that much information is communicated to management committees and boards on risk and capital, which has been done for about five years (two years after ERM implementation). This indicates that ERM has become more advanced shortly after its implementation, as a result of acknowledging its importance and benefits. HORF-EC linked ERM maturity to communicating to the financial market on EC's Solvency II, capital, etc. She further illustrated her view by saying that ERM is embedded in the board discussions in relation to capital management. She said:

"...if we have a big project to change a platform, to do something quite big which will cost lots of money, in the past we probably have a discussion around what is the benefit for the business, how much that cost. Now it is around what is the impact from the capital... we are starting to become mature." (HORF – EC)

Such argument was supported by CRO-AC, CRO-BC and CRO-GC, who linked ERM maturity to its usage for capital allocation and management. CUO-CC gave the following example to illustrate how ERM is used to make critical decisions, such as ones related to retention.

"Retention is sometimes - okay, if we provide a 100 million capacity, how much will we retain? How much will we seek out to the reinsurance? This kind of things is heavily impacted to our capital necessity, because if we have a very small retention, it does not eat our capital other than credit risk, but if we detain 100 million, theoretically we need more than a 100 million capital for that policy. So, if we decided how much retention

we have to take, we should take - we have already used this kind of models. So then we have seen lots of profit or good return from these kinds of activities. So okay now, and also first stage, to be honest, first stage we have seen a very curious outcome really. I do not think so. But after having lots of mature now... we are getting much more comfortable with our current models and the methodology." (CUO – CC)

In companies AC, BC, CC, EC and GC, where ERM is seen to be at a mature stage, some elements, such as risk register or risk assessment, have been already in use since ERM adoption, but capital management was not incorporated until recently. Therefore, the level of ERM maturity is linked to its usage for the purpose of capital allocation. As stated by CRO-CC:

"...in just a couple of years, 2004 and 2005, we started to develop a really strong ERM activity. Before we had some of the elements such as risk register or risk assessment, but capital management and so on were not developed." (CRO – CC)

However, ERM is also used for managing and allocating capital in DC, where ERM is seen to be at an early stage of implementation. This could be attributed to the forthcoming regulations such as Solvency II, which will be in effect starting in 2014, in the companies that have adopted ERM recently. CRO-CC confirmed this view saying:

"I can see very clearly that Solvency II, for instance, is pushing a lot of smaller players to adopt a new risk and capital-based approach, sometimes against their own wish, because they just never think about that sort of things and potential positive impact for their business. I guess that political (solvency reform) has quite a big influence in the market in general, but maybe less for the largest players, because they realised what has to be done prior to reform." (CRO – CC)

ERD-HC explained his view about ERM being mature in the light of the robust implementation and embedding process HC has undergone, and based on benchmarking against other companies, compared to the company state envision of risk management. CRO-FC and ECRO-KC's shared ERD-HC's view. He further stated that the company seeks external views alongside its internal views. Most of decisions are also driven around a very holistic view of risks. He stated:

"We do have this integrated process of indentifying, measuring, managing, monitoring, and reporting on risks throughout the processes that we have within the group. There is a good and improving risk-aware culture within the organisation, and it is a mature risk-aware culture. It is one where risk is seen as an opportunity, but within certain

defined bounds of parameters, so we have articulated our preferences, our qualitative statements about risk. We have also articulated our appetite, our maximum amount of risk we are willing to tolerate, and set about business plans that align with those preferences and appetite for risk." (ERD – HC)

CRO-FC and ECRO-KC further emphasised the link between high credit rating and ERM maturity level in the following quotations respectively.

"Externally we have got a 'strong' from S&P's, which was a nice benchmark to have. Compared to what I have seen elsewhere in different companies, it is a good framework. It can always get better, but it has been around long time and it works in practice." (CRO – FC)

"Harshly through the external benchmarking, because of the strong rating from S&Ps that is pretty much independent. So the benchmarks we get. Equally I guess the regulators in terms of our Solvency II discussions, we seem well placed to answer some of the questions, not completely there for all of the other questions, but I am comfortable by the time we need till we will be able to." (ECRO – KC)

CUO-CC's view was not fully shared by CUE-CC and CRO-CC. CUE-CC said that ERM is at early stages of implementation. However, he stated later on during the conversation that ERM is more advanced and easier to embed because of not having a complicated business structure. CRO-CC described it as well prepared, as introduced in CC's self assessment template, because it is difficult to precisely self-assess their level of maturity. He was then conscious that further efforts are necessary regardless of how mature ERM becomes. In this regard, ERM is considered to be mature by CRO-CC, but its maturity level can be seen as a process of continuous development. On the other hand, CRO-GC illustrated that a maturity model is used to assess ERM maturity level, which is a general one based on COSO, and has a one to five risk maturity scale. The company assess itself against the risk maturity model. ECRO-KC supported CRO-CC's argument and indicated that although ERM is considered to be mature, there is always a place for improvements and more effort is needed. He stated:

"Have we finished the process? No. Will we have not finished the process? No. It is not something you are ever going to finish. You are always going to be introducing new stress tests, there are always going to be emerging risks that you have not thought of before and you need to do something about. You are always going to want better data, faster data." (ECRO – KC)

ERM was considered to be at early stages of implementation by CRO-DC, as a result of the short longevity of using ERM, and the fact that ERM is not fully embedded yet in the company. A similar argument was provided by ERD-JC, who stated that ERM is at early stages of implementation in JC, because of not being deeply embedded across all business units of the company. He further explained:

"Because across our business we have about eight major operating units, and I would say so far only one of those eight has got risk-based ERM deeply embedded; that one business unit is the one for which it matters most, because that is where all the big technical and market risks are, and so they needed to do this first and they did. The other business units are less constrained by risk-based capital, and therefore it has been less urgent." (ERD – JC)

CRO-BC, CUE-CC, and CRO-DC associated ERM maturity level with the longevity of its usage. According to them, the longer ERM has been implemented, the more mature it has become. The fact that ERM has been implemented a long time ago does predetermine its maturity, unless the implementation and embedding processes have been robust and well planned, as well as ERM culture has been promoted properly.

The discussion above indicates that different conceptions of ERM maturity were implied. Maturity was perceived through various aspects by the people interviewed (see Figure 6.1).

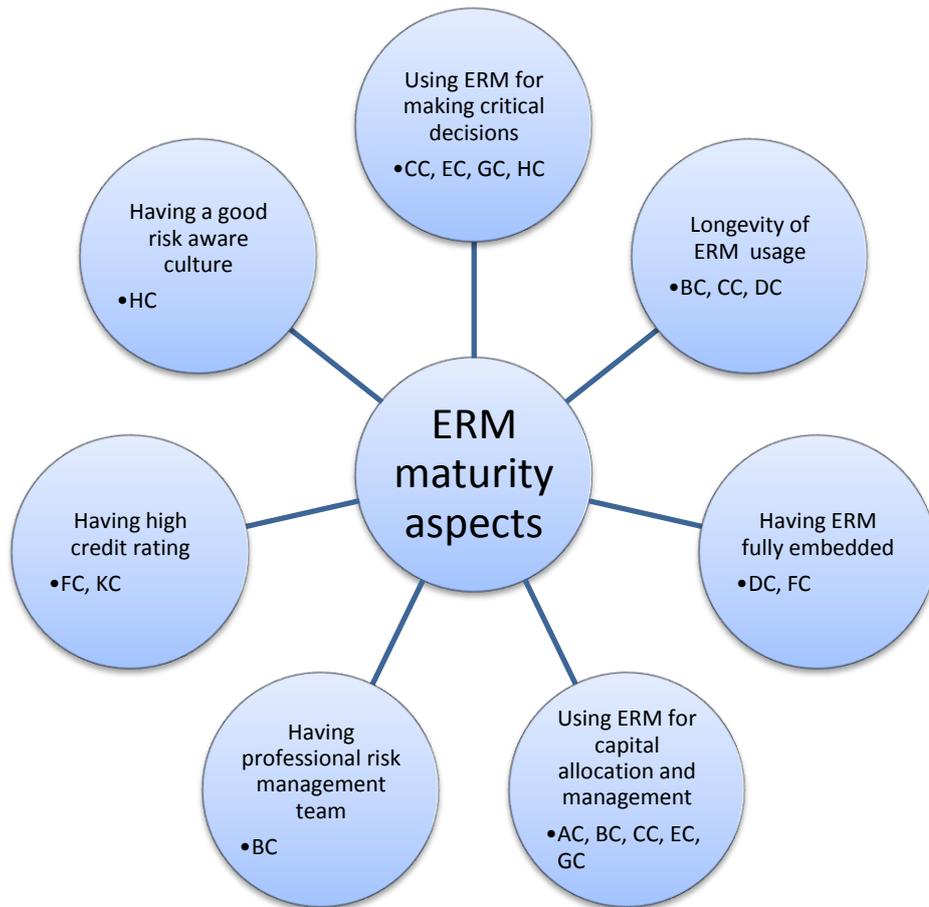


Figure 6.1 ERM maturity aspects

6.3 ERM and change in risk management routines: production and reproduction

In this section I describe and analyse ERM implementation levels and the associated changes in risk management practices, and the forces which shape these processes. A practice refers to the way that something is done. Practices are commonly the acts of repeating something over and over with the deliberate aim of learning and gaining experience. Work practices can be defined as ways of structuring things one must do, or ways in which things are done. It is argued in this research that the ERM implementation and its associated change in risk management practices are path-dependent.

Figure 6.2 presents a summary of the results revealed in this study using NVivo software.

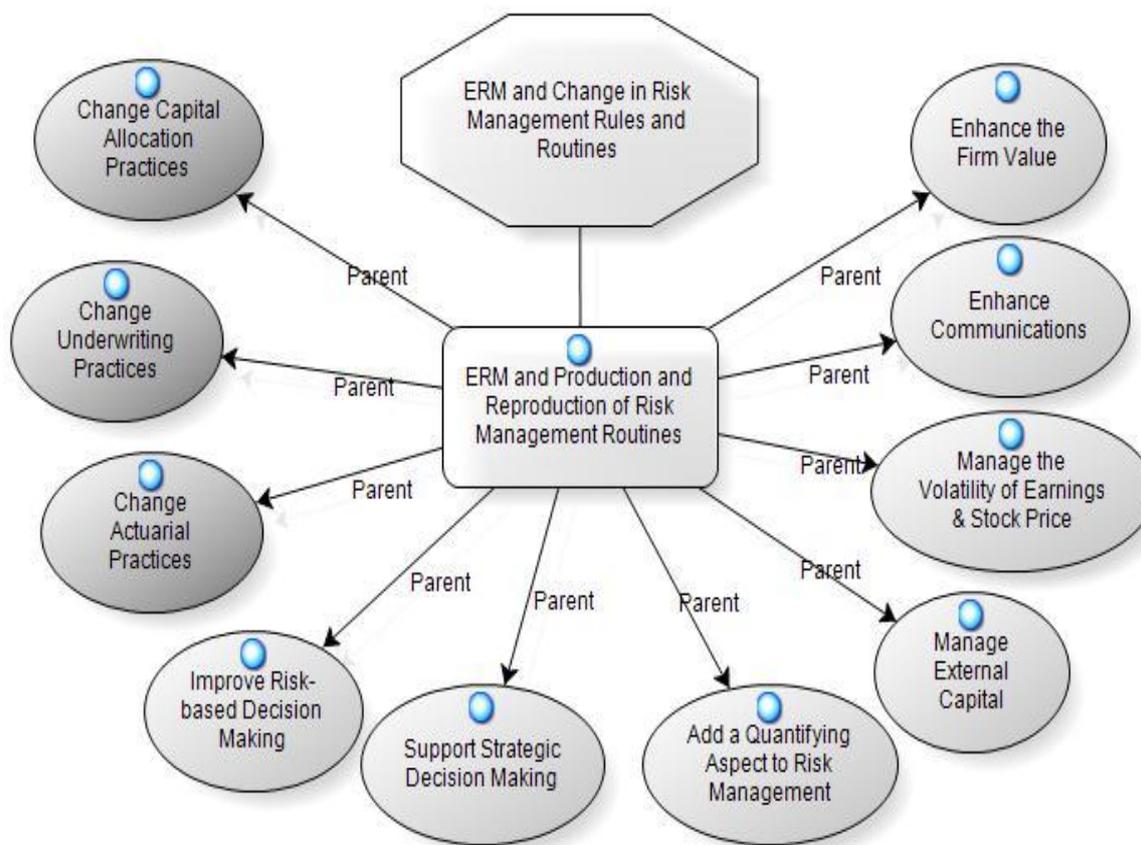


Figure 6.2 ERM and change in risk management practices

As stated earlier, ERM has been gradually implemented across the whole companies. Various risk management practices have been changed as a result of this process, which included underwriting, actuarial, capital allocation, risk-based decision making, strategic decision making, communications, external capital, volatility of earnings and stock price. In addition, the firm value has been ultimately affected. It is argued in this research that the effect of ERM on risk management practices is mostly process-oriented decision, except for the value of the firm which is the financial outcome of this whole process.

6.3.1 Underwriting practices

Underwriting activities encompass writing a business, taking the associated risk, and generating profit. This process summarises an underwriter’s job. CUOs’ job is then to manage and control the business written. Thus, capital is expected to be the key concern of underwriting departments in insurance companies. Evidence to support the effect of ERM on changing underwriting practices was found. Underwriting practices in companies CC and EC

were significantly affected as a result of implementing ERM. CUO-CC and CUE-CC, who works closely with underwriters, stressed that CC's underwriters have started to think in terms of risk management, which means considering risk and its influence on the capital decisions they make. This was not the case before implementing ERM. CUE-CC further explained how the holistic view of risk has been considered within the underwriting department in the following quotation:

"...our company's primary risk appetite is underwriting, as you would expect from an insurance company, but we have component parts of other risks - credit, market etc.; then, these new ideas, and concepts, and skills would undoubtedly also have to be embedded into these other areas of the business." (CUE – CC)

Behaviours of and tools for underwriters have been reengineered, in order to fully embed ERM in the underwriting department. Thus, the way underwriters work changed to include elements of ERM, and required developing new sets of skills and competencies for the future. Underwriters now are expected to do their job differently than before, using new tools and taking more informed information. They also have to be aware of the impact of their decisions on the capital.

"For instance I would recognise that, because of historical reasons and type of business accepted, a Lloyds underwriter has always been more than an ordinary underwriter who just does a case by case approach (which was the standard underwriting in insurance for majority of the players in the UK and Europe). However, an underwriter now must do the things very differently than before, using new tools, taking only informed information, and always be conscious of the impact on capital of its decision." (CRO – CC)

"So, my sort of big role has been to reengineer the behaviours, and to start building the tools for underwriters to work in the way that we want to, but that includes core elements of what the ERM and what we say, and what we do at the board level or talking to the FSA." (CUE – CC)

CRO-GC argued that ERM implementation leads to more information being available to underwriters, which in turn leads to better decisions related to writing business. This implies that previously underwriters did not have access to good quality information to support their decisions. He illustrated his view by giving the following example:

"...the underwriters will decide which piece of business to write and at what price, but they have the information from the actuaries to help guide them. Philosophy as a company is not to let their model drive the decision, but to say 'OK, the underwriter is

writing the business, he is responsible, but here is the information to help you'. So, that is really how we do it. I do not think it has changed what they do but how they do it."

(CRO – GC)

CRO-BC and CUO-CC expressed that underwriters are considered to be the main users of ERM, because it is mainly linked to their job, which is writing business and hence managing capital from their perspective, and because they own a large risk that can drive capital necessity. As emphasised:

"We've always, always, always said if the underwriters are not going to use it, there is no point." (CRO – BC)

"...of course underwriting risk is almost 60% of our risk, main driver of our capital necessity. So in that sense underwriters should be the main users." (CUO – CC)

6.3.2 Actuarial practices

Actuaries' role is basically quantitative and linked to pricing insurance policies, reserving and capital requirements. They do all the capital calculations, specifically risk related capital, which comply with FSA and Solvency II. As actuaries are responsible for pricing insurance policies, they need to consider statistics of claims that people have had in the past, and the likelihood that they will happen again. Then, they come up with the expected number of claims that could occur next year, according to which they can calculate the price to charge the clients to cover for the claims. For reserving purposes, once they get money from the clients, they have to decide how much of it will contribute to profits, and how much of it will be needed to pay for claims. Statistics are used for such calculation, and then allocation of money to expenses. Therefore, actuaries analyse business planning and estimate the future situation/position of the company.

The analysis in this study provided evidence to support the argument that changes in actuarial practices have occurred as a result of implementing ERM. Actuarial functions were shown by CRO-DC to be significantly affected as a result of ERM implementation. She indicated that ERM had required more interaction between actuaries and the risk management team, in discussion on the work they did and how risk was embedded into their jobs, in order to come up with more efficient capital decisions. Thus, actuaries did not explicitly share information about their work prior to ERM. CRO-JC expressed that they were discussing ERM in a very actuarial way. This shows the overlap between the two functions. There was

also an indication that these functions would overlap more, as ERM would get more deeply embedded in JC.

"...particularly in our actuarial functions, where there's a lot of good work going on, but previously they probably did not have to share it as explicitly as they do now... that has had a very significant impact." (CRO – DC)

"We have had a fairly small risk management function up till now... it will grow and it will acquire some actuarial capabilities, and the fact that I now work for our Chief Risk Officer - so that is an instance of that. Yes, I think the actuarial and risk management domains will have to understand each other more closely and will overlap, and there will be some people moving across." (ERD – JC)

ERD-JC further stated that ERM is more embedded in the actuarial department than in other departments, which suggests positive link between ERM and capital practices. He showed that actuaries are more aware of ERM requirements as a result of the ERM-related training programs directed to them. As stated:

"Specifically within our actuarial function in-house, it is the more recently qualified actuaries who know most about this, because it has only relatively recently found its way into the actuarial training programme." (ERD – JC)

ERD-HC confirmed CRO-JC's argument, and stated that actuaries as professions are considered to be risk managers. Their main focus after implementing ERM has moved from financial risks to incorporate operational risks. Previously, actuarial and risk functions were separated, but after ERM implementation they became more integrated. The two functions now work more closely, because many risk inputs that feed the capital model come from the actuarial department. As explained:

"They [actuaries] have been risk managers since I guess the 19th century. So, we have had risk management in the insurance industry for quite a long time. They have typically focused on financial risks as I say being claim rates and investment returns, and had far or less to do with operational risk. So if there was split or silo, it was actuaries versus compliance and operational risk managers." (ERD – HC)

ECRO-KC stated that there is much working with the actuaries, in terms of them providing information and reviewing the output. Risks are considered in the capital model, but many of these sorts of inputs for the capital model come from the actuarial department. When producing the model output, actuaries do a kind of a sense-check that helps to get back on secondary bias. He further explained the relation between the risk function and the business in the following quotation:

"...there is lots of working with actuarial, and actually a lot of working with business. When you are doing things like stress tests, we can kind of sit here and say 'OK, we need to do a pandemic stress test', but you kind of need to go and convince them, and say 'look guys, we wanted to do a pandemic stress test A; it is not relevant to our portfolio'. If their answer is 'no', because if the answer is 'no' then there is no point of doing it [laugh], and B, if it is relevant, in your experience what do you think it would look like, and then we kind of come up with a common view of what that stress test needs to look like, and that is when we get everyone to run it at the same time. So it is a kind of two-way." (ECRO – KC)

However, the ECRO-KC had a slight challenge with that actuaries can be risk managers and can do both jobs at the same time. His personal view was that these two roles are distinct. He did not say actuaries cannot be risk managers, but he did not approve them trying to do both jobs. He explained:

"In the sense of if you think about an insurance company's balance sheet, the biggest risk item on it is the reserves for future claims, and who sets that? That will be the actuaries, so how could they then independently oversee the volatility around the biggest risk item on the balance sheet?" (ECRO – KC)

As could be inferred from the argument above, the underwriting and actuarial functions are mainly directed to deal with capital issues, and thus both underwriting and actuarial practices are significantly linked to the capital allocation processes, decisions, and practices. Capital allocation practices comprise the main part of underwriters' and actuaries' day-to-day jobs. Therefore, any changes ERM brings into these practices are considered to be ultimately changes in the capital allocation practices. The relationship between underwriting and capital allocation practices was indicated by CUO-CC in the following quotation:

"Underwriting is to write a business, to take the risk, and to have a profit. This is the underwriter's job. So, the Chief Underwriter Officer's job is to manage the business, manage how to underwrite, and how to write a business. This is my main job. So okay, how to control? Of course a lot of control is coming from capital." (CUO – CC)

6.3.3 Capital allocation practices

Capital allocation implies assigning a fixed amount of money for investments. The role of capital in insurance companies is not primarily for providing a source of funding, but

to be a buffer to absorb large unexpected losses, protect depositors and other claim holders, and provide confidence to external investors and rating agencies on the financial health and viability of the firm. Capital allocation practices can be defined as the way of doing things, the way of allocating capital. Capital allocation practices were expressed to be affected within all the insurance companies investigated, as a result of implementing ERM. ECRO-KC emphasised the latter argument in the sense that risk inputs feed the capital model, which is primarily used to allocate capital. ERM is behind the whole process. He said:

"Absolutely, we use our capital model to allocate capital. We absolutely measure the return against that capital and the businesses. And when we look at setting a new business up, we look at what the capital requirements would be, what the return would be and these things." (ECRO – KC)

In companies AC, BC, EC, FC, and HC capital allocation is considered to be the most affected practice. CRO-AC, CRO-FC, and ERD-HC indicated that ERM changed the way insurance companies think about businesses, the integration of the consideration of risk in some of the businesses, and the rigour with which they assess some of the risks. HORF-EC expressed that ERM has become a part of the discussion when the company engages in big projects, and when the strategy is set up. As illustrated:

"Big projects are looked through the angle of capital, through the angle of 'do we have a new risk emerging by implementing this new project?' So yes." (HORF – EC)

"We start to think more realistically, and be more aware of capital requirements." (CRO – AC)

ERD-HC emphasised that capital allocation is everything they do when asked about the changes ERM implementation brought to their risk management practices. He said that the products designed, and the prices at which they are sold, effectively influence the risk profile and capital because they are tangibly allocate capital. He further explained:

"So, we are trying to inject capital into business, or slowing down the dividends you might get from a business, because you are recycling profits into new business, or simply not advent in profits through choosing not to sell a business. If that is your definition of capital allocation then yes, because it has affected everything." (ERD – HC)

CFO-BC stated that there is a much stronger awareness of the capital, and what the implications on capital are within the company. He was concerned about not having this awareness amongst first-line underwriters, but expressed that such situation has improved over time. As stated

"Whether that [awareness of the capital] goes all the way down to the level that it should be? Probably not yet, but in terms of the senior people, senior underwriters, when it comes to business planning it is not all about profit that can be achieved, it is return on capital." (CFO – BC)

There was an indication that ERM improves the data inputs for allocating capital. Using the right data drives the capital needed to carry out the expected risks. Data inputs then can influence the decisions related to the types of business a company wants to write or does not want to write. CUE-CC gave the following example to illustrate the latter argument:

"If we insure thousands of properties, in our case throughout Europe, we should know where they are, and we should know how much value we have on each property... If you go back to Katrina, the big hurricane loss in the United States going back five or six years. When that hurricane came through the region, the estimates of the damage were something between 70 billion US dollars and 20 billion US dollars. Why was the range so big? Because literally people did not know what exposures they had, they did not have the tools to do it. So, now I can say with a degree of authority, the whole of the insurance industry is starting to ensure that it knows about its exposures, it knows where its locations are, and it knows what values are in each location." (CUE – CC)

CUE-CC carried on saying:

"If you can imagine that is the map of Europe. If we've got locations all over the place, that might be quite good because you do not get very many large storms that come through Europe in total. But if all of those dots were in London, it is more likely that storms can come across and totally take out all of that. So, without understanding that concept where are your locations and what values you have in your locations, all of the sudden starts to drive the capital you need to carry that risk, that diversification argument that you may have come across." (CUE – CC)

The changes in capital allocation practices presented in this study are primarily linked to the concepts of capital allocation strategies, processes, and methods.

Capital allocation current strategy, processes and methods

Risk-based capital allocation is currently used in all of the companies under the study, except AC and BC where marginal capital requirements are still used. CRO-AC illustrated this strategy by saying that a model is run doing lots of scenario and sensitivity testing, and then capital is allocated depending on the returns resulting in each of the scenarios. As an effect, an efficient frontier is drawn and then used to make decisions. On the other hand,

ERD-HC showed that risk based capital allocation has been used for a long period in the company HC, and the change that had happened over time was related to the metrics used, specifically to allocate capital to different business units according to the metrics.

CRO-BC described the method currently used to allocate capital as a blend of two approaches, which is a marginal fair value at risk approach combined with the earnings variability approaches. However, although CFO-BC described it as ‘a risk-based capital allocation’, it is not literally called ‘a risk-based capital allocation’ in the company. Both CRO-BC’ and CFO-BC’s views imply that risk is embedded in the capital allocation process that is done at the portfolio level. There is an understanding of what the drivers of the capital number are, and an intention to ensure that BC has a balance among risks within each portfolio. CFO-BC further illustrates:

"...So, in terms of when we come up with our business plan, we are aware that our peak risk is US wind and US earthquake risk, and so now we are very much locating it to portfolio level. It is how much diversifying income can we put into the book, to make sure we are balancing the level of risk that we are taking - our peak risks - with others; so it drives our business planning process in terms of making sure that we do not have too much for our peak risk, which will then drive our capital requirements. So, it is not done at an individual level; it is an understanding in terms of the portfolio." (CFO – BC)

As such, it could be inferred that ERM is affecting the capital allocation practices regardless of the method used, whether being called risk-based capital allocation or not. The following example illustrates how capital allocation methods keep changing over time, and how risk is currently embedded in capital allocation, as an effect of ERM implementation.

"There is still work to be done there. I think a good example would be to show why that is the case, is that if you looked 10 years ago at how capital was set within the Lloyds market. It was essentially set at how much premium you want to write, and you need to put 40% of that premium market as capital, and that was pretty much how things were done. It is a straight percentage of the premium, which actually if you look at Solvency I, Lloyds and EU requirements, it was always a percentage of premium which showed no assessment to risk." (CFO – BC)

CRO-CC considered the company to be moving towards risk-based capital allocation, so they have not got there yet, but have been using its aspects. This could be attributed to the time required to assimilate all the changes, and to institutionalise new routines. However, following an analysis of CC’s capital allocation process, it already seems to be risk-based.

Similarly, CRO-DC expressed that capital allocation is currently based on some old fashioned regulatory measures, Solvency I and individual capital assessment. DC allocates capital based on whichever of these two rules applies a higher rate. However, CRO-DC stressed the fact that the company will soon move to risk-based capital allocation, as it has already commenced the transformation.

"So, currently we allocate capital based on the higher of whichever those rules applies. When we move to a Solvency II world, which is ERM equivalent, then what you are basically doing is allocating capital based on that view of the world. Both taking a point of view at a point in time, but also, more importantly, doing that own risk and solvency assessment that takes the projected look. And that will be the key driver for where we put the capital down to." (CRO – DC)

Risk-based capital is used for performance monitoring and tactical decision making in JC. ERD-JC commented on the plan to use risk-based capital allocation on wider bases - in business planning and strategic decision making, as ERM evolves to a standard practice. It could be therefore inferred that the full capacity of risk-based capital allocation is not used yet. This can be explained as a result of ERD-JC's view that the outcome of these practices is not clear yet. He illustrated:

"Yes, it is and that process is happening during this year; we already have a process for allocating risk-based capital to our business units, and we have assigned risk budgets to the business units; still at early stages of finding what that means, because we are not sort of bumped into that budgetary limit." (ERD – JC)

ERD-JC described the process of risk-based capital allocation as still evolving in his company, and as a balance between a top-down and a bottom-up approach. He further illustrated:

"...so from a group perspective top down we know how much capital resource we have got, and we define how much of that capacity for taking risk we have prepared to employ. It will not be a 100% because we want some safety margins and flexibility, and that we call the group's risk appetite. From the bottom up side, operating units will write their proposed business plans and put risks budgets and costs on those. And there is a dialogue, but at the end it will be the group's decision as to how much risk is budgeted to each unit, and those will be assigned in terms of limits. So, the limit will not be typically 100% of what has been planned, maybe 110% to allow the operating units to get on with business as usual. So, we have a jargon and it is called CAL,

'capacity appetite limits', and that is what we as a Group assign to our division, and then trust them to go and run those.' (ERD – JC)

Risk-based capital allocation is generally explained to be done at the portfolio level, not at an individual level, and is understood in terms of the portfolio needed to make sure that there is a balance for risks within that portfolio. Capital is allocated more in detail and to all segments and lines of business. ECRO-KC stated:

"We have got 70 lines of business, and we allocate capital to those lines of business." (ECRO – KC)

The risk management activity is linked with the management of capital in CC and HC. Internal model is an important strategic and operational decision making tool, because it enables the company to integrate risk and capital management processes. It is under the supervision of the Risk Committee and the CRO. The output of the internal model is systematically used to manage the daily business, and then the company monitors the capital needed to support its business plans. Companies envision enhancing such strategy in order to achieve better management systems and efficient usage of resources. The risk management function identifies the major risks and considers their potential impact, which is later integrated with the capital needed within the business. As confirmed by CFO-BC and ECRO-KC:

"A large part is driven out of the risk management department, and setting within that is a capital modelling group that is very much involved in the quantitative aspect. But in order for them to function, they need to make sure they are receiving information from across the organisation, whether it is underwriting, finance pieces etc." (CFO – BC)

"The capital model is owned by the risk management team, and it models all risk categories. That includes insurance risk, credit risk, market risk, operational risk. And the capital number that comes out from it is absolutely what people get remunerated against it. The return measure that we get globally, that impacts everyone's' bonus, and the business units individually impact their credit measure." (ECRO – KC)

Because of using return on capital as the main driver for the company strategy CC, EC and FC, ERM is becoming more and more embedded in the businesses, and risk is significantly employed in capital allocation processes. Business plans are set according to both risk appetite and return on capital. CRO-FC, CRO-GC, and ERD-HC stressed that risk appetite is linked to business strategy as a result of ERM implementation. Such change will affect the business strategy of the company, and thus will ultimately affect capital allocation,

because it comprises a major part of the company's business strategy. ERM then can be embedded in the business plan of a company, and hence deciding how to better allocate capital in which risk is employed, is driving this plan. As stated:

"Our business plan process every year gets even more extensive integration of risk with the way on which we decide to agree business plans. For many years now, two/three years at least, the economic capital based on risk appetite is a powerful test for our business plan. So, if you deliver a business plan that hasn't used the actual risk appetite, then that plan cannot be accepted. The risk profile under the plans is monitored and used to set risk appetites. The planning process and the allocation of capital to different business units is the main thing that has changed in the metrics."
(ERD – HC)

CRO-GC shared the view of ERD-HC, and gave the following example supporting the above discussion.

"Some examples where our credit risk control for our brokers was weak, so we have put new procedures in place, we have changed the business planning process. Mainly it is places where we had process but they were not fully robust, or they were not fully documented. We have tightened up." (CRO – GC)

However, the business plan is assessed on a number of metrics. Return on capital is one among the rest. Some combination of return and capital will drive the business plan, not return on capital, as it is not considered to be efficient alone. ERD-JC stated that at the moment return on capital is one of a number of metrics that business plans would be assessed on. JC was still very focused on IFRS profit, on growth of the scale of the business, and on return on IFRS equity, but risk-based metrics have been put into play alongside those, so it helps the company to easily define the risk-adjusted return metrics. They are still based on IFRS profits, but there is an intention to express that as a percentage of the risk-based capital rather than shares and equity, which gives JC the ability to measure divisional performances. As said:

"I wouldn't want to tie it narrowly to being return on risk adjusted capital as a percentage, and the reason for that is we are in business to make pounds of profit not percentages. So we will still have our group profit target which is in pounds, and that is the goal, and effectively allocating capital budgets to the right mixture of units is the way we are achieving that goal. So... we want to make sure we target the right outcome rather than, for example, using return on capital as a target, which is usually in my

view not optimal. It's a threshold we have to clear and as long as you clear it then you optimise something else." (ERD – JC)

ERM in CC, DC, FC, and GC relies on market information and not only on historical data to manage the internal capital model, which facilitates making more informed and rational decisions. Using this information by underwriters could lead to more rational capital decisions and thus a better capital allocation. ERM led to more sophisticated quantification of exposures. Thus, exposures are quantified more precisely, and that helps managing risks better and making better decisions concerning capital allocation.

Capital allocation strategy, processes and methods prior to ERM

The analysis showed that various capital allocation strategies and methods were used prior to ERM implementation, and hence prior to risk-based capital allocation. CRO-AC and HORF-EC expressed that traditional return measures, including combined ratios and loss ratios, and other profitability measures rather than return on capital, had been used for capital allocation. HORF-EC said:

"We did not have a scientific way like we do have now. It was more a very accountable type of spreading the capital, but that was not in terms of risk allocation." (HORF – EC)

Surprisingly, CRO-CC and CUO-CC were not sure about the way the company had allocated capital before ERM; their answer was “none” when asked about the bases the company used to allocate capital previously. This indicates that capital allocation practices were not a key concern before ERM implementation. The officers only agreed on that they had not allocated capital to each segment or line of business. Capital allocation was mainly driven by compliance to FSA regulatory requirements, while now they employ return on capital as a main driver for strategy.

Similarly, capital allocation method was a traditional one driven by regulations according to CRO-DC, CRO-GC, and ERD-HC, which is a formula applied. CRO-DC further explained that capital allocation had not been very dynamic, and had not projected into the future. It would take a view of company's situation at a particular point in time. She added:

"We've got a large number of regulated legal entities whose capital allocation is currently based on some quite old fashioned regulatory measures." (CRO – DC)

ERD-JC supported the above views by saying that regulatory capital had been used in JC. There would be a plan for how much of new business commitment the company could

take against the regulatory capital requirements. He stressed that it had not been risk-based at all. As said:

"Regulatory capital; we would have had a budget for capital usage for new business, and pretty much that was the only way that one could consume capital under the old framework." (ERD – JC)

The tendency to use regulatory capital allocation in most of the companies investigated could be attributed to it being simpler, in the sense that companies just needed to calculate a formula given by other people. CRO-FC shared the views of CRO-CC and CUO-CC, and said that they had not really looked at capital allocation before ERM. This could be explained in the light of mostly using a percentage of the premium to allocate capital, which is not a process.

"Before that, I do not think we looked at capital allocation. We drove the best of premium and IFRS profit instead." (CRO – FC)

CRO-BC illustrated that a factor-based capital approach was used in BC, which would revise the factors once a year. However, CRO-BC's view was not fully shared by CFO-BC, who stated that capital had been allocated according to a specific percentage of the premium. They agreed on that the processes of capital allocation had been less precise and less granular, compared to the processes after ERM implementation. Such divergences among people within the same company indicate that the capital allocation process was not clear before ERM, and most probably only the people who closely dealt with capital had a clear idea about how its allocation was done. CRO-BC stated:

"We had a factor-based capital approach. It was not marginal; it tended to be about once a year we revised the factors... That is a big change that has been happening the last 4 years. It is much more granular level now than it used to be, in other words much more detailed level." (CRO – BC)

Similar to CFO-BC's view, CRO-FC said that capital allocation had been a fixed percentage of the premium, which means there was not really a method to allocate capital. ECRO-KC provided a different, but an interesting answer to the question of the capital allocation process prior to ERM. He said that capital allocation had been based on the rating agencies' capital requirements, which uses a simpler formula than the regulatory one. There was no risk assessment within the mentioned traditional ways of allocating capital, and the companies did not go down to the level of detail in capital allocation process they do now.

ERD-HC remarked that the basic concept of linking capital to risk has been recognised for a long time, but the evolution to stochastic economic capital models is far

more recent. Thus, the main change has been to the metrics as a result of implementing ERM. The metrics have become more risk sensitive than they used to be. He further explained

"Where previously you might use IRR - Internal Rate of Return, based on regulatory capital - and regulatory capital is not very risk sensitive, now you use economic gain or return on economic capital - means that the measurement of expected return on the way you allocate your actual capital is very more risk sensitive than it would have previously been." (ERD – HC)

In short, there was no preferable common way for allocating capital prior to ERM. The fact that the companies investigated are using or moving to risk-based capital allocation indicates the usefulness of such method. One indication to the later result is that CRO-CC, CRO-FC, CRO-GC, ERD-HC, and ERD-JC showed no intention to change the risk-based capital allocation methods in the future because it is considered to be the way they expect to end up and run their business according to. ERD-JC confirmed:

"So there maybe some variation on exactly how we define capital usage, whether we charge an operating unit with just as a bare minimum regulatory capital, or whether we charge it as using that plus a safety margin; these sort of things may get finessed, but broadly speaking the approach we have just moved to is what we intend to run with." (ERD – JC)

Even though risk-based capital allocation is seen as a preferable method to allocate capital by ERD-JC, it is still considered not to be enough on its own to guarantee success. As stated:

"It is provided that it doesn't become the exclusive method... allocating risk-based capital is a better process than allocating rules-based capital, but for the reasons I mentioned I think it is not enough on its own to ensure success." (ERD – JC)

The type of capital allocation is considered to change to an extent by ERD-HC as a result of the upcoming regulations. He stated that there are two types of capital allocation, physical capital and notional capital; at the moment the company uses an economic capital model that does not imply any physical movement of capital. The capital allocation of physical capital will change as new regulations will require insurance companies to physically put capital into business. He explained this process in the following quotation:

"There was a hole within the group. We need to have more capital available than we have capital required [to cover the risks] in order for us to be kept within our appetite, but in individuality we can have that shortfall providing we charge them for the amount of capital they cause the group as whole to need to have. As we move to Solvency II,

there is a far greater alignment between our views to the capital required and from the regulatory perspective; the regulatory perspective is the one requires us to actually put capital into business physically. So the capital allocation of physical capital will change with Solvency II. The capital allocation required capital might not change that much." (ERD – HC)

One view was shared by CRO-AC, CRO-FC, CRO-DC, HORF-EC, CRO-GC, and ECRO-KC. They considered that capital allocation ways may change just in case new regulations appear in the future and require them to and the management and/or in case shareholders want to. So, all the insurance companies investigated seem to be content with the risk-based allocation method they use, as they perceive it to work efficiently.

6.3.4 Risk-based decision making

The steps included in the process of decision making can be classified as defining the issues, examining the options, and implementing the decision. Risk-based decision making process consists of the same steps. However, it differs in the sense that the decision is arrived at by a structured understanding of risk-reward balance and uncertainties. Therefore, risk assessments should be undertaken in relation to different situations. Evidence was found to support that ERM implementation drives a change in risk-based decision making practices. One change in risk management practices in companies BC, CC, and HC was adding a quantifying aspect to risk management, which caused the risk management practices to move beyond risk profiling or the qualitative element. Considering both qualitative and quantitative aspects leads to improved assessment and management of risks, and thus it enhances the risk-based decision making. As explained by CRO-BC and CRO-CC respectively:

"The big change is this it's lifted the level of focus on quantification of risk. When I joined it was very focused on modelling the risk at company level, and the big change it made is adding the shareholder point of view... So, it is kind of lifted the horizons of it." (CRO – BC)

"We were basically doing risk profiling, and suddenly we need to start to quantify very precisely." (CRO – CC)

ERD-HC further confirmed that ERM has led to defining more rigorously the risk profile in HC. He said that capital allocation significantly affects the risk profile, which is reflected in the decision made. CRO-GC added that insurance risks had been in the main focus before ERM, and had been managed quite well. Credit and operational risks have been

strengthened after using ERM. Thus, ERM led to considering all the risks across the whole company.

Risk-based decision making in all the companies investigated was considered to have improved by ERM usage, in the sense that capital is allocated according to risks. HORF-EC stated that having capital targets alongside profit targets drives the process of decision making, with regard to the risks incorporated into different businesses. Therefore, companies are much more conscious with regard to their risk-based decisions. As explained:

"It gives a second angle in the decision making. If you are solely focused on profit, like it was the case in the past, what you want is to grow, to grow, to grow without any consideration. If I grow, I may increase in an exponential way the risk that I do not see it. So, if you do have your profit, and your ERM or capital, whatever, then you have got two angles to assess your strategy." (HORF – EC)

ECRO-KC shared a similar view to HORF-EC, and stressed the fact that the company KC is ever more concerned about a strong risk profile of new products. He illustrated the process the company goes through when evaluating a new product:

"When we look at a new product; we have got a process at the moment we are going through bringing in a new product, absolutely we look at the capital from the capital model for that new product. We ask them what they think in case sort of realistic disaster scenario would be. So how much would've known in a 100 year loss cost, if it happened to that sort of product. Maybe 10 years, we could just say: 'how much premium we are going to get?', and 'how many claims do you think we have to pay?' We are definitely asking more about the kind of risk profile of new products, definitely." (ECRO – KC)

ERD-JC confirmed the latter argument by saying that ERM provided the basis to help making risk-based decisions in a more informed way, and extra confidence about going for riskier businesses. This has prepared JC to take more measured operational risks than it previously used to do. He explained:

"Well, in both directions actually there are some insights we are getting that suggest we want less of certain risks. There are also insights we are getting that say we could reasonably take more of some risks that we previously avoided. And particularly thinking about operational risks, where without a clear framework for saying what the cost is in that operational risk, it is very difficult to define your appetite as being anything other than zero, whereas if you know the trade-off between cost of eliminating risk and cost of bearing it." (ERD – JC)

Decision making, according to CUO-CC, is becoming faster, and capital allocation is adjusted to monitor the company's performance. There is a greater awareness of the cost of capital to most lines of business, and of the risks and the downsides they face. This allows them to manage their portfolios against risk-based targets in a better way. This view was shared by CRO-CC, who supported it by giving the following example:

"In the past, let us say before considering proper allocation of capital, when comparing two lines of business, for instance 100 million each, delivering a five per cent profit, and similar combined ratio 95 per cent, you thought the two lines was equally good for business. Now you realise that although apparently delivering same profit, one of them needs 50 million capital, the other one 200 million capital. So your return on the capital employed is totally different. And then you start to understand which one you are going to increase, but also you will start to play with diversification benefit between lines." (CRO – CC)

The officers' point of view from the company CC was fully shared by CRO-AC and by CRO-FC. CRO-AC answered that ERM has led to a change in risk-based capital allocation practices, because of allocating capital to the risk to produce the mass return of capital, and also because of being more aware of the risk they face. CRO-DC further expressed that prior to ERM people had been managing capital, but that had been different to actually managing risk. Now there is a need to look at the company's risks, and then allocate the money according to the risks. Companies were not forced to do this previously, because the capital required to be held from a regulatory point of view that requires little resemblance to your risks. CRO-FC confirmed:

"...we become more risk aware and be more conscious of the risks it takes on, and that what is driven our practice and now ERM will say." (CRO – FC)

CRO-BC and CFO-BC gave the following examples to illustrate the latter argument.

