The Impact of Enterprise Risk Management on Capital Allocation in Insurance Companies

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American Accounting Association

2012 Management Accounting Section

Research and Case Conference

and IMA Doctoral Colloquium

January 2012

Electronic copy available at: http://ssrn.com/abstract=1910283

Abstract

A review of the extant literature of enterprise risk management (ERM) and capital allocation shows that insurers have an incentive to manage capital costs through risk management. They deploy capital by holding a large number of financial risk positions that need to be evaluated. ERM can help insurers to create and improve shareholder value through better risk-based decision making and capital allocation. This study aims to develop a theoretical framework that helps in understanding risk management practice associated with ERM implementation. Mainly, 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. This framework is used in this research as a theoretical base to investigate the link between the motives for ERM adoption and ERM use within insurance companies, the relation between ERM determinants and its use, as well as to provide empirical evidence of capital allocation change process driven by ERM in insurance companies' context. A field study is conducted for the purpose of this research. Six listed large or medium-sized general insurance companies based in London were purposively chosen for this research. The adoption decision of ERM was mainly driven by coercive, internal and normative pressures rather than mimetic ones. The presence of the chief risk officer (CRO) and CEO and CFO support for ERM in insurance industries are shown to be the main determents for ERM implementation. In addition, ERM drives changes in various risk management practices such as capital allocation, underwriting and actuarial.

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1. Introduction

Enterprise risk management (ERM) can be considered as the third generation of risk management which moved away from the "silo" approach toward an approach taking a corporate-wide view. It can be defined as a process applied across an organization and designed to identify and manage all major risks faced by the firm, and to implement integrated strategies that help achieving the enterprise objectives and maximizing its value.

This study focuses on insurance sector. Insurance has contributed to, and simultaneously been affected by, the increase in the properties values and in the volume of industries, finance projects and the capital invested. The cost of capital for insurance companies is explicitly related to the credit rating, which is assigned by credit agencies to insurance companies by analyzing the link between corporate bond credit spreads and credit rating classes. As most business decisions have a level of importance that attracts the senior decision-makers' attention, sunk costs and the danger of loss will be involved. A key threat for the viability of insurance companies is credit risk (Siokis, 2001).

Reviewing the literature of ERM and capital allocation shows that the principal objectives of ERM as seen by insurers is to help them to create and improve shareholder value through better risk-based decision making and capital allocation in order to increase the market value of equity capital (Tillinghast-Towers Perrin, 2004).

Capital allocation could facilitate and improve the measurement of the economic profitability of businesses with different sources of risk and capital requirements (Acharyya, 2008). The primary link between capital allocation and value maximization is to enable the firm 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 to the firm (Cummins, 2000). In addition, insurance companies usually hold high levels of equity capital to reduce insolvency risk in order to meet policyholder expectations. The main objective is to maximize the value added from writing insurance business over the value of the equity subscribed in the insurer balance sheet (Merton and Perold, 1993; Perold, 2005). Therefore, the literature of ERM and capital allocation in insurance industry provides support to the notion that there is a relationship between ERM usage and capital allocation methods used. In this regard, ERM can be seen as a driver to a change in capital allocation methods used.

Much of the literature on ERM was conducted in the financial firms' context and concentrates on describing what ERM is (Meulbroek, 2002; Schneier and Miccolis, 1998; Cumming and Hirtle, 2001), the need to implement it (D'Arcy and Brogan, 2001; Cowherd and Manson, 2003; Sutton, 2006), its benefits (Peterson, 2006; Acharyya, 2008; Hoyt and Liebenberg, 2008), the implementation process, characteristics associated with the use of ERM, obstacles that companies face in ERM implementation, and the rate of implementation (Colquitt et al., 1999; Kleffner et al., 2003; Lam, 2006; Hoyt and Liebenberg, 2008; Simkins, 2008). To the best of our knowledge there are no empirical studies regarding whether ERM implementation result in a change in capital allocation methods and how legitimacy affects the adoption of ERM techniques in insurance companies.

The aim of this research is to develop a framework that helps to understand risk management practices associated with ERM techniques implementation. Mainly, 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. This framework is used as a theoretical base to investigate the link between the motives for ERM adoption and ERM use within insurance companies, the

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relation between ERM determinants and its use, as well as to what extent is change in capital allocation process driven by ERM in insurance companies.