"We have approximately 12 business unit leaders; each of these business unit leaders knows his cost of capital to most of his sub-product lines and most of his territories. So, he can manage his portfolio against risk-based targets almost without asking me what the answers are... but he is using my tools to take that decision." (CRO – BC)

"...last year where we get various risk indicators there in terms of our key risks and how things are moving. We've been looking at to grow our Canadian book of business. And as we've been growing our Canadian book of business, the level of exposure that we had for Canadian earthquake has started to go up to a level that we were started to get uncomfortable with. So, seeing that growth in the total risk there was, went out by a

reinsurance premium and reinsurance policies specifically to cover Canadian quake, and that then brought down the level of risk at a different level was 100 and two down to a level we were comfortable. So, that is what is driving our behaviour of this is having our risk indicators; there is where they start to move outside our risk appetite is to look to take steps to bring them within that risk appetite." (CFO – BC)

CRO-GC saw ERM to be affecting the key risk-based decisions including capital decisions, rather than all the risk-based decisions. Even though ERM is considered to have improved risk-based decision making in GC, CRO-GC was confused about whether these decisions are good ones, and whether different decisions would have been made without ERM. He indicated that there is no clear evidence yet, and it would be difficult to verify such situation. As stated:

"Yes, we use ERM in the decision but you have to imagine how you would make the decision without ERM, and would it make a difference. How you can tell? Because you are not running two versions of the company. Yes, it has been used, I do not know how to measure, how much difference it made, because we may have made the same decisions without ERM. You make it more formal and structured but it does not mean you come out with a different answer." (CRO – GC)

The discussion above shows that risk-based decision making was highly linked to capital allocation in the companies investigated. This can be attributed to that capital allocation is one of the key risk-based decisions in insurance companies, and there has been a great emphasis on risk-based capital allocation recently.

6.3.5 Strategic decision making

Strategic decision making can be defined as the process of selecting and implementing different actions, which can affect the future abilities of a firm to achieve its goals. Evidence to support that ERM use drives a change in strategic decision making practices was revealed in this study. ERM was found to support strategic decision making process in the companies investigated. CRO-AC confirmed that ERM supports strategic decision making, because risk appetite is set simultaneously as strategies are set. CRO-BC stated that ERM adds a quantifying theme to the strategic decision making process, which makes it more efficient. CFO-BC confirmed CRO-BC's point of view, and added that risk indicators are driving the behaviour. In other words, where these indicators start to move outside the risk appetite, steps are taken to bring them within the desired risk appetite. As stated:

"Yeah, we set our risk appetite at the same time as we set strategies, so they feed off each other" (CRO – AC)

"...so if you want to merge, develop, buy something, sell something, expand to a new territory, then you can do the measurements of their returns and the variability, but that is only part of the equation, because they need to look at their risks and the upsides and things like that." (CRO – BC)

The view of CRO-BC's was shared by ERD-HC, who expressed that ERM gives a framework of both quantitative and qualitative methods for assessing prospective decisions. He said that now, when the company considers switching its investment around - e.g. buying a company, there is an ability to qualitatively identify the risks associated with it, but also quantitatively assess whether the return the company is likely to get is sufficient to justify the risks which will be taken. He further added:

"Also, whether the decision itself is within the company's risk appetite, so whether you can afford to make the decision. For example, if a business wants to switch its investment strategy, it must demonstrate that the revised investment strategy would still live within the risk appetite." (ERD – HC)

CRO-GC stressed that ERM should affect strategic decision making, because they make strategic decisions with regard to risks. He stated that the risk department is more involved in current strategic decisions. They have been doing some work with GC's strategy team, looking at acquisition opportunities and looking at the risks, which helps to make better decisions. He further illustrates:

"Yes [ERM is affecting strategic decision making practices]. We get some examples where we have evaluated some companies we might want to buy, and we kind of, from a risk point of view, yes this one looks good." (CRO – GC)

ERM has recently started to affect the strategic decision making in JC. He said that risk-based criteria have been brought into all the components of strategic decision making, including some major non-incremental decisions, which was not the case before ERM implementation. ERM usage can be seen as expanding over time. As explained:

"It is starting to do so. So I would say strategic decision making has a number of components to it. There is the annual business planning cycle; there is non-incremental business decisions such as buy business, sell business, write a very large piece of new business; and there is this sort of decisions that are on the perimeter of what we do, such as going to new countries. So, the first of those outlines we already are aiming to do in the next planning cycle, using risk-based metrics." (ERD – JC)

Strategic decision making was also shown to be significantly related to capital allocation. Strategic decisions are taken with consideration of their impact on capital, and of the company risk appetite. The capital model is run for each area of the strategic plan when the plan is set. ECRO-KC stated that when running the strategic plan, the capital model is run for each area of the strategic plan. So there is a need to understand how much risk-based capital will be needed to support each of the strategic plans. CRO-FC added that the business strategy links straight to the company's risk appetite right from the very top, and take that to certain limits and for different types of risk. This argument was shared by CRO-CC and CRO-DC.

"It supports it to the extent that you are able to, when you are looking at your strategy, you are cognisant of the fact that you need to be aware of what the capital needs and affordability will be, and that then forces you to look at what is the risk profile going to be. So it helps from that extent." (CRO – DC)

HORF-EC further illustrates how ERM could affect the strategic decision making process in the following quotation:

"...as a strategy, if we feel that this bit of the business needs too much capital compared to this bit, then we sell this part of the business. So that will have a strong effect on the decision making at board level about what type of business we want to go. We may also decide that because it requires a lot of capital and we do have the capital, but we know our competitors will not have the capital then we become a sort of specialists in this area." (HORF – EC)

6.3.6 Communications

Communications refers to the process of exchanging information between individuals within a firm through symbols, signs or behaviour. It can also be seen as personal reporting. The analysis indicated that ERM implementation enhances communications across companies CC, GC, and KC. CUO-CC expressed that people with different roles in the company are now able to discuss in the same language, which should lead to making decisions with more confidence. CRO-GC shared the view of CUO-CC. He stressed that enhancing communications is a part of the implementation process.

"So they are speaking another languages, so the decision itself is very much - I think it was difficult. It was sometimes wrong. But now we can discuss more similar language, even though our role is different... It is of much more benefit to us, to avoid a silly discussion." (CUO – CC)

"One of the very important parts in our implementation is not just a process, but the cultural communication side. (CRO – GC)

The ERM framework is not written in the company KC in a technical way, in order to provide people with more vocabulary to talk about ERM and internal capital models in the right way. Risk officers are trying to explain to staff from different backgrounds to risk (like who handle claims or work in the accounts team), why what they do is important in the context of the risk framework. Thus, most of the training is directed to help people to understand what ERM means and what the risk team talks about. ECRO-KC further illustrated and gave an example to support his view:

"...It is almost more about giving people more vocabulary to talk about the stuff we are doing in the right way. Great example, the regulators came in and they said to one of our guys 'what is your SCR? That stands for Solvency Capital Requirement. Even if he had known it stood for Solvency Capital Requirements, he would not necessarily have known what that meant. If they had used the term how much money you need to run the business, he would have said: 'Oh, this'. So, he kind of knew the answer, but he did not know the question." (ECRO – KC)

As a result of communicating risk appetite, people across the company are able to understand more the relationship between what they do in their jobs, in terms of bringing risks into the business, and what the appetite is. In other words, people across the company have started saying that they have been looking at a specific situation and they don't have an appetite around it but they realise it is sufficiently big, and they want to think how much of it they want. ECRO-KC explained:

"There are actual instances where underwriters have said: 'Look, I am doing something that is allowable theoretically, but it is a big issue, do we need an appetite around it and should we be limited? How much we can it... That is a cultural thing... Well, finally they will pick up the phone to us, which is actually where you kind of want to be. You want them saying: 'Have we thought about X? Have we thought about Y?' If an underwriter phones us up, and say we do not do a stress test for this particular thing, but it is really a big risk that is great. It means the messages are getting through." (ECRO – KC)

6.3.7 External capital

Internal capital is any cash flow generated by business operations or accounting, while external capital is any cash flow generated by receiving money from an outside source, including bank loans and certain credit extended. Thus, external capital is the capital raised outside of the firm, which can be equity from either new or existing shareholders, or financial debt from lenders. There has been a claim that ERM reduces the external capital. Evidence to support this claim could hardly be found. CRO-AC expected ERM to help reducing external capital in the future, but not at that stage. Similarly, ERD-HC expected ERM to lead to a reduction in the external capital in the future, but not at that time in HC. As stated:

"...it should do, but it is hard to tell... Probably not at this stage, but maybe in the future it definitely will." (CRO – AC)

However, ERD-HC emphasised that ERM now helps to better manage the external capital. It gives insight that companies can bring into the right level of gearing. It could be inferred that insurance companies are able to use capital more efficiently as a result of ERM, but probably are not able to reduce the quantum of capital at this stage. This argument was confirmed by ERD-JC, who said:

"We have a fairly cautious approach to gearing like many in our sector. So, we are unlikely I think to borrow less as a result of ERM. We might possibly decide that some areas of the business could support more gearing and others less, but I think at a group level, it is probably not going to cause us to borrow less." (ERD – JC)

Similarly, in the rest of the companies investigated, ERM was found to enable insurance companies to manage, and thus to decide the amount of external capital required according to the risk appetite defined. Thus, ERM helps insurance companies to earn more return on the same amount of capital. It also improves the chances of getting just the right amount of external capital. As stated:

"We are more comfortable that it is correct. It is less wrong... But it is not actually about whether it is low; it is actually about getting it right." (ECRO – KC)

"That depends again on your strategy. If you want to stay as you are and you do not need external money to grow, then I do not think so." (HORF – EC)

CFO-BC stressed that ERM enables BC to manage and to decide upon how much capital they feel they need to use within the business. It does this by helping them to understand the interaction between the different drivers of the capital figure. Thus, BC is able

to manage the book of business; either to increase or decrease that capital requirement, and then the risk appetite. If there is a desire to take on more risk, people would recognise they would need more capital. However, they would understand that it would be driven by an increase in a particular risk. CRO-BC further expressed that BC got much confident about taking big risks because of the ability to recognise which the good risk is and which the bad one is. As explained:

"We were actually growing by a factor of two in the last five years and we feel more confident about measuring our business than we did five years ago." (CRO – BC)

"If we wanted to reduce the capital that is required, we would manage that risk there. So very much by understanding what the drivers behind our capital are, which are these key risks we are able to manage those risks upwards or downwards depending on our appetite." (CFO – BC)

Although ERM was seen to be managing external capital and not reducing it in companies CC, EC, and KC, it helped the companies to borrow money at lower cost, because a stronger ERM leads to a higher rating. Using ERM further helped these companies to raise further capital easily, because of the ability of the company to demonstrate to its shareholders that their capital is used in the very best possible way. ECRO-KC illustrated that firms demonstrating good risk management push investors to place more value on them in terms of stock prices, and in terms of when the company tries to get external bank loans. See the following quotations from companies EC and KC respectively:

"But if you need to borrow money because you want to extend your business by buying the next door company, then I guess that the bank will ask you a lot of questions about your Solvency II criteria, and where you are in your Solvency II, and then will have a logical effect on the price of money. If you are AAA, you can borrow money at a very low cost. If you are A minus, it will be more expensive." (HORF – EC)

"...when you try to get external bank loans whatever, the way you are treated by the accounts parts, you can see the impact." (ECRO – KC)

6.3.8 Volatility of earnings and stock price

Stock price is the cost of purchasing a security on an exchange, which could be affected by market volatility, economic conditions, and the company's popularity. In finance, volatility can be defined as the relative rate at which a security's price moves up and down. Volatility is the standard deviation of the return over time. Theory of ERM suggested that ERM reduces the

volatility of earnings and stock price. The analysis revealed that ERM enables the companies under the study to manage the volatility of earnings and stock price, as it helps them to make decisions that are more informed.

ERM is managing volatility better, with better insight and more chance of getting the right balance. CRO-AC expressed that they have been always aware of volatility and measured it. There has been a risk appetite around how much volatility AC wants to take. Thus, all the decisions that are made reflect the company's appetite for volatility. CRO-CC confirmed CRO-AC's view.

ERD-JC interestingly indicated that because of the way that IFRS is defined at the moment for managing risks according to risk-based implies that ERM does not necessarily reduce the volatility of IFRS profit. JC further recognised that in some cases actions to reduce the volatility of surplus capital may increase the volatility of IFRS. He further explained:

"So there is a balancing act; we cannot stabilise everything. We have got to decide how much volatility will accept in each KPI. Broadly speaking, we probably prefer to accept a certain amount of volatility in capital, provided that we can explain it. Because it is easier to explain that to the people looking at capital, than is to explain profit volatility to the people who look at profit, and that has to do with the audience." (ERD – JC)

On the other hand, CRO-BC pointed out that ERM does not decrease the volatility of earnings and stock price of the company, but increases it. He added that there is a tendency to go for more volatile business, and BC has become a more volatile business, because it is commonly thought that its internal risk is better focused. As pointed out:

"So, we actually persuaded our shareholders to give us more money to invest in more volatile businesses and we get a higher return. The higher return for "good risk" that is the thing." (CRO – BC)

The view of CRO-BC was not fully shared by CFO-BC. He indicated that ERM helps decreasing the volatility of earnings and stock price. However, when CFO-BC explained how ERM helps in this process, ERM appeared to be managing the volatility of earnings and stock price. He stated that ERM helps the company to understand what the volatility is. Then, decision can be taken on whether it is the right or the wrong time to take that volatility on.

"...it does [reduce volatility] because you need to be able to understand what your risks are, and what your potential downside might be. In a business like this, we sort of want volatility, because that is the type of business we are in; but we should understand what the downside is and be able to communicate what that downside is, so it is not

necessary. To remove the volatility would be to take us out of the business we are in, but to be able to communicate what the volatility is important." (CFO – BC)

ERM was considered to be able to decrease the volatility of earnings and stock price in the companies HC and KC. ERD-HC and ECRO-KC pointed out that one of the ERM framework objectives is to reduce the volatility of earnings and stock price. As decreasing the volatility is an objective for the company, ERM then is more likely to be managing this volatility. In case the company seeks to increase the volatility at one point in time, then ERM will guide and manage this process. ERD-HC stated:

"One of the goals of our ERM framework and our risk management activities is to reduce the volatility of our balance sheet, and we have implemented a number of measures hedging in order to achieve that aim. That has the additional benefit of reducing the volatility of our earnings compared to what they would previously have been. Now our share price has been volatile. I would argue that it would have been more volatile have we not taken the extra return." (ERD – HC)

ECRO-KC stressed that KC is looking to support the business objectives, which aim to provide return to shareholders. Thus, a risk strategy to support that is needed and put in place. He further gave the following example to support his views about how ERM is used to decrease the volatility.

"If you look at that sort of framework, what we are trying to achieve through that and our risk appetite, it is kind of two dimensions. Number one, when there is a loss like an earthquake or hurricane, is the loss in line with the sort of what you told the markets it could be. Because we discuss, we say to people 'you know our report accounts are taken exposures and their states. We think a one in a 100 years hurricane will cost us X'. So if a one in a 100 year hurricane occurs and it is bigger than X, we will get questions around our area. So number one shareholders, analysts look at that aspect of it, that is kind of step one. Step two is then, are the earnings as volatile? Ideally in the area and framework you look at both dimensions... we are trying to manage both dimensions." (ECRO – KC)

This divergence of the views related to how ERM affects volatility and stock price, could be attributed to the fact that this needs more time to be proven, and could lead to an indication that ERM is most probably managing this process. CRO-GC confirmed:

"We produce data on the volatility of earnings, but you need several years to be able to back test to prove that... It helps in managing it, but we have not proved that we have reduced the volatility." (CRO – GC)

6.3.9 Firm value

Firm value equals the market value of the shareholders' equity plus the market value of the net financial debt. It is an economic measure, which reflects the market value of a business. Firm value is one of the key metrics used in business valuation, accounting, portfolio analysis, etc. Evidence to support that ERM enhances the insurance companies' value was found in this study. The risk officials interviewed saw ERM to enhance the value of the companies, and gave different reasons to support their point of view. CRO-AC considered ERM to optimise rewards and returns in AC. CRO-DC indicated that ERM enables the company to articulate its risks and how to manage them, and thus it reduces the scope of unknown and unmanaged risks, which can enhance the value of the company DC. As stated:

"...it [ERM] optimises rewards and returns. It should do in theory, but it is hard to measure." (CRO – AC)

"Because you are able to articulate what your risks are and how you are managing them, and therefore it reduces the scope for their being unknown and unmanaged risks. And that must enhance value." (CRO – DC)

CFO-BC argued that ERM provides detailed information. In this regard, the more information provided about what investors are getting involved in, helps them to invest and to decide whether it fits within their risk appetite. He explained:

"We have to make sure we are able to communicate – 'and this is our expected return', 'this is the range around which it might be', 'and this is the amount that you could lose'. Unless you can explain to people what the risks they are taking on and the potential up and downsides within it, then investors will not be attracted to do it." (CFO – BC)

The value of the companies CC and JC may also increase, according to CRO-CC and ERD-JC, because the credibility of what insurance companies do has been validated. CUE-CC stressed that ERM has the potential to create value, because it allows the company CC to be more efficient in the use of their capital, which allows them to be more flexible in terms of how they make decisions and determine where they want to go in the future. ERD-JC confirmed this argument:

"It will do, although that will take a period of some years to emerge, because if we do this right we will get credit from the investor base for being good stewards of that

capital, and the influential voices in assessing... performance are all looking for ERM as a tick in the box so to speak." (ERD – JC)

Further, CUE-CC added that ERM would add value to the reputation of CC, by educating the stakeholders how things are done, and demonstrating how their capital is being used. He said:

"I have no doubt that it has added value to the business, and clearly from an external stakeholder's point of view it would add value to our reputation by knowing that we're doing things A. in the right way, and B. that we can demonstrate how we use our capital. If you are a shareholder and you are getting the right return on it, but also in terms - do we hold enough capital to satisfy regulator?" (CUE – CC)

ERD-HC explained that ERM enhances the firm value, as it introduces the discipline of not taking the risks that the company does not expect to be adequately rewarded for. HC has a structured process whereby risk staff thinks about all the different risk types which the company is exposed to through the sorts of products it sells. From one point of view, although it has been said that ERM improves the value of insurance companies, this is hard to measure practically. ERD-HC added:

"We deliberately try to manage down or get rid of, or avoid the risks that we as an organisation don't believe that we could be adequately rewarded for. So, the risk we do not think we have the skills to have a competitive advantage to manage, or just simply structurally you do not think it offers returns." (ERD – HC)

ERM was also considered to add value by helping the companies FC and KC to get high ratings. ECRO-KC illustrated how firms that have high ratings and demonstrate good risk management, induce investors to place more value on them. The following example was given to emphasise the latter notion:

"Policy holders looked at credit rating and ERM rating, because they are large industrial. If you think about that sort of oil companies, for example that buy insurance for tankers whatever, mostly these companies are bigger than insurance companies. So they are not going to take the risk on themselves by placing their insurance at people they think they are weak. So absolutely our customers look at these things." (ECRO – KC)

Even though ERM has led to various changes in different risk management practices, continuous processes of enhancing and refining these practices have been conducted over time. This was pointed out by ERD-HC:

"Every year, every month even we enhance these practices to have a more integrated system of risk management, where the feedback loops between the different processes are better, so our risk identification feeds better into risk measurement, risk measurement feedback into identification, the management links all of those and the monitoring and reporting improves the deep insights are given that there is always a place for improvement." (ERD – HC)

6.4 ERM and the institutionalisation of risk management routines

The analysis provided in section 6.3.2 showed that fundamental changes in risk management practices, such as capital allocation and risk-based decision making, have taken place within all the companies under the study, and new routines have been introduced following the implementation of ERM. The implementation of ERM is expected in this study to facilitate the routinisation and intra-organisational institutionalisation of risk management practices in insurance companies. Risk management practices are further expected to be extra-institutionalised and disassociated from their historical circumstances.

6.4.1 Intra-institutionalisation of risk management routines

The implementation of ERM has led to changes in capital allocation, underwriting, communication, actuarial, risk-based decision making, and strategic decision making practices. However, as illustrated above, these changes vary in terms of which practice has changed and the extent of its change. For example, capital allocation is the most affected practice in the companies AC, BC, EC, FC, and HC, while risk assessment, appetite, and monitoring are mainly affected in the companies FC and GC. More risk information has been further provided, and risk has been embedded into all critical decisions at the company level. For example, CRO-BC emphasised that most of the information on risk and capital goes to management committees and boards, after ERM implementation in the company BC. CRO-GC stressed that more information is available to underwriters from actuaries and risk team in the company GC, which helps them to make their risk related decisions. HORF-EC shared a similar view to CRO-GC's, which expresses that ERM has been linked to the business planning cycle and strategy.

ERM helped organising and documenting the risk function by setting out a risk management framework in all the companies investigated. This change facilitates the institutionalisation of the risk management practices. ERM has further contributed to the

intra-institutionalisation of risk management routines through improving the communication network at the companies CC, GC, and KC, which provides people with clear information regarding the importance of embedding risk into their daily job and their responsibilities.

Providing more efficient and real-time risk information at the companies CC, DC, FC, and GC, has played a key role in the intra-institutionalisation of risk management routines. Relying on such information helps to improve the process of decision making, and facilitates the process of embedding risks. Thus, applying ERM offers additional benefits from information and resource that are shared across various units of the company.

As the analysis showed, risk-based capital allocation has become the main method for allocating capital in the companies BC, CC, EC, FC, GC, HC, and KC after implementing ERM. The risk-based allocation of capital is directed in these companies to get higher return on capital. Return on capital is considered to be the main driver for strategy by the risk officials of the companies CC, EC, and FC. Therefore, companies set their business plans according to risk appetite and return on capital. CUO-CC stated that after implementing ERM, the intention to achieve higher return on capital has been the main concern not only for insurance companies, but also for the entire financial sector. As stated:

"So, lots of, okay - how to improve that return on capital. These are the shareholders' biggest concerns and biggest interest. So this is our destiny." (CUO – CC)

"...when it comes to business planning it is not all about profit that can be achieved; it is return on capital." (CFO – BC)

The view of CUO was shared by CRO-BC and by CFO-BC. CRO-BC stressed that, in BC's planning process, the company analyses the economic capital which it generally consumes. Then a risk team looks at the return on capital for each business line, and they decide whether these are satisfactory and make decisions based on that. He carried on illustrating:

"And then once we've agreed what we want to do with our plan, putting that as one of the metrics that goes alongside from others, and then in translate the return on economic capital target, we got minimum target into targets the underwriters can understand and use as part of day to day business." (CRO – FC)

It is sufficient to recognise that the objectives directing the process of capital allocation are not only related to profits anymore, which was used to be the case before implementing ERM. As per underwriting teams, in the companies CC and EC underwriters now use new tools and better information. They also take into consideration the impact of

their decisions on capital. Actuaries in the companies DC and CC now have to share their function more explicitly with all people responsible for allocating capital.

Risk-based decision making was shown to have improved after using ERM within all the companies under the study, as a result of the availability of better and quicker risk information, which helped allocating capital according to risks, and thus producing higher return on capital. Strategic decision making has become related to risk and capital allocation at the companies investigated. Better management of external capital in companies, as well as better management of volatility of earnings and stock price, were evident as a result of the ability to make more informed decisions. As such, the firms' value has been enhanced.

CUO-CC, CRO-FC, and ERD-HC considered the ERM basic structure to have been already completed. However, minor changes and refinements are always needed to strengthen the risk framework. As a result, they should be involved in the process of documenting and institutionalising the routines that are already in place. Such process is required and supposed to be done within all the companies investigated. CRO-FC commented on this argument:

"We have already got a very strong risk appetite framework, and we are refining that. We have got a strong policy framework that has been refined. There are no gaps in what we are doing. In emerging risk management we were already very strong at that, and making it better seeks for stress testing. So I think a lot of what we are doing now is writing down how we do it more. It is more about documenting and institutionalising what we do." (CRO – FC)

As stated earlier in the analysis, a number of obstacles face the ERM embedding process, such as limited sources of data and people, as well as cultural and technical issues. However, the variety of financial and educational support provided by senior management at the insurance companies interviewed, as well as promoting the culture, have led to a successful implementation and embedding of ERM.

6.4.2 Extra-institutionalisation of risk management routines

Extra-institutionalisation is used in this study to refer to the effect of changes in risk management rules and routines on the company as a unit and the consequences of such changes on other companies within the insurance industry. ERM has driven a change in the CRO's role and responsibilities. For example, one of the current responsibilities of the CRO-CC is to allocate capital resources according to risk, which was not one of his responsibilities

before ERM. He expressed that when he had joined the London branch, he had been in charge of another area at that time, and that had been business planning. He added:

"Risk management was very much sort of a day to day job, and the things like underwriting risk or credit was really under the hand of chief underwriter, chief financial officer, and so on." (CRO – CC)

Similarly, the role of ERD-HC has evolved over time, and a number of responsibilities have been added to his role. At the moment, the CRO is one of the members of the executive committee, and thus he does not report to the CFO but to the CEO. Their remunerations, objectives, appointments, and layoffs became a joint responsibility of the CEO and the non executive chairmen of the board risk committee. He stated:

"...has I think for long time had the views that it is doing enterprise risk management, but around two and a half or three years ago they embarked on a program to basically increase the role and the importance of risk management within the organisation." (ERD – HC)

The ECRO-KC's role has changed in the sense that he makes work more robust, industrialised, or automated. He stressed that KC has always been doing risk management, but the CRO's role had not been particularly defined. This indicates that the role of the CRO was not considered to play a significant role in the insurance company previously. ERM was seen to help to define the role of CRO more clearly, which was not the case earlier. He said:

"I mean risk management in insurance companies, we have always done it but we have not necessarily defined the CRO type role, but the kind of regulations emerging and making it clearer what I do and... people would recognise it more." (ECRO – KC)

The role and responsibilities of the CRO were described in various ways. The role of CRO-AC includes looking at how much risk to take in the company and quantify it in terms of both capital requirements and volatility. He is also responsible for risk reward, and ensuring that risk reward profile is optimal. The CRO-BC is responsible for CAT modelling, risk management, and capital modelling. The responsibilities were similarly described by CRO-CC as to manage the company risk, which includes all the exposures surrounding the company such as underwriting, market, liquidity, operational, group, reputational, and strategic. His role is described as to recognise the risk, to quantify the exposure, and then to ensure they have enough capital resources to sustain the risks to which they are exposed. CRO then highlights potential risks to date and anticipated ones. CRO-DC's key objectives are to ensure that the organisation takes risk-conscious decisions, which means she is responsible for making sure that there risk information is available and a risk management

framework is in place, as well as acting in a compliant manner. CRO-FC added that he has two objectives. The first is to provide independent and forward looking risk advice on the risk profile of the business. The second objective is to make sure the risk management system is fit for its purpose, and to provide some insurance on how well embedded it is.

Another view, that of CRO-GC, ERD-HC, and ECRO-KC expressed that they are responsible for designing and implementing the ERM framework, and then to roll it out and to ensure it keeps working. However, the CRO-GC was not involved in the capital allocation decisions. Underwriters were responsible for deciding which pieces of business to write. The risk management team set the tolerance and appetite limits, so underwriters could only write a specific amount of business. It is sufficient to recognise that there are variations among the different CROs' responsibilities, which can be attributed to different reasons, such as firm size, ERM level of maturity and/or the longevity of implementing ERM.

New roles were established, and the responsibilities of other officers were also changed after implementing ERM. ERD-HC's and ERD-JC's role and similar roles in regions did not exist before ERM, and were established as ERM had become more mature over time. ERD-JC owns the risk framework and is responsible for the aggregate risk profile of the company, and involved in the design of the framework. HC now have a Risk Appetite Director, who is responsible for maintaining the risk appetite framework, as well as looking at the challenges, scenario testing, and business plan processes. There is also a newly established position of a Capital Risk Director, who looks after reviewing the challenges of the economic capital model that are used to run the business. Similarly, ERD-JC's role did not exist before ERM implementation. CRO-FC also indicated that the risk management team's focus has moved away from operational risk and risk reporting towards monitoring and managing risks. As stated:

"We have historically been constrained by regulatory capital, not by risk-based capital, so the process of learning about risk-based decision making is probably at quite an early stage. This role is actually two or three months old, so it hasn't got enough time to change." (ERD – JC)

Officers, particularly the risk sponsors, have had risk responsibilities added to their daily responsibilities. For instance, CFO-BC has become responsible alongside with financial reporting, company's assets and capital, and investment policy, for managing some main risks, which cover liquidity risks, market risk, and credit risk. People at lower levels have started to consider risk in their decisions, which means risk responsibilities are attached to some extent to their daily job responsibilities. For example, underwriters at the company CC

are considered to be heavily involved in the process of ERM, and embed it into their day-to-day jobs. CUO-CC stated that he has been seeking as a part of his job to take ERM issues, principles, or challenges, and to bring them into the day-to-day life of underwriting. As CUE-CC said:

"We are not just saying we understand it, or we implement it at board level or senior management level, but it has to be understood. Also, the underwriters have to understand the whole chain and process that are involved." (CUE – CC)

Further, before implementing ERM, the CRO title either did not exist, or it was not particularly defined in all the insurance companies investigated. In the companies EC, FC, and KC, the increasing importance of managing risks, and the need to define the role of the CRO and the professional recognition of the CRO, have led risk management to become a separate function, and to a formal appointment of the CROs. As confirmed:

"It a sort of path where you've got a sort of acknowledgement of management that risk is becoming a key function; as such of get new role like CRO that does not exist in the past, but you had audit, you had different types of function." (HORF – EC)

"...there was not a risk director or CRO in place here, but the CEO drove the decision to adopt it. So the CEO forced it." (CRO – FC)

Appointing a CRO at the company KC was considered as the formal statement to announce the adoption of ERM. As stated:

"We only appointed a Chief Enterprise Risk Officer back in 2008. I guess that is the first time we really waved the flag and we said we take ERM really really seriously" (ECRO – KC)

Even though there was a CRO title in some insurance companies, such as the companies GC and JC, there was no related risk function. The CROs have a number of other functions reporting to them. Their role and responsibilities used to be more linked to legal, compliance, actuarial, and monitoring functions, rather than the risk management function, and thus risk was new. Recently, the CRO title in some insurance companies has become named as Chief Actuary and Risk Officer not only Chief Risk Officer. Therefore, extra responsibilities have been added to the CRO job, which are mainly linked to the actuarial work, and thus to capital allocation.

In the company EC, CRO's greater emphasis on a holistic approach to risk management has not just been triggered by Solvency I and II, like in other companies such as AC, DC, FC, and GC. Several other important regulations, such as Sarbanes and Oxley, also oriented the CRO's toward ERM. Thus, recently there has been a further emphasis by

regulators on ERM, which stresses the importance of implementing ERM and incites insurance companies to consider it. This could be the reason for increasing the number of insurance companies implementing and enhancing ERM. S&P's pointed out that ERM scores have been gradually improving since 2005, based on the assessment of 174 insurers across Europe, Middle East, and Africa (Standard & Poor's, 2010).

CROs of large insurance companies such as CC, FC, and GC have attended conferences and meetings where they provided and shared information about their experience with ERM, and about how they perform and manage its processes, as well as how they deal with the problems facing this process. Best practices may be considered and adopted by other industry players. Best practices are also playing a role in designing the ERM framework of the companies which have adopted ERM recently. Therefore, risk management practices are seen to be extra-institutionalised and disassociated from their historical circumstances. As stressed:

"What you need is to be very open about your own risk and your own understanding, to observe what other people are doing and to take each time the best." (CRO – CC)

"At the same time we did a piece of work to look at all the best practices and external regulation requirements, to help design our framework so that we could meet all the different requirements." (CRO – GC)

6.5 Discussion and conclusions

This chapter addressed the second group of research questions, which focuses on the role of ERM in changing risk management rules and routines. It analysed 10 large and medium-sized general insurance companies in line with the theoretical framework developed in this study. Overall, this analysis indicated that ERM initiates change in risk management rules and routines in UK general insurance companies where ERM is at various levels of a maturity.

Drawing on the framework developed for this study, this chapter provided an analysis of the changes in risk management practices triggered by ERM implementation and embedding. Various changes have taken place after implementing ERM in capital allocation practices, risk-based decision making, strategic decision making, external capital, the volatility of earnings and stock price, and the value of the firm. The analysis indicates that ERM influence on risk management practices is a process-oriented decision. However, the value of the firm is shown to be the financial outcome of the change process. In addition, ERM

implementation has facilitated the routinisation and intra-organisational institutionalisation of risk management practices in insurance companies.

Prior research showed that there is a relationship between ERM and capital allocation practices (e.g. Tillinghast-Towers Perrin, 2004; Shim, 2007; Dhaene et al., 2012; AON, 2010). The analysis in the present study provides empirical evidence regarding the impact of ERM use on capital allocation practices. Although ERM serves many purposes for the insurance companies under study, the ultimate objective of ERM is still considered as improving the performance of the company, which is consistent with the literature (e.g. Pagach and Warr, 2008; AON, 2010; Hoyt and Liebenberg, 2011). It was shown in this study that the use of new routines such as risk-based capital allocation, started in many insurance companies.

Empirical evidence is provided on that ERM usage improves risk-based decision making and supports strategic decision making of the insurance companies interviewed (e.g. Meulbroek, 2002; Lam, 2006; Errath and Grünbichler, 2007; Hoyt and Liebenberg, 2011). Communications is indicated to be another practice affected by the implementation of ERM, which is consistent with prior research (Peterson, 2006; Hoyt and Liebenberg, 2011).

Some of the benefits of ERM discussed in the literature were not seen in this study. In this regard, no evidence was found to support the previous studies, which concluded that ERM reduces external capital or drives a reduction in stock price and earnings volatility (e.g. Lam, 2001; Meulbroek, 2002; Beasley et al., 2008). This study indicates that ERM enables companies to better managing not reducing either their external capital or the volatility of earnings and stock price.

It is sufficient to recognise that ERM maturity level varies among the companies under study. It is either at early stages of implementation or at a more mature level. However, consistently with S&P's report (2010, May 5), insurers are likely to be focusing now on developing stronger ERM.

In conclusion, this part of the study has contributed to our understanding of the risk management practices associated with ERM implementation. Empirical evidence of capital allocation change process driven by ERM in insurance companies' context was found. In this regard, this research extends previous studies considering ERM and capital allocation.

As the extant literature does not explain how and why ERM drives a change in capital allocation practices, this field study provides the basis for a case study explaining the relationship between ERM and capital allocation. This is discussed in the next chapter, with a discussion of the research findings in Chapter 9.

Chapter 7

Case Study:

Understanding ERM Processes and Implementation within VC

7.1 Introduction

The previous chapter presented and analysed the findings of the field study. These findings showed that ERM implementation and use drive a change in risk management practices within the insurance companies under study, mainly capital allocation practices. To the best of my knowledge, there is an absence of empirical academic research into understanding how ERM implementation changes capital allocation processes and practices in insurance companies and its relative merits. It is also the case that there is limited research into the understanding of models and strategies of ERM within insurance companies.

Drawing on the theoretical framework developed in Chapter 3, the case study, which is covered in Chapters 7 and 8, aims to gain an understanding of the change in capital allocation practices (routines) associated with ERM implementation and use. Chapter 7 illustrates ERM evolution and process, and Chapter 8 explains how and why ERM drives a change in capital allocation methods in a single large insurance company within which ERM is considered to be at a mature level. The analysis is based on the use of different theoretical concepts including deinstitutionalisation, organisational fields and path-dependent change processes in explaining the empirical evidence. It covers various levels including actions, routines, intra-institutionalisation and extra-institutionalisation.

The material that is used in this case study is derived from various sources, but mainly upon internal documentation from the company and interviews transcripts. Publicly available information on ERM and practices were reviewed in the phases of preparing for interviews and analysis. This information was continuously reviewed over the time during which the case study was conducted to make sure that the information is up to date.

The remainder of this chapter is divided into five sections. The next section briefly outlines the case under the study. It also presents the key observations. ERM within VC is described next, including its motivation, maturity level, strategy, related organisation structure change, and role and objectives. This is followed by illustrating ERM implementation and embedding process across the case company. Then the ERM framework

within VS is presented. The last section discusses the case study findings and draws conclusions.

7.2 The case company

The insurance company that is used as the case in this research, VC, was visited over a period of 14 months. VC was founded in the late eighteenth century as a general insurance company with various lines of business. It is one of the largest insurance groups in the world. A large number of offices are situated across Europe, USA and Asia. VC is reputable as a leading commercial insurer. It has gained this reputation because of its solid underwriting expertise, financial strength and an excellent security rating. VC consistently enhances its value with customer trust at the base of its activities by meeting all their particular needs. These strengths could considerably benefit customers and distinguish VC from their competitors.

Client satisfaction is a part of the company's day-to-day rationale and business activities are fundamentally directed to gain the clients' trust. VC is a compliance oriented company, which increases the trust of its clients. Therefore, the company's standards are clearly outlined and all directors, officers and employees put this into action. VC also showed a sustainable growth through good management that takes into consideration all social, environmental and economic aspects. VC has net premium income of over 33 billion dollars and more than 25000 staff worldwide.

VC is rated AA for financial strength by S&P. Such high rating and assessment indicates the company's financial security in terms of its ability to meet financial commitments and contractual obligations. Various services and strategies are conducted by a professional team to address exposures and provide efficient solutions. These services provide a great help to the company's risk managers in assessing the risks portfolio, allocating premiums and budgets for risk improvements that are based on possible loss expectancies. The company's risk managers have an internet based access to all the information provided by their team, which assists in monitoring risk improvements. Training programs concerning loss prevention are continuously carried out in the company in order to enhance the awareness of loss prevention and to assist corporate risk managers in achieving risk improvement.

The company establishes its own basic principles for risk management and keep all risks associated with carrying out its business under control by having a department

responsible for risk management. All the company's risks are managed through the process of the specification, evaluation and control, contingency plans, monitoring and reporting. Necessary adjustments are also made according to the particular natures of risks. Principles for integrated risk management are established and quantitative risk management is conducted, which aim to maintain credit ratings and prevent bankruptcies. The size of risk management and actuarial departments has also been increased and specialised people were recruited to embed ERM since its adoption. The case provides evidence that:

- ERM is adopted in response to various internal organisational pressures related to achieving the company's objectives rather than to coercive pressures.
- ERM implementation and embedding provide culture and framework for better managing risks, as well as require changes in organisational structure, and roles and responsibilities of senior management and staff.
- Effective capital allocation requires the incorporation of ERM elements in the whole process of allocating capital.
- New capital allocation routines and institutions are produced.
- Risk-based capital allocation method is intra- and extra-institutionalised at the company level as a result of being considered as a superior method to allocate capital.

The ERM implementation and its associated capital allocation practices in VC were path-dependent. Random elements, systematic mechanisms and inertial forces have shaped ERM implementation processes (Burns and Scapens, 2000). The analysis is consistent with the view of Burns and Scapens (2000, p. 13) that “specific changes in management accounting could be quite revolutionary... Nevertheless, the change process will be influenced, to some extent, by the existing routines and institutions, and as such the process is still path-dependent”. In the following sections ERM, its implementation, and its processes in VC are explained.

7.3 ERM model

The case study findings confirm that ERM model in VC is a strategic ERM as it corresponds to the demands of the risk-based internal control imperative rather than shareholders'. There will be always a consideration of increasing shareholders' value, but this is the ultimate benefit when having a strategic ERM in place. The following sub-sections will present information on ERM motivation, ERM maturity level, organisation structure change,

role and objectives of risk function, risk management strategy, roles and responsibilities for risk in the implementation process, and ERM implementation process.

7.3.1 Motivation

VC adopted and implemented ERM in 2002 and developed a stronger ERM activity in the last six years. Prior to ERM, traditional risk management systems were used. These traditional systems basically focused on operational risk, whilst underwriting risk (or credit risk) was managed by CUO and CFO.

The motivation to adopt ERM and introduce the associated control systems could be explained as being a response to a number of different internal influences. First, the nature of the case company business; VC has considerably changed its business operations over the last 10 years. This change in business operations has led to ERM usage as a way to centrally manage information from various branches all around Europe, which is used for monitoring business and managing risks.

The change in VC's business strategy has revealed the need for and importance of ERM. Having a short-term relationships in a competitive environment provided uncertainty concerning whether VC is able to renew the business it is managing. In this regard, VC needed to be able to measure and monitor the performance of different businesses to make informed decisions about pricing and performance. ERM supported this by combining qualitative and quantitative aspects within VC management which makes it more objective and efficient. It is very hard to argue against numbers and measures. COO-VC stressed the latter discussion and stated that putting ERM in effect implies that people across the company are going to have their measures, monitor their measures and report on them. Previously, there was much opinion based management with little analytic underpinning. He explained:

"ERM is really about... putting numbers behind your management. When I first arrived here, I remember the first few board meetings I sat in or the first management committee meetings which I sat in each month, we never even talked about results. When we did talk about results, you may have four different versions of them because four different people would present them in a different format. While I have been building the infrastructure in effect I have kept using the phrase of "one version of the truth". So, to be much more objective and much more number-based in analysis of our business." (COO - VC)

Second, ERM is seen as a consequence of getting a performance management culture. This emphasises that ERM controls and assures that the company management is performing at its best and thus ultimately improves the value of the firm. Measures are important for management in insurance industry. COO-VC stated that most of operations areas have their KPIs which are the drivers of performance and thus needed to be measured. He added:

"In any business, I used to have a phrase which was: if it moves measure it because if you can measure it you can manage it... So, even in HR has measures like staff turnover management or cost of recruitment or absence management etc. So, they are measures but they are not the key ERM drivers. They are just sub-measures. So, in that sense getting a culture and I keep coming back to this word of culture, getting a performance management culture is supportive for ERM rather than the other way around." (COO - VC)

Third, the adoption and implementation decision was mainly driven by internal drivers related to achieving the company's objectives including increasing return on capital. VC's risk strategy document indicated that the main aim is to "achieve the vision mission by developing and implementing an ERM framework which target is really to support the delivery of sound operations and long-time growth". Thus, the strategy is mainly linked to the achievements of the company objectives as a result of VC's general view of not doing things because it is good for S&P's or good for a regulator but because it is good for the business. As CRO-VC illustrated:

"I can say that, although in general terms the political has quite a big influence in the market, it is probably not too much the case for the largest players because all we do is what we are convinced of and what we need to do." (CRO - VC)

Fourth, CRO-VC's interest and passion played a main role in the adoption decision of ERM. Having a qualified risk officer who is very interested in ERM and recognises its benefits and value to the company could lead him and his risk team to act in a way that is convincing for other people across the whole company and hence facilitates promoting ERM culture. RM/1-VC strongly supported the latter argument:

"He [CRO] is very active and very involved on the day-to-day operations. A lot of the work I perform is for him to help him in deliver against his and the department's objectives." (RM/1 - VC)

Fifth, efficient control of capital allocations was another key driver for ERM implementation into operations. ERM is extensively used for capital allocation in VC. OM-

VC stressed that ERM is due to allow more efficient control of capital allocations from home office and to demonstrate to local regulators, the FSA that VC is in control of its business.

Finally, VC as a large company holding a very big risk considered ERM as a social responsibility because if they were to go bankrupt, there would be a great knock on effect on the local economy and worldwide. The need to implement ERM is obviously more significant for larger industry players.

As such, external institutional pressures including coercive and mimetic pressures are seen to have a little impact on the adoption and implementation decision in VC as a result of being far ahead in adopting ERM (more than 10 years) and of being a large company that seeks doing what is best for its own benefit and competitive position.

7.3.2 ERM maturity level

Having a mature ERM means that ERM should be well advanced, have clear framework and policies, and be actually used and embedded into all levels of the company. CUO-VC strongly expressed that ERM is at a mature level in VC and further explained:

"...we already started to change our day to day guidelines, day to day operational manual to follow, to contribute, to achieve the goals. So not just methodological model itself, we are now trying to implement it into the real day to day business. So, that is the reason why I think it is 75 or 85 per cent mature." (CUO - VC)

Four reasons were provided to support the view of ERM being mature. Firstly, the level of ERM maturity was primarily linked to its usage for the purpose of capital allocation in VC case. This can be explained as some of the elements such as risk register, risk assessment has been already in use since ERM adoption, but capital management was not present until five or six years later. Secondly, ERM basic structure is completed within VC. ERM policies and framework have been clearly set up and put in place. However, there will be always a need for some minor changes or upgrades. Thirdly, ERM has been used to make critical decisions such as retention decisions, which significantly affect capital. This indicates that ERM has been further embedded into day-to-day business and different levels of the company. Thus, risk culture has been promoted and risk has become a main factor to consider when making important decisions. CUO-VC stated that more confidence exists regarding VC's current capital models and methodology.

Finally, ERM was seen to be more advanced and easier to embed because of not having a complicated business structure. Therefore, ERM called for simplicity and going

back to basics as this could lead to a more developed and successful business. However, there will be always steps to take and ideas to improve in order to continuously achieve a better strategy.

Even though ERM is considered to be mature, the concept of delivering the ideas to the business still needs to be improved. Reporting at actuarial level, and risk and control levels has become an active part of the business. There was an indication that some frontline underwriters might not fully understand the language of ERM and why it should be embedded into their daily work. The risk team has taken steps to overcome this challenge including continuous compulsory training programs to push ERM to lower levels. On the other hand, there was evidence from officers; EOO-VC, CUO-VC and SCU-VC, who work closely with front-line underwriters that they are familiar with ERM concept and embed it into their day-to-day activities. This was illustrated as they clearly realised how their decisions have a direct impact upon the amount of capital that should be held by the business and why risk is a major factor to consider throughout this process. SCU-VC stressed that compulsory training programs are tailored for front-line underwriters to enhance their awareness of capital and thus the related risks and risk appetite:

"Yeah all frontline underwriters have to attend a course on capital allocation and underwriting last year and this year... they have an appreciation of the capital more of the capital side and the appetite and the disciplines." (SCU - VC)

EOO-VC shared the SCU-VC's view and illustrated that, more recently, an ERM quiz has been conducted frequently. Thus, they have been testing if people can speak about ERM or not. He added that there is compulsory training every year for underwriters on ERM. He further explained:

"We do a lot of training around it and because it is sponsored at a very high level and we have a full time CRO... if you went to speak to an underwriter, if you say: what does ERM mean and does it affect your daily job? They will be able to say: yes it does because I understand that the decisions I make have a direct impact upon the amount of capital this business has to hold. Is there more to do? Of course, it is a continuous journey but I would say we are quite pleased with the progress." (EOO - VC)

Even though ERM is at a mature level in VC, COO-VC saw ERM maturity to be somewhere in the middle; i.e. neither at a very mature level nor at early stages. He emphasised that the understanding level is very high but the actual usage level is not as it will be. This is not consistent with other officers' view of ERM maturity level. OM-VC saw ERM

to be still at early stages of implementation. This implies that ERM might not be equally embedded across all departments of the company. However, COO-VC showed confidence in the way the risks in his areas are being managed. People in operations have become more objective and much more business focused after ERM implementation. Thus, informed decisions could be taken if measures were in place.

As ERM usage will be always improved over time, there will be always a space for it to become more and more mature. Thus, there is no clear cut about ERM maturity level, but it could be related to and differs according to the intensity of its usage within each department. The different views about ERM maturity lead to a result that ERM might not be equally embedded across all departments of the company.

7.3.3 Risk management strategy

There has been a shift in risk management system from being mainly qualitative to be an integrated approach of qualitative and quantitative aspects. It is then becoming more focused and stronger. This implies that risk management has been integrated over time and has become a key process that should be significantly embedded in the business. CA-VC stated that in the past, it was enough to just say that the company has got this risk and this is what is done to manage this risk and further explained:

"Risk management was far more qualitative side. So, risk management officers, their roles, were limited really to operational risk and more qualitative and strategic risk. Less number based and more kind of overview of risk. Whereas now, it is a requirement that, where possible, all risks whether operational, strategic, or insurance, we should try quantifying them." (CA - VC)

Risk profiling was basically the main function related to risk, but now VC quantifies its risks very precisely. Therefore, ERM process has both qualitative and quantitative elements and is geared to achieve similar objectives to the ones addressed by the ERM framework released by COSO (2004). Taking into consideration both components should lead to a more efficient ERM system and hence better management of VC's risks. CRO-VC addressed this importance:

"But what I am afraid is that many companies just don't understand how important it is to know the business before you quantify the risk. So, whatever is your background, actuary or businessman, what is important is to understand

both qualitative and quantitative components. Focusing on one component only won't work." (CRO - VC)

For the purpose of creating ERM culture, VC intensively has trained its staff to help them understand ERM processes and their responsibilities. Any new person joining the company should have an induction with ERM to get them to understand why ERM is important and why they are asked to take specific responsibilities and actions. This has led to a better ERM culture. Continuous internal risk management training programs have been carried out to further educate people across the whole company about ERM and to help them understand the impacts of its adoption. This can increase the acceptance of responsibility of the new company for delivering change in the business. Online questionnaires and two lines of compulsory training initiatives have recently started. One line is led by the CRO's area of business. Another one is led by underwriting which talks in underwriter terms but then shows and explains the ERM that sits behind it.

Risk reporting is important because it is the way of passing messages to staff, management, and board. Such continuous training programs are steps to have ERM fully embedded and used by all people from different levels in the company to run their jobs. These compulsory training programs and online questionnaires have further supported the implementation of ERM into lower levels. One instance on ERM being embedded into lower levels is that MA-VC is totally aware of ERM importance and why it should be embedded into accountants' daily work. It affected accountants' daily job from an awareness point of view and the experience that they have acquired on a day-to-day basis. Periodically, there have been communications, workshops or training either directly or indirectly through the compliance or legal departments. MA-VC was totally convinced that it is almost impossible to impart a culture and structure to a company without something like ERM. He stated:

"ERM as a culture underpins that... it is a constant reminder that it's starting to provide a structure in something that can be quite amorphous and it is very difficult to define what can be quite abstract concepts. It is easier for accountants largely because the nature of double entry book keeping is to create a structure double entry book keeping to analyse transactions in an abstract way where previously no structure ever existed to invent the concept of having two sides to a transaction or discovering that there are two sides to a transaction was quite a different concept to come up with and ERM is not an equivalent of that." (MA - VC)

Alongside the generic training to all staff members, specific training programs have been directed to specific people with regard to their job nature and the extent to which risk is involved within it. Specific training is particularly tailored for underwriters in the company. Therefore, the realisation of ERM positive effect on capital allocation practices and the need to embed risks into the process of capital allocation are growing over time. Thus, Underwriters are internally required to go through certain programmes to understand the basics behind how to allocate capital to the company; how to achieve rate of return on capital in the company. RM/1-VC stressed the latter discussion and stated that the training courses are becoming compulsory. The risk management team has set up a course for every single department, so they focus not just on how staff can affect the whole company, but how their own department can affect the whole company. By making it obligatory to attend these training programs, they can then track risks much better. As stated:

"We've got generic training to all staff members, but there are certain areas we are doing specific training for them such as the underwriters. We are trying to say that these are the risks which are probably in your areas and discuss this in order to get them to really understand. So, you know as I said before about underwriting, may be within some of our data, the data quality is not so good potentially on recording things like locations. So, we are really trying to get the underwriters to understand that it needs to be much better recording the locations and we tell them why and if they don't then the impact is and you know give them a sort of scenarios about why they need to do this." (RM/1 - VC)

The discussion above implies that VC targets using the full potential of ERM because of the intensive training programs that have been run with the intention to get ERM fully embedded within the company.

ERM has led to more visibility and clarity regarding the information provided by the Risk Department to other departments such as updates on the impact of the processes on data quality improvements to see a reduction of risk. This has helped them to manage their risks better and take into consideration the broad context not only risks affecting their own department. Having a structured risk management framework gave VC formalisation of reduction in objectives. Further, ERM facilitated and improved the process of risk identification and location within departments. When risk is found at various departments, they all have to take joint ownership over it. This leads to a better and more efficient mitigation of those risks. The CRO's team has been the key driver for making sure that everyone is taking its ownership over certain risks. CA-VC illustrated how risk team made

life easier in terms when people look at risk and think how to mitigate it. Thus, if it is involving other departments, they look at what the impact is for their work, and take their ownership over risk and take steps straight to eliminate it. He further stated:

"It has been quite a difficult change because it is about getting people in a room together and discussing it. People can be very senior that is nothing to do with me as an account issues or it could be an underwriting issue... the CRO team should be a quite instrument to bring us saying no you have got to sit down. They actually have facilities to that issue. It actually encompasses three different departments and you have to take joint ownership over it." (CA - VC)

CA-VC illustrated the improvements ERM has brought to the risk management process:

"...the improvements definitely you've kind of mitigate quite a lot of risks. Lots of risks that perhaps were setting in department they wouldn't go away because the impact was coming from somewhere else and those people wouldn't take their ownership over it. Right now we are looking across the whole spectrum. We've actually mitigated quite a lot of risks. Perhaps you know we have something called A risk which is the red risks. We've seen them being downgraded and especially accounts from B to C and some of them actually to D and then kind of disappear. I wouldn't say that mean that many Ds are going down to that but certainly we were seeing risks going from A to B to C." (CA - VC)

Consequently, people across the whole company have started to think about risks in the way ERM requires. Thus, ERM has become holistic as a result of putting it by the CRO team and internal reporting team into the language that people can understand and drowning it into lower and lower levels. For example, MAs have started to think about risks in a different way. MA-VC explained:

"...there's been interaction with the risk management departments that is the existence Risk Management Departments and the distribution of materials and culture from the risk management departments and compliance departments as well. There is always accumulating appreciation of not only to assess risk but to be seen to be assessing risk. So the sort of professionalism that is behold upon accountants anyway to be seen to be, or audits to be seen to be dependent as well as just being independent. That sort of culture is now starting to pervasive amongst employees in a company and you do have to think more about your

position on certain matters whether it's money laundering or anything you might consider to be risk in the company." (MA - VC)

As expected, ERM has enhanced communications and led people to look at not only existing risks, but also new risks. Such risks might come from people at different departments and lower levels not only from risk management team or people at senior levels. People have started to look at all risks categories including the ones they do not own and observe whether they are properly calculated. This explains the interdependencies of the effect of various risk types on each other regardless of where they basically existed. Therefore, ERM has created an effective network of risk communication. Such effective communication strategy could assist in embedding ERM culture into the Board and management decision making process. Therefore, the Risk Management function needs to consistently train the staff to make sure that all of them have the knowledge and the essential tools to embed ERM. RM/1-VC explained how one of the company's main objectives is to embed a risk culture. This culture has been embedded at the top level (executive), so that it drove a "top down" approach. However, VC is also seeking a "bottom-up" approach where staff communicates with all levels of the company.

"Because as part of our risk framework we have "culture and communication", so we are really trying to get out there and embed a risk culture within the company... One of the objectives of the CRO and the CEO is every member of staff has to have training on ERM by the end of this year." (RM/1 - VC)

There was an indication that ERM is strongly linked to accounting techniques as they generally involve lots of internal control procedures. They have fed each other. MA-VC said that he had yet to see anything that goes beyond normal systematic internal control procedures and stressed that there are many of these that could be implemented further. He further argued and gave an example:

"...but just using even some standard accountant techniques are preparing control accounts, total population control as probably the most important tool that we would use for American data to actually determine what are the total sum of the amount passing through a process or as a classic business because without those totals you don't know what the total picture is. You can't then schedule the work, you can't assess what the problems are, and you can't even quantify the risk because if you have hundreds of items 20 of which are risk items. If you don't know that there are a 100 in the first place the figure could be 20, 30 or 50 you will otherwise know the quantity or the quality of that risk." (MA - VC)

MA-VC strongly thought that many of the things coming out of risk management are accounting techniques and illustrated these techniques:

"Oh again coming back to the branch reconciliation and techniques that I do, I prepare I get a flow of information that need to present and put in a certain way. So, I will ensure that all the transactions come through in the form of what used to be called the book of prime entry and that in insurance industry that, they would be described as board draw as. In normal commercial practice they will be called day books; lists of your sales invoices, lists of your purchases invoices and your board draw just being list of your insurance policies and you would collect the total of those as being the amounts due for settlement and then hopefully you have a cash book of records also a book of prime entry but which is suitably analysed to allow you to identify money paid to admin expenses and money paid to trading liabilities and receipts between investment income and trading receipts and to use the combination of those figures to work out what the net difference between the model is and that net difference agrees to the list of known balances to the people to whom" (MA - VC)

MA-VC continued saying:

"...so, you'd have listed names of debtors or creditors. So those are your normal accounting controls for risk purposes you then will be looking to specific techniques to deal with matters such as how do you know something hasn't been entered twice and that might be an individual sequential number being placed on each documents. It sounds like much but then you will have to go through the process of putting an incorrect number or a duplicate number on the documents that has already got a number so you may be relying on visual scrutiny but is one that would show up. I try to pass on to other departments as well the concept of knowing when something is wrong to get to a point where you know that what you have processed cannot be right and that you must always have a reason for finishing the job or stopping the job. You cannot have empty thoughts." (MA - VC)

The outcomes of ERM are still not quite clear for some people within the company, specifically operations people. However, CROs and CUOs provide a number of benefits gained as a result of ERM implementation. OM-VC expressed that it is still difficult to quantify such benefits:

"...we know what we are required to provide, but I do not know what the benefit is and what the consequences of the improvements. The adherence is to demonstrate to me what the saving is or what is the impact has been of performing like that."

(OM - VC)

7.3.4 Change in organisational structure

Following the adoption of ERM, the organisational structure of VC has changed. A risk management department directed and managed by the CRO was set up and a risk management team was developed. A steering committee was also established to run and develop the risk management function and chaired by the CRO. This committee is responsible for discussing risk management from total and comprehensive angles. The Chief Executive gives the Risk Committee a responsibility for ensuring that risk awareness culture is pervasive throughout the company. It consists of various risk sponsors including CRO, CFO, COO, CUO and CAc each of whom has precise risk responsibilities. Therefore, manager level is very much involved in the ERM implementation process. VC also has a network of many risk representatives in its different branches in order to implement the regulatory requirements. CRO-VC illustrated that ERM is promoted to be a way to achieve VC's objectives and hence it is a necessity rather than being a burden, which facilitates its embedding into day-to-day job:

"It is very much shared and my role it is that everything is taking place smoothly and people always understand it is not burden, it is not administrative task, but it is something which serves the company objectives." (CRO - VC)

VC Group approximate organisational chart is represented in Figure 7.1, which depicts the introduction of the Risk Department. The chart shows that Risk Management is an independent department and separated from Internal Control department, which implies that VC has given a greater importance to the issues related to risk management as a result of implementing and developing stronger ERM.

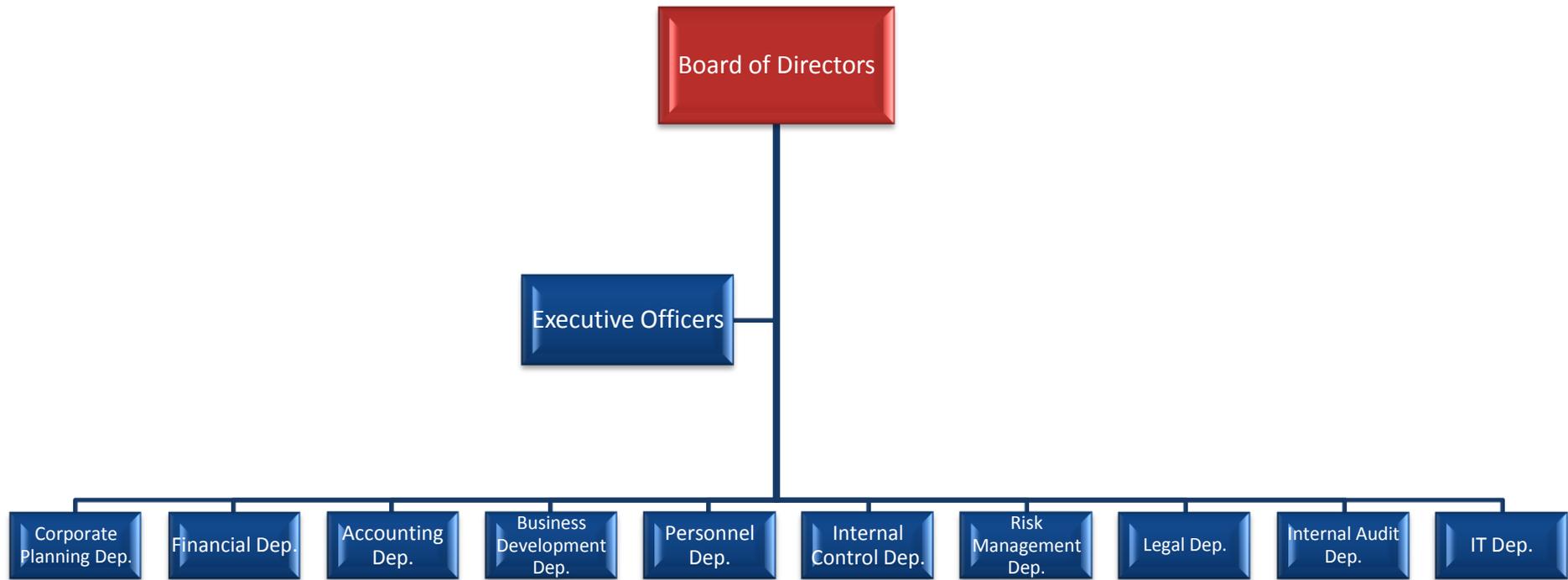


Figure 7.1 VC Group: Organisational chart

The Operations Department and the Risk Department are getting closer as ERM becomes more mature. In addition, Actuarial Department now works quite closely with the Risk Department, which was not the case before ERM. This can be explained as the Risk Department is becoming more interactive with other departments. Risks should be recorded and then reported to the Risk Committee. Thus ERM has expanded the role of the risk function over time.

ERM implementation required VC to strengthen its infrastructure, particularly IT areas. Having such a good infrastructure supported the business development and provided the data required to take informed decisions. As such, all of the infrastructure areas are in support of the VC's business strategy. COO-VC considered ERM to be about performance management and clarified that he was appointed to mainly help strengthening VC's performance management:

"So, when you talk about some of my infrastructure areas, the IT area, it is all about producing an infrastructure which is capable of supporting the business from which you can obtain the data or the information necessary to take informed decisions. So, that is ERM and that is also performance management. So, that is really what the link is." (COO - VC)

As ERM is seen to be about performance management, there is an implication that ERM implementation and embedding can affect the value and performance of VC.

7.3.5 Role and objectives of the risk management function

ERM in VC was described as an action that encodes institutional principles. Employees have considered ERM to be a technique that has been used for a long time and a necessity for running the insurance business. VC could see the benefits of implementing a holistic approach to risk management rather than following what regulators say. Therefore, to manage a business, there was a need to set up a risk function that provides criteria against which the business performance could be assessed, as well as promotes the culture of taking a holistic view of risks. ERM put a framework around that. MA-VC viewed ERM as helping them to better manage their risks and thus achieve the business objectives. He stated:

"...the approach that we take here to ERM is to try to assess all risk in an intelligent manner and not in sort of that US living by regulation existence." (MA - VC)

As ERM was seen as a necessity to run an insurance business and a part of insurance business that has been always used and hence what it is done is improving it over time, there should be specialised people to manage and run all risk management processes within the company and help other people to run their specific risk responsibilities. The role of the Risk Department has been an independent function that helped balancing the relationship between business development and operations sides, and monitoring their acts. Thus, ERM played a key role in making sure that all business areas work in unison and in the way ERM required. This provided the bases for the business to continue and to have a competitive advantage. COO-VC illustrated the risk function role as a catalyst for helping people to evaluate risks. He indicated that because the risk function does not have any accountability for delivery, it is able to be much more dispassionate in the presentation and the challenging. He added:

"I will define the business into three different areas. On one side of our business, we have one area which is really around the business development... My side of the house is really about spending that money, so I've got all of the infrastructure areas... In the middle we have the control functions of which risk function is one. So, risk function takes an independent view and helps either sides of these to understand what are all the facts, the performance imperatives in that area."

(COO - VC)

7.4 ERM implementation

This section will illustrate how ERM implementation requires adding further risk responsibilities to the roles of senior management and staff. ERM implementation and embedding process within VC is also explained.

7.4.1 Roles and responsibilities for risk: senior management and staff

All departments including finance, actuarial, strategy etc. have assisted in the implementation. However, CRO-VC has been mainly responsible for ERM implementation. He set the ERM manuals and policies, then the process was taken forward by him and people from his department. Each sponsor of the ERM steering committee has been responsible for a certain stream of embedding ERM. The CRO tend to be the focal person. CUO-VC has been responsible for the embedding process within the Underwriting Department. The CFO-VC has been responsible for the investment and financial aspect of the implementation and

embedding processes. COO-VC expressed that CRO-VC just provided assistance in defining and evaluating risks in all departments and do not do the whole job:

"It helps us to evaluate risk but... it is for the managers of each of the functions to take the responsibility for those areas of risk. So that is the supervisory role which they have. I work very closely with the risk manager in term of defining the risk measures." (COO - VC)

However, the more mature ERM has become, the more its embedding has become the responsibility of the officers and the CRO would check that this happens. For example, COO-VC was responsible for implementing ERM into his departments including human resources, general affairs, IT, operations and claims. He did not report to the Risk Department. In this sense, the risk team was mainly responsible for monitoring and assessing the implementation process in the departments COO-VC manages.

Although most officers have started to take on the responsibility of implementing and embedding ERM into their departments such as CUO-VC, OM-VC thought that he and people from the same level contributed to the delivery of the requirements of ERM. They are not responsible for the implementation within the department. It could be infer that senior management has overall responsibility for implementing ERM within the context of achieving the company's overall goals.

MA-VC supposed that he would not be involved in risk management process prior to ERM and thus he had no risk management experience. Recently, he interacted with the Risk Management Department to formalise the practice that he has put into place because of his involvement in putting institute systematic internal control over every single activity he does.

MA-VC stated that he can no longer just be an accountant. He thought that there is a need as an accountant to have a very wide IT skills, database skills, system analysis skills and spread sheets skills to be able to model the company. He added:

"...and prefer to call accountants financial mode lists now not financial accountants because they should be able to model the company in terms of its internal structure and how is manifested the finance in the world financially and legally and indeed in any way." (MA – VC)

However, MA-VC stated that MAs' role has not changed much after implementing ERM as they have always thought in risk terms and applied risk management disciplines. ERM has mainly helped them to fill some gaps that are related to compliance by providing appropriate education and detailed information, which enhanced and explained the logic behind the approach they follow in their work, and improved their way of thinking with

regard to risk embedding. This indicates the absence of a formal clear framework of risk management. He stated:

"Because of my auditing background, I'm always thinking about impact for any reason whether it's loss, fraud, liability of any sorts because of the need to assess whether the company financial statements are stated right and that includes looking at what I refer to as foot prints on the sand where my implication if one thing is happening there is likely to be another implication particularly around going concern in an organisation." (MA - VC)

Although the role might have not changed significantly, MA-VC provided an example on some of the gaps that ERM related training helped to overcome in his role:

"It might be from things such as... the compulsory compliance courses that we are required to do they might provide an ethical insights to something that it is not that you learn a new ethic or new standard or new tenants but the fact that they've mentioned something and in a certain way might make you appreciate that you can't necessarily rely on a common sense approach in a situation you might have to actually think what the prescriptive approach is and what was the logic that went into that. You might be looking at the spirit of the legislation as opposed to a sense of justice, fairness or morality so even the smallest amount of training can be fairly significance from my point of view." (MA - VC)

ERM adoption and implementation processes within VC received a significant support from the CRO, CEO and CFO in terms of financial support, educational support and promoting the culture as a result of being totally convinced of how ERM can help the company achieving its objectives. Such support on different levels facilitated the process of the implementation as people will be aware of how to embed ERM in their daily job. As AA/1-VC explained:

"These are where we were made aware of the education part, that they have been very good as they are making us aware of how the company can affect so much of the risk and ERM. We just think we sit at the desk and our job might be that important, but they manage to educate us so we could be responsible for liquidity risk, credit risk, reputational risk, all of the risks. And how each one of them, a small thing that we do, could end up causing risk in any of those nine categories." (AA/1 - VC)

7.4.2 Embedding of ERM

For a successful implementation and embedding of ERM within VC departments, the CRO asked other officers to primarily improve data quality and reduce their key risks. For instance, everybody in operations has been engaged with the data restructure which has helped to improve data quality and to reduce risk. ERM implementation process called for people with certain educational backgrounds and professional qualifications. Background and qualifications affected ERM implementation process as they increase the awareness and sensibility about certain aspects of the business, which leads to better management of risk. For example, RMs were appointed as a result of being very qualified and experienced in risk management field, which would facilitate ERM implementation and confirm the need for people with specific qualifications and experience.

The biggest operational risk in VC was seen to be the people risk, which is the most difficult to quantify. Insurance companies are very people dependent because they don't have something which is tangible and evident that is manufactured. They don't actually know their input cost until after they have sold the product. Therefore, insurance companies mainly rely on people to make the right decisions. There is a risk around that good quality people may leave at any time, and then there is a need to start all over again and look for such people. This implies why ERM successful implementation required specific backgrounds and professional qualifications. COO-VC stressed that VC is very exposed to what an individual does and gave the following example:

"In terms of our risk environment... all the operational risk areas will be my main concerns within that I'd say our biggest operational risk is our dependency upon key personnel. We have got other measures which are around reinsurance management or misprocessing or poor claims handling etc. but the biggest one among those is the people one." (COO - VC)

Macintosh and Scapens (1990) argued that management accounting knowledge is a key element in the process of accountability. In VC, ERM team have begun the implementation process, which has started with the definition of risk concepts, policies and framework, as well as business requirements. A capital model was built and then incremental steps were regularly taken in implementing ERM. Certain norms have been built into the capital model such as limits for capital margins and loss ratios (LR). Meetings at senior level management were held to know what each department has done and what is needed to be

done. Based on these meetings, the workflow and the business processes which ought to be done were developed.

The process of ERM implementation was fully structured at VC, where detailed policies are laid out and frameworks are put in operation. The challenges encountered the implementation of ERM were mainly cultural issues, and limitations to data recourses. Risk modelling has been an important issue for insurance companies as they need to measure and manage their risks as good as possible in order to maintain their business continuity. The quality of data inputs has played a major role in risk modelling outputs.

In VC, the process of ERM implementation was described as evolutionary system changes. This was considered to be a good approach because people need time to digest all the changes accompanying the implementation process. It would also provide the opportunity to correct the mistakes and deal with the obstacles that appear throughout the implementation process more efficiently and effectively. The latter discussion is illustrated by CRO-VC:

"We had a lot of things, but without a big picture to put things together. And then it started to be something which looks like really comprehensive and it is becoming a real ERM framework." (CRO - VC)

Although ERM implementation was described as an evolutionary process, there was evidence that ERM process is different from one department to another. It was described as revolutionary process at operations level. As VC processes have been so radically over held as a result of the operational changes required, a major rethink of how to adapt its existing systems has been needed in order to meet such requirements. New frontiers were introduced and centralised analysed approach was adopted, which are considered revolutionary steps. This indicates that ERM process varies among VC departments from being incremental in most of them to revolutionary in others. Such variations may occur as a result of not embedding ERM simultaneously and equally at all departments. OM-VC explained:

"We have introduced, for instance, a new frontier called management system. So I would say that was fairly a revolutionary step. Eliminating responsibilities from the branches and adopting a centralised analysed approach is in my opinion is a revolutionary step for the company." (OM - VC)

ERM was considered as a part of accounting system and control system and different people use it for different purposes. For instance, COO-VC mostly uses ERM in the claims area but it is less and less direct in the IT or HR. Claims Department is where most of VC's money gets spent. This is associated with the concept of situated functionality presented by Ahrens and Chapman. However, these people all contribute to the company as a whole which

is related to the concept of teleoaffective structures (Schatzki, 2002). CAC-VC illustrated the different uses of ERM within different departments:

"...our finance department is using it to help in deciding its investment strategy. Our underwriting department is using it to assess the performance comparing different lines of business." (CAC - VC)

MA's work is always concerned with any risk whatsoever, so they might be looking at changes to how one of their branches works or how one of their agency companies works so as no longer be working with them and thus the risks surrounding these conditions. The nature of MA's work makes them responsible for thinking and monitoring the processes of and risks related to data capturing, storing, integrity, validity and reporting, which is done by other people across the company. MA-VC explained how ERM is used in his day-to-day job:

"So, I'm involved in the regular try risk which often encompasses a fairly comprehensive range of what you might consider to be enterprise risk so many of the questions you will be asked would be on capital risk, trading risks, industry risks, structural risk so you have to report to those correctly. And because I'm also involved in the data capture at a granular level, I am also having to think along quite ahead about somebody else's data; how is that data captured, how is it stored, what's the integrity on that data, is there any validation, how is it to be recalled and are we going to be able to report it? So those stages normally are in my mind when I look at every single transaction capture, repository, storage, recall reporting and that's the nature of my work." (MA - VC)

Although there were different uses of ERM by different people and departments, its main use was considered to be for monitoring specific targeted improvements in data quality, reduction in risk and management of capital. ERM has helped managing risks by bringing priority and prioritisation to areas of focus that have key impact on the company. Focusing on those areas impacting the company has allowed VC to allocate resources and effort where it is most benefit to it.

"Same, it is about to be specifically focused on those areas that are impacting the company to allow us to allocate resources and effort where it is most benefit to the company." (OM - VC)

ERM was embedded into lower levels of VC as a part of ERM process to help achieving a fully embedding. Although ERM was embedded into lower operations levels, they might not understand ERM terminology. They could understand more about performance management. Thus, a part of ERM was translating to people their personal

objectives that have monitoring against those objectives. This is demonstrated in the following example:

"...one of the key measures for a business is maybe Return on Capital or Return on Risk or whatever. Usually it is equity or capital or whatever. If I start to talk about that to one of my second-line underwriters who is managing a small portfolio they wouldn't necessarily see it a return on capital on their portfolio. What they would see - if I take the return on capital- is that it comes from knowing they have to generate profit and the profit comes from my claims, my expenses, my commissions etc. So what I do is I translate that down to a language which that person understands which is you must achieve a portfolio growth which doesn't exceed 15 per cent producing a loss ratio which is below 60 per cent and then an expense ratio which does not exceed 35 per cent. So you translate it into a language that isn't really an ERM measure, but it is a language which is relevant to that job." (COO - VC)

On the other hand, MA-VC's views showed that he was completely familiar with the meaning of ERM and how to embed it into his daily work, which indicates that people at lower levels have a clear view of ERM concepts and its usage. As he answered:

"It [ERM] is a comprehensive term whereby any risk arising from any aspect of the company's activities gets to give rise to risk of liability, penalty, and loss. So in every transaction I would look at, for example I would always look at what are the compliance requirements for that transaction, are there any credit implications, what are the impacts of any misstatements or of any emission. So again I'm always looking at the high level view of each transaction." (MA - VC)

SCU-VC saw ERM as a government situation and indicated that there is a huge regulatory things sitting behind risk management. This regulatory situation was considered to be very beneficial because it imposes a lot more strict controls around what to do. Although it gave less flexibility, it offered more consistency. SCU-VC's understanding of ERM was clearly from a governance type point of view. However, he realised its processes and the need to implement it. As said:

"Well, it sets a number of things. Firstly, we do have to comply with regulations but mainly, from my point of view, it sets things such as risk appetite, deals with risk insurance concentration because I do quite a lot on the modelling side, looks at our rate of return on capital and things like that... so, it's kind of, from a

higher level, it sets benchmarks lower down so if we don't comply with those things then we are really doing something wrong." (SCU - VC)

This indicates that people across VC have various perceptions of ERM, which could be attributed to their different involvements with risk, how ERM is used in their job, and ERM related importance. ERM has been working well at VC, but it has not been working yet at its maximum efficiency. It could be inferred that ERM full potential is not used in VC. This could explain the intensive training programs run at the company level that will enhance the use and embedding of ERM. CA-VC illustrated:

"I wouldn't say it is working as good as the ideal scenario would be. But I think as good as it can be." (CA - VC)

7.5 ERM framework

The risk management framework that is employed in VC is to an extent similar to the standardised approaches, such as the COSO framework (COSO, 2004), ISO 31000 (ISO, 2009) or Basel II/III (Basel Committee, 2006), and follows the risk standards and objectives presented in the latter frameworks. ERM framework in VC was set out in four documents which are governance framework, risk appetite framework, own risk and solvency assessment (ORSA), and risk reporting, culture and communication framework. These documents were customised to suit VC's needs identified through the business analysis and to help people across the company understanding ERM and their own risk responsibilities. The framework is presented in Figure 7.2

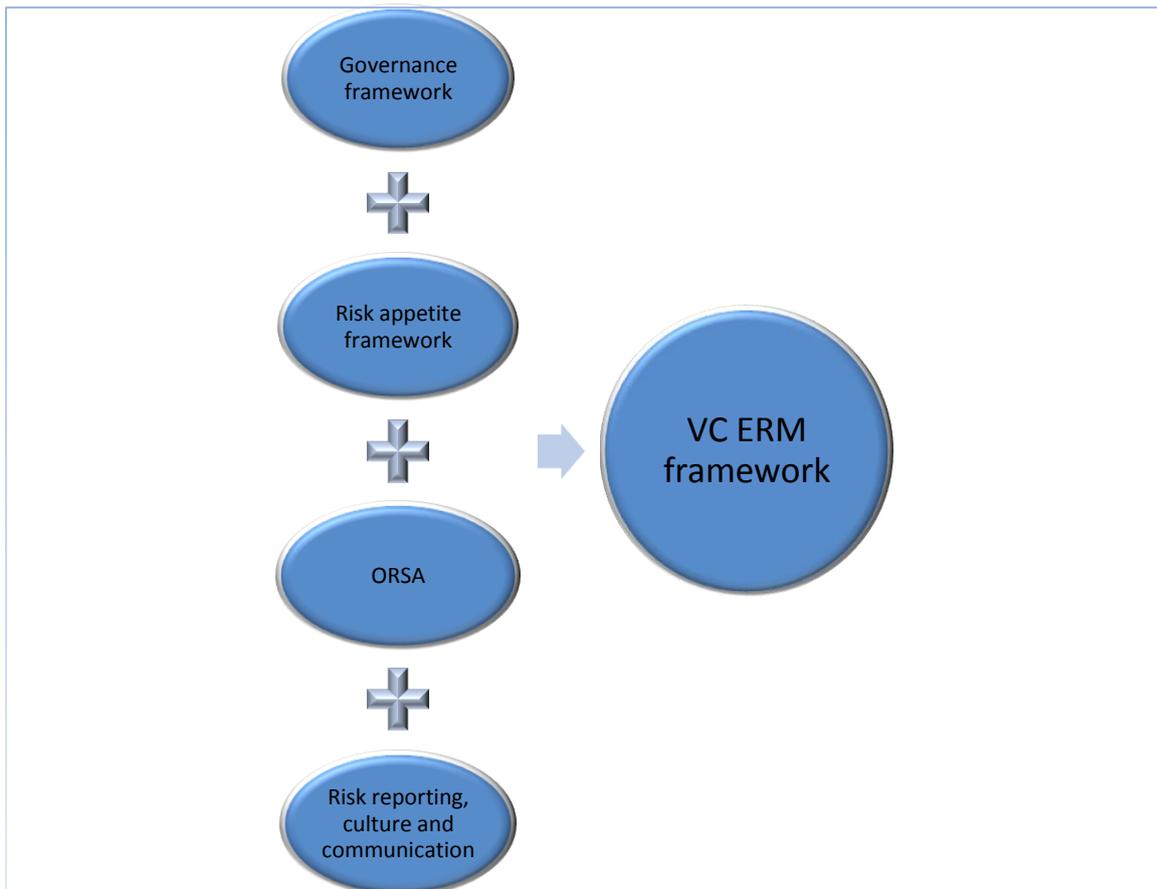


Figure 7.2 ERM framework

The governance framework was developed about a system of lines of defence. There were three lines of defence system and some related key risk functions. Risk management, actuarial functions, risk compliance functions and audit are the key functions related to the risk. Thus, everybody in the company who has any risk responsibility and particularly in the risk functions should be fit and proper, as well as their roles and responsibilities should be very clear. All VC policies, strategies, and staff responsibilities were written in a way that is expected to be clear and simple in order to facilitate the way they do their jobs, and identify and manage their own risks.

The risk appetite framework deals with the concepts of risk appetite, risk tolerance and risk limits. Risk appetite is a qualitative type of statements, while risk tolerance and limits are quantitative type of statements. The exposures have been monitored from a quantitative perspective on quarterly basis. This risk appetite statement has to be disclosed. VC's risk has eight components including underwriting, reserving, credit, market, liquidity,

operational, group, reputational and strategic. There has been a clear precisely risk strategy and risk appetite for each risk.

The ORSA is a main component that encompassed a significant part of traditional risk management but it is developed in VC. The ORSA has three components: risk profiling, risk quantification, and capital adequacy assessment. Risk profiling includes an approach that starts with the objectives as the risk for VC is linked to achieve a number of objectives, risk assessment, risk identification, risk analysis and evaluation, and risk treatment and action plan. Risk monitoring and reviewing has been done on regular basis to make sure that improvements are taking place. Risk quantification has been done by using in parallel an internal model for all risk components using stochastic approach and quite complex tools that are developed by the company, and also using a more standard formula from regulatory perspective. At the same time of monitoring and quantifying risk, ERM team is supposed to compare the two approaches to understand the differences between them. Capital adequacy assessment is the key aspect that is the output about how much capital the company has, does it respect various tolerance, and so on.

Risk reporting, culture and communication were enhanced especially in the last years as VC tried to report the risk in order to create a proper risk culture and communication. A set of reports on risk were produced for the Board and management. Risk Management Department created a type of reports with input from different functions such as Accounting and Finance, Internal Audit, Compliance and Actuarial. The Risk Management Department created another type of reports where there are material changes to the environment of risk. The CRO also reported directly to the Board on major changes which need immediate attention. ERM Risk Culture was embedded via risk management related training sessions, and business plan cascade. VC intensively trained its staff to help them understand these processes and their responsibilities. There was continues communication and consultation with both external and internal stakeholders during all stages of the risk management process.

7.6 Discussion and conclusions

This chapter analysed one case study in line with the theoretical framework that was developed in Chapter 3. The analysis was conducted at various levels composing actions, routines, and intra-institutionalisation in order to understand the interaction between action and structure. The case study results revealed that ERM was implemented gradually through a fully structured process in VC. For a more mature ERM, VC has improved its risk reporting

structure. Risk communication within risk reporting structure enables companies to achieve a consistent and appropriate risk response. This approach can enable risk management activities to fully support the achievement of the strategic objectives of the company (Woods, 2011).

Embedding risk management into operations was an extremely challenging and long term process. However, the risk management function in VC has a direct contact with day-to-day operations, but risk management holds little meaning for some front-line staff according to the extent ERM affects them. ERM was linked to the attitude to risk. Thus, it would be different where employees are encouraged to be risk aware and take responsibility for risks control from the one if risk taking is encouraged as an approach for boosting short-term profits. In companies, the Board of Directors' and senior managers' views are generally reflected in the common attitude to risk and risk appetite. This could be formalised in producing the related risk taking documented guidance and rules (Woods, 2011).

Regulations allow faster and easier embedding of ERM in terms of both technical and financing issues. They add credibility to ERM usage. This shows how extra-organisational pressures lead to changes in activities, rules and routines (Burns and Scapens, 2000). Although regulations did not drive the decision to adopt ERM in VC case, they could provide some elaborations related to ERM implementation processes. Further discussion of the findings is provided in Chapter 9.

Chapter 8

Case Study:

Change in Capital Allocation Practices Post ERM Implementation

8.1 Introduction

The previous chapter presented and analysed the findings of the case study in relation to the models and strategies of ERM within VC. This chapter aims to complement Chapter 7 and to gain an understanding of the change in capital allocation practices (routines) that are associated with ERM implementation and use within VC. The analysis in this chapter is based on the use of different theoretical concepts including deinstitutionalisation, organisational fields and path-dependent change processes in explaining the empirical evidence. It covers various levels including actions, routines, intra-institutionalisation and extra-institutionalisation.

The remainder of this chapter is divided into six sections. The next section discusses the processes of production and reproduction of capital allocation routines. This is followed by investigating the consequent changes in roles and responsibilities for capital allocation after embedding ERM. Then the improvements ERM brought to capital allocation processes and practices are outlined, followed by explaining the changes in the risks embedded into the internal capital model after ERM implementation. The intra- and extra-institutionalization of capital allocation routines are illustrated next. The last section is the discussion and conclusions.

8.2 ERM use and production and reproduction of capital allocation routines

As stated in Chapter 2 capital allocation is the process of assigning a fixed amount of money for new investments (Gale and Branch, 1987). Economic capital allocation is a concept for measuring and managing risks in various portfolios of a financial company. It has played a role in building the ERM framework. Economic capital allocation requires understanding and modelling the various types of risk which are borne by a financial company. It has also become the main base of the ERM new era, which allows the strategic shift in financial institutions to shareholder value creation (Rao and Dev, 2006). The outcome of this process is a higher return on capital with less risk taken.