The remaining of this paper is organised as follows. Section 2 reviews the literature related to ERM and capital allocation. Section 3 presents the theories that inform this research and outlines the proposed framework. Section 4 illustrates the methodology and methods used to undertake this study. Section 5 summarises the results. The paper concludes with a discussion of the results.

2. Literature review

2.1 ERM

There are a number of forces that drive the growth in, as well as acceptance of ERM. They comprise organization disasters that have raised awareness level of the board members and senior executives; new regulatory capital and examination requirements; industry initiatives on corporate governance and risk management; and leading corporations which have experienced significant benefits from using ERM programs (Lam, 2006).

Some studies (e.g. Colquitt et al., 1999; Kleffner et al., 2003; Hoyt and Liebenberg, 2008) examined The extent to which firms have implemented ERM, the characteristic associated with the use of ERM, the obstacles that companies face in implementing ERM, and the role which corporate governance guidelines have played in the decision to adopt ERM. There is clear evidence that a large portion of the companies was moving in the direction of adopting an ERM approach. This is evidenced by the changes made by the companies in the past few years, which include the development of company-wide guidelines for risk management, an increased awareness of nonoperational risks by operational risk management personnel and more coordination with different areas responsible for risk management, and more involvement and interaction in the decision making of other departments. Possible reasons for adopting ERM include the influence of the risk manager, encouragement from the board of directors, and compliance with regulatory guidelines (Kleffner et al., 2003). The guidelines for risk management developed by companies influence organisations' risk management strategies.

As a result of new regulatory requirements, any corporation has to adopt one of the risk management frameworks established by a number of industry initiatives and committees such as Committee of Sponsoring Organizations of the Treadway Commission (COSO), or develop a customized approach that is based on the risk profile of the company (Lam, 2006).

Institutional pressures have played a role in the selection and use of ERM practices (Mikes, 2009). Moreover, a number of surveys show that the number of U.S. firms implementing ERM tripled to 12% in 2007 from 4% in 2006. Some companies have had extensive success with ERM while others have had little or no success (Simkins, 2008).

Financial institutions have also made noticeable progresses in improving the practices of risk management. Many large financial institutions have adopted advanced risk management technologies and risk-based decision making procedures. However, many financial institutions are still facing problems in utilizing new risk management technologies as a result to the lack of experience and insufficient data. In addition, Expanding the risk management professionals' pool is a task which should not be ignored (Lee, 2008).

The progress of the ERM movement has been slow and disjointed. However, financial services, particularly banks, accepted ERM and made a meaningful commitment to it. Risk management should be embedded in aspects of a firm's business and should be a part of the calculus of decision-making (Moody, 2009). Moreover, the lack of a common risk language

has prevented the widespread implementation of ERM, although risk professionals agree with the potential value of it (Nielson et al., 2005).

However, some organizations that attempted to implement ERM have failed or experienced setbacks that prevent the gaining of expected benefits. The main cause of these failures could be the lack of buy-in from senior management and oversight committees such as audit committees (De La Rosa, 2007). Other causes could include lack of theoretical ERM knowledge; a poorly customized ERM approach; incorrect or incomplete set-up of oversight structures to support the ERM initiative; poor tone at the top, including ethical culture and lack of formalized 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; Inefficient supervision of consultants (De La Rosa, 2007).

Furthermore, some attempts were made to identify the determinants of ERM adoption. The stage of ERM implementation was shown to be positively related to the presence of a chief risk officer (Liebenberg and Hoyt, 2003), 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 (Beasley et al., 2005).

Insurance company's management should compose an effective risk management system as it is the foundation for the safe and sound operation of insurers. Developing, implementing and maintaining a prudent risk management strategy should be conducted by the board and senior management of an insurance company. It should include policies, procedures and controls which are appropriate to the size, business mix and complexity of the insurer's operations. Material risks, both financial and non-financial, which the insurer is likely to face, should be addressed in the policies (Asian Development Bank (ADB, 2002).

ERM in insurance is considered as a structured approach to analyze risk-return based decision making. Three main functions create the value of an insurance company: underwriting, investment and finance. ERM in insurance should mainly be targeted to increase the shareholders' and policyholders' value, which could be criticised by the professionals seeking to investigate the broader ERM benefits (Acharyya, 2008).

Three major enablers for ERM in financial institutions can be presented as: board-level support; management processes which make the whole enterprise 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).

In the recent years, organizations in the U.K. financial service markets and elsewhere have started to fully adopt ERM. A number of authors introduced pioneering work. Lam (2003) is the first to use the job title of Chief Risk Officer. In addition, Deloach (2000), Miccolis (2000) and Kloman (1999) wrote the article entitled `The Risk Management Revolution'. Companies have changed their approaches because of the regulatory environment developments and analysis techniques sophistication. Now, ERM is seen as a necessary part of any successful organisation (Tripp et al., 2008).

ERM activities create value for insurers in a significant way by enhancing economic efficiency through cost reductions. However, many insurers are still far from an optimal level of risk management activities. A positive relation between firm value and the use of ERM was also found (Hoyt and Liebenberg, 2008; EIU Research Report; Acharyya, 2008; Tillinghast-Towers Perrin, 2001; 2004).

2.2 Risk management and capital allocation

Capital is related to the financial risks that are inherent in the portfolio of a financial institution from the investing point of view. This requires understanding the different types of

financial risks in the different products of the institution and corresponding capital needed to support these risks from which economic capital concepts developed (Rao and Dev, 2006).

The role of capital in financial institutions is different from that in a typical corporation 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 firm (Aziz and Rosen, 2004).

Insurance companies have a number of distinct features which make capital allocation of special interest. The debt holders of an insurer are more credit-sensitive than traditional debt holders as they are also the firm's customers (Merton and Perold, 1993). 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). Moreover, insurance companies are complex and their operations are less well understood by investors and policyholders. Insurance companies usually hold high levels of equity capital to reduce insolvency risk in order to meet policyholder expectations. Therefore, agency costs and other frictional costs of capital are significant. Thus, capital allocation issues in financial firms are both important and complex (Merton and Perold, 1993; Perold, 2005).

Various capital allocation methods were presented in the literature. The first technique is Regulatory Risk-Based Capital, which is used to specify the minimum capital a company must hold to avoid regulatory intervention. The risk-based capital ratio is used to determine the regulatory thresholds. The Capital Asset Pricing Model is the second approach to allocate capital which involves using the capital asset pricing model (CAPM). The third method is Value at Risk. It is seen as the amount that the company may lose with a specified small probability in a specified period of time. Marginal Capital Allocation is another method used. It is a term that can be applied to techniques proposed by Merton and Perold (1993) and Myers and Read (1999). 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).

Furthermore, there are a number of methods used to allocate capital: percentage of average assets, regulatory guidelines, top down, relative ranking, and market comparables. A part of some or all of these methods could be used in order to build an appropriate capital-allocation mechanism for a firm (Weiner, 1998).

The risk adjusted return on capital (RAROC) is an approach used by practitioners to allocate risk capital to business units and individual transactions for the objective of measuring economic performance. Large financial institutions have developed the RAROC systems. However, small banks and other trading firms are now implementing them. Senior managers are allowed by the RAROC information to better understand where shareholders' value is being created and destroyed. It assists strategic planning, risk-adjusted profitability reporting, proactive resources allocation, better concentration risk management, and better product pricing (Crouhy et al., 2006).

Recently there have been rapid advances in financial institutions' risk measurement and management capabilities. Sophisticated tools for measuring market risk, credit risk and insurance risk have evolved and there have been advances in using such risk metrics to guide executive management in strategic decision-making. Typically, this is achieved through a framework that has two parts. First, risk is related to the capital amount which is required by the firm to achieve a sufficient protection level against adverse events. Second, risk is used to adjust the business activities returns in order to determine which activities are value-adding and which ones are value destroying (Siokis, 2001).

ERM is more than a comprehensive coverage of risk and consistency in risk management across the enterprise. Economic capital allocation is considered as the heart of ERM process for financial institutions (Rao and Dev, 2006, p. 430).

Recent findings from surveys on ERM show that ERM focuses on improving capital efficiency, supporting strategic decision-making and building investor confidence. ERM is also a valuable tool helping companies achieve their business objectives (Tillinghast-Towers Perrin, 2001; 2004). Capital is the most expensive and important input in production for insurance firms. They deploy capital by holding a large number of financial risk positions which need to be evaluated (Froot, 2003; Mumford et al., 2005).