Prior to ERM implementation, capital allocation was based on a fixed percentage of the premium in VC case. This means there was no risk assessment in allocating capital. ERM usage has led to a revolutionary change in capital allocation processes. This change occurred because ERM has pushed people to think more realistically and to be more aware of their capital requirements. Therefore, there has been a larger chance that people will be able to identify potential risks before their occurrence and their subsequent effect on the capital. AA/2 confirmed the latter notion:

"So, by thinking at a more granular level and people will become aware of potential loss before the actual loss happens so it will be major improvements."

(AA/2 - VC)

When embedding ERM in the day-to-day job of capital allocation, it is expected that it will drive the business decisions. Underwriters have started to think in terms of risk management which means moving towards a more strategic way of thinking. Actuaries have also become more involved in risk management on a day to day basis than they probably were years ago. Thus, ERM has led the people working with capital to think about risk in a different way and widened their view of risk. CAc-VC and SCU-VC who work closely with actuaries and underwriters stated:

"...everyone in the company whether they work in risk management or actuarial work are becoming far more risk focused. Sort of everybody is becoming kind of a mini risk manager. So, I was having discussion among new business plan yesterday talking with underwriters, they are all very much now thinking in terms of risk management, every time they write business they're taking in new risk and they think in terms of not just what the expected loses." (CAc - VC)

"Although it's not my money to spend but I think I know enough to say to people: ok, that case may look good on paper but it doesn't fit appetite; it doesn't fit severity; it causes more problems than it solves so the day-to-day underwriter would say: 'Look, it's £100,000'. Steve and I want to write this, but I could say the capital allocation cost is really really high; the data is poor so I can't map it and those kinds of things. So, it could be a lot of negatives around writing something like that." (SCU - VC)

CAc-VC gave an example to further support the latter discussion:

"...in the past, the underwriters would think the expected losses from this risk are £1 million. So, as long as I charge £1 million plus £10, I will make a profit and that's all what I have to think and worry about. Whereas, now the current

starting point of understanding of the expected losses and how bad it can get. You try to think in terms of one to 200 years, but this is really not meaningful for the underwriters. What is really meaningful for the underwriters is one to 10 years or one to 50 years and we will help to project that out for 200 years. That's how they work the profit." (CAc - VC)

Underwriters now use different performance measures and look at performance and profitability in a different way to the traditional measure, whereby a narrow combined operating ratio is used. In relation to capital allocation and return on equity, as they are in a tough market where it is difficult to increase prices, they were further required to think about risk in the sense that it is not about adjusting the price but about what type of business they should keep and what type they should dispose of. An example was given by EOO-VC to illustrate how ERM makes underwriters think in a wider sense:

"Now, we look at actually how much risk capital do I need to support a particular line of business. The risk capital of the company as a whole is impacted upon... you can minimise that capital depending upon the robustness of your ERM program. It makes you think in that broader sense so that if - because you got strong operation controls, strong controls around the way you are investing your premium - And that then helps you reduce the amount of risk capital you have to hold to support your business. So that is a different way of looking at the profitability." (EOO - VC)

ERM further affected the way VC exercised capital. They have run their models and break those down per risk. This process has provided actuaries with relevant information for capital allocation. ERM has affected actuaries' work and aligned it with underwriters', which helps deliver better capital decisions based on more detailed and extensive information. SCU-VC explained:

"...we look at it [capital model] in two ways. We look at annual average loss which is the kind of burning cost under the curve model figure and we also have something that our actuaries use which is more a capital allocation; taking the one in two and taking the rate of return on capital for a one in 200 event. So, in theory we are using one or both of those numbers and then aligning that to the risk profile. So, that's a real example of how it's implemented. But it's not gospel, it's a number and we have to take a view on it. There is more work to be done and models are certainly only an opinion but I think if the opinion says 1 million and our price says 50 thousand then the truth is somewhere between the two. So, we do have to take it into account" (SCU - VC)

After using ERM, risk-based capital allocation has been used in VC as a method to allocate capital. Using this specific method has led to higher return on capital as it gives a greater understanding of the risks to which the company is exposed and hence, capital is allocated particularly to individual exposures. Understanding all the risks in more detail could enhance the capital allocation process and decisions. This change has been a more process oriented decision-making practice but it ultimately could affect the financial decision according to ERM outputs. CUO- VC and EOO- VC commented:

"But on top of that we have to think about what kind of a change has happened in the market and we have to amend the expected figures. Then decide this direction we should go and what kind of resource we need." (CUO - VC)

"[Are you getting a better return on capital because of using ERM?] ...the answer to that is yes we are. That's one of the key outputs of it. We are in a lucky position in where we hold more capital than we need to support our business but at least we know that... We got the risk capital which we need to support our business. It is a very good measure because it gives us the analytics to say actually by growing property that is going to hurt our capital and that is going to hurt our return on capital but by diversifying more into marine that may help us. It helps us to manage our business in a very practical way. So, it is not a theory, it is a part of our culture here." (EOO - VC)

Capital allocation has been done at portfolio level whereby a balance for risks within that portfolio exists. VC has allocated capital by risk categories, lines of business, and countries. Thus, capital has been allocated based on more detail and to all segments and lines of business. Underwriters have only used informed data, which should lead to more rational decisions and better capital allocation. More sophisticated quantification of exposures has been put in place that could help to manage risks better and enable better decision-making concerning capital allocation. However, this required expert people who can deal with these quantifications. That explains the specific training programs. ERM has used current market information, not only historical data, to manage the internal capital model. This could provide more informed and rational decisions. It is sufficient to recognise that market information may not be available for all types of risks, and the model for specific risks such as non-life underwriting requires historical information basically to run and thus allocate the capital by risk categories. ERM also helped tracking the efficiency of capital usage within VC. RM/2-VC explained:

"It gives you much greater understanding of the risks to which you are exposed and then you can allocate capital specifically to the individual exposure. It led to the usage of risk-based capital allocation because you are able to take those learnings and apply them in order to enhance capital allocation, calculating it in a much better way. As a result, you get more knowledge and experience... We use market data for some of them. We definitely use external data for parts of the internal model and we use external models as well." (RM/2 - VC)

CFO-VC and EOO-VC shared RM/2-VC's view. CFO-VC believed that VC needs to utilise the perception got from ERM exercise into its actual operations. He stressed that in the long run the efficient use of capital is very important for VC and ERM is helping. EOO-VC stressed that staff have looked at underwriting risk by line of business in quite lot of depth comparing to how they used to. Thus, people look at VC's risk in a kind of wider sense with regard to how those affects the business and to how they manage the business. As stated:

"ERM tells us how efficient we use capital [Laugh] at least for this company and may be in some other companies. So, we need to recognise the situation of the uses of capital even though it takes some time and hopefully, not so long to change the way we are doing our business but definitely we need to make our capital usage efficient." (CFO - VC)

"So from a property standpoint, are we writing a lot of catastrophe insurance [CAT] or exposure to that CAT or not and then how our property book diversifies with other lines of business such as marine or liability. So, underwriting risk is our biggest risk but ERM now looks at various other risks that surround what we do. So, we look at increasing the operational risk, investment risk, the broader areas of reputational risk is important in our business as well strategic risk." (EOO - VC)

The better people understand the risks which their company is exposed to, the more chance they have of assessing these risks and modelling them correctly and hence getting the capital calculation as accurate as they could possibly get. The process of allocating capital to risk categories whereby ERM is driving and monitoring all the practices on holistic bases to get better capital allocation decisions is illustrated by RM/2-VC as follows:

"We have eight risk categories; non-life underwriting, market, operational, group, strategic, credit, liquidity and reputational. So, there are certain models set up for each one. The model for non-life underwriting gets all the historic data (losses) we've suffered and then models them in certain instances (say a

catastrophe) and calculates the potential losses. The sort of process for doing it is you build the model, plug in all the data, and then you have to collaborate it on in certain time horizons." (RM/2 - VC)

RM/2-VC continued saying that capital is calculated for each model of risks on its own bases and then a diversification is set at the end of this process. He further added:

"So maybe if you take all seven separately, maybe they give 200 million total of capital and then you get a diversification benefit. So, maybe when you are looking at all of them in one go, you say right it is not 200 million, it is a 150. The reason for that is you can say: what are the chances of all of them happening at the same time. On a 1 in 200 years basis what the chances are of a huge earthquake in America and European windstorm and internal operational process fail (i.e. we misprocess the reinsurance) all occurring at the same time. All of the risks that we have, we say it is very unlikely they could all happen at the same time. May be you'll have an earthquake, or maybe we have an operational risk internally but the chance of everything happening in one year is extremely remote." (RM/2 - VC)

The unavailability of and limitations to risk information and detailed understanding were hindering the use of risk-based capital allocation method in VC. ERM facilitated the application of capital allocation on risk bases as more informed information was provided to guide the risk-based decision making. As illustrated:

"No, you didn't have all of the data and all of the information, so you couldn't really do it... you couldn't really apply capital allocation on that basis because you didn't have a good enough understanding. It was just a standard formula, a standard calculation, but now you can do it on a risk-based approach because you are able to have a more thorough understanding your actual risks and you are calculating the capital for each of those risks. You can allocate capital for each of the different risk categories." (RM/2 - VC)

AA/1-VC and RM/2-VC shared the view that the more specific they can be with regard to their capital allocation, the higher the likelihood it is going to be correct. They further gave the following examples to explain why and how risk-based capital allocation is a better method for allocating capital within VC:

"...the risk basis is probably the best way of allocating capital, because it's the best measure. For example, if you allocate capital based on the premium it maybe that your rates have changed. What you were paying £100 last year may not be

the same cover you are getting this year. So, it's not always the same. We are comparing things; which means you have to do an intermediate step to sort of change the rate, so that it's comparable, whereas the actual risk itself." (AA/1 - VC)

"So within risk-based approach, you may calculate that operational risks require £10 million, whereas, market risk requires £20 million. If you can break capital allocation down by risk, it increases your understanding and it is more likely to be correct and accurate. So, it reflects the risks and the exposures present within the Company." (RM/2 - VC)

Risk-based capital allocation encouraged prudent risk taking and led people to think about risk in a holistic way by enhancing their understanding of all the risks in more detail. EOO-VC expressed the notion that VC has become a healthier and safer business as a result of doing risk-based capital allocation. He added:

"At very simplistic level for example, investment, If you are taking underwriting risk on one side and then on the other side, in your balance sheet side you then are taking that premium and invest it in a speculative investment. Then there obviously is a risk to that and that needs to be quantified and you will be penalised. I think that approach to business is sound. So, embeds conservatism but also what we are here to do is to protect the policyholders. That is our fundamental job and to be prudent" (EOO - VC)

RM/2-VC shared EOO-VC's view and further illustrated that it is important to allocate capital to lines of business, which could enhance the effectiveness of the capital. Thus, there would be more confidence in the capital the company is holding and hence, people could try and insure that it is as effective as possible. He explained:

"You don't want to hold too much capital because you could utilise those funds elsewhere and seek to improve the business (better systems or higher headcount). But then you also don't want to hold too little capital because if an extreme event occurred i.e. a huge earthquake and we are very exposed to it, then we need to make sure that we have enough capital to cover subsequent losses and don't become insolvent. Therefore, you don't want to hold too much and you don't want to hold too little. Our internal model (with all the different elements of it to calculate the specific risk-based capital) is able to calculate capital requirements to cover all eventualities." (RM/2 - VC)

Previously, no consideration was taken by underwriting and actuarial functions regarding the high levels of volatility that mark some lines of business. ERM helped assessing the contribution of each line of business to VC's total capital. They have become much more focused and the business in turn has become focused on various measures. Initially, capital was looked at VC level. Then capital was allocated in a meaningful way for each line of business. More recently, ERM helped to anticipate the chances of making a loss for each line of business. It is recognised that the greater level of detail and the more granular people could be in its calculation and makeup, the better because it will give VC a better understanding of its risk exposure. This argument supports the contention that the change in capital allocation practices was a process oriented decision. As stated:

"By allocating capital by business line, you can ensure that this process is efficient by holding more capital against riskier lines of business and less capital against less risky lines. Also, if there are changes to a line of business, you could make sure that is reflected in the capital you are holding against it." (RM/2 - VC)

The volatility of each line of business has significantly affected the capital allocated to each of them. The more volatile the business, the more risk exists around it. Thus, risk has been driving the process of capital allocation and hence ERM strategy. AA/1-VC and AA/2-VC illustrated by giving examples:

"For example, we have property business, we write marine business, and we write liability business. So, liability business is for people sort of falling in restaurants, slipping at work. You don't get very many large claims. So, the claims are all very predictable. With property claims you get small property claims or huge property claims and for that reason capital will have to be allocated to property more, so to cover the fact that it's just so volatile, that there might have a really bad claim, therefore they need capital to cover it, whereas liability is not so much and the marine business is sort of in the middle. It needs some capital but not that much." (AA/1 - VC)

"That will be from the risk registry. The Risk Department will carry out survey with the relevant people on what kind of risk, wherever it is? Will carry say, probably we are talking about group risk... that is the most obvious in terms of group because we are a part of a big group. One of the biggest group risk will be the holding company go bankrupt. If that happens, it will cost us a major loss. Then someone can put probability of that happening, which is very low hopefully. So, you have the frequency and you have the severity, and you have the amount of

loss and the probability of the loss. Then based on these two you can calculate the average loss. Also you can use these to simulate outputs. Imagine that happens for all the risks, they can collate into major risk tables and you get the overall risk to the company. The model is simulated, and then the outputs of the model will be the combined loss at the company level. The amount on daily basis." (AA/2 - VC)

Generally, one of the main concerns of VC's board of directors has been the company's profits. As such, they required officers to use ERM to assess not just what is the optimum mix of business needed to deliver best return on the capital, but also what the best mix of business is to reduce the probability of making a loss. Thus, it has been the responsibility of underwriters to take ERM principles and bring them into the day-to-day life of underwriting.

The more ERM gets stronger, the more changes concerning underwriting strategy take place. ERM has affected VC's capital model in terms of its outputs provided to the business. Refinements have been continuously made to the model. In the past, the internal model was between actuaries, regulator, CRO, and CFO. Now, actuaries give outputs from the model to CUO-VC, which in the past was never done as the CUO would not have been interested. But now he is interested to know on a quarterly basis how much the capital consumption changes by line of business. The CUO and CFO want to know the extent of VC's market risk and how it has changed in a quarter. Now there is cooperation between actuaries and underwriters to set up the mathematical models, which used to be the actuaries' job only. ERM has also led actuaries to be very much more transparent and give the underwriter all that is needed to agree on the distributions. Then the underwriter now decides what actuaries can put into their model. The reserving risk parameters belong to CFO-VC. Operational risk parameters belong to COO-VC. The actuary is responsible for putting it together and making the story work.

This analysis is consistent with Burns and Scapens (2000) view that "specific changes in management accounting could be quite revolutionary... Nevertheless, the change process will be influenced, to some extent, by the existing routine and institutions, and as such the process is still path-dependent."

8.3 Changes in roles and responsibilities for capital allocation

As stated earlier, ERM was gradually implemented across the whole company. During the first stage of implementation, ERM was implemented and used at the managerial

level. Then it was pushed down to lower levels over time. Everyone at various departments in the company then shared a specific risk responsibility. Capital allocation was the responsibility of CUO-VC prior to ERM. After using ERM, risk management, underwriting and actuarial teams have had specific responsibilities for capital allocation in VC. There has been a distribution of responsibilities among all people that have to deal with risk and capital, which showed a strong link between risk and capital in VC.

Previous knowledge and/or training of VC's underwriters have taught them about risk in a different manner than what is required as per ERM. There was a shift in the way underwriters exercised capital allocation with regard to risks. CUO-VC expressed that underwriters did not understand the interaction of capital in the decisions that they made previously. Now, they have been taught what that means. He said:

"...So, this is a fundamental shift in the way that underwriters would have got those processes in the past... This is quite difficult to change for underwriters have been doing the same thing the same for twenty years to do it and think differently." (CUO - VC)

The role and understanding of underwriters was widened and changed. They started to think about the broader picture. ERM taught them to think in more detail and more sophisticated way. Thus, it broadened out their understanding of risks and how they impacted the business. In this regard, ERM has extended their role to look at other risks, not only the ones that exist in underwriting department. SCU-VC emphasised that in the past underwriters looked very much at the specific account and accountancy, and at what is the set LR within certain parameters that seemed acceptable. Now, they realised that there is a need for more detailed understanding of the characteristics of that case. He added:

"...is it one as loss frequency or severity and if it's a 30 per cent loss ratio which sounds great but it is high severity then maybe it's not as good as we first thought. So, we then need to really review your terms and conditions." (SCU - VC)

SCU-VC's view was shared by EOO-VC, who explained:

"...traditionally insurers in particular look at loss ratios and combined operation ratio and that is really the world that I would brought up and you live in that underwriting risk... my experience and my understanding have broadened out what was kind of important but narrow in insurance context into a much broader understanding of how we think about risk. Talking about the same thing like operational risk, how are we sure that our data is accurate, complete, persistent,

what will happen if we operationally fail to pay a reinsurer when a claim came in and we are left with a non-reinsured loss. Those types of risks you need to think deeply about that and then how do you control, how do you mitigate?" (EOO - VC)

COO-VC and his departments have become indirectly involved in capital allocation. This was demonstrated in the relation between operations and underwriting. Basically, because COO-VC designed all the systems for underwriting team, which actually determine the data which they must collect, underwriting team highly depends on operations team work. So, operations team redesigned the whole of the business model and the data management systems which generate the reports that allow underwriters to assess the results and make decisions. As explained:

" So, they [underwriters] are very dependent upon the work which we've done in both operations and business process reengineering to the department where we defined all of these models and how data should be structured, what data they have to collect for things like exposure management. All of that has been defined by my areas. Then in addition of all sort of claims which we manage and handle. I should say in terms of the process in the business, my department would be the one which was doing the processing and the design of all of the management reports, sorry not all of them because actuarial do a few as well but certainly probably eighty per cent of them come from area." (COO - VC)

Extra risks responsibilities for capital allocation were further added at operations level. EOO-VC expressed that because the underwriting function reports to him, he would have operational risk responsibilities as a result of how that data is captured followed by the process of having the data in the granular level needed. He has been required to make sure that the data is complete, accurate, and consistent. That is part of it. He stated that other key risks he owns are reputational risk and strategic risk:

"How do we protect our brand and our brand is very important. Making sure that we are fully compliant at all times. We are acting in the way that respects all the general good conditions of the reinsurer. So, reputational risk is a key function. Strategic risk; are we heading in the right direction. Is our strategy capable surviving market cycles? Is it heading in a long term in a healthy direction? So, that is something else which I am responsible for business within business planning function." (EOO - VC)

The Risk Department and Committee have significantly become involved in the process of allocating capital. All the sponsors have worked very closely and met on quarterly basis to discuss how to improve the company's risk management. Each six months, they have also met with the risk representative actuary and Actuarial Department. They questioned their work and required them to fill in questionnaires in order to manage and control capital practices. Thus, capital allocation can be seen as the heart of ERM, which implementation has led to continuous changes in capital allocation practices over time. AA/1-VC stated that reserves are calculated on quarterly basis. ERM has been considered when setting out VC reserves as the actuaries' role is extended to specify how much risk there is around reserves and the level of uncertainty around them. He commented:

"The reserving risk then I'll have to then justify why I have chosen certain methodologies, the way I have approached certain classes of business, I have to be able to, sort of, justify these two. Once we calculate the reserves then the risk committee become involved and they want to know how much, how the reserves have been calculated, different risks that are behind it. We also have each year, maybe every six months, we sit down as a department with the Risk Department and we have to go through each of the set of questions that we have designed that we have to look at. So, maybe the risk of having the reserves wrong and how much money that might cost us, then how that would impact the capital that we hold and how that might cost us as company." (AA/1 - VC)

In general, actuaries' role has been basically quantitative and linked to pricing insurance policies, reserving and capital allocation. Within Actuarial Department, responsibilities were distributed among people. Capital allocation process has been the responsibility of specific actuaries, which emphasised the growing recognition of the importance of this process. There was evidence that ERM is extensively used for capital allocation and well embedded in its daily processes. For instance, ERM is becoming a part of the actuaries' day-to-day job and thus risk is considered at all stages of capital decision making. They will not go for a new line of business without considering the capital implications or the risks surrounding it. This is illustrated by CAc-VC:

"We would not enter now any new line of business without considering the capital implications or the risks surrounding it. And not what the profit is, but what that profit means compared to the risk it brings in to the company. Whether it's a new line of business or a new investment strategy and that goes right the way from internal management teams and also the board." (CAc - VC)

The risk management activity and the management of capital are linked in VC. Internal capital model has been put in action which is a key strategic and operational decision making tool as it enables the company to integrate the process of both risk and capital management. It is under the supervision of the Risk Committee and the CRO. The output of the internal model has been systematically used to manage the daily business. Then the company has monitored the capital needed to support its business plans. VC has thought about enhancing such strategy because it may help achieving better management systems and efficient usage of resources.

RMs' responsibilities were defined as performing the qualitative aspects of the risks whereby risk assessment is the main thing of the risks. They have been required to assess all of the risks to which the company is exposed, so it was done on inherent basis where there are no controls in place at all. When ERM put controls in place, they could reduce the exposure down. RMs needed to understand the potential impacts of these risks and then put mitigation plans in place. Thus, their role has been to facilitate the risk management function and its processes. The CRO has worked closely with the actuarial team to perform the quantitative aspects of the risks embedded into capital allocation process using complex models. The models have been primarily used for non-life underwriting risks and insurance risks, which cover risks relating to premiums, large losses and attrition losses. Such models use historic loss data. As explained by RM/1-VC:

"An example could be internal fraud and if you assume there are no controls to mitigate internal fraud, the exposure to fraudulent cheques being drawn or money fraudulently being taken out from accounts might be millions of pounds. But when you put controls in place such as systems access controls or cheque signature reviews, the controls could reduce exposure down to thousands of pounds as opposed to millions." (RM/1 - VC)

RM/1-VC carried on saying:

"The part I am doing is more the qualitative side. The main thing is risk registers, which I refer to as risk assessment. It is when you identify all the risks within the company and assess these to work out what the exposures is on an inherent and residual basis. At present, we have circa 100 risks recorded on our risk register at the moment and an extract of this (covering operational risks etc.) is input into statistical models in order to calculate the amount of capital required to cover these risks on a one in 200 basis. This result is then combined with output from

other statistically software used to calculate the capital required for the non life underwriting risks to created the total capital requirement." (RM/1 - VC)

Therefore, RMs have been mainly responsible for providing the qualitative side of risk inputs for the actuaries who run statistical models and then they compare the Risk Department's qualitative outputs with their model quantitative outputs and make sure they work in unison. However, the qualitative side has not driven the figures primarily. Most recently, risk management team ought to be involved in the internal capital model and the quantitative side. This exemplifies how ERM is driving and affecting capital allocation practices. RM/1-VC commented:

"...actuarial and risk management used to be very far apart. I think historically here, the risk management has been more focussed on operational risk. So, the risk manager would be more involved in operational risk day-to-day. You had the non-life underwriting risk as a separate thing and the actuaries were looking at that but now the CRO is putting the whole piece together. Now, he is saying the risk management team would be very involved in the internal model and the quantitative side." (RM/1 - VC)

RMs were expected to undertake further training programs in order to be able to perform the quantitative aspects of risk and thus ERM will lead to a change in RMs roles and responsibilities. The RM stressed the latter notion:

"In terms of ERM, I come from more the qualitative side but most of the emphasis and focus is on quantitative. It is something I definitely need to improve on." (RM/1 - VC)

Therefore, ERM could help combining and converging risk management and actuarial work. This is a part of a more holistic risk management approach which considers capital allocation as a key part of ERM strategy. Further, some risks that are used in capital modelling exercise such as reserving risk used to be calculated by external actuaries. After using ERM, the actuaries of the company have become more involved in terms of looking at these risks each and every year and constantly updating them. Thus, they moved away from looking at a task completed by external entities and moving it forward. AA/1-VC emphasised the latter argument:

"So, reserving risk is to be calculated by our external actuaries at KPMG and now we've become a lot more involved with that. So, we'll look at risk behind my reserves, how likely it can go wrong. And then that is used in the capital

modelling exercise. They will rather than looking at a task that was completed a few years ago by KPMG and just moving it forward..." (AA/1 - VC)

Consequently, ERM drove a change in the responsibility of capital quantification and allocation to be CRO-VC's overall responsibility rather than CAc-VC's only. CAc-VC has also started to report directly to CRO-VC with regard to capital issues. This could be attributed to the fact that after using ERM, the capital model has become much more integrated part of the business. The internal capital model has become broader than it used to be. Previously, the capital model used to be an actuarial tool which was developed and run by actuaries and hence very few people understood it other than actuaries. As explained:

"Capital allocation is not my responsibility but it is controlled by the CRO and decided by management committee and the board. Of course, financial figures prepared by my department are important sources to make a decision on the capital allocation." (CFO - VC)

8.4 Risk-based capital allocation strategy

Risk has been embedded into capital allocation process and hence ERM played a key role in this process. EOO-VC explained that throughout the full ERM process whereby risks are broken out into different key risk categories, people look at how much capital is required to support each of those risk categories. He added:

"As treated within the ERM process, they come up with our overall capital amount and we have built our own internal model to help us with that process." (EOO - VC)

Creating an appropriate return on capital has been the reason behind allocating capital according to risk. Better awareness of the cost of capital to most lines of business, risk and the downsides faced was experienced. This allowed a better management of VC's portfolios against risk-based targets. It could be infer that risk-based decision making is used to allocate capital which is then used as a key base for strategic decision making. The latter discussion is exemplified by CRO-VC and AA/2-VC respectively:

"Underwriting or market investment strategy- everything is based on the capital allocation. It is all strategic decisions and no strategic decision is taking place without knowing at least the impact on capital." (CRO - VC)

"We consider how much capital will cost. The difference, say if someone write a CAT loss, say hurricane loss in US, most of years hopefully nothing happens, that

means a huge amount of profit. But if you consider capital, if the company doesn't have a loss, they don't have to carry reserves, but they still have to carry the capital cost. If you calculate the profits on the reserves as a loss ratio, so it will be very good for a lot of years, and certainly a very bad year. But if you calculate loss on capital, it will be pretty even because regardless of what happens the capital cost will still exist." (AA/2 - VC)

Internally, VC applied both the regulatory capital and the economic capital. Different risk measures are used; 99.5% VAR (Value at Risk), which is required by regulators, and 75% VAR, which is used for VC's "earnings at risks". The economic capital is the one VC decided to hold and they relied on one measure that it should be higher than the regulatory capital. They have proposed to use 99% TVAR (Tail Value at Risk) as VAR ignores the extreme scenarios. LR has been measured in VC on a gross and net basis. Gross LR has been used as a measure of the overall underwriting profitability of the insurance business written by VC and to assess the adequacy of their pricing. Net LR has been meaningful in evaluating the financial results as reflected in the financial statements. Gross LR was split into attritional and large LRs. AA/2-VC illustrated:

"When I am talking about capital modelling, it will be risk based, which means we calculate 99.5th percentile which is risk based. The difference between that is previously it is the exposure base so purely based on the premium. It doesn't matter how bad in 1 to 100 years is and that is not risk based." (AA/2 - VC)

Thresholds have been set to decide between attritional loss and large losses. In some segments, this depended on the line of business. Attritional loss refers to small unsurprising losses. A balance between attritional and large loss has been targeted by VC. Attritional loss for each line of business has been assumed by underwriters as they acquire the necessary knowledge to make such decisions. Therefore, capital has been significantly relied on the attritional LR. CUO-VC explained:

"...if we have a very bad attrition loss ratio, it starts binding the capital. But normally, it is very easy to negotiate with our clients day to day loss ratio - if that day to day loss ratio is high, or Mr Client, probably our price is too cheap, please increase the price" (CUO - VC)

ERM has become a critical part of the way VC looks at planning and managing its business. Although a need to create profits would still exist, VC has concentrated more on the wider implications of any underwriting decision. Thus, return on capital has been mainly driving the business plan in VC and thus the business plan has been set up to produce a

higher return on capital. The better risks could be managed, the higher return on capital could be achieved. For the previous purpose, VC has been running a training program that outlines how to become an ERM underwriter. All underwriters are required to go through that process. Thus, it directed them away from the individual narrow focus of an underwriting piece of business. Although underwriters still want to make profit, now they have to look at what is the wider implication of that underwriting decision and how much capital will be consumed. EOO-VC explained the latter discussion:

"If I said, for example, that I want my preferred mix of business to be twenty per cent marine, twenty per cent property, twenty per cent liability, twenty per cent PA and however you may want to do that. And then actually what I end up writing is 50 per cent of it as property but I still get to my overall premium plan number, is that OK? Actually, it is not OK because by writing a lot more property business, I am probably going to consume a lot more capital." (EOO - VC)

ERM has not just been a theory, it has a direct impact on the way VC do business on a day-to-day basis and how they judge their work. People have judged themselves in terms of having internal hurdle rates for lines of business, and in terms of the rate of return required on the amount of capital allocated to the business to be viable. So, it is quite precise. As illustrated:

"We have a training program which retains how to become an ERM underwriter. All our underwriters go through that process. And again it comes down to getting away from looking at the individual narrow focus of an underwriting piece of business and... I want to make profit of course but looking at how that underwriting decision; what is the wider implication of that underwriting decision, how much capital am I consuming... So, the main impact is how we plan and how we manage our business. ERM is now a critical part of the way we look at it." (EOO - VC)

As return on capital is the main driver for the company strategy, ERM has become more and more embedded in the business and risk has been employed in the capital allocation process. Thus, ERM has been embedded in the business plan of the company and hence helped deciding how to better allocate capital and driving this plan. The better risks are managed, the higher return on capital could be got. This was stated by CRO-VC and AA/1-VC respectively:

"Today return on the capital employed is key driver for strategy setting" (CRO - VC)

"Then you are getting return on it [capital], because we understand the risks that we are returning a better return on capital to them, then we can grow as a company. The bigger we are, the more diversified we can become and therefore, the better return on capital we can have. Obviously, a bigger company is going to be a lot stronger if something bad happens, because you've got so much diversification, that not all the lines of business are going to go bad at once."

(AA/1 - VC)

The main challenge linked to the process of embedding risk into capital allocation is data lack and efficiency. The way the risk could be estimated is another problem as there is always a chance of overestimating some risks. It has been also difficult to estimate the correlation among risks. AA/2-VC explained that risks could be related without being recognised. It does not mean this does not exist, it just means people cannot prove it. This could affect the total capital number. AA/1-VC shared AA/2's view and illustrated that VC is trying to get data correct and verified, which has been an issue. VC managed to do it, but it can slow up the process and make people worry that the data produced should be definitely correct not pretty correct. He further expressed that there are risks VC does not really have much control over, which makes it quite difficult especially that all these things are happening alongside changing to Solvency II standards. However, he is confident that eventually VC will get there. AA/1-VC and RM/1-VC added:

"There is also a problem with pricing. If we don't get a correct date, we can then make extreme mistakes by pricing and then cost the company money... One thing that we might face much more now than we had in the past is fraud... we do have people who look into fraud and claims, we do have a department that is kind of interested in. are we getting these extra claims coming in. All these affect capital allocation, because if we are suddenly getting fraudulent claims in a line of business, where we shouldn't be, it's going to allocate more capital, and the line are going to look worse than actually it is." (AA/1 - VC)

"For a company like this, it is not just lack of data but it is also lack of quality data. Previously, underwriters were not always focussed on recording complete and accurate data into their systems. As a result, say we insure a big supermarket chain; we may not all of the insured locations recorded. So when we run the models to assess potential exposures you aren't getting the true picture – we may be much more exposed to one area than expected. We think we are covering x number of stores and x number of locations, but in reality we might have a lot

more. So the losses you are exposed to are much greater. The data side is one of the main problems." (RM/1 - VC)

The internal capital model uses different elements; quantitative and qualitative. The internal model has been used in VC in order to calculate both the capital that is needed for them as a business and for regulatory purposes. The quantitative side has related more to non-life underwriting and market risks. Statistical models have been used by actuaries to calculate the risks that the Risk Department has and then to allocate capital to these risks accordingly. On the qualitative side, risk managers used 'risk profiling' whereby they meet with other people around the business and discuss potential risks and exposures. If they misprocessed the risks arising from specific processes such as taking on reinsurance i.e. a delay in coverage; they might not be covered if an event occurs and could, therefore, be exposed to higher losses than expected. RM/2-VC gave an example:

"...a claim could come for £100 million, but we have reinsurance to cover us, reducing our losses to £10 million. However, because of mistakes in the actual process of reinsurance we find that we are actually liable for the entire £100 million loss. Therefore, by speaking to departments from around the business (claims, underwriting, operations etc.) we can identify their risks and assess the impact and likelihood of the risk materialising. This is more qualitative because a lot of the time we don't have the data to back up the assessment and the financial impact, so we rely on expert judgement. All risks are recorded on the risk register and exposure is modelled to calculate the capital required for operational risk."
(RM/2 - VC)

8.5 Improvements in capital allocation processes and practices

The internal capital model within VC has been used to quantify how much capital is needed to be held above best estimates that provided confidence. When setting VC business plans, ERM was used to identify the lines of business that provide a very good return compared to the risk they take, as well as the lines providing a return that is not good compared to the risk they take in. In this sense, ERM has been a mean to decide which line of business to grow or which line of business to reduce, as well as a sort of early warning system in assessing the performance of VC business lines. CAc-VC and AA/1-VC added respectively:

"It is also used by even things like, well it's called "underwriting services department". It is the effective department that enters our data. So, when we write business we will enter the data in our underwriting system. We quantify our exposure to catastrophe risk using this data and we find that most of the time, from one quarter to the other, a lot of the time our exposure to catastrophes has changed by quite a lot. That benefits the company because in the past we probably wouldn't identify that was mistake. When it came to renewal of the risk, we'd probably say we are not getting anywhere near our premium, we are not going to write it. But actually it was just the data was wrong." (CAc - VC)

"...within capital allocation you'll have to have what is classified as reserving risk, so because I do the reserving and my work is extended into how much risks are there behind, have I got the reserves right or wrong? So, then I'll fit it into capital. The capital is then determined for each of the classes of business, it uses the reserves that I have calculated. So, if I've got the reserves wrong, the CA might be too high or too low." (AA/1 - VC)

VC has experienced smaller buffer with more confidence regarding capital decisions and higher return on capital after ERM implementation. In this regard, extra benefits have been offered to both shareholders and employees. CUO-VC and RM/2- VC stated:

"For example... before having the model our buffer is much bigger. But for the sake of I like to sleep well in the bed, okay so let's put 50 per cent buffer. Now we are much more confident about our necessity of the capital itself so the buffer should be smaller". (CUO - VC)

"It should lead to a better return on capital because if you can calculate your capital in the best possible way to make it as efficient as possible. For example, using the internal model could have helped you reduce your capital requirement to £100 million from £150 million. So, when you calculate the return on capital, the profit will be higher in proportion to the capital. Therefore, generating a higher return on capital ratio." (RM/2 - VC)

Improvements in data inputs and risk information for allocating capital have been recognised after ERM implementation. Consequently, capital allocation processes should be improved and the amount allocated can be made more accurate. Understanding the risks inherent in the company and providing the right data allowed an assessment of the level of capital needed to carry out the expected risks. Thus, there is a higher chance of avoiding guessing. As stated:

"Our issue is the efficiency in the use of that capital and the efficiency in that use of that capital calls back again to somebody's core questions like data. Because if our data is poor and we are over capitalising because we are not quite sure, it is really our job and this is one of my primary responsibilities is to improve that data. So that may be we do not need even the capital we have currently allocated to do the job." (CUO - VC)

RM/2-VC emphasised that ERM should allow VC to reduce the amount of guessing needed to allocate capital and instead base it on more robust methodology. Using the correct models and the right techniques within the internal model could lead to more specific allocation of capital and extra confidence in this process.

"So when your model says you need £80 million of capital, you can have a good level of confidence that this truly reflects the exposure that the Company faces." (RM/2 - VC)

AA/1-VC, AA/2-VC further confirmed CUO-VC and RM/2-VC's arguments:

"...because we got the ERM implemented it has made capital probably a lot more accurate. Because people understand the types of risk they are looking for, so they understand the difference between each of the liquidity risk, market risk etc. Therefore, the more accurate the risks can be looked for then the more accurate the capital can be allocated." (AA/1 - VC)

"It [capital] is more accurate, probably and more detailed which means the estimation will be less subjective... Because the system itself will be error correcting itself. If you put a lot of number which does not depend on individual idea then the overall number will be less dependent on certain people's input or a person's input because input from people will be either biased or have some error building to it, we can't avoid that." (AA/2 - VC)

Data quality, accuracy and completeness were improved as ERM has offered a better understanding of why there is need to do the work in a specific way. Underwriters have a clear responsibility for providing better information and ERM is supporting this by providing a higher quality data. EOO-VC stated:

"The underwriters must understand that they are responsible to the quality of the data, the accuracy of the data, the completeness of the data. Again what does that mean? Well actually if we have got incomplete data that means we can't model out our CAT risk. If we can't model out our CAT risk then we are aware that this

is a big deficiency and probably that means we have to hold more capital and the rate of return we need become lower." (EOO - VC)

SCU-VC further exemplified the above process and stated that he and other risk officials are trying to impose on underwriters that data has to be received in an acceptable standard. He added:

"We use one of the vendor models, RMS, Risk Managed Solutions and we model our European wind and UK flood exposures and we look at them on gross and nets. We apply our treaties and we look at the sort of net position and I know that those numbers are ultimately feeding to our capital model and it's a significant driver of our capital allocation but what sits behind that is data quality and it's been difficult; we've started to get there but our data quality is improving and it is part of the fact that our exposure is increasing the quality of the way it's distributed and the way the numbers are coming through is very beneficial." (SCU - VC)

SCU-VC continued saying:

"So, you can actually see a day-to-day benefit by managing the accuracy of the numbers has a direct impact on the bottom line or it might then go into Remetrica but yeah that to me is a day-to-day example of its real bottom line. And in addition, the quality of that data actually has an impact on our reinsurance cost and we do get involved in treaties so yeah sometimes we save millions sometimes we don't but we saved £1 million one year which was quite gratifying." (SCU - VC)

Risks embedded in capital allocation process have been better managed in terms of getting people to go through a far more disciplined process. Large headings were broken down into the sub-categories of risk. Then they identified how those risks can be treated, mitigated and prioritised. ERM provided them fairly strict rules on what they should and should not do. As confirmed:

"It just set a framework of governance around which you can run a company and it does make life a lot easier, not just simple profit and loss thinking about what's good or bad for the company." (SCU - VC)

"You break it out. Yes, you got a clear risk register and you got a clear understanding of what you know... Each risk enquires a lot of granular detail and then you can address it. It is a process of identification, mitigation, control, and very very logical. And we do look at our risk register quite regularly, so we make

sure is there an emerging risk we haven't thought about? Is there something new coming along and we should actually put it on there and identify, classify and mitigate." (EOO - VC)

The Risk Management Department mainly provided the risk inputs (information related to risk registry to the actuaries) that help actuaries running the capital model. AA/2-VC stated that anything from the risk registry is coming from the Risk Department. He added that with regard to the information related to underwriting risk, it could be provided by the Underwriting Department. Expert judgement has played a role in providing risk information, which is built on historical and market information. Reserving and market risks information have been provided by the Finance Department. This provides evidence that risk management is becoming holistic and embedded across all the departments. People have started to use ERM in their day-to-day jobs and to communicate with people from other departments. Risk information used in allocating capital is interrelated and produced by various departments not only the Risk Management Department.

ERM helped in the sense that it has led underwriters to use rating models that they did not have before. Underwriters make up their rating simultaneously with looking at individual traits. Then they look at their experience on their portfolio basis and they load those up for expenses and up for an average rate of return. SCU-VC gave an example:

"We also have a standard NAT CAT rates but when we have a large numbers of exposures, more than 250, it is a general rule that we model that and then we take a view on that modelled rate and feed it back to into our underwriting and based on that the underwriters can also add track underwriting judgement based on what they know about it. Again whether it is a big eater of capital because it's thousands of locations and a storm could affect it." (SCU - VC)

SCU-VC further illustrated that what they previously had was individual underwriting tariffs in local offices and what they have to do after implementing ERM is standardise that approach across Europe. Thus, VC has moved towards a different base point and showed a tendency to being consistent in the sense that there is a need to think about natural catastrophe risk and other forms of risk severity in a holistic and consistent way.