Risk is the first factor to think about when holding capital. Generally, corporations hold capital in order to protect against losses in excess of reserves for credit, interest-rate, inflation, economic, operations, and market risks. It is also used to make the expenditures of capital for both fixed plant and equipment. The extensive branch networks and corporate headquarters buildings of financial organizations are capital investments, which have to be paid for by the business units, products, and customers' profit contributions using them (Weiner, 1998). Consequently, risk management is seen as an important process for holding and allocating capital.

Furthermore, most of insurers' reserves and free capital is particularly invested in the equity and property markets. In addition, the selection of investment portfolio provides a main source of risk to insurers. Generally, insurers have an incentive to manage capital costs through risk management (Acharyya, 2008).

Integrated risk and capital management is seen as a source of a competitive advantage in the insurance industry. A web-based survey, conducted by Tillinghast-Towers Perrin (2004) on risk and capital management issues, indicates that the principal objectives for ERM is seen by insurers as helping them create and improve shareholder value through better risk-based decision making and capital allocation. In addition, insurers' business decisions are guided by enhanced risk and capital management approaches (Tillinghast-Towers Perrin, 2004).

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

Risk management matters to financial institutions as 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 is 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 reasons mentioned by Froot (2005).

It should be noted that an obvious progress has been made by insurers, but risk management techniques and economic capital calculations still need to be developed. The later argument implies that ERM is a way/ technique to improve capital allocation. Therefore, how ERM drives a change in capital allocation needs to be investigated.

In short, various approaches to allocate capital are used in insurance companies. However, the efficiency of these methods and their role in creating value is not empirically examined. Moreover, there is no clear research about how ERM affects choosing and

evaluating capital allocation methods. Seeing that bringing together the concepts of ERM and capital allocation is highly specific to individual research projects, it is useful to illustrate our argument with reference to a variety of specific studies. Such research would add value to the existing literature by elaborating and enriching the research related to ERM. We could not find literature linking ERM and capital allocation concepts or empirical studies on the impact of ERM on capital allocation. This supports the need of more research to fill in this gap. This research tends to investigate whether ERM drives a change in capital allocation methods in the insurance sector. Generally, some allocation methods could be best suited to address specific issues. This is important because specific allocation techniques can lead to wrong financial decisions (Grundl and Schmeiser, 2007).Examining such relationship in insurance companies' can add value and enrich the existing literature.

The next section develops a theoretical framework that will inform the empirical study on ERM and risk management practices change.

3. A proposed framework

3.1. Structuration and Institutional theories

This research draws on structuration theory, old institutional economics theory and new institutional sociology theory in order to examine risk management practice that results from implementing ERM techniques in insurance companies. Using multiple perspectives emphasizes complementary facets, and thus contributes to robustness in explaining a specific phenomenon (Allison, 1971; Feyerabend, 1981; Kuhn, 1970).

Gidden's structuration theory is seen as a useful framework to understand the social context of management accounting in firms (Roberts and Scapens, 1985; Macintosh and Scapens, 1990). It contributes to solve the objective (positivistic) - subjective (interpretive) dualism. However, it has been criticised for not taking into account historical time. 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'. Following Archer (1995), an institutional model was introduced by Burns and Scapens (2000) that helps overcoming some of the limitations in dealing with management accounting change.

This study benefits from Giddens work as ERM implementation can be conceptualized 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 position could be 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.

The theoretical framework that is developed in this research is based on Burns and Scapens' (2000) work. Their theoretical framework offers a general model of organizational change. Various possible approaches could be used in this study, but recent institutional theory versions provide important extra features. Firstly, they follow Meyer and Rowan (1977) who stressed the legitimacy importance in explaining organizational structures and working practices. Therefore, in our case, was ERM selected 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?

Secondly, a more sophisticated view of structure has been adopted by the new institutionalism, which helps researchers to analyze the organizational process dynamics. Drawing on Giddens (1984), structure is considered as dualism, as the result of interaction between structure and action. Finally, the organizational outcomes of implementing ERM are likely to be uncertain (Soin et al., 2002).

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

The above limitation is overcome by the new institutional sociology theory (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 this external, macro pressures to obtain support and legitimacy (Kholeif et al., 2008). Thus, new institutional sociology theory 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 (Kholeif et al., 2008), which are the context of this research.

Structuration theory 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. It is also capable to illustrate revolutionary change in crisis conditions and evolutionary change in routine situations.

This research draws on institutional theory to understand the extent of change, as a way to evaluate the relative institutionalized practices roles and to assess the organizational influence of the new management accounting systems. Innovations could be selected because they legitimize the organization or because organizations imitate other similar organizations (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Abrahamson, 1991; Malmi, 1999). In addition to such macro-institutional effects, this research explores the relation between these influences and managerial action by analyzing organizational 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).

An institutional framework that incorporates OIE and NIS can help explaining how institutions at both macro- and micro-levels shape and constrain individuals' and organizations behaviour and analyzing how individuals modify and transform the institutions and organizations. By taking such perspective, the analysis may provide a clearer picture of different organizational phenomena.

The above discussion shows that the adoption of ERM in insurance companies, as well as the link between ERM implementation and the change in capital allocation methods could be better informed by institutional theory.

3.2 Burns and Scapens' institutional framework

Burns and Scapens' framework is mainly grounded in three previous works, which are Macintosh and Scapens (1990), Scapens (1994), and Barley and Tolbert (1997). Burns and Scapens (2000) introduced their model as a way to overcome a number of the problems in dealing with management accounting change. Primarily, their framework is grounded in structuration theory and old institutional economics theory. They have tried to illustrate the way in which organizations succeed in developing and applying new accounting methods.

The main idea on which their approach is based is that a management accounting system can shape and be shaped by institutions in an organization. Thus, management accounting practices can be conceptualized as organizational routines encoding the existing institutions within the organization (Burns and Scapens, 2000; Scapens, 1994). Drawing on old institutional economics, Burns and Scapens (2000) conceptualize management accounting systems and practices in their framework as organizational rules and routines respectively. In addition, the authors conceptualize management accounting change as change in organizational rules and routines. Thus, the complex and ongoing relationship between actions and institutions are explored by their framework, which also illustrates the significance of organizational routines and institutions in shaping the management accounting change processes.

Burns and Scapens (2000) also draw on structuration theory to argue that new and ongoing routines embed meanings, norms and powers. Prevailing institutions shape all such routines and, over time, the new routines may be institutionalized. Burns and Scapens (2000) distinguish between rules and routines. Whereas rules are "the formalized statement of procedures", routines are "the procedures actually in use" (Burns and Scapens, 2000, p.7). The everyday practices are shaped to a large extent by routines, as rules are set by individuals and groups into practice. Routines could also affect the rules, as established practices could be formalized 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.

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.

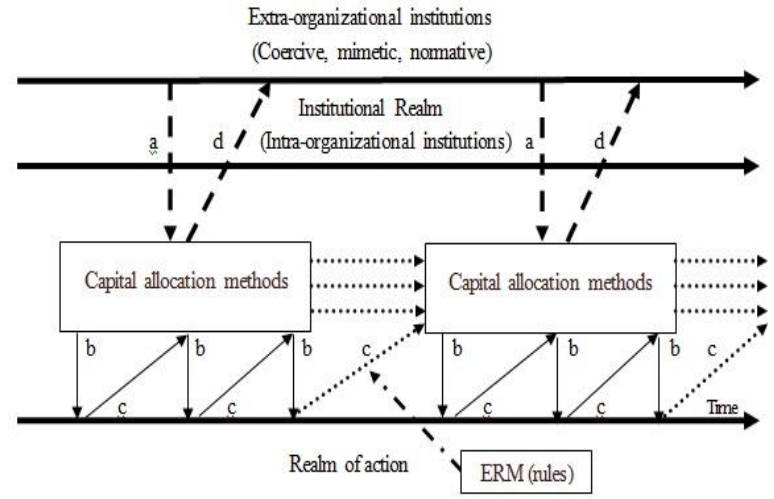
Burns and Scapens (2000) present a distinction between institutional realm (institutions) and realm of action (actions) with rules and routines linking the realms through processes of encoding, enacting and reproduction (Kholeif et al., 2008).

According to the approach of Burns and Scapens (2000), the existing institutions within organizations could provide an explanation of the gap between rules and routines. The gradual shift from old capital allocation ways and methods to new capital allocation ways and methods could be characterized as an institutional change that is driven by the introduction of ERM in insurance companies.