"Probably an improvement as it didn't exist before... prior to that it wasn't a formalised thing. So, prior to introducing our rating models, which are by no means perfect... So, it's changed in the sense that we didn't have it before although I think it's been bought in as much because it is best practice." (SCU - VC)

Communication has not only been enhanced across the company but also become well documented as a response to ERM requirements. This offered stronger basis for controlling all the risks facing VC and led to a better allocation of capital. As ERM implemented as a top-down approach, it should be strong in the sense that people know that they are obliged to learn about it. VC management has been pushing ERM by providing many different documents, which can be sometimes very difficult to understand. RM/1-VC stressed that if issues occur within the company, which could potential damage it, staff members are expected to escalate these and record them on an incident log. Incidents have been reported, which could be seen as a good practice in the sense that it is unlikely the risk team will spot what is happening at other departments unless people tell them. When they report things straightaway, the risk team know that people are familiar with ERM-related processes. He further illustrated:

"...we've got a lot of ERM polices and sub polices for all the different risk categories. We've also got business continuity management policies, and lots of manuals supporting these. Many of our documents are mandatory for staff to read, so can you imagine if you receive many large documents to read, at some point you would turn off, it doesn't matter what it is. We try to make our documents as interesting as we can, but there is lot of information which is just very difficult." (RM/1 - VC)

The process of risk registry and how it affects the allocation of capital process was illustrated as follows:

"We meet with departments on an annual basis and review their risks to assess whether any changes have occurred in the exposure. Maybe an incident actually happened within the business and resulted in a loss. We are able to use that actual experience in order to revisit the risk and re-assess it on that basis." (RM/2 - VC)

ERM has pushed people across VC to provide more detailed data. Better information could be inferred from more detailed and precise data and thus better decisions could be made. CFO-VC expressed that looking at data on more detailed basis leads to more information from those data. He pointed out that people tended to be satisfied by seeing just a summary data prior to ERM implementation, but now they require more detailed data. He further confirmed:

"We already have detailed data. Even in the case of detailed data, people tend to not go into much detail. So, ERM pushed everybody to provide more data and look into much detail." (CFO - VC)

ERM helped improving the process of capital allocation in the sense that it gets people to talk about its meaning and the potential risks that exist in the business. VC's staff have started to better understand business issues and thus have become able to make better capital allocation decisions. The mature ERM should lead people to recognise risks faster because it provides them with both education and information that help them better understand and manage the risks inherent in their jobs. The risk department have got staff involved in discussions, and participate with groups. They have rehearsed tasks and performed tests to make sure they have understood. Then they have been expected to go and feed back to staff at lower levels. ERM has become a much more mature process which seems to be continuing to develop over time. AA/1-VC considered ERM as learning process and as important to the company:

"The more people become involved the more questions people are asking. So if people are asking questions it's helping them to understand but also the Risk Department maybe question even more and more different things, therefore they can sort of recognise risk much earlier. We've got the risk register which is filled in and updated daily. And if it's been changed they send an e-mail to the whole company so we all know it's been changed and we should all go and read it. We should try and understand why it's been changed. And they've certainly, from when I've been here, it's become much more apparent how important ERM to the company" (AA/1 - VC)

ERM has enhanced the rigour of capital allocation because it provided a well-structured framework and governance. ERM has got the staff to really think about capital allocation and how to improve it and to make it the best it can be. Thus, ERM has not been an arcane theory; it has had a practical usage and hence expected to make the business healthier and better managed. The output of the ERM process helped VC determine where its business should go in the future. EOO-VC explained:

"So, going back to say things like optimum mix of business in insurance company, say different lines of business consume different amount of capital. So what is the optimum mix for our business? Maybe we don't have that today but we can plan towards where we want to be three/four/five-year time. Again if we have growth plan, do we have a desire to grow by let's say 10 per cent per annual over the next few years. Do we have the capital resources to do that? If we grow in different ways what are the implications

of that. Our model gives us a lot of valuable outputs to help us think hard about strategy and shape our strategy." (EOO - VC)

The efficiency of the use of capital has been considered as a key challenge for VC after using ERM. This confirms the significant effect ERM has on capital allocation in the insurance industry. The high rating by S&Ps was seen to be coming from the capital strands as they imply the strength of VC's risk management and capital management processes. Capital allocation is reviewed and monitored to decide whether to take more risks and what kind of profits will be made if so. RM/1-VC illustrated the latter notion:

"For instance, perhaps a few years ago it [capital allocation efficiency] was not seen as an important thing by senior management and the executives. But now it is definitely getting a higher profile. People want to improve the process; they put more recourse into it and are spending more money to ensure it is as efficient as possible. There are regular meetings with the senior management and the executive are consistently thinking about it talking about and, as I said, trying to improve the whole process... Previously, it was the standard approach. It was almost like, we know that we have to have this much capital aside, but now there are definitely commercial benefits such as limiting the amount of money that need to be tied up as capital. By not putting too much money in a capital (which you aren't able use), we may be able to spend this elsewhere within the company to improve systems and process, helping efficiency." (RM/1 - VC)

Figure 8.1 summarises the improvements brought to capital allocation process and practices.

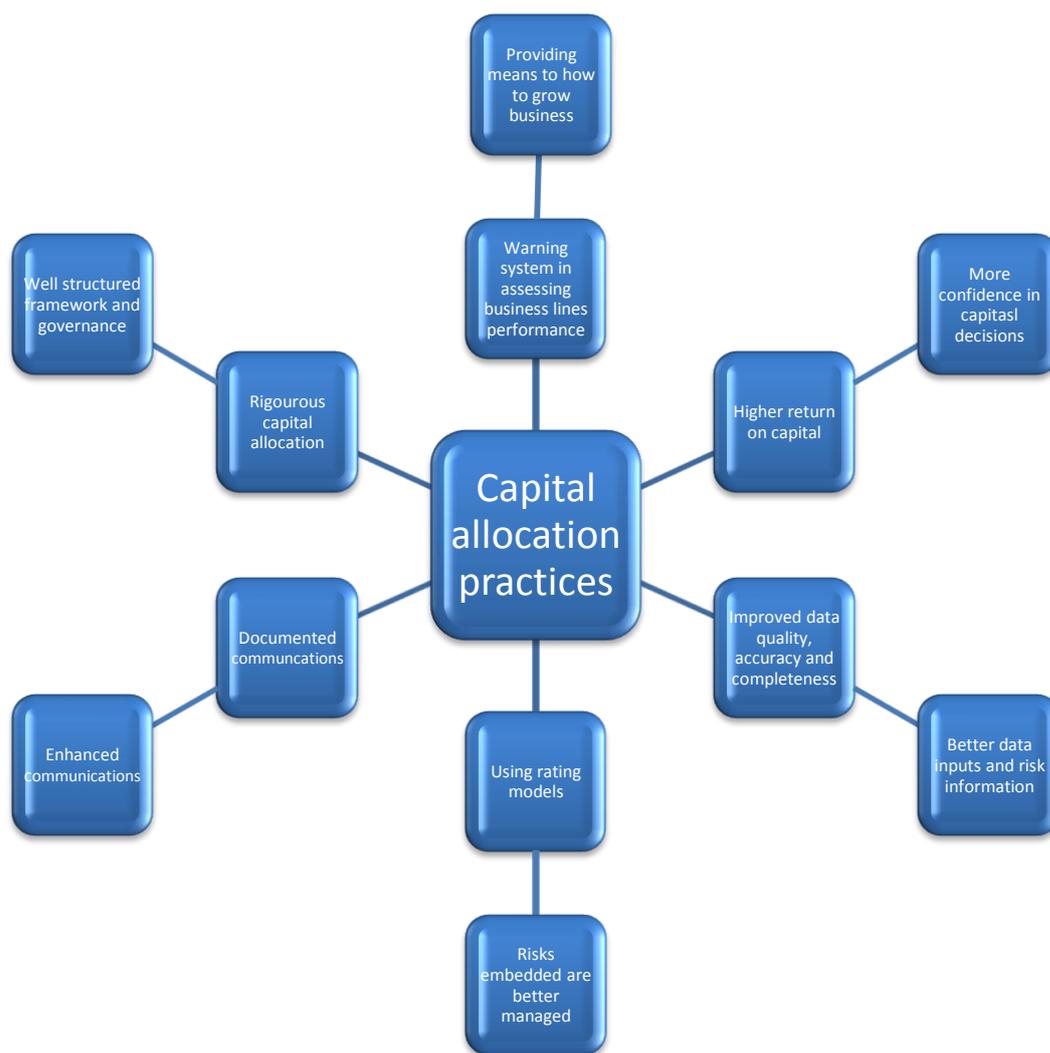


Figure 8.1 Improvements in capital allocation practices

8.6 Changes in risks embedded in the internal capital model

After implementing ERM, some risks have become more important within the capital allocation process: liquidity risk is one example. This can be explained as there is a need to make sure that the company can get money to pay claims when they become apparent. More concentration is also shown on operational risk. EOO-VC explained:

"Operational risk, they may purchase reinsurance on a risk and they may fail to process that reinsurance... May fail to declare for example to Pool Re so the state government reinsurance pool, fail to declare the risk then in theory and practice, you

got no reinsurance cover. That could be quite catastrophic to our business." (EOO - VC)

New types of risk were embedded into capital allocation practice, such as reputational and concentration risks. Strategic risk was a part of the operational risk, but now it is listed separately and hence it could be considered to be new to the process. Thus, all types of risks that were listed and could affect the capital are embedded into capital allocation processes. They have been part of the capital value that will be calculated before the aggregation of all the risks. There has been an individual model within the capital model for each risk. Embedding new risk categories into capital allocation can provide more accurate and precise decisions. RM/1-VC and RM/2-VC stated:

"It is not just reputational risk that was added but also concentration risk. Previously, that wasn't something that we had in our risk categories. I believe concentration risk relates to looking at all the other risk categories and then looking at the potential concentration within them." (RM/1 - VC)

"ERM has made Companies consider different types of risks, such as; market risk, strategic risk and group risk. These risks were not considered much beforehand, so it is introducing them to new modelling techniques to aid capital calculation." (RM/2 - VC)

VC has had a sub-policy on reputational risk. It has looked at reputation as a risk in itself and there is a need to categorise and put a financial impact against it. Then people responsible for capital allocation have calculated the capital against this type of risk. RM/1-VC explained the need to embed reputational risk into the internal capital model and CFO-VC confirmed respectively:

"...previously reputational aspects were seen [as] an impact. If you take a risk like wind storm in Europe as an example, you may deem the financial impact of this to be £80 million. But there could also be some reputational damage as well. If we suffer such a big loss, some companies may look at us and feel we may be a riskier enterprise to do business with and our reputation may be damaged across the market." (RM/1 - VC)

"The basic activity of ERM is to monitor the change of the risks and to make sure that all the enterprise risks aggregated to bases are within our capital and we maintain enough buffer." (CFO - VC)

However, RM/2-VC and RM/1-VC indicated that all risk categories are embedded in the capital model except liquidity risk. It has not been yet a part of the capital model because

it is not considered to have a significant impact in the sense that VC holds a large number of its funds as cash. RM/2-VC further clarified:

"We allocate risk against each of the eight risk categories. With the exception of liquidity risk because a lot of our reserves and a lot of our funds are held in the bank as cash, so it is very liquid. So we are not really exposed to liquidity risk so that is not modelled." (RM/2 - VC)

RM/2-VC further stressed that, at present, strategic, reputational and operational risks are very hard to quantify and there is no large confidence in the capital figures for these categories comparing to market risk and non-life underwriting risk where the risk team has greater confidence because they use much more data to model exposure.

As a part of embedding ERM into business processes, the company's risks have been quantified and analysed on quarterly basis. Thus, the impact of risks is considered whenever there is a change to the investment strategy. As CFO-VC commented:

"Hmmm so quarterly we quantify this company's risks by category and on aggregated basis. (Pause) Quarterly we analyse those quantified data and we analyse how the risks changed with what reasons or causes. By doing this kind of process, we are now embedding ERM into our operations... Hmmm when we make a change in the investment strategy, I'm always keen on the impact to the risks. Hmmm we monthly monitor the change in the sensitivity to the market condition movement. Controlling market risk is a major part of monitoring investment management." (CFO - VC)

8.7 Institutionalisation of capital allocation routines

The implementation of ERM is expected in this study to facilitate the routinisation and intra-organisational institutionalisation of capital allocation practices. Capital allocation practices are further expected to be extra-institutionalised and disassociated from their historical circumstances.

8.7.1 Future of ERM and risk-based capital allocation method

The ERM implementation was a path-dependent process. Random elements, systematic mechanisms and internal forces have shaped the implementation process. For instance, the existence of the CRO, the chairman of Risk Committee, who has a noticeable experience in ERM system, was one of the most influential conditions for the successful

implementation of ERM in VC. The negative reaction to changing process by people in the company and limitations to data resources threatened the implementation process and the possibility of ERM success. However, the CRO, who is the leader of ERM implementation and the Risk Department, successfully managed to complete the implementation of ERM through better communication process across the company and hence people with different roles understood ERM and its importance, as well as their risk responsibilities clearly. The ERM implementation has been expanded gradually to include the lower levels in the company. For example, underwrites were aware of ERM and its relation to the capital allocation. They have been using it in their daily job. SCU-VC stressed that:

"Yeah it's very well embedded and it is starting to filter through to a lower level varying place to place because all underwriters are gradually attending those compulsory courses on capital allocation." (SCU - VC)

In addition, MAs have been involved in the risk management process and interacted with the Risk Management Department, which was not the case prior to ERM. However, there is always a space for improvements and extra steps to be done to achieve a better strategy. ERM is an ongoing process that involves continuous education and training. In this regard, continuous improvements should be made to the risk management system in order to keep the business healthy and competitive.

Even though people with different professions may not have risk management experience, they were required by the CRO to be completely aware of ERM policy and to use ERM in their day-to-day job. This was achieved through the comprehensive internal training programs from the board level to junior levels. EOO-VC illustrated the efforts done to get everyone fully understand ERM policy and how that affects VC's business, and particularly the risks each person mainly responsible for. The view of EOO-VC was shared by MA-VC who stated:

"We have distributed internal control documentation which I am able to absorb... I have done one internal course but I'm also able to absorb that sort of information myself. So, when those documents were distributed they were quite meaningful to me. They weren't just a statement of the company's policy I was able to read through and appreciate how they impacted on the work I did." (MA - VC)

The recent regulatory requirements have positively affected the expansion of ERM implementation in insurance companies. They have pushed insurance companies to adopt ERM because, for them, it has a positive influence on their business. Some companies might

have the potential to implement ERM but not sure whether it will provide noticeable benefits or when to initiate it. Regulations accelerated the adoption decision and implementation process. Although regulation requirements might have had only trivial effect on ERM adoption decision in VC as a result of ERM being adopted a long time ago, they can be considered as a driver to continuously improve and strengthen ERM strategy. RM/1-VC explained that there is a need to implement elements of ERM. As it becomes more embedded within the company over time, it is going to be refined and improved. Thus, the whole process will be enhanced. Although RM/1-VC saw that ERM might expand within the industry, he was convinced that it might just be a case of it maturing and improving. As expressed:

"It is unbelievable actually how it is growing. I think the CRO was saying to me that there are lots of the UK firms that are doing it (circa 70 have submitted an internal model pre-application) but in France maybe only five did it. So in a lot of other countries' companies actually don't want to invest so much time and money into it and they are just happy to take the standard approach. So it is really something that has been more within the UK insurance market, with the industry really pushing forward on this one. A lot of people are just assuming that benefits will come. Ultimately, a lot of it is common sense. But ERM is just putting a frame around it." (RM/1 - VC)

The establishment of the Risk Management Department was another event that followed the ERM adoption decision and shaped the future of the ERM in VC. The CRO and his team were able to convince people, who were against the change and refused to use or embed risk aspects into their daily job, to reconsider it by meeting and presenting to them how ERM can add value to the company and improve the quality of their work or by making them attend compulsory internal training programs which enhanced their understanding of the whole process.

The CRO's interest in ERM, his experience and his continuous effort to fully embed it across the whole company showed further developments of the ERM strategy. The significant support provided to the CRO and his team by the CEO and the CFO in terms of financial support, educational support and promoting the culture was a key base for taking further steps towards improving ERM strategy and getting it embedded within all levels of the company. According to Burns and Scapens (2000), if those who are responsible for implementing new system possess sufficient power, they may be able to impose change, possibly with some difficulties.

The operational risk framework has been further developed recently. Some elements of this framework have been already put in place, which are risk assessments and loss data management. The other element which the company has been looking to implement is KRI (Key Risk Indicator). RM/1-VC gave the following example on how implementing such KRIs could strengthen ERM:

"We are basically looking to embed lots of standard principles in order to have a full framework. An example of one of the processes we are looking to implement is KRI, where you try and set tolerances for process using metrics available. An example of this could be customer complaints. A KRI could be put in place where you track the number of complaints received each month as a per cent of the total number of customers. If complaints general run at two per cent [per] month, management may decide that this is acceptable but should the rate rise to three per cent this would be outside appetite. Where appetite is breached, action plans should be put in place to ensure the rate is moved back below three per cent."

(RM/1 - VC)

There was a proof that a general understanding exists among the people across the organisation about the importance of ERM and how that provides the best way to assess the profitability of VC. They realised that the company's profit was only part of the story and there is a great need to compare it to the risk taken on. This could be seen as a key factor of ERM success and quick embedding within VC. Further, ERM has changed the culture and the key strategic goals to be achieved of the board. Return on capital has been taken into consideration alongside with profits. CAC-VC illustrated:

"Previously, the CEO would have been very much "this is the profit I want to make over that period", whereas now our CEO probably more than anybody is very much giving the message "not talking about the profit, but more talking about return on the capital"... If we look at our CFO who is working on our investment strategy, would think of return on risk. Our chief underwriter is thinking of those terms." (CAC - VC)

The nature of VC also sharply affected the future of the ERM strategy. This has been reflected in the feelings of the VC's staff towards this strategy. Current VC members, from various levels, were totally convinced of the importance of ERM and the need to embed it. They also can see ERM working. Thus, they have incentives to further embed ERM into their daily job and across the whole organisation. As CRO-VC strongly expressed:

"A strong ERM is definitely something which, I think, is counting more and more." (CRO - VC)

ERM was considered to expand further within the company because it has affected the return on capital ratio and people have been able to see its benefits over time. CA-VC and RM/1-VC stressed that ERM will expand more in the future:

"Not worse and worse, it is just more and more. ERM is never going to disappear. I think regulation is here to stay." (CA - VC)

"Yes [it will expand]... Once you can see it is having an impact on that [return on capital] and it is making the company more efficient. As we refine the techniques and the framework, then the people will see benefits. As I mentioned before about implementing KRIs, that is a very easy way to proactively identify where the exposure might be emanating from. As a result, we can implement principles and processes to actively prevent losses from occurring." (RM/1 - VC)

ERM was considered to be embedded more into lower levels at VC over time, which indicates that VC still needs to undertake further steps to strengthen ERM. It could improve business acumen and business acumen in turn could help with ERM acceptance and embedding. This could add value to the company ultimately. In insurance industry, companies can get a wrong way with not understanding business or money. MA-VC illustrated that with an absence of business or accounting acumen, the company will always have some risks that will never be accompanied, realised or solved by ERM. Without control there would be cost, liability and loss. He added:

"...you are never going to get people joining in without ERM is there because there is going to be an element of only ever them being to accept this a legal position or being internally. They have to buy into it and they can only buy into it if they can see the results and you can only see the results in the form of money so that will improve and I'm not sure which will improve first, one will improve the other." (MA - VC)

However, the temporary nature of ERM and the lack of precise information, and explanations about it have been a problem faced the implementation and embedding process. Having ERM implemented a long time ago gave VC the opportunity to deal with all the technical issues alongside with cultural ones.

With regard to capital allocation method, no further changes were expected to the risk-based approach. This indicates the usefulness and efficiency of this approach. However, the ways of doing things were considered to possibly change and improve in case new

innovations emerge. RM/2-VC expressed that they are happy with the internal model and with the outputs that they are getting from it. This is explained as the amount of capital calculated is considered as being adequate. However, there would be always things to improve and VC has been looking to enhance the method over time organically as a result of learning from experience. This was stressed by AA/1-VC and RM/2-VC respectively:

"So, as your data becomes more accurate as well, it's going to be very difficult to argue against the risk-based approach. So, I think as time goes on, yes, they may find other ways of doing things, but I still don't think it'll change risk-based I think that's that is best measure they have." (AA/1 - VC)

"Overall, we are happy and our methods our pretty much finalised. We wouldn't do a whole wide scale change. It is just going to be tweaking bits of the model here and there as we gain knowledge and experience." (RM/2 - VC)

8.7.2 Intra-institutionalisation of capital allocation routines

The implementation of ERM has been a planned process, and has facilitated the routinisation and intra-organisational institutionalisation of capital allocation procedures used by VC. There have been fundamental changes in the risk and capital information used, and new risk-based capital allocation methods have been introduced following the implementation of ERM. VC has also become more capital-oriented seeking to improve its return on capital.

Capital allocation after implementing ERM was redirected in order to get higher return on capital. Risk management has been the core of this process as capital allocation is based upon the quantification of the company's risk. CUE-VC expressed that after understanding the issue of holding capital, people then move to the issue of the efficiency of using that capital. This is required because of having shareholders who clearly want to have a return on their capital. Thus, VC has not been seeking to have too much capital and hence not giving the right return on the risk. He explained:

"The capital allocation is based upon the quantification of our risk in the business. Then there are other decisions around the excess capital that we may or may not want to hold for reasons such as growth, such as we may want to change the volatility in our decision-making, or may be because the quality of our data might not be as good as we think it is. These factors come together to primarily drive the capital that we hold." (CUE - VC)

The information has been available much more quickly and officers could access real-time information alongside historical information. The real-time information was provided by Rival software. This has been facilitated by the financial support provided by the CEO and CFO. CRO-VC and CAc-VC preferred introducing new software relying on the existing ERM strategy. The mature ERM internal model used in VC helped allocating capital in more detail and to all segments. As a result, decision making with regard to capital allocation process has improved. Although the information was provided by the software, the ERM implementation played a major role in providing the central information which should be provided to the program.

ERM has been a key part of VC's internal models and thus its capital allocation process. It is adding a quantitative aspect alongside the qualitative aspect. It has been also a main part of how the outputs of the internal model help and guide VC in terms of where to grow, shrink or modify their business. EOO-VC illustrated:

"So, we have our own internal models to come up with and ERM is a key part of the process whereby we define how much capital is required to support the business and then compare that to what the FSA requirement is. That is a key measure for us. So, it is vital to the way of our capital strategy. The stronger, more robust our ERM regime is plus capital will be required to hold to support the business, and hence the better return we can obtain for our shareholders."

(EOO - VC)

Computer software has been used to help calculating capital. It is basically a random number generator as stochastic model. Lines of business were introduced to this software and split between attritional losses, large losses, and catastrophic losses. Within large losses, they are split between frequency and variety. This set up was applied to every single line of business. Mathematical distributions such as log normal distributions were used within these set ups. By using the historic data, these distributions were fitted to VC's history to come up with its mathematical model. After that, the model was run and it generated one hundred thousand years' worth of loss experience. The outputs of the model gave an indication of which lines of business are performing significantly different than actuaries' expectations. This was not done only at a total level - that is at the level of a line of business - but it was also done in terms of attritional losses, the number of large losses, and the large loss variety. CAc-VC explained:

"Because you could have a situation where a line of business is performing quite well. But it may be performing well because it's not had any large losses at all."

But actually its attritional is performing much worse than we expected. And that can still be useful for our chief underwriter because whether [a] line has a large loss is kind of lucky or unlucky. But if your attritional are looking much worse than we expect, that can be telling something about premium rates, so he then would use that." (CAc - VC)

The use of ERM helped in organising the documentary cycle and thus eliminating duplication of work, and offering easier and quicker access to information needed by staff. They have started to document many more of their processes in a way that helps them clearly and easily identify gaps and risks when looking at these documents. This means that they reported it and looked clearly at the mitigation circumstances that surround it more efficiently and effectively. CUO-VC stated:

"Yes. So to be direct, decision making is fast and allocate the capital is adjusted too to monitor the performance." (CUO - VC)

VC's business plan, which is set mainly by the actuarial and risk functions, included the target of a combined ratio to achieve a particular percentage of return on capital by the end of the year as specified by the responsible officers. The business plan is now set according to both risk appetite and return on capital. Thus, ERM was embedded in the business plan of the company because this plan has been driven by deciding how to better allocate capital, in which risk is employed. Consequently, return on capital was the key driver of business at VC rather than profits or capital necessity. CUO-VC explained:

"Within our business plan discussion, we have to decide which direction we should go. Let's write more property business, let's write more marine business, let's write more liability business. One driver of this, this should be as I mentioned profit. But at the same time we have to think about - okay, if we expand the property business, what kind of impact we will see on the capital... Property is a main capital leader. Because we don't have it, we can't expect any diversification within this. So, if we expand more, this will directly impact our capital. But if we expand liability, it does not affect so much... If we like to expand this, okay, of course that should contribute to our profit but that would be a little bit slower because the return on capital should be lower because it does not need so much capital." (CUO - VC)

CUO-VC further added that decisions are made with more confidence and people across the organisation now can discuss the same language. He commented:

"...probably before people could discuss which direction to go, but some people are only thinking about, oh do we have enough capital. Some people are only thinking about oh we can make money even though it needs a lot of capital. So, they are speaking other languages. So, the decision itself is very much - I think it was difficult. It was sometimes wrong. But now we can discuss more similar language even though our role is different." (CUO - VC)

ERM has been mainly used for capital allocation in the Underwriting Department because underwriters are the key users of capital and have to set the related risk appetite. Theoretically, all the people across the company should use ERM. However, underwriting risk composed 60 per cent of VC's risk and drives its capital necessity, so underwriters were seen to be the main users of ERM. CAc-VC stated:

"We're an insurance company, so it is quite rightly insurance is our biggest risk. And the people who are writing that and bringing that risk in on day-to-day basis are our underwriters. They are the ones that are bringing the money in. But they are the ones that are more difficult, because these concepts are very new to them and very different to what they are used to in the past. But our chief underwriter, he does fully support." (CAc - VC)

ERM was embedded into underwriters' daily work because they need to understand that the individual decisions they make have a wider implication for the business. It provided a broader understanding behind what underwriters are trying to achieve. Therefore, ERM formed a part of underwriters' day-to-day jobs, and as such it underlined the link between ERM and capital allocation processes. SCU-VC explained:

"...there are things that we do look at on a day-to-day basis that are part of ERM and one of them is appetite. So, we've set the appetite of the company, so all of the underwriters look at risk, they look at risk grade and they look at the appetite; is it green, amber, and the red. Certainly on the property side which is where I work on, I mean all our numbers are grossed up for expenses and in theory they have a return on capital included within that." (SCU - VC)

EOO-VC further gave an example to explain the latter notion:

"So, if... they write a piece of excess property business which brings us a CAT exposure consumed a lot of capital, they need to understand that because they made that decision then maybe they need to cancel some business to balance that out or they need to stew their business in terms of well the capital is fanlight, we

haven't got an infinite capital so we need to understand what the ramification of that one decision is upon the wider portfolio." (EOO - VC)

Capital efficiency has been one of the key controls of the business in VC alongside their KPI, LR, which is the ratio of losses and loss adjustment expenses incurred to premiums earned, and measures of underwriting profitability of VC's insurance business. CUO-VC stated:

"From a client point of view it is very easy to understand. Historically, we have received more than they are paying. So, this is not so much dramatic, but this is directly linking our volatility, which means directly linking our capital necessity." (CUO - VC)

Combined ratio is a measure of the profitability to indicate how well it is performing in its daily operations. A ratio below 100 per cent indicates that VC is making underwriting profit while a ratio above 100 per cent means that it is paying out more money in claims that it is receiving from premiums. The combined ratio is comprised of the claims ratio and the expense ratio. The claims ratio is claims owed as a percentage of revenue earned from premiums. The expense ratio is operating costs as a percentage of revenue earned from premiums. This ratio varies from one segment to another according to the desired strategic target.

Embedding ERM enhanced the understanding of people throughout the business, including those responsible for capital allocation, as now they better understand the concepts related to what they are doing. ERM was also implemented into lower levels, so everybody is getting involved and taking on risk responsibilities. The frontline underwriters were aware of the use of ERM in relation to the capital allocation. Thus, risk was embedded into capital at all levels of decision making. CAC-VC and AA/1-VC explained:

"Because of that, we can then use that sort of information within our modelling. So, rather than our modelling is purely based on the data, historic data, we are now actually able to use the expert's judgment of our underwriters and other management try to actually adjust those parameters. And because they understand the concept, we can trust their judgment and we can change the model and make get more appropriate allocation of risks." (CAC - VC)

"...the other departments were involved, but it was the most senior member of every department, whereas now it's more genuine presenter involved, and everyone has to fill in questionnaires, reports and surveys. So we are all involved to some degree. I think they've done a very good job at making people understand

how important this is for FSA regulations and Solvency II that we all must understand this, making sure everyone knows what it is." (AA/1 - VC)

Within Actuarial Department, responsibilities were distributed among people. Capital allocation process has been the responsibility of specific actuaries, which emphasise the growing recognition of the importance of this process. As presented earlier, there is a confusion regarding the capital allocation practices as they are perceived in various ways by different people across the company before ERM. Thus, these practices were not of high importance before ERM. COO-VC and his departments have become indirectly involved in capital allocation. This was demonstrated in the relation between operations and underwriting. COO-VC expressed that because he is the operational risk owner, he defines what the operational risk is, evaluate it, and run it through the model. Then, he decides the amount of capital needed to be held in support for operational risk and signs that off. Equally, he is an observer to have underwriting risk calculated, reputational risks calculated or any of the other risk categories calculated. As explained:

"Basically, because I have designed all the systems for them which actually determine the data which they must collect so we redesign the whole of the business model and the data management systems which generate the reports which allow them to assess the results and take decisions. So, they are very dependent upon the work which we've done in both operations and business process reengineering to the departments... in addition of all sorts of claims which we manage and handle. I should say in terms of the process in the business, my department would be the one which was doing the processing and the design of all of the management reports, sorry not all of them because actuarial do a few as well but certainly probably 80 per cent of them come from my area." (COO - VC)

Financial models were used to measure the risks which are identified and convert them into the capital that VC needs to hold. People within VC have spent enormous amounts of time to measure their risks as accurately as possible. Thus, ERM has been playing a significant role in managing the VC's business at its various levels. ERM has influenced the capital allocation in terms of deciding what type of business to write or not to write with regard to the risk embedded in each type. People responsible for capital allocation have become much more informed when they are making decisions about which line of business to develop. CAC-VC addressed this argument:

"We know we want to be bigger. Because when we get bigger, it reduces our expense ratios. But at the same time, if we get bigger, it is going to bring more risk. So, we are now able to answer questions which lines of business we can grow without increasing our risk too much. We have got that information readily available." (CAc - VC)

Underwriters have started to think in terms of how much capital they will need to grow without increasing their risks much. Thus ERM affected the underwriters' ways of thinking. They now understand the interaction of capital in the decisions they make and the results of their decisions on it. CUE-VC stated:

"From an underwriting perspective, it is influencing us now as to the types of business that we want to write or do not want to write. So, firstly, it is driving our decision as do we have enough capital if we want to write some of those we do not write. It is influencing us on those lines of business that we currently write in the way that we write it. So, it is driving all of those sort of thought process as to decisions about the efficacy or the desire to keep the structure we have or do we change the structure to fit the capital picture more efficiently." (CUE - VC)

He further gave an example:

"...if we want to underwrite [one of UK companies], we would say ok you've been very successful and you've got the right price but do you know where all the locations are. And if you know where all the locations are, do you know what the exposures are because that information then goes into our accumulation tools and the accumulation tools then drive the capital necessary for that. So, this is a fundamental shift in the way that underwriters would have got those processes in the past. So, the answer is it is having a very positive effect, but if you talked to underwriters at this moment of time, they probably do not quite see the big picture. But I think that is again the challenge for the insurance industry that the underwriters of the future will have new skill sets and new competency, so they do understand that instinctively." (CUE - VC)

People now have better understanding of available risk measures and capital allocation methods after implementing ERM and thus they become much more demanding for detailed information. Therefore, ERM has offered the basis for decisions regarding capital allocation methods that are efficient and effective. CAc-VC stated:

"...people are just aware of what's available far more... they just have more availability of numbers. We used to just really focus what is the company

number? What is the total company number? Whereas now, we got to produce what is the company number, and then they start allocating it down. It is now very much what is now by line of business, and then they just assume all answers to get the right number. We sort of have a bottom-up approach." (CAc - VC)

Behaviours of and tools for underwriters have been reengineered in order to fully embed ERM in the Underwriting Department. Thus, the way underwriters work has changed to include elements of ERM. As a result, capital allocation practices should change because they comprise a main part of underwriters' day-to-day job. CUE-VC explained:

"That is, as an underwriter, my instinct to define and evaluate risk is completely different from the instinct to evaluate risk in the ERM model process approach and that to me has been an eye opener. It has given me a new view on the world. As underwriters, we feel far more safe of what we know than if we don't know. So, having a risk evaluated you can argue whether that evaluation is too conservative." (CUE - VC)

ERM has been fully embedded in the business planning process as the risk management team is involved in providing information regarding whether the results fit the company's risk appetite, what its risk profile is, and whether the right areas of business have been grown in terms of where they want to grow and in terms of their implication on capital. Therefore, capital has become a key driver for business planning after implementing ERM over and above profits. Continued improvements have been made to monitor some risk categories. For example, VC has started to use various investment managers in order to improve the process of monitoring market risk. This could help in the sense of getting more precise data quickly. As explained:

"Last year we improved the way we monitor market risk. We use a few different investment managers. And we need to have the investment-related data from individual fund managers... and to gather all the investment managers' data including these company in-house investments to banks. Actually from this... company we can get all the comprehensive information about our asset portfolio. Before that, we need to combine all the different data and this change helped us to have accurate data quickly. So, we have now more precise data base. It brought all our data to one base." (CFO - VC)

Recently, regulators in the UK started an attempt to switch from the traditional risk management to ERM in the insurance industry. They were clear about the need to switch to risk-based capital allocation. VC was seen as one of the insurance companies that

implemented risk-based capital allocation earlier than any regulatory requirement. However, these systems were at various stages of routinisation and intra-institutionalisation and were facing some implementation problems. The problems facing the embeddings of risk into capital allocation process were attributed to the limited sources of data and the difficulty of getting people to think of capital in terms of ERM. Regulations and rules also required each insurance company to have a management services company that is recharged to it. This management services company provided all means of support including corporate planning, risk management, and accounts. Thus, regulators put considerable emphasis on risk management in insurance companies. This could be as a result of the financial crisis whereby loose risk management was seen as a main cause.

With regard to capital allocation method, no further changes were expected to the risk-based approach. This is because VC's staff are content about the superiority and efficiency of this approach. However, the ways of doing things were considered to undergo changes and improvements in case new innovations emerge. AA/1-VC stated:

"So, as your data becomes more accurate as well, it's going to be very difficult to argue against the risk-based approach. So, I think as time goes on, yes, they may find other ways of doing things, but I still don't think it'll change risk-based I think that's that is best measure they have." (AA/1 - VC)

8.7.3 Extra-institutionalisation of capital allocation routines

VC has proved to be far ahead in exercising ERM in the sense that it is providing best practice to other industry players alongside benefiting from other players' practices that are proven to be useful. The ERM implementation and use have been associated with a change in risk management rules and routines. It led to a significant change in capital allocation routines in VC. The usage of risk-based capital allocation represented a revolutionary change. For VC, the change in capital allocation methods has already taken place and no further change will happen after having Solvency II in effect. There is a business plan that should be implemented in a specific period of time. Business plans, including capital allocation, are now prepared over three years rather than once a year as ERM is providing better and more precise information that facilitates long-term capital management.

ERM created a strong relation between risk management and capital management. The Underwriting Department is now called Corporate Underwriting and Risk Engineering Department. Further, Actuarial Department has been classified as a risk department in the

company which implies that actuaries work quite closely with the people from the Risk Department and hold a big risk within their department. Actuarial Department has worked closely with Underwriting Department and they met more frequently. This was not the case before ERM. Any risk identification should be recorded right afterwards and then reported to the Risk Committee. Risk representatives from Actuarial Department have met on quarterly basis with the Risk Department and report back to everyone else in the department. Therefore, a strong communication network has been established which strengthen the ERM framework implementation. AA/1-VC and SCU-VC stressed the latter argument:

"So, because we do capital allocation with reserving, with pricing, there is a lot of risk within our department that we can get the pricing wrong or charge someone too much or too little. Reserving, we might not hold enough money and therefore we can't pay our claims... We are probably the most linked department with the Risk Department. And then, as I said, I'm the representative, so I have to go each of these meetings and then report back to everyone else to tell them how things are going etc." (AA/1 - VC)

"It is really around meetings and problems and issues that we identify from time to time. We sometimes unfortunately find some surprises or we are not running things quite as we are because we allocate this between three teams, it is sometimes a bit of a challenge so we have to communicate to try and resolve these. So, sometime it is like a crisis management meeting where we should have done this but now we have done this. The capital numbers have gone up is that a problem or something like that sometimes; it goes down." (SCU - VC)

VC has been performing under the UK GAAP. ERM has been under the supervision of the CRO who intervene in day-to-day activities. A report has been made to the CRO on a monthly basis. Thus, VC has played a role in the process of industrial development. Internal reports, in which risk aspects are reported, have been prepared monthly and quarterly by CAs-VC. The internal report was mainly used by department managers, senior management and the board. This report has two risk management aspects. The first one is a monthly monitoring which looks at the thresholds in terms of the risk management that forms part of it. It also shows LR's indicating whether thresholds are exceeded. Commission ratios and combined ratios are presented as well. The other aspect is VC premium income. CA-VC explained how this report facilitates risk management and capital allocation:

"If our loss ratio is way way above a particular area, it gets analysed that do we need more out of this area, or do we need to reanalyse it, or do we perhaps just

stop writing anymore and do we reengineer the book. So that forms part of the risk management." (CA - VC)

Reports were also requested from MAs and underwriters by the Risk Management Department. They have required to produce them and to explain them to people who expect them to. MAs tended to do regulatory reporting and involve in financial services authority reports such as the annual FSA return for insurance companies and global capital adequacy reporting. The way they reported the components of these is important to help identifying how capital has been allocated. The results they report should reflect the capital allocation. They normally report to CA-VC. MA-VC has to report quarterly to the Risk Management Department on his branch reconciliation which basically means summarising how his work is matched up to his own standards of systematic internal control. MA-VC and SCU-VC commented respectively:

"They check what I am reporting is correct but they only know what to ask because I tell them what it's going to be doing and they have come to me and said you need a proper systematic internal control. These internal controls you need to implement and these are the ones you are going to check. I will explain to them really what I do and they will realise that that is what is needed and then they will just check if I am doing it each month or each quarter." (MA - VC)

"One of the things they [risk team] look at is the numbers that we are looking at here and you know one of the things they are taking interest in is precisely this but the question is: Is it a problem or? I think that is a problem. So he is providing us with challenges. So, it is semantic whether you call this a challenge, help or whatever but yeah I joke but it is quite demanding sometimes but it does seem that we identify series of problems central problems that we have to go and solve." (SCU - VC)

The internal risk management reporting has significantly changed over the period of time before and after ERM implementation. ERM has emphasised that the risk has to cross the whole organisation. More capital information is reported. VC has got internal-external ratio and broken down the capital into what is the operational risk. Previously, this was not exercised. VC used to report the information that is solely based on the FSA return, which is the MCR (Minimum Capital Requirement). Now MCR, ECR (Emotional Capital Report) and ICA (Individual Capital Assessment) are all done. The three are reported at the same time. MCR is an annual accounting function based on historical basis. Now VC is looking at capital in a more forward looking. Looking at business plans now indicates what the impact

will be on the capital within the next three years, whether more capital is needed or whether paying out dividends is preferred. The second aspect of change is that VC risk management workshops used to be once every two years and concentrated only on the risks VC had. Now these workshops take into consideration the risks VC actually had but did not actually report.

The ORSA report, which is a part of the ERM framework, is the main company-wide report used to get most of the detailed risk information and looked at that in depth to manage risks. Thus, the ORSA report was embedded in the way VC operates. In addition, key risk indicators drawn out of the ORSA report were used to help managing risks as they summarise what is going on within the business. EOO-VC expressed:

"We get a lot of detailed risk information. Our CRO will put out the ORSA report. So we have that published quarterly and that gives a lot of information on what is going on within the business, how the risks are changing. That is a kind of company-wide report we use and we look at that in a lot of depth." (EOO - VC)

Officers have started to report capital internally alongside with risk reporting. Thus, ERM has attracted more attention to the importance of capital processes in the day-to-day job and planning the business. Previously, profits were the main driver for business planning. As stated above, risk has been reported internally on monthly and quarterly basis. The monthly report has the "Exit Rule" monitoring whereby it shows the traffic lights system which is defined in terms of risk management and thus in terms of what VC thresholds are. The quarterly report is the one whereby board reporting is done. The number was got from the CRO in terms of capital which is the base for putting the agenda. At the same time the CRO does a big paper on capital and risk reporting. This goes on a quarterly-based report.

Thresholds have been the key information needed from the risk management team in order to report on risk. Then people responsible for risk reporting look at what are the thresholds of VC capital in terms of different types of risk. The risk management team has provided them with analysis in terms of how adequate VC's capital is. This information has been used as the basis in terms of VC board reporting, internal reporting and management committee reporting. The latter argument indicates the strong link between ERM and capital allocation within VC.

Limited feedback has been given on the risk management reports because it reflects the risk management concepts that have been defined by consensus earlier. Thus, they have already been predetermined. Most feedback has been given regarding the emerging risks saying there is a need to involve other departments in it. In my opinion, feedback on risk

management reports should develop as ERM keeps getting ground in the company because people should have the knowledge that qualify them to argue what is defined for them to do.

ERM drove a change in the responsibility of capital quantification and allocation to be the CRO's overall responsibility rather than CAC's only. CAC-VC has also started to report directly to CRO-VC with regard to capital issues. This could be attributed to the fact that after using ERM, the capital model has become much more integrated part of the business. The internal capital model has become broader than it used to be. Previously, the capital model used to be an actuarial tool which was developed and run by actuaries and hence very few people understood it other than actuaries. CAC-VC and CFO-VC commented respectively:

"So now, the chief risk officer has the overall responsibility for our capital quantification. But the chief risk officer then outsources the technical modelling to the Actuarial function and so in relation to capital I report to the CRO." (CAC - VC)

"Capital allocation is not my responsibility but it is controlled by the CRO and decided by management committee and the board. Of course, financial figures prepared by my department are important sources to make a decision on the capital allocation." (CFO - VC)

RMs were considered to undertake further training programs in order to be able to perform the quantitative aspects of risk and thus, ERM will lead to a change in RMs roles and responsibilities. This supports the argument related to further integrating actuarial and risk management work. As such, ERM has driven the process of combining and converging risk management and actuarial work. This is a part of a more holistic risk management approach which considers capital allocation as a key part of ERM strategy.

ERM has been mainly used for identifying internal risks in VC. It helped in terms of pushing people to define processes and to illustrate the processes within each department. It forces them to look at what risks they actually have. It has also led each department to identify not only risks within itself but risks within other departments. Risk is pushed down in terms of mitigation. Thus, ERM made people look at a chain. Risk identification has become not only the responsibility of top managers but sometimes risk identification comes from bottom to top, where each department discuss and identify their own risks and then discuss it with the CRO and its team. This is an indication of advocating a more holistic approach to risk management.

Capital allocation routines in VC were expected to be extra-institutionalised or disassociated from their historical circumstances. VC is a leading company which has arranged meetings with other insurance companies to provide information about their experience with ERM and its usage for capital allocation, and about how they do and manage these processes, as well as how they deal with the problems they have faced. CRO-VC has participated in a forum that involves attending conferences and meetings with other CROs from different insurance companies. As such, an imitation processes would be expected of the best practices adopted by VC. These imitation processes could occur as a result of the successful practices followed by VC which are expected to influence the decisions taken by other industry players. VC capital allocation practices then would be expected to be used by other insurance companies. This can be explained in the light of that findings indicated that VC is providing best practice for other industry players and also getting best practice from them. This confirms the extra-institutionalisation process of capital allocation routines. RM/2-VC commented:

"We have consultants who come in and review our approach, review our methodology and the framework. So we are constantly looking at ERM to get best practice from that... So, we follow some of their systems. Maybe there are certain things they do; maybe we are doing it differently here. But, we can just look at those and do some calculations on their basis and then decide if you want to carry on with what we are doing or to adopt their approach." (RM/2 - VC)

ERM has become a necessity in VC that people from various departments and at different levels recognise. Thus, continues meetings have been held with CRO-VC at the company's level in order to discuss what have been completed by one department and what people still need to do. CRO-VC and his team developed new systems and strategies to facilitate understanding and using ERM aspects by different people across the organisation. For instance, CRO-VC defined the thresholds within that particular system, which will offer people both information and warning if they write business in or above a certain threshold.