3.3 The model

Figure 1 presents a summary of our proposed model. It depicts the interrelationships among the variables under this study.

Figure 1 A modified version of Burns and Scapens' (2000) model



(a) Encoding
(b) Enacting
(c) Reproduction
(d) Institutionalization

Burns and Scapens institutional approach is chosen as the starting point for the development of this model as it seeks to explain accounting change processes in general terms. It should be noticed that Burns and Scapens (2000) do not deal clearly 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. Burns and Scapens' (2000) framework is highly linked to structuration theory and new institutional theory. As a result, it presents a coordinating tool for further theories and models.

Burns and Scapens' (2000) framework mainly takes into account management accounting change within individual organizations (intra-organizational processes of change). Thus, it is not concerned with (extra-organizational) macro institutional pressures, that is, the organizational field and the society social, economic and political institutions that differ from one country to another. Therefore, new institutional theory is seen as a possible extension of Burns and Scapens' (2000) model. Moreover, ERM and risk management practices, mainly capital allocation, issues are not addressed by Burns and Scapens (2000). The incorporation of ERM and risk management practices in Burns and Scapens' (2000) model is another extension.

The framework of Burns and Scapens' (2000) provides useful analytical tools to inform the approach that is adopted by this study. This model is a sequential one, which analytically separates the institutions synchronic effects on actions, at a particular point in time, from the actions diachronic effects on institutions, as a cumulative effect over time. 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 institutionalization of such rules. Moreover, 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).

It is suggested by the model that a first step of its application is the institutional realm analysis with identifying the initial set of rules and routines characterizing an organization management accounting. Then, the analysis of the realm of action should be done in order to identify the key actors and their relationship with the wider institutional realm. By introducing the new ERM rules, the analysis should identify the encoding (arrow a) and enactment (arrow b) processes as the new ERM rules are introduced. The reproduction (arrow c) is one key issue as well. Do the changes become incorporated into new routines? In other words, do ERM drives a change in capital allocation ways and methods. Furthermore, the analysis takes into account if the new routines have implications for the wider organization institutional realm beyond the limited field of a specific department such as risk management department (arrow d).

The following section discusses the research methodology and methods of the empirical study.

4. Methodology and methods

Accounting researchers have increasingly recognized the need to study accounting within its organizational context (Hopwood, 1983; Flamholtz, 1983, Atkinson and Shaffir, 1998). Therefore, many researchers have called for further research, which uses field study 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). A field study is conducted for the purpose of this research. A field study is concerned with describing or modelling the complex pattern of roles and interactions that comprise a particular process or phenomenon. The description to and modelling in some field studies is directed to a better understanding of particular phenomenon in the literature. While in other field research it is directed to the discovery, development and labelling of a new phenomenon. This research is directed to explore and understand the changes in risk management practices driven by ERM implementation and use.

Purposive sampling was used in the selection of the sample in this research. Purposive sampling allows us to choose appropriate case(s) because it illustrates some feature or process in which we are interested. However, this does not provide a simple approval to any case we happen to choose. Rather purposive sampling demands that we think critically about the parameters of the population we are interested in and choose our sample case carefully on this basis. As Denzin and Lincoln (2000, 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."

Sampling in qualitative research is neither statistical nor purely personal. It is, or should be, theoretically grounded. Theoretical sampling and purposive sampling are often treated as synonyms. Indeed, the only difference between the two procedures applies when the purpose behind purposive sampling is not theoretically defined. "Theoretical sampling means selecting groups or categories to study on the basis of their relevance to your research questions, your theoretical position." (Mason, 1996, p. 93-4).

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, particularly capital allocation. It is also instrumental because, by

studying insurance context, there is potential to contribute to the literature on ERM in an uncertain and rapidly changing environment.

General insurance company is the research setting as indicated previously. However, preference will be 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 system, Beasley et al. (2005) and Hoyt and Liebenberg (2009) found firm size to be positively related to ERM adoption and use. Six listed large or medium-sized general insurance companies based in London were chosen for the purpose of our research. Keeping in mind constrains with regard to time and money we have chosen to study five large general insurance companies based in London. Semi structured interviews and documentation evidence are used to collect data. This choice has no negative impact to the research because London is the financial capital of UK.

Table 1 presents the key characteristics of the sample chosen.