Pricing has played a key role in driving a change in the business. Because capital is highly linked to the company pricing approach, ERM has led to a change in pricing and to build new pricing tools in order to enhance the capital. Price is related to return on capital and hence can affect the way capital is allocated. VC's pricing approach in the past was more about getting the right price in the market. Thus, risk has been embedded in pricing process and ERM has been leading this process. CUE-VC and AA/1-VC further explained these relations:

"The primary concern [related to pricing approach] is more about the commercial interest of the company. Now underwriters are beginning to understand that pricing can either burn your capital or enhance your capital. We have built new underwriting pricing tools that recognise that. We recognise it by having a definition of what we call technical price. Technical price relates to the return on capital. So, if business plan says the return on capital is eight per cent this year then the pricing tools are adjusted to meet that." (CUE - VC)

"We've been looking at things like monitoring and pricing. So we have to keep an eye on how our pricing is comparing to what's actually happening with our claims, because I did the pricing as well. So, we have to make sure that I'm pricing things correctly, so that if I price something badly and it goes wrong, it can affect the way capital is allocated. I think there is a lot of monitoring that's happening, but the most specific one is certainly reserving risk." (AA/1 - VC)

ERM has raised the level of confidence concerning capital allocation decisions as a result of providing certain and sharp tools used for decision making. Tools that depend on professional opinion have replaced tools giving only an evaluation. ERM has also given more flexibility to capital decision making which adds value to VC's business and helps using capital in the best possible way. Better capital allocation decisions can lead to higher return on capital. From an external stakeholder's point of view, being more efficient in the use of VC's capital would add value to its reputation through knowing that VC is doing things in the right way and that it can demonstrate how its capital is used. The better the return on capital figure, the better capital providers will see the insurance company. When they invest a large amount of money into the company, they normally expect a high return for it. RM/1-VC and CUE-VC stressed the latter discussion:

"...If we've got a very good internal model... it gives us competitive advantages. As I said before, if we limit the amount of capital we need to hold, optimising the amount we hold, then we can use it elsewhere to improve the company. We could use the release money to drive the business forward, improving processes and systems to ensure they are as efficient as possible. We can make more profit basically from these efficiencies." (RM/1 - VC)

"But then now having understood what the profile of our capital is and where we want to go as a company, it will make the board aware of the need to demonstrate to the shareholders that we are using their capital in the very best possible way. And whereas they would have been doing that in the past, then ERM really is the

ideal tool to show that. So, it will invoke the board to encourage the business to develop new ideas, new ways of doing things, again to maximise the use of our capital, or to make the efficiency of our capital even better." (CUE - VC)

VC has been planning to change the remuneration policy of underwriters from being mainly relied on premiums and profits to be based on different quantitative and qualitative risk measures. This provides evidence on ERM becoming more embedded across the whole company and used for all key decisions. In this regard, it is also affecting the company's institutional realm. CAC-VC confirmed:

"...in term of our remuneration policy, we are looking to change the way would compensate our underwriters. So, rather than purely in the past we base on premium they brought in and the profit and loss was. Now that being tested on various risk measures. Not just quantitative measures, but qualitative as well. Are they in breach of certain guidelines, have they attended the right number of training courses? That can actually reduce the bonus they are entitled to. The ERM has direct impact on their eventual salary. How much money they earn? Which encourages them to have the right philosophies?" (CAC - VC)

At this point of ERM evolution, more discussion with other industry players was shown to be required than further training because there is a need for in depth information regarding the way of implementing and using ERM, companies' experience, and capital models applied. This implies that ERM principles and usage has already been understood and embedded within VC.

VC has been seeking to improve data and information systems to help embedding ERM further. They have luckily started a project to streamline their data work about the same time Solvency II was coming in without realising that it will be announced soon. As a result of being a complicated company in terms of having lots of branches, there was a need to put all the data together which is a quite complicated process. VC has been trying to improve the data consistency. Therefore, IT platforms have been standardised in order to get common data. This was explained in details by EOO-VC:

"One of the things we have been doing in our company, for example, is to standardise a lot of our IT platforms. The way we structure our data is a very standard way. Because we operate in seven countries today, so we are making sure we got common data. How we define data in France is the same as you define data in the UK. So, we capture the same data across the piece that is consistent. So, one standard operating platform. So, we kind of minimise

operational risk within the business. Historically, we had a mix of business using different systems. Some of our branch operations will run by outside agents. So, the data is becoming from their systems into our systems. So, they have some reconciliation issues, data quality issues, potentially incompetence of data... Recognising if you don't have a good control around that then you will be penalised." (EOO - VC)

This project has facilitated the analysis and comparing business lines. This worked well for them as if such project did not exist, it would have been very difficult for VC to be Solvency II compliant. They would struggle to get the data needed. Even before Solvency II, the plan was already to bring all of their business into a single platform. This implies that regulations were not the key drivers for VC to make decisions related to ERM. It was the benefit they were getting out of ERM implementation.

The operating performance document indicated an increase in the combined ratio, LR, and commission comparing to the year before. Management expense ratio stayed the same. The combined ratio and LR appeared to be higher than the company's target. Underwriting profit in most branches was higher than previous years. The combined ratio was also better than the business plan ratio. The premium analysis of VC showed that gross written premium increase, net written premium and net earned premium have increased as well. The latter results imply persistent improvements in capital management and allocation at VC.

Next, a discussion of the case findings is presented and conclusions are derived.

8.8 Discussion and conclusions

This chapter addressed the third group of research questions, which focused on the role of ERM in changing capital allocation rules and routines and the forces driving this change. It analysed one case study in line with the theoretical framework that was developed in Chapter 3. The analysis was conducted at various levels composing actions, routines, intra-institutionalisation and extra-institutionalisation in order to understand the interaction between action and structure.

The case study results revealed that ERM was a trigger for a change in capital allocation methods and practices as it tended to routinise and institutionalise new techniques. The literature suggested that ERM implementation occurred first followed by changes in capital allocation practices and the case confirmed this in VC. ERM did not support existing capital allocation routines. This occurred because ERM has built-in knowledge which has

been transferred into its users, specifically people responsible for capital. VC has improved its risk reporting structure. Risk communication within risk reporting structure enables companies to achieve a consistent and appropriate risk response. This approach can enable risk management activities to fully support the achievement of the strategic objectives of the company (Woods, 2011).

ERM formalisation tended to reinforce, reshape or change existing routines and institutions. A number of risk management practices have been already put in place by VC but they were not formalised as a risk management technique taking the full picture. However, new capital allocation routines were produced. The latter finding is consistent with the survey findings indicated by AON (2010). This is consistent with Burns and Scapens' (2000) view concerning the possibility of formalising existing organisational routines into rules.

The findings support the tendency towards using the risk aspects as main bases on which to allocate capital in VC. Capital allocation routines were considered to stabilise after moving to risk-based capital allocation and little further change was expected to take place. Therefore, ERM tended to reinforce the new capital allocation routines and practices whereby risk is embedded more and more.

New risk categories were embedded more recently into the capital model, in particular reputation risk. This implies that reputation risk is central to private firms as it is a main driver of the business value. Thus, a key dimension of risk management should be preserving a company's reputation. It was evident that reputation affects customers' buying decisions, employees' loyalty and investors' choices. A good reputation protects a company's competitive position (Woods, 2011). The Economist Intelligence Unit (EIU, 2005) conducted a survey of senior executives from around the world who were asked to rank different categories of risk on a scale of 1-100 in relation to their significance to the business. The survey showed that reputation risk is ranked top, but it is found particularly difficult to manage by senior executives. Reputation is a valued asset. However, it could be argued it is not a separate category of risk, but reflects a failure to manage other risks.

ERM contributed directly through the new software and indirectly through strategy to the intra-institutionalisation of capital allocation routines. It helped disassociation of capital allocation routines partially from their historical circumstances. The CRO and his team can now access real-time risk information to check the availability of resources and analyse their portfolio. "At the root of ERM is the idea that risk management is embedded right across the

organisation, and consequently is the responsibility of everyone. Specialist experts have their place but they need support from operational staff" (Woods, 2011, p. 41).

Putting in place a mature ERM internal model using both historical and real time information led to a more detailed capital allocation to all segments. Capital allocation decisions and practices have been linked to ERM maturity level. ERM helped providing information and guidance for senior management, as well as offering lessons to RMs who are seeking to make an enhanced contribution to the success of their employer (Woods, 2011).

Mikes (2005; 2009) showed that there are systematic variations in ERM practices in the financial services industry. This study takes this further and explains that ERM practices and uses also differ among departments and levels within the same insurance company. This can be attributed to the lack of detailed information about ERM, which results in an absence of cross knowledge about ERM, or to adopt ERM for different needs by each department. It was evident that Underwriting and Actuarial Departments use ERM more extensively than other departments as it mainly deals with capital requirements and allocation.

In conclusion, drawing on the theoretical framework that is developed in Chapter 3, this chapter examined the role of ERM implementation and use in capital allocation practices change and the forces behind change in capital allocation rules and routines in one large insurance company. It was proven that ERM is a key driver of change in capital allocation methods and practices in an insurance company where ERM is at a mature level. ERM was gradually implemented over a period of time and led to a revolutionary change in capital allocation routines, which is consistent with Burns and Scapens (2000). Further discussion of the findings is provided in the next chapter.

Chapter 9

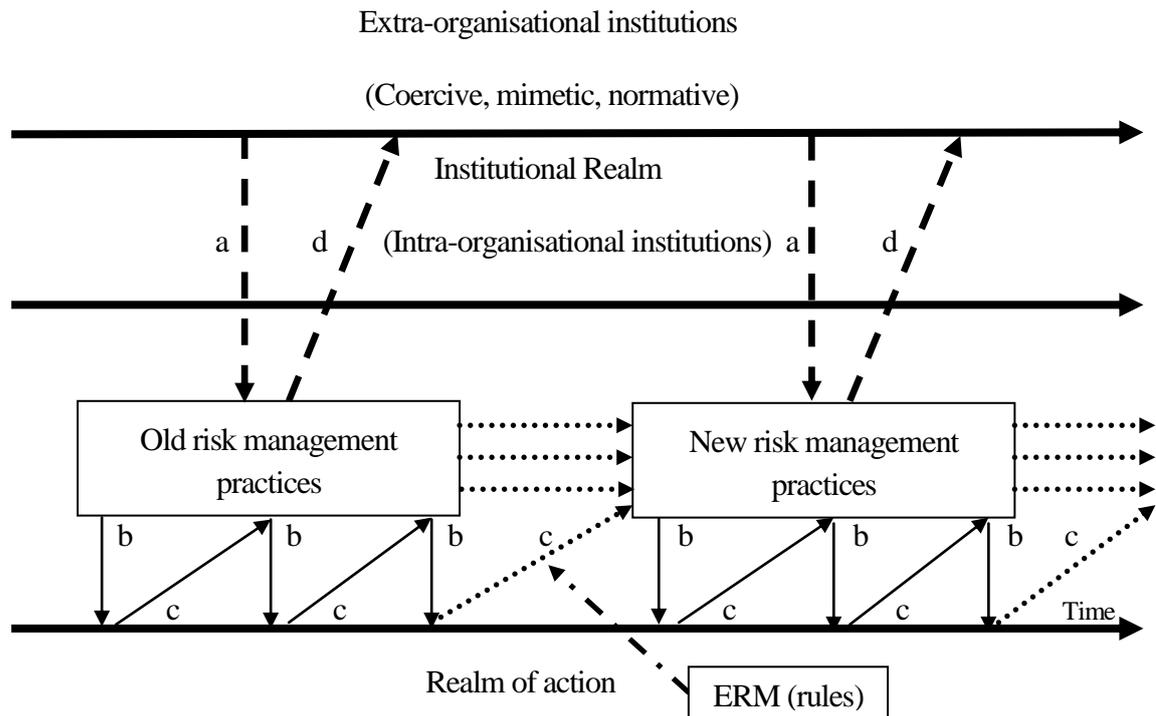
Discussion

9.1 Introduction

The aim of this study is to understand the changes in risk management practices, particularly capital allocation triggered by the implementation of ERM within non-life insurance companies. To achieve this aim two stages of empirical study have been undertaken. The first stage was a field study in 10 non-life insurance companies. The issues related to the institutional pressures that drove ERM adoption and to the changes in various risk management practices that followed the implementation of ERM were the main focus of this field study. The second stage was based on a case study of one company, VC. In this case study the focus was on gaining an understanding of why and how ERM drove a change in capital allocation practices.

The findings were based on interviews with risk management officers and directors across a number of non-life insurance companies, as well as company documentation on risk management strategies. This study developed a theoretical framework drawing upon institutional theory and a number of structuration theory concepts in management accounting. These theoretical perspectives provided the basis to inform this research and hence explain the changes in risk management practices triggered by ERM implementation and embedding. Drawing on the theoretical framework, this chapter discusses the findings of both stages in the context of the literature on the change in management accounting in general and the change in risk management in particular. This will enable a richer analysis and boost the contribution of this thesis to theory. The theoretical framework developed in Chapter 3 is reproduced in Figure 9.1 (see next page).

The remaining of this chapter is divided into four sections. The next section focuses on the organisational institutions governing the ERM adoption decision in non-life insurance companies. ERM implementation and the embedding processes whereby ERM technique is seen as an action that encodes institutional principles are discussed next. This is followed by a discussion of the change in risk management rules and routines associated with ERM, with an emphasis on capital allocation practices. The last section draws conclusions.



- (a) Encoding
- (b) Enacting
- (c) Reproduction
- (d) Institutionalisation

Figure 9.1 Theoretical framework for the study

(Adapted from Burns and Scapens, 2000, p. 9)

9.2 Internal and external institutional pressures driving ERM-related actions

Insurance companies have specific characteristics and operate in a competitive business environment, which make them significantly affected by the larger organisational field. Various political, social and economic institutions are imposed by the insurance field and society on the insurance companies acting in the UK insurance sector. These different external and internal institutions can lead to a deinstitutionalisation of the existing rules in practice and hence affect the actions taken by insurance companies to adopt new risk management rules; ERM. Drawing on the concepts including deinstitutionalisation, organisational fields and institutional isomorphic mechanisms, this section discusses a the intra- and extra-institutional pressures that have influenced insurance companies due to the

change of their main orientation and to the new regulations related to risk management. It will further discuss the subsequent ERM implementation and embedding processes through different levels of deinstitutionalisation.

Various external and internal institutional forces played key roles in the adoption decision of ERM. The time period taken to adopt ERM in the companies investigated varied from 2½ to 12 years. Similar to Pagach and Warr (2011), the findings of the presents study support the idea that larger insurance companies are more likely to adopt ERM than smaller companies. The need for ERM varies based on the complexity of the insurance company, which is consistent with what ADB (2000) suggested. ERM was mainly adopted in the companies under study in response to both internal and external institutional pressures.

Extra-organisational pressures have played a role in changing activities, rules, and routines (Burns and Scapens, 2000). There has been an increasing regulatory pressure for ERM adoption. ERM have comprised a part of the rating process. The main rating agencies have focused on ERM implementation in regulated industries. Ratings agencies have been advocating the implementation of ERM practices. They have given credit to companies implementing ERM and to strong internal capital models used in ERM process. For example S&P started explicitly reviewing ERM frameworks in 2005. Thus, rating agencies can have an effect on the adoption decision. A number of studies already showed how regulations and rating agencies are major factors that have driven the trend toward ERM in both insurance and other financial industries; for example, Colquitt et al. (1999), Liebenberg and Hoyt (2003), Cowherd and Manson (2003), Lam (2006), Shenkir and Walker (2006), Acharyya (2008) and Hoyt and Liebenberg (2011). These studies examined the role corporate governance guidelines played in the decision to adopt ERM. Their findings support the conclusion that ERM is often adopted in response to the influence of compliance with regulatory guidelines. Insurance companies were also shown to be inspired by new rating criterion to design and adopt ERM (Acharyya, 2008).

However, the findings of this study showed that regulations and rating agencies are influences among various institutional pressures on companies' risk management strategies, as discussed by Kleffner et al. (2003). Regulatory requirements have imposed less institutional pressures on the ERM adoption decisions of the insurance companies under study, which adopted ERM early on before any introduction of regulations. Regulations allowed faster and easier embedding of ERM in terms of both technical and financing issues and added credibility to ERM usage rather than pushed actions to adopt ERM. For example, regulations will always push the adoption decision of any new risk management innovations,

but they exert extra pressures on the more recent adopters of ERM. Even though regulations are affecting the decision to adopt ERM for companies implementing ERM more recently, such as JC, they were almost simultaneously accompanied with the pressures stemmed from realising ERM benefits such as creating a competitive advantage.

Woods (2011) argued that the quality of governance is considered to be a matter for individual companies. Good governance can be forced regardless of the amount of legislation if there is a local willingness to employ the underlying principles. Thus, even if common sets of regulations were in force, the approach to governance, and specifically to risk management, would vary from company to company. The field study revealed similar findings in the sense that insurance companies have strengthened and implemented ERM even though they have not been obliged to implement ERM before the announcement of Solvency II requirements, which will not be in force until 2014. Furthermore, the risk management practice was shown to be related to each company's characteristics and circumstances and there was no one common approach to ERM even among similar companies.

Other institutional pressures including crises and company's disasters, capital providers' demands, stock market analysts' requirements, as well as the business nature, needs, and requirements were revealed in the field study to be key external drivers for ERM adoption. This is consistent with Nielson et al. (2005) who argued that risk managers incorporate risk management principles into a stronger system of corporate governance as a response to the demands of increasingly sophisticated shareholders for better risk management. Acharyya (2008) showed that insurance businesses, like other businesses, should be responsible for the other stakeholders' interests such as employees, suppliers, etc. It was argued in the literature that the financial crisis showed that risk management should evolve towards explicit models based on coherent risk measures, fat-tailed distributions, and non-linear dependence structures (Walker et al. 2003; Baranoff, EG. 2004; Varma, 2009). Power stated that "the financial crisis suggests an urgent need to shift cognitive and economic resources from 'rule-based compliance' towards the critical imagination of alternative futures" (2009, p. 852). S&P's (2010, May 5) research report pointed out that increasing number of insurers have achieved "adequate" and "strong" ERM scores, which improves the investment that is made by insurers to enhance their ERM frameworks in response to financial crises and new regulations governing insurance across the EU. However, these external institutional drivers imposed different pressure intensities on the companies under the study.

The findings couldn't support the effect of competitors and their feedback on the adoption decision. However, there was evidence that such external institutional drivers can have indirect effects on the ERM adoption decision through human resources interchange, although this might not be well recognised within the company. This is consistent with Lam (2006) who argued that leading companies, which have experienced significant benefits from using ERM programs have led to initiating ERM. Thus, industry players were shown to have little direct or indirect effect on the adoption decision. However, the existence of these mimetic effects, alongside with the increase of ERM adoption rate, provided an indication that ERM is becoming a common practice among insurance companies.

There was little evidence to support the effect of consultants' suggestions. Suggestions from consultants drove the ERM process in terms of the thinking methodology, but they were not a key institutional pressure behind the adoption decision. Those institutional pressures had little effect on ERM decision making because the main drivers were seen to be internal ones, as well as regulatory and rating agencies, rather than external competitors or consultants.

As expected, the CRO education and professional qualifications were significant normative pressures affected the adoption decision and implementation of ERM. Similarly, previous literature showed that the tendency for risk management integration level is affected by the background and training of the risk manager (Ceniceros, 1995; Colquitt et al., 1999). However, the analysis showed that the adoption itself called for people with specific educational backgrounds and professional qualifications. The latter argument is consistent with Solvency II requirements and with the previous literature indicating that companies signalled their use of ERM by appointing a CRO (Liebenberg and Hoyt, 2003). However, professional experience was proven to affect not only the adoption decision, but also the design of ERM framework and implementation as it is a main source for providing basis for consequent enacting, encoding and embedding processes related to the operationalization of a particular system or business. This supports the argument in this study that the CRO's background, professional qualifications, and experience play a main role in the whole ERM process.

The analysis revealed a number of internal institutional drivers that significantly influenced the ERM adoption decision. These drivers were classified into the CRO interest and passion, and achieving the company objectives (increase profits, optimise risk reward, get a better understanding of risk level, improve return on equity and return on risk, and avoid excessive volatility by managing their risk accumulation). ERM has been considered as one

of self-regulating approaches that have emerged in the 1990s (Arena et al., 2010). Even though ERM belongs to the field of internal controls, it has become a managerial way of thinking which offers "reasonable assurance regarding the achievement of entity objectives" (COSO, 2004, p.2). Researchers have quantified the value added by implementing ERM through a cost-benefit approach (e.g. Cappelletti, 2009). Other researchers have illustrated how ERM could help companies to achieve strategic goals. Shenkir and Walker (2006) and Beasley et al. (2008) showed the way a balanced scorecard can be leveraged by companies to support ERM view of risk. Rao and Marie (2007) provided survey evidence on a weak relation between ERM and strategy. They suggested an ERM strategic approach concentrating on the risks effect on key performance indicators (KPIs).

Some of these internal institutional pressures were explored in the literature. For example, Lam (2006) argued that ERM is a systematic process for optimising risk-adjusted profitability. Kleffner et al. (2003) showed that the influence of the risk manager and encouragement from the board of directors are also reasons for adopting ERM. It was further argued that the goal of risk management is to increase return on equity capital (Froot et al., 1993; Strongin and Petsch, 1999).

Thus, a combination of internal and external institutional pressures has shaped the adoption decision in the companies investigated. The existence of various combinations could be attributed to the different ultimate objectives and views of the companies and their managements. Adopting ERM as a result of expecting it to benefit the company in terms of improving return on capital and capital efficiency supported the notion that ERM affects capital management and capital allocation practices. Unlike Pagach and Warr (2011) who found, using a hazard model, that ERM is adopted for direct economic benefit rather than to comply with regulatory demands, this study showed that regulatory requirements imposed similar pressure to the internal pressures (achieving the company objectives) on the company's actions. The internal social institutions imposed another pressure to adopt ERM in the sense that larger insurance companies considered ERM as a social responsibility because of the great knock-on effect on the local and worldwide economies that may occur in case they went bankrupt.

This research showed that ERM adoption decision is mainly driven by external pressures such as coercive, normative and the business nature, needs and requirements, as well as internal pressures rather than mimetic ones. Thus, institutional pressures play a role in the selection and use of ERM practices (Mikes, 2005). However, there are variations among the insurance companies investigated with regard to the intensity of the effect of external and

internal pressures. The internal institutions exerted similar pressures or even greater ones on the different insurance companies operating in the organisational field. This could be attributed to the variations in the ultimate objectives of each insurance company. Although there were a few drivers specifically identified (regulation, business management, etc.), there were some implicit unforeseen uses/benefits of ERM, such as capital management, than just these drivers. These uses/benefits might not have been recognised by some companies prior to ERM adoption. Although various institutional pressures have driven the ERM adoption decision, increasing numbers of insurers have different incentives and reasons for adopting ERM, a situation which is consistent with the findings of Tillinghast-Towers Perrin's survey.

9.3 ERM implementation and embedding processes

The analysis showed that ERM technique is an action that encodes institutional principles within the non-life insurance companies under study. The different risk management approaches and processes, as well as ERM implementation determinants and challenges, are discussed in the following sub-sections.

9.3.1 ERM enacting, encoding and embedding

Before adopting ERM, little consideration was given to risk management systems. Silo or traditional approaches to risk management, such as scenario oriented, etc., were being used. These approaches did not consider risk appetite, they did not have any key risk indicators, there was no clear vision of the risks, and no addressing of the effect from one risk on another. More developed approaches to risk management, such as risk-based capital approach, were also used. This could be attributed to the fact that there was an intuition that one risk can affect various aspects of the company. However, they did not have a framework and did not have to report on risk topic prior to ERM. It was documented in the literature that risk management has tended to be in silos even in the most successful businesses (Cowherd and Manson, 2003).

Based on institutional theory, the change processes can be either evolutionary/incremental or revolutionary. The process of ERM adoption was mostly described as incremental changes within existing systems, though it was considered to be a revolutionary system change in some cases. Although there were different opinions on this issue, it seemed like the ERM process was mostly evolutionary. Even when it was described as revolutionary in some cases, the explanations indicated that the change was in fact

evolutionary as it was not consistent with the definition of revolution which is: a process of successive changes that take place in a short period of time. Similarly to Aabo et al. (2005), the process of ERM has had a major part that is consistent with traditional risk management. However, ERM has combined both qualitative and quantitative elements, added a number of key steps, as well as documented and institutionalised risk management routines.

Similar to Dhaene et al. (2012), it was found that a major part of ERM framework is the exercise of capital allocation. S&P's (2010, May 19) report showed that ERM review would start to include not only the assessment of ERM, but also the assessment of capital adequacy and capitalisation. This provided evidence concerning the significant link between ERM and capital allocation within insurance companies. As expected, ERM could mainly drive a change in capital allocation practices.

The insurance companies' internal and external institutions and rules affected ERM process structure, which leads to developing specific ERM frameworks and policies that facilitate a successful implementation and embedding of ERM into the companies' various levels. The process of ERM implementation and embedding varied among the companies from being semi-structured to being fully structured. Each company has had its own framework and policies which are consistent with the company's nature and ultimate objectives, thus indicating variations in ERM practices in insurance companies. Similarly, Mikes (2005; 2009) argued that there are systematic variations in ERM practices in the financial services industry, an argument that is consistent with Beasley et al. (2005). This study confirmed the relevance of the latter result in the insurance sector. However, the findings of the case study indicated that ERM practices and uses differ not only among companies but also among departments and levels within the insurance company. The lack of detailed information regarding ERM and its perception in each company and in each department could create such variations. It is sufficient to recognise that Underwriting and Actuarial Departments are supposed to use ERM more extensively than other departments as they mainly deal with capital requirements and allocation. The Institute of Risk Management (IRM) declared that every company is different and should find an approach that fits its particular structure and culture; and this is demonstrated by the different approaches, priorities, and activities evident in the field study research.

Woods (2011) indicated that risk management systems and structures are individual to each company and stated: "the details and design of construction will differ between organisations because each one is different in terms of its objectives, size, culture, and business model" (p. 1). However, this research showed that size was not seen as a major

influence on the risk management framework structure within the insurance companies investigated. A large company was shown to have a semi-structured ERM while a well-structured ERM was found in a medium sized company. In general, the ERM process of managing risks was explained to have both qualitative and quantitative elements. As argued by Schneier and Miccolis (1998), Munich Re Group (2006), and Acharyya (2006), there is a need to employ both quantitative and qualitative techniques in order to implement the conceptual framework of ERM as all risks cannot be quantified numerically.

The ERM systems implemented in the companies under study share similar components to the ones in COSO (2004) and ISO 31000 (2009) and are geared to achieve similar objectives to the ones addressed by the ERM framework released by the two standards. Actually, ISO 31000 mirrors COSO (2004) closely. It should be noted that "laying the foundations for governance does not, however, guarantee wide-spread adoption of the suggested practices" (Woods, 2011, p. 13). Each ERM framework in this research was aligned to each insurance company's ultimate objectives. Woods (2011, p. 39) similarly argued that "the ERM model for firm X will not be the same as the one which works for company Y because the context is different. Effective risk management comes back to understanding what an organisation is trying to achieve and constructing controls which reflect the desired risk appetite. Changes in any or all of the size of the company, its field of operation, or its objectives are likely to impact upon the risk appetite and require modifications to the risk management system".

Continuous optional and compulsory internal risk management training programs have been carried out in order to educate people across the companies under study about ERM and how to embed risk assessment into their daily job and decisions. Woods' (2011) case studies indicated the importance of providing senior management with information and guidance and offering lessons to people within the company. Such training programs have been steps to have ERM fully embedded and used by all staff from different levels in the company to run their jobs, not only senior staff. Further, Ashby et al. (2012) showed that risk ownership has been driven more into the front line of business. The findings of this research showed that ERM is driving the latter process in the insurance industry as a part of its framework.

Risk management embedding into operations has been considered as a process that is very challenging and long term. There has been a need to make sure that the risk management function has direct contact with day-to-day operations and is meaningful for front-line staff (Woods, 2011). Previous knowledge and/or training of staff have not taught them about risk

in the way required by ERM. Therefore, there was an effort put in place to get ERM implemented and to make sure it was fully embedded across all levels of a company. Seeing all people across a company convinced that ERM is useful for them, not only for the management, shows that ERM is working and fully embedded across a company.

Some specific training programs for staff (e.g. underwriters) are run with regard to the extent of their ERM usage. This showed that capital process and practices are closely linked to ERM and comprise a major part of ERM framework. Running both specific and general training programs at the company level supported the argument that although ERM should be embedded across the whole company, different departments and people require different information and training with regard to the risks they own.

9.3.2 ERM institutionalisation: Determinants and challenges

The institutionalisation of ERM reflects and responds to a number of internal determinants. The CRO's risk management experience gained through their prior experience and ERM training programs (both internal and external) were a major determinant for ERM use. This result is confirmed by Ceniceros' (1995) argument that risk managers should enhance their financial skills in order to deal effectively with the broadened set of risks that they are required to manage. The findings also showed that the significant support provided by CRO, CEO, and CFO in terms of financial support, educational support, and promoting the ERM culture has significantly contributed to ERM institutionalisation. These results are consistent with previous research indicating that the stage of ERM implementation is positively related to the presence of a CRO and top management support for ERM in insurance industries (PricewaterhouseCoopers/Economist Intelligence Unit, 2002; Beasley et al., 2005; Munich Re Group, 2006).

It was clear that ERM led to a change in the organisational structure. A risk management department was set up and directed by the CRO after ERM implementation. The risk function moved out from under the CFO to the CEO. There has been a clear coordinating effort towards ERM. Insurance companies have been moving towards the holistic approach and its indicators were having a Risk Committee and/or a risk coordinator at every department to run and develop the risk management function and to prepare for any new regulatory requirements. The Risk Committee included a number of risk sponsors who have precise risk responsibilities. Similarly, Ashby et al. (2012) found that implementing risk culture has led to structural change in terms of creating new, small groups to oversee silos,

support the board, and provide risk oversight as previously missing or inadequate. This implies that silo approaches are still used in the banking sector. However, Ashby et al. (2012) indicated that companies are concerned about breaking down silos and encouraging risk information sharing. My findings supported their result to some extent in the sense that the insurance companies under study have expanded the role of risk function and directed extra efforts to promote a risk culture in order to fully embed ERM across the whole company. However, banks are considered in the literature to be the first to accept and implement a wide-view approach of risk, which does not support Ashby et al.'s (2012) findings.

Almost all departments in the insurance companies assisted in the ERM implementation process. However, the CROs and their departments have been mainly responsible for managing and monitoring ERM implementation across the insurance company. Both internal and external auditors were unexpectedly involved in the implementation process of ERM to some extent. This could be attributed to the fact that auditors monitor processes within insurance companies to assure shareholders that management is working in the shareholders' best interest. Thus, risk management has become a key process for the company's permanence and competitive advantage. This supports Abbott (1988) who stated that the strategic shift in internal control has given the opportunity for auditors to expand their professional field. More recently, researchers argued that auditors appropriate the tasks of risks assessment or sometimes the entire process of risk management (Fraser and Henry, 2007; Page and Spira, 2004). This is consistent with what the New York Stock Exchange (NYSE) required in 2004. It called for audit committees to govern the process of risk assessment and management.

Traditionally, management accountants have had a role in controlling uncertainty by analysing variances in performance (Arena et al., 2010). More recently, management accountants' professional associations have encouraged accountants to play an active role in risk management in order to embed this process in performance management (Institute of Management Accountants (IMA), 2006; Pollara, 2008). That is consistent with the findings of this research, which showed that ERM added further responsibilities to the job of management accountants, directed their actions, and facilitated their job in terms of overcoming the gaps linked to risk identification and mitigation. There was a tendency towards having a stronger ERM recently. This could be attributed to the need to gain a competitive advantage. Even insurance companies that implemented ERM two years ago or so such as company JC, seek to improve their ERM at a fast pace.

The challenges encountered during ERM institutionalisation were mainly cultural issues, difficulties of getting specialised people in time (Lee, 2008), limitations to data recourses (Lee, 2008), understanding the information and having sufficient output, problems with designing the ERM framework, problems with risk modelling, as well as software and technological issues. This implies that risk modelling is an important issue for the insurance industry. Other challenge was making sure that ERM is actually embedded at all levels of the company. Theory of ERM suggested that embedding ERM throughout a company is a difficult task (Van der Stede, 2011; Mikes, 2009, 2011). The analysis showed that having ERM is expensive. Previous studies, such as Lam (2006), Shenkir and Walker (2006), El Baradei (2006), Jablonowski (2006), Salvador (2007), and Yilmaz (2009), argued that obstacles related to cultural issues, as well as insufficient human, systems, and data resources faced the implementation of risk management systems.

9.4 ERM and change in risk management rules and routines

The ERM implementation and its associated change in risk management practices were path-dependent. ERM implementation processes have been shaped by various elements, systematic mechanisms and inertial forces. The analysis in this study was consistent with Burns and Scapens (2000, p. 13) who describe "change processes as evolutionary processes that comprise a combination of random, systematic and inertial forces, which together create the context out of which new practices emerge". In this section I describe ERM maturity levels and the associated risk management practices change in the insurance companies investigated and the forces which shaped these processes.

9.4.1 ERM maturity

ERM was revealed to be at various maturity levels and thus institutionalisation levels ranging from being at early stages of implementation to being at a mature level, and thus embedded in all areas of business. Insurers have made progress in developing the basic building blocks of their ERM framework and are likely to be focusing now on developing strong/stronger ERM, which is consistent with S&P's report (2010, May 5).

The various conceptions of ERM maturity level reflected the personal views of the people interviewed. This implies that there is no certain standard used to determine precisely at which level of maturity each company is. However, more recently the maturity model produced by COSO has been used by only one of the insurance companies under study.

Using such models provided more rationale and precise maturity levels, which helps when comparing the different maturity levels of various insurance companies. Therefore, better evaluation of various insurance companies' ratings could be provided.

In the companies where ERM was described as being at a mature stage, the level of ERM maturity was related to its usage for capital allocation purposes. This finding supported the survey findings indicated by AON (2010) and showed that companies with mature ERM are using it for capital allocation. On the other hand, the analysis showed that, in the companies where ERM is at the early stages of implementation, ERM is still used for capital management and allocation, which does not support AON (2010) findings indicating that companies at early stages of ERM implementation do not use it in capital allocation. Therefore, ERM institutionalisation level is not necessarily related to being used for capital management and allocation, but ERM embedding is significantly leading for positive changes to capital allocation existing routines. The forthcoming regulations, such as Solvency II, could be the reason behind such variations in ERM usage.

There was an indication that ERM is well embedded at senior level in VC; however, it has not yet been pushed to all lower levels at the company as it is seen to be fully embedded technically, but not operationally. For example, OM-VC did not view risk embedding level in the same way that senior risk officials did. However, the different views could be attributed to the fact that people could view ERM maturity and institutionalisation level in relation to its usage within and link to their day-to-day job, and thus may not have a general view of the whole embedding process comparing to the officers responsible for this process.

9.4.2 ERM use and production, and reproduction of risk management routines

This study showed that introducing ERM rules and its related subsequent actions and embedding was a trigger for changes in risk management routines, as it tended to ERM formalization tended to routinize and institutionalise new routines and institutions. These risk management routines were identified in this study as capital allocation, risk-based decision making, strategic decision making, external capital, the volatility of earnings and stock price, and the value of the firm. This research showed that ERM influence on risk management routines is a process oriented decision. However, the value of the firm is shown to be the financial outcome of the change process.

Following ERM implementation and embedding, the quantifying aspect was added to the risk management process, which means risk management rules and routines have changed

and moved beyond risk profiling, or the qualitative element. Both underwriting and actuarial routines were significantly affected by ERM embedding that called for change in actions and thinking framework. Underwriters have started to think in terms of risk management. Thus, they now consider risk and its influence on the capital decisions that they make. ERM was significantly embedded in the capital allocation process within the underwriting department because underwriters are the key users of capital and have to set the related risk appetite.

Actuarial routines have been enacted and reproduced as a result of ERM embedding. Actuaries have operated in a risk culture and thus have interacted on frequent and regular basis with the risk management team in order to discuss the work they do and how risk is embedded in their job, and thus they come up with more efficient capital decisions. These results indicated that underwriting and actuarial routines are mainly related to capital allocation routines, processes and decisions. Therefore, the changes in these routines can lead to changes in capital allocation routines ultimately. This was evident because ERM helped people with underwriting, actuarial and risk responsibilities to start thinking more realistically and be more aware of their capital requirements.

Theory of ERM suggested that ERM is an important process for holding and allocating capital, and it argued that there is a link between ERM and capital allocation practices (Tillinghast-Towers Perrin, 2004; Rao and Dev, 2006; Yow and Sherris, 2007; Shim, 2007; AON, 2010; Dhaene et al., 2012). Capital allocation was also seen as the heart of ERM for financial institutions (Rao and Dev, 2006). Meulbroek (2002) illustrated that firms implementing ERM obtain benefits as a result of being able to decide on investments based on a more accurate risk-adjusted rate. Studies by AON (2010) and Sherris (2006) have provided general empirical evidence that ERM is used for capital allocation in insurance companies. Hoyt and Liebenberg (2011) indicated that a better understanding of risks could give U.S. insurance companies a more objective basis for allocating resources that would improve capital efficiency and return on equity. This study provided detailed empirical evidence to support the above findings related to how the implementation and embedding of ERM significantly reproduce and enact new capital allocation routines.

The case study results revealed that introducing ERM rules drove changes in capital allocation routines. ERM tended to routinize and institutionalise new capital allocation routines; risk-based capital allocation. The literature suggested that ERM implementation occurs first followed by changes in capital allocation routines. This path dependency process was evident in VC case. ERM did not support existing capital allocation routines. This is because ERM built-in knowledge which has been transferred into its users, specifically

people responsible for capital. Further actions were taken by VC following ERM embedding in relation to improving its risk reporting structure. This action facilitated ERM institutionalisation as risk communication within risk reporting structure is argued to enable firms to achieve a consistent and appropriate risk response. This approach enables risk management activities to fully support the achievement of the strategic objectives of the firm (Woods, 2011).

Chen and Hsu (2010) argued that resource allocation plays an essential role in determining the international growth of a firm. A number of Taiwanese firms were used as a sample for their study. An optimal internationalisation level and the investment level towards value appropriation, which is needed to create a positive impact on the performance of a firm, were indicated. Risk-based capital allocation as a new routine was proven to be dominantly used and institutionalised within the companies investigated. Companies were either using or moving to risk-based capital allocation, which indicates that it is considered to be a preferable way to allocate capital. This occurred because capital allocation routines are employed at the portfolio level and not at an individual level, which helps creating a balance of all risks within that portfolio. This is consistent with Zanjani (2010) who argued that when capital is costly to hold then it should be allocated to contracts by financial institutions for the purposes of pricing and performance measurement. Sherris (2006) further indicated that determining the economic capital and allocating capital to lines of business are an important part of the financial and risk management of an insurance company.

The analysis showed that prior to ERM there was no common way for allocating capital. Capital allocation was based on traditional measures or a fixed percentage of the premium. This implies that there were no clear processes or routines for allocating capital. A fixed allocation of capital was recognised in the literature as an unreliable guide for decisions that involve significant changes to the portfolio of any company (Zanjani, 2010). ERM has brought more attention to the importance of allocating capital more efficiently and to its significant influence on returns, as well as led to using return on capital as the main driver for the business strategy. New risk categories were embedded more recently into the capital model and hence affecting its routines. Thus, ERM has motivated insurance companies to optimise their risk-adjusted returns on capital. Similarly, Rao and Dev (2006) argued that financial institutions are now able to focus on the creation of shareholder value because of the introduction of the economic capital concept and the development of analytical methods to measure risks in a financial institution portfolio. He added that both economic capital allocation and return on economic capital lie at the heart of value creation because they are

seen as an integral part of strategic decision making that comprises all domains of a financial institution, not only a measurement and management tool of risk.

New capital allocation routines were produced, which is consistent with the survey findings of AON (2010). This is consistent with Burns and Scapens' (2000) view regarding the possibility of formalising existing organisational routines into rules. There was a tendency towards using the risk aspects as main basis on which to allocate capital. Capital allocation routines are expected to institutionalise after moving to risk-based capital allocation and little further change is expected to take place. Therefore, ERM tends to reinforce the new capital allocation routines and practices whereby risk is embedded more and more. This could be explained because many drastic changes have been already made and the models used are working well in practice, which indicates the efficiency of a risk-based capital allocation. However, capital allocation routines were considered to be changed in case regulations, management or shareholders required insurance companies to, as well as if superior capital allocation routines emerge in the future.

Theory of ERM suggested that ERM enables firms to make better risk-adjusted decisions and leads them to better understand the risk inherent in their businesses (Lam and Kawamoto, 1997; Meulbroek, 2002; Lam, 2006; Errath and Grünbichler, 2007; Hoyt and Liebenberg, 2011). Consistently, my study provided empirical evidence that ERM formalization tended to reshape and change the existing risk-based decision making and strategic decision making routines of the insurance companies interviewed in the sense that companies now allocate capital according to risk in order to produce the appropriate return on capital. The quantifying theme was added to decision making process. Thus, risk-based decision-making routines were basically related to capital allocation routines. Similarly, Hoyt and Liebenberg (2011) and Millage (2005) showed that ERM increases risk awareness and thus facilitates better operational and strategic decision making. The strategic approach to ERM was reinforced by COSO (2009) through emphasising the ERM's contribution to delivering companies' strategic objectives. KPMG's Audit Committee Institute provided survey evidence that the board's audit committee is significantly concerned with how risk is related to strategy (Ballou et al., 2011).

The institutions governing communications were deinstitutionalised. Communications routines have changed following the implementation and embedding of ERM. ERM offered the basis to help people across the whole company to understand risk and discuss the same risk language. Thus, it facilitated the process of decision making which could lead to better decisions. This is consistent with prior research which showed that applying ERM in a better

way provides more benefits from risk information and resource sharing to the various parts of the company (Peterson, 2006; Hoyt and Liebenberg, 2011). Consistent and appropriate risk response was achieved through risk communication within risk reporting structures. This helped risk management activities to entirely support the company to achieve its strategic objectives, as argued by Woods (2011). The lack of a common risk language has prevented the widespread implementation of ERM (Nielson et al., 2005), which explains the tendency in the companies under study to improve their risk communication culture.

Even though it was not directly stated that communications routines have been changed and enhanced in all of the companies investigated, it is expected that communications institutions and routines should be improved in order to make people aware of ERM and their responsibilities. The new UK Corporate Governance Code recognised the importance of maintaining a risk aware culture. Ashby et al. (2012), in their interim report, suggested that existing ERM systems are not directly related to a risk culture work stream as may be imagined. However, my research indicated that having and developing risk culture in insurance companies is a part of the ERM framework and process of getting it fully embedded and institutionalised. Further work is needed on this issue. Ashby et al. (2012) considered the expansion of the role of risk functions as a part of implementing a risk culture. Expanding the role of risk function was shown in my research as necessary for embedding and promoting ERM culture. Improving the communication network between the risk management team and people across the whole company gradually got people to work in the way that ERM requires, and thus led to successful implementation of ERM in the companies under study.

The case study showed that embedding risk management into operations is an extremely challenging and long term process. However, the risk management function has a direct contact with day-to-day operations, but it holds little meaning for some front-line staff according to the extent ERM affects them. The ERM system is linked to the attitude to risk. Thus, it will be different where staff is encouraged to be 'risk aware' and take responsibility for risks control from the one if risk taking is encouraged as an approach for boosting short-term profits. In a company, the Board of Directors' and senior managers' views are reflected in the common attitude to risk and risk appetite. This could be formalised in producing the related risk taking documented guidance and rules (Woods, 2011).

The analysis revealed that ERM implementation and embedding ultimately trigger changes in the value of the insurance companies and enhances it as ERM optimises rewards and returns. This result is consistent with what has been argued in the literature concerning ERM, which is that the performance of insurance companies can be improved by

implementing ERM (McDonald, 2008; Pagach and Warr, 2008; AON, 2010; Hoyt and Liebenberg, 2011). S&P's (2010, February 1) commentary report indicated that the performance of North American and Bermudan insurers seems to reflect the perceived strength of their ERM programs. However, proving that risk management creates value separately is difficult (Acharyya, 2008).

Rao and Dev (2006) stated that enlightened companies have stressed the shareholder value creation over current earnings over the last two decades. Valuation has provided precedence to free cash flows over accounting earnings or earning per share (EPS) and to the future free cash flows creation ability. They argued that the main focus has also shifted to earning a return on equity capital that exceeds shareholders' required return from the income statement. This was supported by the emergence and popularity of economic value added (EVA) concept, which is net operating profit less the cost of capital (Rao and Dev, 2006). This implies how ERM lies in the heart of value adding through directing companies to the concept of return on capital and showing its added benefits. This is further embedded in the change process.

No evidence was found to support the previous research which contended that ERM reduces external capital as a routine (Miccolis and Shah, 2000; Cumming and Hirtle, 2001; Lam, 2001; Meulbroek, 2002; Beasley et al., 2008). The study indicated that there is no standard answer for the question of whether ERM reduces external capital requirements. ERM enabled companies to better manage their external capital. Therefore, the actions related to increasing or decreasing external capital could depend on the organisational structure of each company and its objectives. The findings also showed that if ERM were to reduce external capital, this would not happen at this point, but in the future.

Theory of ERM suggested that ERM embedding drives a reduction in stock price and earnings volatility as routines (Cumming and Hirtle, 2001; Lam, 2001; Meulbroek, 2002; Beasley et al., 2008). This research could not provide evidence to support the latter argument. It showed that ERM enabled insurance companies to manage the volatility of earnings and stock price as it helped them to make decisions that are more informed. The availability of risk information and the ability to better managing risks, which were provided as a result of embedding ERM, gave insurance companies the confidence to invest in more volatile businesses when their objective was to get a higher return.

Although ERM embedding has served many purposes for insurance companies, such as improving ROC and optimising risk reward, the ultimate objective of ERM is to improve the

performance of the company, which is consistent with the literature (e.g. AON, 2010; and Hoyt and Liebenberg, 2011).

In short, ERM formalisation tended to reinforce, reshape, or change existing routines and institutions. This argument is consistent with Burns and Scapens' (2000) argument about the possibility of formalising existing organisational routines into rules.

9.4.3 ERM and the institutionalisation of risk management routines

The analysis in this study provided evidence that the implementation of ERM facilitated the routinisation and intra-organisational institutionalisation of risk management practices in the insurance companies under study. Risk management practices were further extra-institutionalised and disassociated from their historical circumstances.

Future of ERM and risk-based capital allocation method

Random elements, systematic mechanisms, and internal forces have shaped ERM institutionalisation. The appointment of a CRO with a professional experience was one of the key determinants for the successful implementation and embedding of ERM. Another significant condition for the successful implementation and embedding of ERM was the support provided by the CEO and CFO, including financial support, educational support, and promoting the culture. Although a number of challenges faced the implementation and embedding process such as cultural and technical issues, the CRO, the leader of ERM implementation, has managed to complete the implementation of ERM and to embed it across the company through taking actions to improve the communication process (either directly himself, or through persistent training programs) across the company and hence people with different roles understand ERM and its importance, as well as their risk responsibilities clearly.. ERM has been embedded gradually to more involve the lower managerial levels. For example, underwrites in VC are aware of ERM and understand its relation to the capital allocation. This was evidenced by using it in their daily job.

ERM institutionalisation was further shaped by the change in the organisational structure that followed ERM adoption. This change has provided the basis to embed ERM within the whole company and to illustrate the importance of ERM to people with various roles. As a result these people actually started embedding risk aspects into their jobs.

One possible explanation to the expansion and institutionalisation of ERM in insurance companies can be related to the regulatory requirements that stress the importance of having a holistic risk management approach implemented. For example, Solvency II is

pushing small insurance companies to adopt ERM. As such, ERM will be most probably be a revolutionary system change process in the small companies, unlike for larger insurance companies, as smaller companies need to comply with these requirements within two or three years. They might face problems with the implementation process as they need more time to digest the changes.

Consequently, ERM was expected to institutionalise significantly in the forthcoming years, both at the insurance company level and among insurance companies, because best practice and/or regulations in the market will require companies to have ERM. With regard to the capital allocation routines, no or limited further changes would be expected to the risk-based approach. This was a clear indication of the routinisation of risk-based capital allocation approach. However, there is always a possibility of changing and improving capital allocation methods with regard to the emergence of new innovations and/or regulatory requirements enforced in the future.

Intra- and extra-institutionalisation of risk management routines

The implementation of ERM has facilitated the routinisation and intra-organisational institutionalisation of risk management practices in insurance companies. Fundamental changes in risk management routines such as risk-based decision making and strategic decision making have taken place within all the companies under study and new routines have been introduced following the implementation and embedding of ERM. However, capital allocation routines were seen to be primarily changed, which is consistent with the findings of AON (2010) and Sherris (2006). Companies have become more capital oriented. Additionally, capital allocation routines have been embedded in various functions across the company, such as risk management, and risk-based capital allocation was routinised and became the key base for making decisions. If risk is understood better, then an action plan can be put in place to avoid certain issues. Thus, the new routines were at different levels of routinisation and intra-institutionalisation.

The ERM system contributed directly and indirectly to the intra-institutionalisation of capital allocation routines through the new software and strategy used. It helped disassociation of capital allocation routines from their historical circumstances. The CROs and their teams have been able to access real-time risk information to check the availability of resources and analyse their portfolio. Woods (2011, p. 41) argued that “at the root of ERM is the idea that risk management is embedded right across organisation, and consequently is

the responsibility of everyone. Specialist experts have their place but they need support from operational staff”.

Putting in place a mature ERM internal model using both historical and real time information led to a more detailed capital allocation to all segments. Thus, capital allocation routines were very much linked to ERM maturity level. Similarly, Woods (2011) illustrated that ERM helped provide information and guidance to senior management, as well as offered lessons to RMs who were seeking to make an enhanced contribution to the success of their employer.

Risk management routines were extra-institutionalised and disassociated from their historical circumstances. Not all the companies in the study had a risk function prior to ERM implementation. Thus, the establishment or expansion of a risk management function is an action that followed the ERM adoption decision and shaped the institutionalisation of risk management practices. Risk committees were also set up. This indicated that having robust risk management is becoming a core interest of insurance companies. More awareness of the need to embed ERM is apparent. ERM was broadly recognised as a way to promote increased risk awareness, which facilitates better operational and strategic decision making as argued by Hoyt and Liebenberg (2011).

The risk function has become increasingly professionalised, in particular with the emergence of the CRO role, which facilitated the institutionalisation of risk management routines. Even though people from different professions may not have risk management experience, they were required by the CRO to be completely aware of ERM policy and to embed ERM in their day-to-day job. During the field study it was seen that ERM has led either to create a CRO position or to change in the CRO's role and responsibilities, if the position already existed prior to ERM implementation. Similarly, a number of studies found that a CRO's presence is related to the adoption of ERM (Walker et al., 2003; Beasley et al., 2005). For example, Hutter and Power (2005) cited James Lam of GE Capital as being the first person to be appointed (in 1993) to the post of CRO. Woods (2011, p. 41) stated that "the creation of this role is linked to the broadening of the concept of risk management away from simply insurance or financial risk and into enterprise risk management. At the same time, it reflects a shift in thinking about risk that takes it out of the back office and onto centre stage in relation to strategy".

The appointment of a CRO role was justified because of the need for a co-ordinator with expertise in risk management. However, it is not possible for a single person to keep track of all risks. “The CRO can be the expert in terms of the governance regulations and risk

management standards, whilst leaving the detail of how to manage particular categories of risk to the functional experts. Actuaries manage the pension risk, treasurers look after the financial risk and so on” (Woods, 2011, p. 41). Importantly, this study found out that the job of the CRO went beyond being a co-ordinator and extended to monitoring risks and controls and alerting senior management to problems.

This research showed that the focus of CROs' responsibilities vary across companies and through time. Risk function has been added to their responsibilities to assure a successful embedding of ERM and institutionalisation of new risk management routines. New risk responsibilities have been added and further detail about risk has been made available and accessible to the senior management members, following ERM implementation. There was evidence in the literature and from this study showing that the risk manager's responsibilities and role have evolved considerably and become more prevalent and prominent (Wojcik, 1994; Banham, 1995; Cenicerros, 1995; McLeod, 1995; Deloitte, 2011). Aabo et al. (2005) conducted a case study of the introduction of ERM to a Canadian electric utility company, Hydro One. They argued that appointing a CRO along with refinements to the risk management system have significantly strengthened the company and improved its credit rating.

On the other hand, appointing a CRO was viewed by some companies as inappropriate. For instance, Tesco's response to the Financial Reporting Council's review of the UK's Combined Code in 2009 argued that pushing companies to create a separate risk committee or to appoint a CRO could hinder the ability of the company to structure their approach to risk management according to the business model they have and the environment they operate within (Tesco, 2009).

ERM created a strong relational link between risk management and capital management, which in turn supported the institutionalisation of risk management routines. Internal reports, in which risk aspects are reported, are prepared monthly and/or quarterly by the CAs and MAs. As such, risk reporting structure has been improved. Risk communication within risk reporting structure enabled insurance companies to achieve a consistent and appropriate risk response. Consequently, risk management activities supported the accomplishment of the company strategic goals, as argued by Woods (2011).

ERM caused a change in the responsibility of capital quantification and allocation so that these issues are the CRO's overall responsibility rather than only the CAC's responsibility. This could be attributed to the fact that after embedding ERM the internal capital model has become broader than it used to be and more integrated within the business.

The capital model used to be an actuarial tool developed and run only by actuaries. ERM combined risk management and actuarial work, which is a part of a more holistic risk management approach that considers capital allocation as a key part of ERM strategy.

Various standards of best practices have emerged and been adopted by other insurance companies as a result of communications and meetings held at the industry level. These best practices offered methodologies concerning the design of ERM framework to the insurance companies adopting ERM more recently, which facilitated the extra-institutionalisation of the new risk management routines. They also helped in terms of identifying the obstacles faced by different companies throughout the implementation process, and hence facilitated this process within other companies through better management of these challenges.

Using new practices of risk management represented a revolutionary change. This is consistent with Burns and Scapens' (2000, p. 13) view that "specific changes in management accounting could be quite revolutionary... Nevertheless, the change process will be influenced, to some extent, by the existing routines and institutions, and as such the process is still path-dependent".

9.5 Reflection on the theoretical framework

The theoretical framework developed in this study presents a distinction between extra-institutional realm (extra institutions), intra-institutional realm (intra institutions), and the realm of action. Risk management rules and routines are linking these realms through encoding, enacting and reproduction processes. ERM is conceptualised as a rule considering that they consist of the formal procedures that are adopted by insurance companies. Risk management practices are conceptualised as routines in the sense that they represent the actual procedures in use. The findings of this research are discussed in the light of the elements of this institutional framework to provide a richer analysis.

The application of this institutional framework started with analysing the institutional realms (intra and extra) and identified the initial set of rules and routines characterising the insurance companies' risk management. ERM was identified as a new rule in the adoption phase and as an action in the implementation and embedding phase. The new emergent risk management routines were identified as modalities in the implementation and embedding phase. The causes of risk management change that led to the adoption of new risk management rules; ERM were analysed in this study. The external and internal institutions

led to a deinstitutionalisation of the existing risk management rules in practice and supported the actions taken to adopt new ERM rules. Prior research either concentrated on explaining how extra-organisational pressures play a role in changing risk management activities, rules, and routines (e.g. Acharyya, 2008), or how ERM is adopted for direct economic benefits (e.g. Pagach and Warr, 2011). Analysing extra- and intra- institutional realms in this study showed that a combination of both internal and external institutions imposed various internal and external institutional pressures that shaped ERM adoption decision in the companies under study. Therefore, the theoretical framework helped explaining the various pressures affecting ERM-related actions and extended prior research by considering the external alongside the internal effects to which insurance companies are exposed to, and addressing their effects on the change processes within the company. The differences in objectives, views and management of the companies under study allowed for finding out such different combinations of pressures and effects that followed the ERM adoption and implementation. Further, it was found out that ERM was adopted to improve return on capital and capital efficiency (internal pressures), which provided evidence supporting the effect of ERM on capital management and capital allocation routines that is a key issue in this research. The analysis also showed that internal institutions exerted similar pressures or in some cases more pressures on insurance companies operating in the organisational field.

Further, the intra- and extra-organisational institutions (social, economic and political institutions which exist in the organisational field and society) shaped ERM change processes. Such institutions can constrain and shape ERM change processes. Thus, the distinction between revolutionary and evolutionary change of ERM processes was evidenced. The process of ERM adoption was mostly described as incremental changes within existing systems. However, it was described in some cases as revolutionary system change. Even though there were different views on this issue, it seemed like ERM process was mostly evolutionary. When described as revolutionary, the explanations implied that the change was evolutionary as it has not existed with a major disruption of the prevailing rules and routines in the existing institutions. Revolutionary change might threaten the insurance companies' survival. The incremental change with slight disruptions to the existing risk management routines and institutions builds on, adapts, and modifies the existing routines in a process drawing on the existing institutions over a relatively long period of time, and hence facilitates the processes of ERM implementation and embedding.

The realm of action was also analysed to identify the main actors in the new risk environment and their relationships with the institutional realm. The chief risk officer and

risk team were the key actors in the process of ERM implementation and embedding, who facilitated promoting a risk culture and led people to shape their thinking in a consistent way as how ERM operates. Setting up a risk management department with clear roles and responsibilities that is directed by the CRO, following ERM adoption, has supported ERM-related actions and managed staff resistance. Running ERM training programs at the company level, which are tailored to different departments' requirements, supported ERM embedding across the whole company. Underwriting and Actuarial Departments were identified to use ERM extensively comparing to other departments considering that they mainly deal with capital routines. The risk function was given the appropriate power to run ERM implementation and embedding, and moved out from under the CFO to the CEO. Initiating a Risk Committee and/or a risk coordinator at every department, which included a number of chief officers who have precise risk responsibilities, illustrates how ERM is the responsibility of everyone across the company. Even though most departments in the insurance companies assisted in the ERM implementation and embedding process, the risk function team have been the key actors with regard to managing and monitoring ERM processes across the whole insurance company. Reflexive monitoring of day-to-day job was implied by all people with risk responsibilities to monitor their actions and the actions' settings and contexts as a result of the need to embed ERM requirements.

The continuing processes of risk management routines' encoding, enactment and reproduction to introduce the new ERM rules were analysed. The introduction of ERM-related actions in the theoretical framework helped tracing the change pathways including the way risk management routines changes throughout the company, and the timings of these changes. This study identified the risk management routines that motivated changes as capital allocation, risk-based decision making, strategic decision making, communications, external capital, volatility of earnings and stock price, and value of the firm. This study indicated that such changes occurred following the introduction of ERM rules (process oriented decision) at different timings and were incorporated into new routines. ERM formalisation modified, reshaped, or changed the existing risk management practices. For example, risk-based decision making and strategic decision making routines were reshaped, while capital allocation routines were changed completely. ERM maturity level was linked to its usage for capital allocation, which implies that the change took place at different timings, and capital allocation routines changed more recently comparing to the other risk management practices (e.g. communications). Therefore, organisational change relied on presenting different changes in risk management routines or reproducing new behavioural patterns. The day-to-day risk

management practices were shaped to a large extent by routines, as ERM rules were set by actors into practice. Risk management routines also in turn affected the rules because the established routines were formalised in new rules, i.e. risk-based capital allocation. As such, ERM rules and risk management routines are not related in a unidirectional way, that is, ERM can shape and be shaped by the institutions governing the insurance companies, which is consistent with Burns and Scapens' (2000) argument. Organisational resistance in the enactment processes of rules and routines influenced the change extent and type. However, the efforts of the CRO and his team, as well as having ERM implemented and embedded in an evolutionary structured way offered a risk culture that facilitated the acceptance of ERM. People across the company have realised the importance of embedding ERM into their day-to-day job and their thinking re-shaped in the way ERM operates.

The analysis took into account whether the new risk management routines have implications for the wider institutional realm of the whole company and the organisational field. OIE helped in understanding risk management rules and routines and their institutionalisation. The institutionalisation of ERM reflects and responds to particular internal determinants including the CRO's risk management experience and the significant support provided by CRO, CEO, and CFO. ERM was at various institutionalisation levels; early stages of implementation or mature level, which supports that ERM institutionalisation happens gradually over time, and is linked to the different companies' ERM-related objectives. ERM institutionalisation was not an easy task facing challenges that includes cultural issues, difficulties of getting specialised people in time, limitations to data recourses, understanding the information and having sufficient output, problems with designing the ERM framework, problems with risk modelling, as well as software and technological issues. ERM formalisation tended to routinise and institutionalise the new risk management routines and institutions. The new and ongoing risk management routines embedded meanings, norms and powers, which facilitated their institutionalisation. These new risk management routines were shaped by the prevailing institutions governing the insurance companies and, over time, they were institutionalised. The risk management routines were institutionalised instrumentally because the new risk management routines were used to make more informed decisions. For example, the case study results showed that introducing ERM rules led to improvements in risk-based decision making and to changes in capital allocation routines and institutionalised the new risk management routines (path dependent process). Further, ERM was embedded into almost all critical decisions in the insurance companies such as pricing, and risk-based capital allocation became the key base for making decisions.

The institutionalisation process involved a dissociation of risk management routines from their historical circumstances. For instance, ERM did not support the existing capital allocation routines and institutionalised the new capital allocation routines; risk-based capital allocation (path dependent process). Capital allocation routines were expected to institutionalise after moving to risk-based capital allocation and little further changes are expected to occur. Risk reporting structure was also enhanced after ERM embedding. Such intentions and changes facilitated ERM and risk management routines institutionalisation. Thus, the new risk management rules and routines became the way processes are executed, i.e. institutions. These institutions were encoded into the on-going risk management rules and routines and formed new rules. The insurance companies under study have become more capital oriented, and risk-based capital allocation routines have been embedded into different functions. The new routines were at different levels of routinisation and intra-institutionalisation as a result of their level of usage within each department. The new risk management institutions re-defined the different meanings, norms, values, and powers of different actors. For example, a risk function was established following ERM implementation and expanded over time, which shaped the institutionalisation of risk management routines. The roles and responsibilities of people across the company have changed as a result of adding specific (and clear) risk responsibilities to them. The risk management routines were showed in this study to be programmatic rule-based behaviours, which explain the way in which new risk management rules became institutions over time.

In short, institutions within insurance companies are the basis for the way in which ERM is practiced, the way in which risk management information is used, and the risk officials' role and responsibilities.

9.6 Conclusions

This chapter has discussed the research findings presented and analysed in Chapters 5, 6, 7, and 8. Overall, this discussion indicates that ERM initiates change in risk management rules and routines in UK non-life insurance companies whereby ERM is at various levels of maturity and institutionalisation.

Drawing on the theoretical framework that has been developed in Chapter 3, this chapter has provided a discussion of the intra- and extra-organisational institutions that have had influences on insurance companies due to changes in their main orientation and to the new regulations related to risk management. It also discussed the changes in risk management

practices triggered by ERM implementation and embedding. Various institutional forces played a role in the ERM adoption decision. Internal, coercive, and normative pressures have driven the ERM adoption decision rather than mimetic ones. Internal pressures are revealed to be more significant than coercive pressures. A number of changes have taken place following ERM implementation (path dependency) and were basically process oriented decisions.

Different problems faced the implementation and embedding process of ERM. They threatened the completion of its enacting and encoding processes. However, a number of determinants led to the implementation and use of ERM. These determinants are significantly linked to the existence and risk management experience of the CRO and the great support provided by CRO, CEO and CFO in terms of financial support, educational support, and promoting the culture.

Empirical evidence regarding the impact of ERM as a rule on various risk management routines, primarily capital allocation, was provided. Although ERM served many purposes for insurance companies, the ultimate objective of ERM is still seen as the improvement of the performance of the company, which could be achieved through having higher returns on capital. Financial institutions can focus on creating shareholders' value by introducing the economic capital concept and developing analytical methods to measure the risks in a financial company's portfolio more precisely.

It was also shown that the use of new routines such as risk-based capital allocation have started in many insurance companies. The application of such practices was supported by sufficient enforcement (coercive pressures). That is the approval of the regulators instructions by insurance industry. In support for the widespread use of risk-based capital allocation, regulators have initiated Solvency II. The case study findings revealed the tendency towards using risk aspects as key basis to allocate capital. No further changes in capital allocation routines are expected after moving to risk-based capital allocation. Consequently, ERM did not support existing capital allocation routines. It tended to reinforce the new capital allocation routines and practices in the future. This occurred as a result of ERM being a built-in knowledge which has been transferred into its users; specifically the people responsible for capital.

In short, drawing on the theoretical framework that has been developed in this research, this study has broadened the understanding of risk management routines change associated with ERM implementation. The link between the motives for ERM adoption and ERM use within insurance companies, and the relation between ERM determinants and its

use, were explained. Empirical evidence of capital allocation change process driven by ERM in insurance companies' context was provided. As hardly any details have been presented in the literature about how and why ERM drives a change in capital allocation practices, the field study provided the key basis for the case study that further explained the relationship between ERM and capital allocation routines. Thus, this research extended previous studies considering ERM and capital allocation within the context of the insurance industry.

Chapter 10

Conclusions

10.1 Introduction

This thesis is a response to the call for more organisational studies on risk management (Gephart et al., 2009; Power, 2009) and further research on ERM considering wider cultural paradigms (Lounsbury, 2008). This chapter starts by summarising the main findings in the context of the research questions addressed by the study. This leads to a discussion of the implications of the findings and some practical recommendations for companies using ERM or planning to implement an ERM system. This is followed by separate sections on the contribution and limitations of the study. The chapter concludes with suggestions for further research.

10.2 Research questions revisited

The purpose of this study was to examine risk management practices change driven by ERM implementation and use in insurance industry. It empirically investigated changes in risk management practices in relation to risk management rules, and risk officials' roles and responsibilities with other officials and members of the company, in particular risk team in highly regulated UK insurance companies. Insurance industry has been significantly influenced by new regulations related to risk management, such as Solvency II.

This research undertook an empirical study based on two phases. The first phase of the empirical work, the field study, explored and investigated ERM adoption, implementation, and role in changing risk management rules and routines were investigated in 10 non-life insurance companies in the UK. The second phase of the empirical work; the case study, investigated the role of ERM in changing capital allocation rules and routines and the forces driving this change was investigated in one large insurance company. Three groups of research questions were addressed and these are revisited in this section, as follows (see Figures 10.1 and 10.2).

10.2.1 First group of research questions

The first group of research questions focused on the organisational institutions governing ERM adoption and embedding within insurance companies. Each research question is presented with its related findings as follows.

RQ_{1/1}: To what extent do various institutional forces drive ERM adoption?

This question deals with the effect of different coercive, mimetic and normative pressures on ERM adoption decision. To address this research question, Chapter 5 provided an analysis of the intra- and extra-organisational institutions that have had influences on the 10 non-life UK insurance companies due to the change of their main orientation and to the new regulations related to risk management. Drawing upon the concepts of new institutional sociology theory including organisational fields and institutional isomorphic mechanisms and path-dependent change processes, the analysis in this chapter indicated that ERM adoption decision is primarily driven by external pressures including coercive, normative and the business' nature, needs and requirements, as well as internal pressures (rather than mimetic pressures). Thus, institutional pressures played a role in the selection and use of ERM practices. The internal institutions exerted similar pressures or even greater ones, if compared to the external institutions pressures, on the different insurance companies operating in the organisational field. The existence of various pressures could be attributed to the different ultimate objectives and views of the insurance companies and their managements.

Prior research indicated the impact of extra-institutional pressures, including coercive and normative pressures, on the trend toward ERM in financial industries, which was supported in this research. However, this study did not support the effect of mimetic pressures and further indicated that the internal pressures related to achieving the company's objectives are greater than external ones.

Insurance Companies

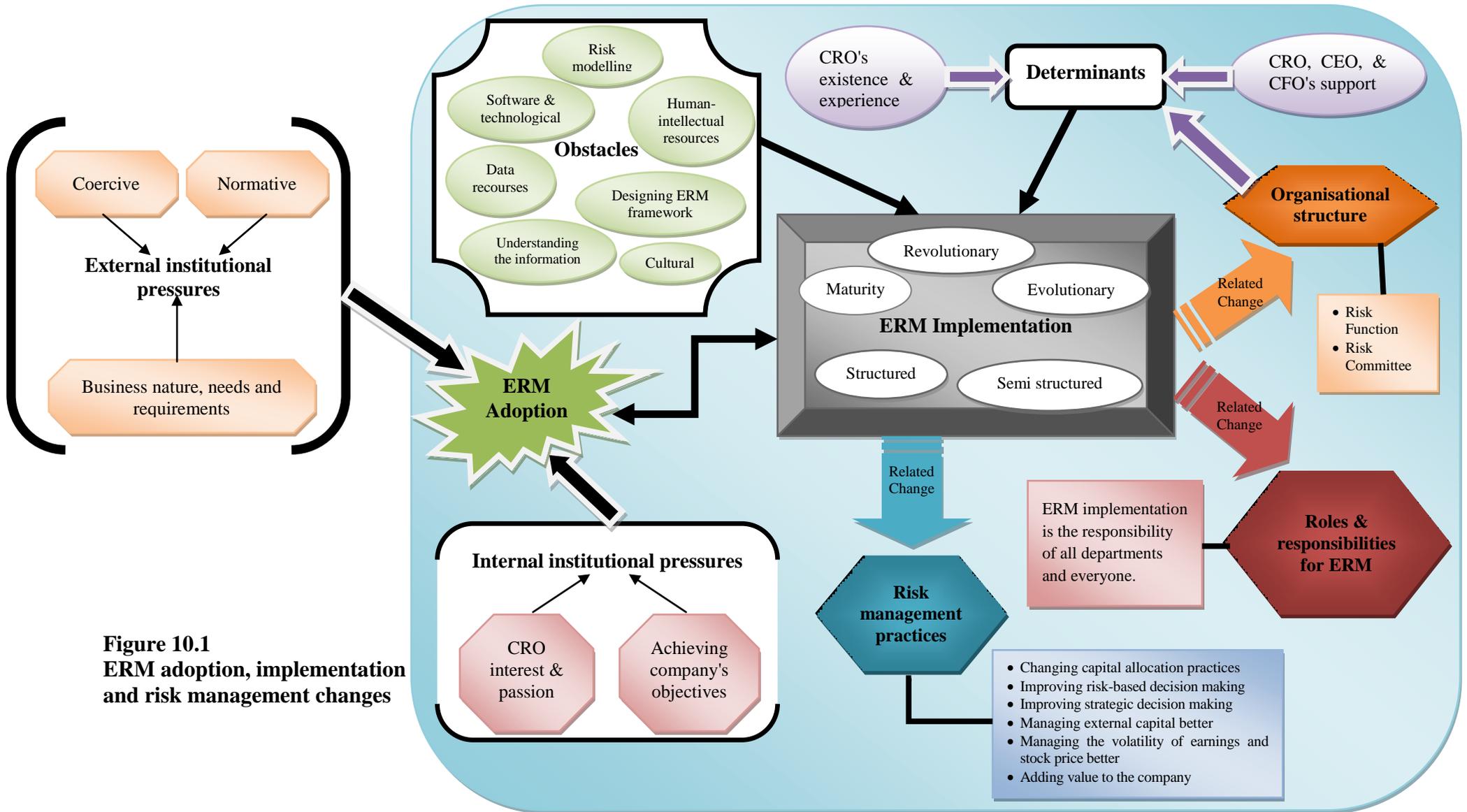


Figure 10.1
ERM adoption, implementation
and risk management changes

RQ_{1/2}: To what extent do different determinants play a role in ERM implementation process?

This question focuses on the main organisational determinants that support and reinforce the implementation and embedding of ERM. ERM institutionalisation reflected and responded to a number of internal determinants. The analysis in Chapter 5 showed that these determinants were clearly linked to the existence of a CRO, the risk management experience of the CROs and their teams acquired through prior experience and training programs, the great support provided by the CRO, CEO and CFO in terms of financial support, educational support and promoting the ERM culture, and organisational structure. The existence of such determinants led to a successful implementation and embedding of ERM even though these processes were very challenging and long term.

These findings were consistent with previous research indicating that the process of ERM implementation is positively related to the presence of a chief risk officer and top management support for ERM. This research further added that the support of top management was a significant determinant for ERM adoption and implementation in terms of financial support, educational support and promoting the culture.

RQ_{1/3}: How do ERM processes vary among different non-life insurance companies?

This question focuses on the variations in ERM processes, strategies and frameworks in relation to each insurance company's different specifications. Variations in ERM practices in the insurance companies investigated were also evident. The processes of ERM observed vary from semi-structured to fully-structured. Each insurance company has its own framework and policies that are consistent with the company's nature and ultimate objectives. The ERM process of managing risks encompassed both qualitative and quantitative elements. This research further showed that the company's size was not a key effect on the risk management framework structure within the insurance companies under study. A large company had a semi-structured ERM while a medium-sized company had a well-structured ERM. The ERM process of managing risks was explained to have both qualitative and quantitative elements. Prior literature on this topic has offered limited empirical evidence on ERM processes and strategies. Hence, this study added new evidence to this body of research. It found that ERM processes were either semi-structured or fully structured and were mostly executed in an evolutionary way.

RQ_{1/4}: How do a number of challenges face the process of ERM implementation and embedding?

This question deals with the key challenges that prevented or delayed the implementation and embedding process of ERM. The analysis in Chapter 5 identified the problems encountered during the ERM implementation and embedding processes. These challenges were primarily attributed to cultural issues, the difficulties of getting specialised people in time, limitations to data recourses, understanding the information and having sufficient output, problems with designing an ERM framework, problems with risk modelling and software and technological issues. Another problem relates to ensuring that ERM is actually embedded at all levels of the company. ERM was also seen to be expensive. These challenges have threatened the completion of its processes. However, the determinants stated above supported and facilitated ERM implementation and embedding processes.

In relation to the obstacles faced ERM implementation, the findings of this research were consistent with prior research, which identified the main obstacles as being cultural issues, as well as insufficient human resources, systems, and data resources. Further obstacles identified by this study included: understanding the information and having sufficient output, designing the ERM framework, risk modelling, software and technological issues, ensuring that ERM is actually embedded, and the expense of implementing ERM.

10.2.2 Second group of research questions

The previous literature on ERM and change in risk management practices, including capital allocation related to ERM implementation was critically reviewed in Chapter 2. Previous ERM studies concentrated mainly on defining, designing and implementing ERM. However, the change in risk management practices driven by ERM implementation has not yet been investigated. This could be attributed to the lack of a suitable framework and research techniques. Further, complexities have been added because of the attempts to integrate the corporate risk management approach with corporate governance issues in a coherent ERM framework. No clear evidence was provided on ERM adoption drivers and determinants although much has been made to design and implement ERM. Consequently, ERM can be described as a change agent of risk management practices, specifically capital allocation. Thus, the second group of research questions dealt with the role of ERM in changing risk management rules and routines. The questions included in this group are discussed as follows.

RQ_{2/1}: Why and how are risk management practices reproduced or transformed in the risk management environment?

This question focuses on the stability and change in risk management practices and the situations under which stability and/or change can take place.

In order to address the second group of the research questions, Chapter 6 analysed the role of ERM in changing risk management rules and routines in the 10 participating non-life UK insurance companies. The analysis was based on structuration theory concepts and institutional theory concepts including deinstitutionalisation, organisational fields and path-dependent change processes. It was based on the use of different theoretical concepts in explaining the empirical evidence and conducted at various levels: action, routines, intra-institutionalisation and extra-institutionalisation. The analysis provided empirical evidence regarding the changes to risk management practices triggered by ERM implementation and embedding. The implementation of ERM brought about various changes in capital allocation practices, risk-based decision making, strategic decision making, external capital, the volatility of earnings and stock price, and the value of the firm. The analysis indicated that the influence of ERM on risk management practices is a process oriented decision. However, the value of the firm was shown to be the financial outcome of the change process.

RQ_{2/2}: What is the role of ERM in risk management practices' reproduction or transformation?

This question deals with ERM role in initiating change or stabilising existing risk management rules and routines. The analysis illustrated that ERM implementation has facilitated the routinisation and intra-organisational institutionalisation of risk management practices in insurance companies. It was also shown that the use of new routines such as risk-based capital allocation started in many insurance companies. ERM usage was proved to improve risk-based decision making, support strategic decision making, and enhance communications. The analysis showed that ERM enables companies to better manage both their external capital and the volatility of earnings and stock price. It should be noted that the ERM maturity level was different among the companies interviewed; some were at the early stages of implementation while others were at a more mature level. The discussion of this study concludes that ERM initiates changes in risk management rules and routines in non-life insurance companies in the UK, where ERM is at various levels of a maturity.

Prior literature has offered limited empirical evidence on the impact ERM implementation has on risk management practices, particularly capital allocation. Empirical

evidence of capital allocation change process triggered by ERM implementation was found in this research. The empirical evidence further supported the research indicating that ERM drives change in risk-based decision making, strategic decision making, and the value of the firm. However, the results did not support the arguments regarding ERM reducing external capital and the volatility of earnings and stock price. Instead, the findings indicated that ERM implementation helped managing external capital and the volatility of earnings and stock price; there is no evidence that ERM reduces external capital and the volatility of earnings and stock price.

10.2.3 Third group of research questions

The third group of research questions focused on the role of ERM in changing capital allocation routines and on the changing roles and responsibilities of risk officials due to ERM introduction. To address this group of the research questions, Chapters 7 and 8 provided an analysis of the role of ERM in changing capital allocation rules and routines and the forces driving this change within a single large insurance company in which ERM was considered to be at a mature level. The analysis was based on the use of a number of theoretical concepts including deinstitutionalisation, organisational fields and path-dependent change processes in explaining the empirical evidence. The analysis was conducted at various levels composing actions, routines, intra-institutionalisation and extra-institutionalisation in order to understand the interaction between action and structure. The analysis indicated that ERM was a trigger for change in capital allocation methods and thus did not support existing capital allocation routines. This is because ERM has built-in knowledge, which is transferred onto its users, specifically those people responsible for capital. It was shown that VC improved its risk reporting structure. Risk communication within its risk reporting structure enabled the company to achieve a consistent and appropriate risk response.

Figure 10.2 summarises the findings based on the case study undertaken to address this group of research questions. This group includes the questions presented in the following sub-sections.

VC

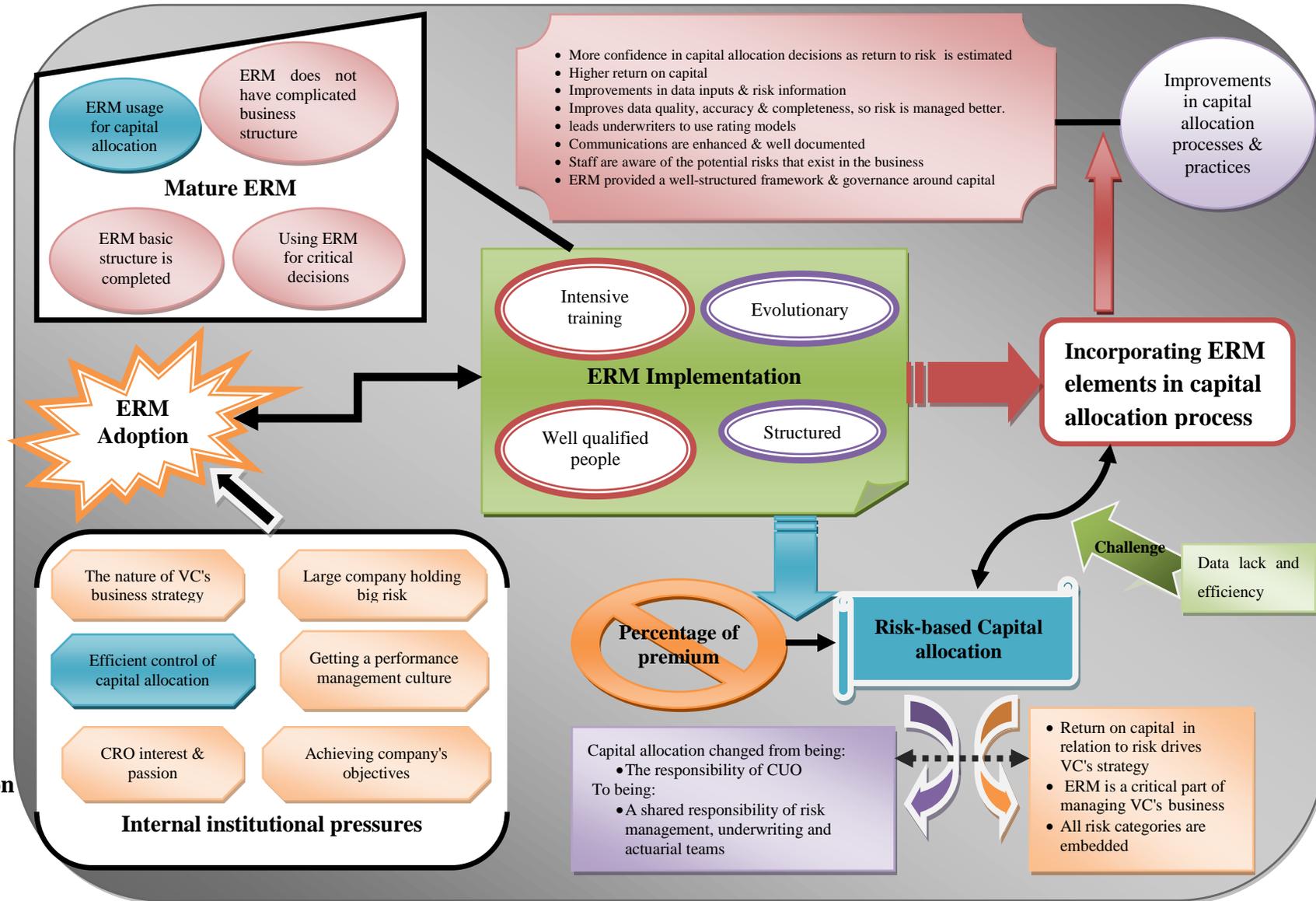


Figure 10.2
VC's ERM and capital allocation

RQ_{3/1}: Why and how do capital-allocation practices change and what is the role of ERM in their occurrence?

These questions deal with the stability and change in capital allocation practices, as well as focus on ERM role in creating a change or stabilising existing capital allocation routines. The analysis in Chapter 8 indicates that ERM formalisation tended to reinforce, reshape or change existing routines and institutions. A number of risk management aspects have been already done by VC but they were not formalised as a risk management technique taking the full picture. However, new capital allocation routines were produced. This argument is consistent with Burns and Scapens' (2000) view regarding the possibility of formalising existing organisational routines into rules.

There is a tendency to use the risk aspects as main bases to allocate capital in VC. Capital allocation routines were expected to stabilise after moving to risk-based capital allocation and no further changes were expected to take place in the near future. Therefore, ERM tended to reinforce the new capital allocation routines and practices where risk is increasingly embedded. New risk categories, such as reputation risk, were embedded more recently into the capital model. The analysis provided in this chapter showed that the ERM system contributed both directly and indirectly, through the new programme and strategy, to the intra-institutionalisation of capital allocation routines. It helped to disassociate capital allocation routines from their historical circumstances. The CROs and their teams were able to access real-time risk information to check the availability of resources and analyse their portfolio. Putting in place a mature internal model using both historical and real time information led to a more detailed capital allocation to all segments. Thus, capital allocation decisions and practices were clearly linked to ERM maturity level.

RQ_{3/2}: What are the roles and responsibilities of risk officials in ERM environment?

This question focuses on the changing role of risk officials as a result of introducing ERM. The analysis in Chapter 8 showed that new risk responsibilities have been added and further knowledge about risk has been provided to support the new roles and responsibilities, since implementing ERM. The role of risk function was expanded as a necessity for embedding and promoting ERM culture. It became increasingly professionalised with the emergence of the CRO role, which facilitated the risk management routines institutionalisation. ERM led to establishing a CRO position or to expand the CRO's role and responsibilities in case the position was already established. ERM caused a change in the responsibility of capital quantification and allocation to be the CRO's overall responsibility

rather than only the CAC's responsibility. This could be attributed to that ERM embedding led to broadening the internal capital model comparing to what it used to be, which become more integrated within the business. The capital model, before embedding ERM, was an actuarial tool that is developed and run only by actuaries. ERM combined risk management and actuarial work. This is a part of a more holistic risk management approach considering capital allocation as a main element of ERM strategy. Thus, the CRO responsibilities and role have evolved considerably. Further, ERM added further responsibilities to the job of management accountants, directed their actions, and facilitated their job in terms of overcoming the gaps linked to risk identification and mitigation. ERM was evident to be the responsibility of everyone across the company considering that it is embedded across the whole company and requires coordination.

RQ_{3/3}: How does ERM change the relationships of risk team with different members within the company?

This question deals with the changing relationships of risk officials that arise from the introduction of ERM. It was found that the risk management function in VC has a direct contact with day-to-day operations, but it holds little meaning for some front-line staff according to the extent ERM affects them. The ERM system was linked to the attitude to risk. The risk management team was mainly responsible for implementing and embedding ERM within other departments. However, the more mature ERM becomes, ERM embedding becomes the responsibility of the different departments' officers. ERM practices were indicated to differ among departments and levels within the same insurance company. Underwriting and Actuarial Departments have used ERM more extensively than other departments as they mainly deal with capital requirements and allocation and hence they became closer to the Risk Management Department.

10.3 Implications and recommendations

A number of implications and recommendations are presented in this section, which could be of interest and help to insurance companies using or initiating ERM. They can also be considered as further insights on ERM processes and issues for educators within this field. These implications and recommendations are summarised in the following five points.

Firstly, the research findings indicated that knowledge and experience (capacity) to deal with risk management in general, and ERM in particular, was a significant factor for the

success of ERM implementation and embedding. The background, qualifications and experience of the risk team members were considered to affect the ERM implementation process because they increase their awareness of and sensibility about certain aspects of the business, which can lead to a better management of risks. They could also facilitate the design of the ERM framework. For instance, ERM was implemented successfully in VC mainly as a result of VC having a well-trained qualified risk team. On the other hand, one of the major challenges which were faced in the ERM implementation and embedding process was the difficulty related to finding specialised people at the right time. It was argued by Burns and Scapens (2000) that the lack of capacity is a key source of resistance to any change. Argyris and Kaplan (1994) introduced three processes that could help mitigate the barriers to change when implementing innovative initiatives; namely, education and training, the sponsorship of the change process, and the alignment of incentives.

There is a need to improve education on ERM use and embedding in order to improve its successful implementation. ERM should be better integrated in business schools' curricula, in particular within the accounting, finance and management courses. Better education on ERM will enhance the capacity to cope with ERM embedding and use within insurance companies. Furthermore, there is a need to develop internal ERM knowledge and experience within insurance companies. This means insurance companies should develop their own personnel who are capable of embedding ERM and dealing with its related problems. This could be done through the setting up of an internal training centre which could provide wide-ranging training programmes to existing staff. External training for staff members could also enhance ERM capacity. The existence of a well-trained internal risk management team is necessary for better embedding and usage of ERM in insurance companies. Education and training are essential in order to successfully implement, embed and use ERM, particularly in the early stages, as education and training help promote the ERM culture and provide information on the benefits offered by ERM.

Secondly, the implementation and embedding of ERM process should be an evolutionary process not a revolutionary one. Insurance companies could face a number of problems throughout the implementation process because people across the company need more time to digest the changes associated with ERM implementation. Implementing ERM revolutionarily could prevent the successful embedding and understanding of its processes. For example, a key difficulty faced in the process of ERM implementation and embedding is ensuring that people understand the information provided well enough in order to provide a sufficient output. Insurance companies which have more recently adopted ERM in response

to new regulations were forced to adopt revolutionary system changes to comply with the new regulations. Such companies need to take large steps to ensure compliance, but should try to allow sufficient time for each step to be successfully implemented.

Thirdly, in some insurance companies the process of implementing ERM was not well planned and their ERM framework and policies were not fully structured. For example, one of the key challenges which faced the ERM implementation and embedding process was the problem related to the design of ERM frameworks. There will always be unexpected outcomes of change even if such change is planned. Therefore, companies cannot completely consider to have a lack of planning as even companies which have a fully structured ERM framework and policies may need to review, revise and develop them in order to cope with unexpected outcomes. According to Burns and Scapens (2000), any attempt to predict or identify a specific outcome from planned change is very difficult because of the complexity of the forces concerned.

Fourthly, there were major changes in the roles and relationships of all those with risk responsibilities across the company. Specifically, the roles and relationships of the risk, underwriting and actuarial teams changed significantly. According to Woods (2011, p. 41), “the creation of this role is linked to the broadening of the concept of risk management away from simply insurance or financial risk and into enterprise risk management. At the same time, it reflects a shift in thinking about risk that takes it out of the back office and onto centre stage in relation to strategy”. Consequently, anyone responsible for any type of risk management should consider undertaking ongoing training in order to remain able to carry out their jobs efficiently and understand ongoing changes. This could be vital to the successful implementation and embedding of ERM.

Finally, the research findings revealed that the presence of a CRO and the support of the board is a significant determinant of successful ERM implementation. A single person is not able to keep track of all the risks which need to be taken into account. Therefore, a proper selection of the members of the risk management team is essential for the successful implementation and embedding of ERM. The CROs and their teams should have a good risk management background and/or experience as this could facilitate the implementation process given the fact that they are the leaders of this process. At the same time, it is not only about having the CRO title; there should be a wide recognition of the role given to CROs. They should be given an appropriate voice and the relevant power to run the job. Furthermore, the users of risk information, including the board, should also acquire at least a basic risk background. This could help them understand the importance of ERM and what is

happening on a day-to-day basis. Only in this way they will be in a position to provide appropriate support.

10.4 Contribution of the study

This research has contributed, with different levels, to the body of knowledge in four different dimensions, namely, theoretical, methodology application and empirical.

10.4.1 Contribution to theory

This study developed an institutional framework to study the changes in risk management practices within companies and hence contributed to the literature related to institutional theory. Institutional theories and frameworks have not previously been used to inform research in the context of risk management change. The key point in this institutional framework is that risk management practices can shape and be shaped by the institutions governing organisations actions. Thus, this framework offers a general model of risk management change, which can be used to inform future studies addressing the various changes related to risk management within different types of companies. It can help explain how institutions at the macro- and micro-level shape and constrain the behaviour of both individuals and companies, and analyse how individuals modify and transform the institutions and companies.

The institutional framework developed in this study uses structuration theory concepts of modalities, reflexivity, and crisis and routine situations. A number of studies have sought to complement concepts from structuration theory with other theories, specifically institutional theory (Conrad, 2013). Distinctive contribution has been made by structuration theory to research on management accounting (Coad and Herbert, 2009). It was suggested by researchers that there is a need to move away from the abstract concepts provided by Giddens towards concrete constructs and conceptual clarity, which can offer guidance at the epistemological and methodological dimensions (Stones, 2005; Coad and Herbert, 2009; Englund and Gerdin, 2013). Coad and Herbert (2009) and Coad and Glyptis (2012) recommended the use of position–practices concept and combine it with the quadripartite model of structuration as a way to reach such concrete constructs. This study indirectly deploys position–practices concept in the sense that it investigates the various networks and relationships between the risk officials within the risk management departments. Structuration studies can be complemented by this concept by focusing on the phenomena

that is shaped by structurally situated actors, who deploy their structure knowledge to exercise their agency powers (Coad and Herbert, 2009). The quadripartite model could offer little direct interpretations to the reproduction, learning, and management accounting change processes although it emphasises the agent's phenomenology, hermeneutics and practices (Coad and Herbert, 2009). This research overcomes this problem by developing a theoretical framework that flexibly combines concepts from structuration theory with institutional perspectives that concentrate on the path dependency and praxis roles, as suggested by Coad and Herbert (2009).

It was argued that structuration theory needs further developments specifically in the areas of agent's relationships and external pressures effects (Stones, 2005). The framework developed for this study introduces NIS to investigate the external institutional pressures governing ERM adoption and implementation. However, Englund and Gerdin (2013) and Conrad (2013) suggested developing the usage of structuration theory concepts to understand the organisational change instead of supplementing it with other theories. An agency focus for analysis was provided by Coad and Glyptis (2013) rather than institutional one.

Burns and Scapens (2000) combined structuration theory with OIE to produce a perspective on how rules and routines, over time, structure organisational activities. Burns and Scapens' (2000) framework has provided a general model to study the "change in management accounting systems, the interplay between management accountants and other agents of change, revolutionary versus evolutionary changes, relationships between different forms of trust, and the control of networks of organisations" (Coad and Herbert, 2009, p. 178). Although their work was primarily based on Barley and Tolbert's (1997) work, which is a combination of structuration theory and new institutional sociology theory, they did not explicitly incorporate new institutional theory into their work and hence did not take into consideration the effect of external pressures. Dillard et al. (2004) introduced an elaborated model that incorporates institutional and structuration theories. However, they mainly considered the political and economic external pressure. NIS explores the role of macro-economic, political and social institutions in shaping organisational structures, policies and procedures and hence offers wider insights on the external institutional pressure affecting ERM adopting and implementation. Structuration theory was used by Ahrens and Chapman (2002) and Conrad (2005) to investigate, over time, accountability and trade-offs aspects between legitimacy, signification and power. Further, an institutional framework incorporating OIE and NIS can help explaining how institutions at both macro- and micro-

levels shape and constrain the behaviour of individuals and companies, and analysing how individuals modify and transform the institutions and companies.

10.4.2 Contribution to methodology applications

Prior empirical research is mostly quantitative surveys of ERM impacts, which limits a rich description of social, cultural and political contexts. Risk management practices need to be located in their historical, organisational, social and institutional contexts in order to gain a broad understanding of their change processes. Generally, survey and archival data cannot address institutional context because practices and process cannot be reflected in the reply to a survey questionnaire. Field and case studies are generally very useful for studying the actual practices and the details of significant activities. Despite this, very limited field and case studies have been used in prior studies to address ERM models and strategies. This particular study contributes to the literature by avoiding the limitations of previous research and conducting exploratory field study and explanatory case study to address the changes in risk management practices triggered by ERM implementation.

10.5.3 Contribution to knowledge

This research has identified a gap in the literature on ERM and risk management practices, which has not been empirically addressed in prior studies. To the researcher's best knowledge, this study is one of the first studies to investigate and explain the change ERM drives in risk management practices, particularly capital allocation in the context of the insurance industry. By identifying the nature of ERM adoption and implementation in insurance companies, which are highly regulated in the UK, this study broadly contributed to the literature by providing a better understanding of the institutional forces driving ERM adoption and offering empirical evidence on ERM implementation and the change in risk management practices (routines) within insurance companies.

Access to high level senior people in the insurance sector was a key for the contribution of this study because the empirical evidence gathered was based on the views of the most informed people, who are the most difficult to interview. Furthermore, the insights gained from studying ERM in insurance companies have some similarities but many differences comparing to the experience that is reported in prior studies conducted in financial institutions.

Firstly, there was a clear tendency towards adopting ERM in the insurance industry. These various institutional pressures affected the adoption decision of ERM (Mikes, 2005). The literature supported the impact of coercive, mimetic and normative pressures on the trend toward ERM in financial industries (e.g. Colquitt et al., 1999; Kleffner et al., 2003; Liebenberg and Hoyt, 2003; Lam, 2006; Acharyya, 2008). By conducting this study within the insurance industry, it has revealed the specific institutional circumstances that have shaped the adoption decision of ERM in that particular context. It showed that the decision to adopt ERM is not only driven by coercive and normative external pressures but also by other extra-institutional pressures that are mainly linked to the business nature, needs and requirements. Internal pressures, such as achieving the insurance companies' objectives and CRO interest and passion were revealed to be either equal to or surpassing external pressures.

Secondly, carrying out this study within the context of the insurance industry revealed that the use of risk management techniques to establish ERM systems and practices in each insurance company to some extent differed from other strategies used in other insurance companies. There were apparent variations in ERM practices at the insurance companies investigated. ERM processes varied from semi-structured to fully-structured. Furthermore, each insurance company employed its own framework and policies consistent with the company's nature and ultimate objectives. Prior research proved the existence of such variations in ERM practices at banks (Mikes, 2005; 2009; Woods, 2011). This research investigated the relevance of the latter observations within another type of financial institution, the insurance company.

Thirdly, conducting research on ERM within the insurance industry was a main contribution of this study. It was evident in the literature that most of the research on ERM was conducted within the context of financial companies and not particularly within the insurance industry. This study highlighted the need to investigate ERM specifically within the context of the insurance industry in view of the fact that insurance companies have their own specifications which differentiate them from other financial institutions, such as banks.

Fourthly, conducting research on ERM and the change in risk management practices within the insurance industry was a key contribution of this study. Even though there has been great interest in ERM, only a few empirical studies have been conducted on this topic (Liebenberg and Hoyt, 2003). The literature review indicated that some research theoretically addressed the relationship between ERM implementation and the change in risk management practices, but found very limited empirical research had been conducted to address the impact

of ERM on risk management practices, particularly capital allocation. Therefore, this study adds to the body of knowledge concerning ERM and risk management practices.

Most prior research lacks empirical evidence on whether ERM implementation in financial institutions changes capital allocation practices (e.g. Tillinghast-Towers Perrin, 2004; Dhaene et al., 2012), improves risk-based decision making, supports strategic decision making (e.g. Lam, 2006; Hoyt and Liebenberg, 2011), develops communications (Peterson, 2006; Hoyt and Liebenberg, 2011) and reduces external capital and stock price and earnings volatility (e.g. Meulbroek, 2002; Beasley et al., 2008). This study, which is carried out within the context of the insurance industry, showed that ERM implementation does not reinforce existing risk management routines but tends to change them, either by improving and developing them to include further risk aspects and to rely on precise risk information as in the case of risk-based and strategic decision making practices, or by completely changing them, as in the case of capital allocation practices. The findings empirically supported the relevance of the first four arguments above. However, they could not support prior research as the data gathered indicated that ERM enables companies to better manage both their external capital and the volatility of earnings and stock price rather than reduce them.

Finally, the findings of this research reported the experience of insurance companies in the UK in adopting and using risk-based capital allocation as a main method to allocate capital. ERM did not support the pre-existed capital allocation routines. There was a tendency towards using the risk aspects as key bases to allocate capital. Thus, ERM is likely to reinforce the new capital allocation routines and practices.

The findings of this research were based on a small number of companies and any generalisation to the population has to be exercised with caution. It is worth to distinguish between statistical generalisations and theoretical generalisations. Theoretical generalisations seek to generalise theories with the intention that they explain the observations made, while statistical generalisations are mainly concerned with statements about statistical occurrences in a selected population (Ryan et al., 1992). Theoretical generalisations are more appropriate for this research rather than statistical generalisations. Collecting data from different companies operating under specific circumstance at the same time to study ERM in the insurance industry allowed for the theoretical generalisation of findings. Thus, the above findings and related implications that are applied to the particular set of circumstance can be generalised to other contexts. This study identified various patterns and/or variations in the empirical observations as a result of using a multiple companies. Considering that the analysis in this research captured the ERM characteristics, and generated patterns, concepts

and theories, it is possible to generalise the findings from the companies under study, even though they were generated in a specific environment; insurance, to other contexts not only insurance or financial (see Denzin, 1970). In this study, the researcher attempted to enhance the quality of the interpretive research through ensuring the validity and reliability of the findings. Using multiple sources of evidence provided multiple measures of the phenomenon under study, and utilising debriefing technique allowed confirming the results that are generated from interviews. Further, the interview schedules were based on sound theoretical foundations that assured collecting relevant data and hence improved the credibility of the research findings. Purposive sampling also helped assuring the internal validity of the findings because using accurate sample representing the ERM characteristics the researcher interested in and consistent data collection and analysis processes enhanced the validity of the findings. Purposive sampling that lead to maximising the variability in the sample and acquiring meaningful comparisons, and the systematic data analysis (through coding procedures and using NVivo software) that led to identifying patterns across the different companies enhanced the reliability of this research findings.

Following Lukka and Modell (2010), the quality of the findings of this interpretive research was evaluated and enhanced using the criteria of authenticity, plausibility, and criticality. Mobilising multiple theories allowed for collecting multiple interpretations of the ERM-related facts, which improved the findings authenticity. Mobilising the main aspect of institutional theory to explain the findings alongside abductive thinking enhanced the plausibility of the findings. ERM-related findings were inferred from the interviews data while reflecting on the theoretical framework and hence the data gave a good reason to accept the ERM-related findings. The discussion of the data analysis with the supervisor and other academics allowed for checking whether the text is convincing and hence improved the criticality of the findings.

10.5 Limitations of the study

The researcher makes a number of choices when designing the research. These choices are related to the selection of the study subject matter, the theoretical framework, the research methodology and methods, data collection methods and the choice of companies to be studied. These selections are based on the researcher's knowledge of the subject and the different resources available, including time, money, effort, access to information and skills. Six limitations can be identified in this study.

First, this study addressed one aspect of ERM's impact on companies; the impact of ERM on risk management routines and more specifically capital allocation practices. However, ERM has other impacts and in other functional areas of a company such as human resources. For example, ERM implementation and use affected the performance of the firm. Some empirical studies have recently been conducted in this area (e.g. McDonald, 2008; Van der Stede, 2009). Another example is that ERM implementation and use had an effect on risk-based decision making. Limited number of empirical research has addressed the latter issue (e.g. Lee, 2008). Further research is required to measure the value associated with ERM aspects. The delimitation of the study area can be justified by arguing that it provides other researchers with the opportunity to make contributions by extending the research area or exploring new research areas (Scapens, 1990).

Second, the insurance industry was used as the context for this empirical study in order address the evident lack of research in this particular context (management accounting literature) and to emphasise the specific nature and circumstances that surround insurance companies. Considering that theory can be generalised to other settings, research on ERM and risk management practices change is needed to further confirm the findings in other types of companies such as small enterprises and in the public sector as currently there are only a limited number of studies which address ERM approaches in the private sector such as banks and in the public sector (Mikes, 2009; Woods, 2011).

Third, structuration theory and Burns and Scapens' (2000) institutional framework were adopted in this study. Structuration theory is known to have a number of weaknesses (See Chapter 3). However, this research tried to overcome these shortcomings by complementing this theory with other theories and frameworks. The theoretical framework used in this study is one possible framework among various available perspectives. These perspectives could offer alternative or complementary interpretations of the phenomenon investigated (See next section).

Fourth, the main method used to collect data in this study was semi-structured interviews. According to Silverman (2001), this method also encompasses the potential of bias on the interviewees' and interviewer's part in interpreting social reality. This problem was avoided by collecting other types of evidence (documentary evidence and published data) to support the findings. Using more than one method to collect data helped alleviate the possible shortcomings of using only semi-structured interviews.

Fifth, this study was based on a relatively small number of interviews. However, the nature of the context in which the study was undertaken, the insurance industry, and the high

profile people interviewed justify the relatively small sample size. Additional research using larger samples and focusing on refined ERM measures would represent an important contribution to the emerging literature on ERM.

Finally, my inquiries for the field study were made at the senior personnel level within the risk functions of the companies under study. I recognised this as a good place to start, although I realised that any conclusions drawn from the data gathered would thereby be limited. In spite of these limitations, the findings gained from this research provide valuable insights, which can further develop the understanding of ERM and risk management practices.

10.6 Suggestions for further research

This thesis is concluded by putting forward a number of further research suggestions to build on the existing work. These suggestions stem from the findings, recommendations and limitations of this research. Researchers may choose to pursue some of these suggestions to further contribute to the understanding and knowledge about the change in risk management routines associated with the implementation and use of ERM.

ERM evolution in the insurance industry is still at an early stage, and its understanding is not common across the professional communities. Consequently, further research is required within the insurance industry context. Analysing rating agencies' published press releases to support the upgrading/downgrading of insurance companies' ratings could provide indications of the ERM maturity levels of the respective insurers. Research on ERM practices' robustness of insurers is needed. In-depth case studies on the changes in each risk management practice driven by ERM implementation in the insurance industry could provide a valuable addition to the current literature.

The recommendations of this research showed that it is necessary to improve the education system in order to develop the required ERM skills to facilitate the implementation and use of it. However, ERM can affect, and be affected, by current management accounting education. Even though some researchers have observed that there is a significant gap between management accounting education and actual practice (Otely, 1985; Chouldhury, 1986; Flint, 1988), few identified this gap with relation to ERM. As shown earlier, ERM supported new risk management practices. Knowledge provided by management accounting books constitutes a part of the professional institutions influencing risk management practices. Therefore, it could either facilitate or complicate the implementation of ERM (e.g.

Mouritsen, 1994; Johanson and Kaplan, 1987). It is sufficient to recognise that risk management education might impact on the efficacy of ERM implementation and risk management practices if it does not keep up with best practice. This issue needs to be addressed by future research.

The empirical study was primarily conducted in the private sector, specifically in private insurance companies, in order to fill a gap in the management accounting literature and to shed some light on the specific institutional conditions in these companies which might facilitate or prevent the change in risk management practices associated with ERM implementation. Future research on ERM and change in risk management practices should focus more on public sector experiences or the experience of other types of financial institutions. Such research could help such companies accept ERM best practice, and understand and digest the changes in risk management practices more quickly.

The main method of data collection in this research was semi-structured interviews. Other sources of evidence were used, such as documentary evidence and publicly available data, however direct and participant observations were not used in this study. Such ethnographic methods may have a number of advantages over interviews, as they involve spending extended time on the sites of the research and repeated data collection sweeps allowing for the acquisition of tacit knowledge. These methods were not used in this research, but they can enrich our understanding if used in future research.

Finally, the theoretical framework developed in this study was based on structuration theory applications and extensions, particularly Burns and Scapens' (2000) institutional framework. It was used to interpret the empirical evidence that was collected on ERM and the change in risk management practices. However, different theoretical frameworks could provide other interpretations and further insights on this issue. As indicated earlier, the success of ERM implementation is clearly associated with the capacity to cope with ERM. Therefore, learning theories such as organisational knowledge creation (Nonaka and Takeuchi, 1995) could be useful by contributing a complementary interpretation to structuration theory. This theory shares a number of similarities to structuration theory. Furthermore, the analysis sheds light on the changes to employees' roles and responsibilities following the adoption of ERM. Actor-network theory (ANT) can be useful in addressing the issues related to such changes as it treats objects as part of social networks. ANT advances a relational materiality, which presumes that all entities achieve significance in relation to others. Further research adopting the above approaches is needed.

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Appendices

Appendix A: Insurance companies' functions and risks

Insurance functions

The primary function of insurance is to spread the financial losses incurred by the insured members over the entire insuring community. The unfortunate few are compensated from the fund built up from all members' contributions. There are two major elements in deciding an equitable contribution from the individual into the fund, which are a profound truth behind all premium calculations. The first one is the amount likely to be taken from the fund. The second element is the likelihood of a claim on the fund. The proper fulfilment of the primary function provides benefits to both the insured and the insurer. The insured is secure as there is a protection of the fund behind him in misfortune. The insurer benefits from investment income and any profits made (Hansell, 1999).

Insurance has a number of secondary functions (Hansell, 1999). The practice of insurance generally gives benefits to the individual and society. These could be classified as follows. First, it releases funds otherwise tied up in reserves. Secondly, the investments, which are made by insurers using various insurance funds, help considerably in the overall development of the economy. Third, it removes fear and establishes confidence in order to begin different types of business. Fourth, an insurance policy provides a means of saving. Fifth, payments under an insurance policy have an indirect benefit to society. They reduce the cost of social services. Sixth, overseas insurance is seen as an invisible export. Finally, the practice of insurance reduces losses in the following ways:

- 1- Rating. It means the assessment of the premium payable by the insured. Insurers induce the insured to make improvements, which have a beneficial effect on losses, by charging extra for bad features and less for good.
- 2- Surveys and inspection services. Insurers inspect premiums proposed for insurance frequently and recommendations are made by their trained surveyors. Such recommendations render losses less likely or less severe.
- 3- Loss and salvage experts. These experts are employed after losses have occurred, but their recommendations have an appreciable effect on reducing the size of losses and preventing recurrence.

4- Central organisations. The advisory and statistical work performed by various organisations and associations of insurers assists in loss reduction materially.

Insurance companies suffer from some common problems:

- Adverse selection and moral hazard in insurance

The adverse selection occurs when the individuals, who are more likely to benefit from a transaction, are the ones who most seek out that transaction. This problem occurs in the insurance market, the party more likely to suffer a loss is the party likely to seek insurance. Such problem raises the issue of which policies an insurance company should accept. Insurance firms often offer better rates to insure groups of people as the adverse selection problem is then avoided (Mishkin and Eakins, 2006).

Moral hazard occurs when the insured fails to take proper precautions to avoid loss because losses are covered by insurance. Insurance companies combat this problem by requiring a deductible which is the amount of any loss that must be paid by the insured before the insurance company will pay anything, and by adding terms in the insurance contract aimed at reducing such risk (Mishkin and Eakins, 2006).

- Selling insurance

Insurance companies hire large sales forces to sell their products. Insurance is unique in that agents sell a product that commits the company to a risk. Independent agents may sell insurance for number of different companies. Exclusive agents sell the insurance products for only one insurance company. Most agents are compensated by being paid a commission. The agents are usually not concerned with the level of risk of any policy because they have little to lose if a loss occurs. Therefore, insurance companies employ underwriters, people who review and sign off each policy an agent writes and who have the authority to turn down a policy if they deem the risk unacceptable (Mishkin and Eakins, 2006).

From the above, it can be seen that the main function of insurance enterprises is risk management. Value creation is the ultimate objective for the firm. It is recognised that the risk management objective may not be fulfilled if the silo risk management techniques and approaches are not aggregated into a holistic framework at the corporate level (Siokis, 2001). Thus, ERM is an important system to measure and manage all insurance complex risks, which should be applied to achieve the goals of insurance companies. In addition, the ultimate issue in insurance nowadays is how to invest capital efficiently and effectively to generate sustainable returns in a challenging world.

Insurance risks

Insurance companies pay high attention to the risks that they are exposed to as a result of insurance business. The technical aspects, regulations, restrictions for underwriting and retention, are seen as main devices which affect the risk factors. Generally, an insurance company is exposed to three categories of risks (ADB, 2002):

1. Investment risks (asset risks), i.e. risks that are directly or indirectly associated with the insurer's asset management;
2. Technical risks (underwriting or liability risks), i.e. risks that are directly or indirectly associated with the technical or actuarial bases of calculation for premiums and technical provisions in both life and non-life insurance, as well as risks associated with operating expenses and excessive or uncoordinated growth;
3. Non-technical risks (business or operational risks), i.e. risks that cannot in any suitable manner be classified as either technical risks or investment risks.

Insurance supervisors are concerned about other kinds of risk, such as:

1. Management risks, e.g. the risk associated with an incompetent management or a management with criminal intentions,
2. Risks connected with guarantees issued by insurers in favour of third parties, i.e. the potential strain on the economic capacity of an insurance undertaking caused by a call on a guarantee furnished for the purpose of the financial commitments of a third party, and
3. General business risks, i.e. unexpected changes to the legal conditions to which insurance undertakings are subject, changes in the economic and social environment, as well as changes in business profile and the general business cycle (ADB, 2002; Calandro et al., 2008).

Various ways have been used to eliminate risk and its variability. The protection methods were the key ones to be used by individuals and societies. Later on, the importance of risk management was realised. The devices of risk management are classified to: devices affecting risk factors such as risk avoidance, and methods affecting the severity of results such as insurance.

Appendix B: Interview schedule designed for the field study

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. Could you please describe your risk management experience?

ERM adoption and implementation

1. How long has your company adopted enterprise risk management (ERM)?
2. What was your risk management system before ERM?
3. To what extent have you been involved in the adoption decision of ERM? Explain more.
4. What are the main drivers for adopting ERM?
5. To what extent do you think political influence such as new regulations and government demands affected the adoption decision of ERM? How?
6. Do you think the usage of ERM by successful competitors and their feedback reduced the uncertainty about ERM and increased your interest in ERM? Explain more please?
7. Do you think your education or professional qualifications have an impact on ERM adoption decision?
8. Do you think the suggestions from consultants affected the decision to adopt ERM? How?
9. Have CRO, CEO and CFO provided support for ERM adoption in your company? What kind of support?
10. How do you describe the process of ERM adoption: revolutionary system changes or incremental changes within existing systems?
11. To what extent have you been involved in the implementation of ERM? What was your main role?
12. Could you please describe the major steps or stages that are involved in implementing ERM?
13. Which departments assist with the implementation of ERM?
14. What problems (if any) did you encounter with the implementation of ERM strategies?
15. What types of problems are still being encountered?
16. According to you, at what stage is ERM in your company? Early stages of implementations or more mature? Why do you think so?

Change in risk management practices triggered by ERM implementation and use

1. Do you think ERM has made changes to risk management practices in your company? What kind of changes?

2. What are the aspects of the company that were most affected by the implementation and use of ERM?
3. Do you think the implementation and use of ERM drives a change in capital allocation methods in your company?
4. Could you please describe the way by which your company exercise capital allocation?
5. How was your way of exercising capital allocation before ERM?
6. How do you see capital allocation will be done going forward with solvency 2 coming soon? Would you expect further drastic changes?
7. Do you think the implementation and use of ERM improve risk-based decision making? How?
8. Do you think the implementation and use of ERM support strategic decision making? How?
9. Do you think the implementation and use of ERM reduce external capital? How?
10. Do you think the implementation and use of ERM decrease the volatility of earnings and stock price? How?
11. Do you think the implementation and use of ERM enhances the value of the firm? How?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Appendix C: Interview schedules designed for the case study

Interview schedule: CRO

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. Could you please describe your risk management experience?

ERM adoption and implementation

1. How long has your company adopted enterprise risk management (ERM)?
2. What was your risk management system before ERM?
3. To what extent have you been involved in the adoption decision of ERM? Explain more.
4. What are the main drivers for adopting ERM?
5. To what extent do you think political influence such as new regulations and government demands affected the adoption decision of ERM? How?
6. Do you think the usage of ERM by successful competitors and their feedback reduced the uncertainty about ERM and increased your interest in ERM? Explain more please?
7. Do you think your education or professional qualifications have an impact on ERM adoption decision?
8. Do you think the suggestions from consultants affected the decision to adopt ERM? How?
9. Have CRO, CEO and CFO provided support for ERM adoption in your company? What kind of support?
10. How do you describe the process of ERM adoption: revolutionary system changes or incremental changes within existing systems?
11. To what extent have you been involved in the implementation of ERM? What was your main role?
12. Could you please describe the major steps or stages that are involved in implementing ERM?
13. Which departments assist with the implementation of ERM?
14. What problems (if any) did you encounter with the implementation of ERM strategies?
15. What types of problems are still being encountered?
16. According to you, at what stage is ERM in your company? Early stages of implementations or more mature? Why do you think so?

Change in risk management practices triggered by ERM implementation and use

1. Do you think ERM has made changes to risk management practices in your company? What kind of changes?

2. What are the aspects of the company that were most affected by the implementation and use of ERM?
3. Do you think the implementation and use of ERM drives a change in capital allocation methods in your company?
4. Could you please describe the way by which your company exercise capital allocation?
5. How was your way of exercising capital allocation before ERM?
6. How do you see capital allocation will be done going forward with solvency 2 coming soon? Would you expect further drastic changes?
7. Do you think the implementation and use of ERM improve risk-based decision making? How?
8. Do you think the implementation and use of ERM support strategic decision making? How?
9. Do you think the implementation and use of ERM reduce external capital? How?
10. Do you think the implementation and use of ERM decrease the volatility of earnings and stock price? How?
11. Do you think the implementation and use of ERM enhances the value of the firm? How?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: CUO

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. Could you please describe your risk management experience?

ERM adoption and implementation

1. How long has your company adopted enterprise risk management (ERM)?
2. What was your risk management system before ERM?
3. To what extent have you been involved in the adoption decision of ERM? Explain more.
4. What are the main drivers for adopting ERM?
5. To what extent do you think political influence such as new regulations and government demands affected the adoption decision of ERM? How?
6. Do you think the usage of ERM by successful competitors and their feedback reduced the uncertainty about ERM and increased your interest in ERM? Explain more please?
7. Do you think your education or professional qualifications have an impact on ERM adoption decision?
8. Do you think the suggestions from consultants affected the decision to adopt ERM? How?
9. Have you (chief risk officer (CRO)), CEO and CFO provided apparent support for ERM adoption in your company?
10. How do you describe the process of ERM adoption: revolutionary system changes or incremental changes within existing systems?
11. To what extent have you been involved in the implementation of ERM? What was your main role?
12. According to you, at what stage is ERM in your company? Early stages of implementations or more mature? Why do you think so?

ERM uses and effects

1. What are the main uses of ERM at your company?
2. The CRO mentioned that the implementation and use of ERM drives a change in capital allocation methods in your company? Could you please explain more?
3. Could you please describe the way by which your company exercise capital allocation?
4. How was your way of exercising capital allocation before ERM?
5. What improvements did ERM implementation and use have on capital allocation methods?

6. How does ERM use affect your choice of the new capital allocation methods? Explain more Please?
7. Does this have any positive effect on your company? and in what aspects?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: CEU

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. Could you please describe your risk management and actuarial experience?

ERM adoption and implementation

1. What made your company adopt ERM?
2. Have chief risk officer CRO, CEO and CFO provided support for ERM adoption in your company? What kind of support did you receive from them? Who was most enthusiastic about it and who was hesitant or reluctant?
3. How do you describe the process of ERM adoption: revolutionary system changes or incremental changes within existing systems?
4. To what extent have you been involved in the implementation of ERM? What was your main role?
5. According to you, at what stage is ERM in your company? Early stages of implementations or more mature? Why do you think so?

ERM uses and effects

1. What are the main uses of ERM at your department?
2. What do you think other departments are using ERM for?
3. The CRO mentioned that the implementation and use of ERM drives a change in capital allocation methods in your company? Could you please explain more?
4. Could you please describe the way by which your company exercise capital allocation?
5. How was your way of exercising capital allocation before ERM?
6. Could you please describe how you drive all the capital models and works out all the capital and efficiencies?
7. How changes have ERM brought to this process?
8. What improvements did ERM implementation and use have on capital allocation methods?
9. How ERM uses affect your choice of the new capital allocation methods? Explain more Please?
10. Does this have any positive effect on your company? and in what aspects?
11. How do you see capital allocation will be done going forward with solvency 2 coming soon? Would you expect further drastic changes?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: CAC and AAs

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. Could you please describe your risk management and actuarial experience?
3. To what extent have you been involved in the embedding process of risk into capital allocation process? Please explain more about how you are involved in the process of embedding risk into capital.
4. Has senior management provided support for you and other people in your team to help implementing ERM in your department? In what aspects?
5. Do you think ERM is embedded more and more into lower levels at your company? Why do you think so?
6. Do you think ERM is becoming more mature in your company over time? Why do you think so?
7. How does ERM implementation affect your choice of the capital allocation methods which have been used? Explain more please?
8. Could you please explain how you embed risk into capital allocation processes?
9. What are the problems facing the embedding of risk to capital allocation process?
10. What improvements did ERM use have on capital allocation practices?
11. Does this have any positive effect on your company? In what aspects?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: OM

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?

ERM adoption and implementation

1. To what extent have you been involved in the adoption decision of ERM? Explain more.
2. What are the main drivers for adopting ERM?
3. How do you describe the process of ERM adoption in your department: revolutionary system changes or incremental changes within existing systems?
4. To what extent have you been involved in the implementation of ERM? What was your main role?
5. What were the demands from chief risk officer CRO, CEO and CFO for ERM implementation in your department?
6. What training skills you and your team had to undergo regarding ERM?
7. Which departments assist with the implementation of ERM in your department?
8. What problems (if any) did you encounter with the implementation of ERM?
9. What types of problems are still being encountered?
10. According to you, at what stage is ERM in your department? Early stages of implementations or more mature? Why do you think so?

ERM uses and effects

1. What are the main uses of ERM at your department?
2. What do you think other departments are using ERM for?
3. What are the various risks which you need to manage as a part of your job?
4. How has ERM been helpful in that regard?
5. What changes has ERM brought about to managing risks at your job?
6. In your role, how much you need to interact with the CRO and his team?
7. What kind of risk information or reports do you require to manage risks in your job?
8. Are there any risks you do not have information about and still need to be managed?
9. How do you manage this?
10. Has ERM helped you in doing this?
11. Do you think ERM has had a positive effect on your department and on the company as a whole? And in what aspects?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: CA

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. In your role, how much you need to interact with the CRO and his team?
3. Who are the main users of your report?
4. In the report what are the risk management aspects which are published?
5. In order to make the risk management output in the report, what is the sort of information you need from the risk management team?
6. Over the period of time before and after ERM implementation, what are the changes in the internal risk management reporting?
7. What is the information reported earlier?
8. What is the information reported now?
9. What kind of the feedback you receive from the users of the risk management information you report?
10. Could you please show me the two versions of the reports?
11. What is the frequency of risk reporting internally?
12. Are there any regulatory requirements for risk reporting? Could you please explain about it?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: RM (First round)

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. Could you please describe your risk management experience?
3. To what extent you are involved in the embedding process of risk into capital allocation process? Please explain more about how you are involved in the process of embedding risk into capital.
4. In your role, how much you need to interact with the CRO? Can you take a decision without going back to him after using ERM?
5. How does ERM implementation affect your choice of the capital allocation methods used in your company? Explain more please?
6. What types of risk do you embed into the capital allocation process?
7. Could you please explain how you embed risk into capital allocation processes?
8. What are the problems facing the embedding of risk to capital allocation process?
9. What improvements has ERM implementation brought to capital allocation practices?
10. Does this have any positive effect on your company? In what aspects?
11. Do you think ERM is embedded more and more into lower levels at your company? Why do you think so?
12. Do you think ERM will expand more and more at the company level? and within insurance industry? Why do you think so?
13. In your opinion, what are the main reasons for such expansion?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on accounting and risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: RM (Second round)

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Why do you think ERM has led to the usage of risk-based capital allocation method in specific? Has ERM improved the capital allocation process?
2. How does ERM implementation affect the process and practice of capital allocation in your company? Explain more please?
3. Why do you think risk-based capital allocation is a better method for allocating capital?
4. Could you please explain the process of allocating capital by risk category?
5. How risk is embedded into capital allocation process?
6. Why do you think it is necessary to embed all types of risk into capital allocation process?
7. Why does ERM usage lead to a better the return on capital?
8. How do you see capital allocation will be done going forward with solvency 2 coming soon? Would you expect further drastic changes?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: CFO

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. To what extent have you been involved in the adoption decision of ERM?
3. To what extent have you been involved in the implementation of ERM? What was your main role?
4. What were the demands from the CRO and CEO for ERM implementation in your department?
5. As a Risk Committee member, what are the demands you request other people across the company to achieve in order to get ERM fully embedded?
6. Which departments assist with the implementation of ERM in your department?
7. What problems (if any) do you encounter with the implementation of ERM?
8. According to you, at what stage is ERM in your department? Early stages of implementations or more mature? Why do you think so?

ERM uses and effects

1. What are the main uses of ERM at your department?
2. What are the various risks you need to manage as a part of your job?
3. What changes has ERM brought about to managing risks at your job?
4. In your role, how much you need to interact with the CRO and his team?
5. What changes and improvements has ERM brought to capital allocation practices?
6. Do you think ERM is embedded more and more into lower levels at your company? Why do you think so?
7. Do you think ERM will expand more and more at the company level? Why do you think so?
8. Do you think ERM has had a positive effect on your department and on the company as a whole? In what aspects?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Number of years with this organisation:
2. University education:
3. Professional qualifications:
4. Internal and external training programmes obtained (with special focus on risk management training programmes):

5. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: COO

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?

ERM implementation

1. To what extent have you been involved in the implementation of ERM within your department? What was your main role?
2. What were the demands from the chief risk officer for ERM implementation in your department?
3. Have you and your team had to undertake specific training programs regarding ERM?
4. According to you, at what stage is ERM in your department? Early stages of implementations or more mature? Why do you think so?

ERM uses and effects

1. What are the main uses of ERM at your department?
2. What are the various risks which you need to manage as a part of your job?
3. How has ERM been helpful in that regard?
4. What changes has ERM brought about to managing risks at your job?
5. In your role, how much you need to interact with the CRO and his team?
6. What kind of risk information or reports do you require to manage risks in your job?
7. Are there any risks you do not have information about and still need to be managed?
8. Do you think ERM has had a positive effect on your department? In what aspects?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: EOO and SCU

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
 2. What does Enterprise Risk Management (ERM) mean to you?
 3. Do you have any risk management experience? How did you obtain it?
 4. How has your role/the way you work changed after implementing ERM? Have you started to think in risk management terms?
 5. Do you think about risk in a different way now? How?
-
1. How is ERM used in your day-to-day job?
 2. Why do you think ERM should be embedded into underwriters' daily work?
 3. How does ERM implementation affect the way you exercise capital? (With regard to risks)
 4. What are the various risks which you need to manage as a part of your job?
 5. How has ERM been helpful in that regard?
 6. Could you please explain how you embed risk into the process of allocating capital?
 7. What improvements has ERM implementation brought to these practices?
 6. What kind of risk information or reports do you require to manage risks in your job?
 7. Do you think ERM is well embedded into operations level at your company? Why do you think so?
 8. Why do you think risk-based capital allocation is a better method for allocating capital?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____

Interview schedule: MA

Interview Reference Number:

Date: _____ **Time:** _____

Location: _____

Name of the interviewee: _____

Good Morning/Afternoon/Evening

MR, MRS, MISS _____

My name is Mirna Jabbour. I am a PhD student doing a research on the impact of implementing enterprise risk management (ERM) on capital allocation in insurance companies. I am trying to gather information from people with relevant experience in the area of risk management. Because of your experience with the topics that I am exploring, I would like to ask if you please participate in this interview. This interview will take less than 45 minutes. The questions would be related to concepts linked to ERM and capital allocation.

As a researcher, I follow an ethical code and I would like to assure you that all the information will be treated with complete confidentiality and the analysis will be based on aggregate answers from all interviewees.

Would you mind if I send you a summary of the interview to check with you?

1. Could you please explain your role in the company?
2. What does Enterprise Risk Management (ERM) mean to you?
3. Do you have any risk management experience? How did you obtain it?
4. How has your role/the way you work changed after implementing ERM? Have you started to think in risk management terms?
5. Do you think about risk in a different way now? How?
6. How is ERM used in your day-to-day job?
7. Why do you think ERM should be embedded into accountants' daily work?
8. How does ERM implementation affect the way you do your job? (With regard to risks)
9. What are the various risks which you need to manage as a part of your job?
10. How has ERM been helpful in that regard?
11. What improvements has ERM implementation brought to the management accounting practices?
12. What kind of risk information or reports do you require to manage risks in your job?
13. Do you think ERM is well embedded into operations level/ lower levels at your company? Why do you think so?

Interviewees' background information

Could you please answer the following questions about your professional qualifications, and training and skills?

1. Current position:
2. Previous positions:
3. Number of years with this organisation:
4. University education:
5. Professional qualifications:
6. Internal and external training programmes obtained (with special focus on risk management training programmes):
7. Would you be required to undertake any more important professional training programs to be able to manage solvency 2 requirements?

This finishes my questions. I appreciate the time you took for this interview.

Is there anything else you think would be helpful for me to know?

However, I may need to talk to you again. Would you be agreeable to that?

How would it be best to contact you later on?

Time end: _____