Table 1

Key Characteristics of the Sample

Case	Type	Number of employees	Gross Written Premiums (£m)	Size
A	LTD	700	1600	Large
B	LTD	500	850	Medium-sized
C	LTD	15000	2500	Large
D	PLC	4000	600	Medium-sized
E	PLC	10000	50000	Large
F	PLC	20000	7000	Large

Note: Because of confidentiality & anonymity reasons, the revenues of particular business segments are not given and only the total ones are presented in approximate numbers.

Purposive sampling was also used in the selection of the sample of respondents who were interviewed. 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).

The research subjects are Chief Risk Officers (CRO), and a few number of Chief Financial Officers (CFO), Chief Underwriting Officers (CUO) and Chief Actuaries (CA) of non-life insurance companies because of their relevant experience in the research area. Ten interviews were carried out.

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 also chosen as the most appropriate method given the aims to contact a representative sample of non-life insurance companies' risk management responsible and to cover a broad range of the subject. The respondents were interviewed for an average of one hour with responses recorded using a digital recorder. An interview schedule was designed. Thus, the interviews were not completely free-flowing. Prior to the interview, guideline questions were formulated. However, a qualitative component was embedded in the interview schedule in the form of semi- structured open-ended questions in order to go beyond obtaining strictly quantitative data. These questions concern such issues as ERM adoption drivers and its implementation effects. The interviews were not fully structured, as well as the conversation often wandered from the pre-set guidelines.

In the following interviews, a number of topics, which represent an extension of questions that were asked in the first interview, were chosen for discussion. Therefore, these topics provide a main basis to determine whether additional explanation was given in the second interview. Some other topics were not addressed in the first interview. Thus, the second interview by its design would provide new information on the subjects under the study. In the first interview, the same questions were asked, unlike each following interview which was somehow different.

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. Documentary evidence was generated through investigating ERM frameworks and policies, business plans, and financial reports.

One constraint to field studies is being subjected to common and global criticisms of their obvious inability to attend to research criteria such as validity and reliability. Issues of validity and reliability for field researchers may be constantly in mind during the course of study, as well as many and various actions may be taken in the field with particular intention of explicitly addressing them. Such actions will not be standardised, so difficult to document them economically in reporting the study results (McKinnon, 1988)

Threats to validity and reliability are classified into 4 types by McKinnon (1988) who draw on the categorization schemes of McCall and Simons (1969) and Simon and Burstein (1985):

1. observer-caused effects (The reactive effects of the observer's presence on the phenomenon under study)
2. observer bias (Tendency to observe the phenomenon in a manner that differs from the true observation in some consistent fashion (Simon and Burstein, 1985, p. 224)
3. data access limitations
4. complexities and limitations of human mind

Following McKinnon (1988), Silverman (2000) and Lee and Lings (2008) some strategies and tactics were used in this research to counter such threats. The strategies used are having quite long interviews (one hour) with the respondents in the research settings which would yield 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. In addition, investigator triangulation was conducted. The analysis of the data was discussed with two other academics. Debriefing was also done where the transcripts and a brief analysis were sent to the interviewees to get a feedback, which helped confirming the results generated from the

interviews. Moreover, a number of tactics conducted when interviewing people such as note taking and probing questions.

There are several techniques / methods for analyzing qualitative data. Qualitative mean text which includes interview transcripts, narratives, observation notes, emails and other such (Ryan and Bernard, 2003, p. 259). In this research, narrative analysis is used as it one of the approaches which is widely used for analyzing data from semi-structured interviews. Coding and verification procedures are also used as they can be quite appropriate for management accounting research and help presenting results in a more comprehensive way. Recognizing the speed and rigour which the computer assisted analysis of qualitative data carry (Silverman, 2009), the data analysis was carried out using the NVivo software.

The next section focus on analyzing the results generated from the field study in this research.

5. Results

In the general insurance companies investigated, ERM was adopted since 5-10 years ago. ERM is considered to be at early stages of implementation in some companies, while it is considered to at a more mature level as it is embedded in all areas of business in other companies. Different conceptions of the ERM maturity were implicit in the interviews undertaken with Chief Risk Officers (CRO), Chief Financial Officers (CFO), Chief Underwriting Officers (CUO), and Chief Actuaries (CA). Accordingly, maturity reflects various aspects that can be classified as following:

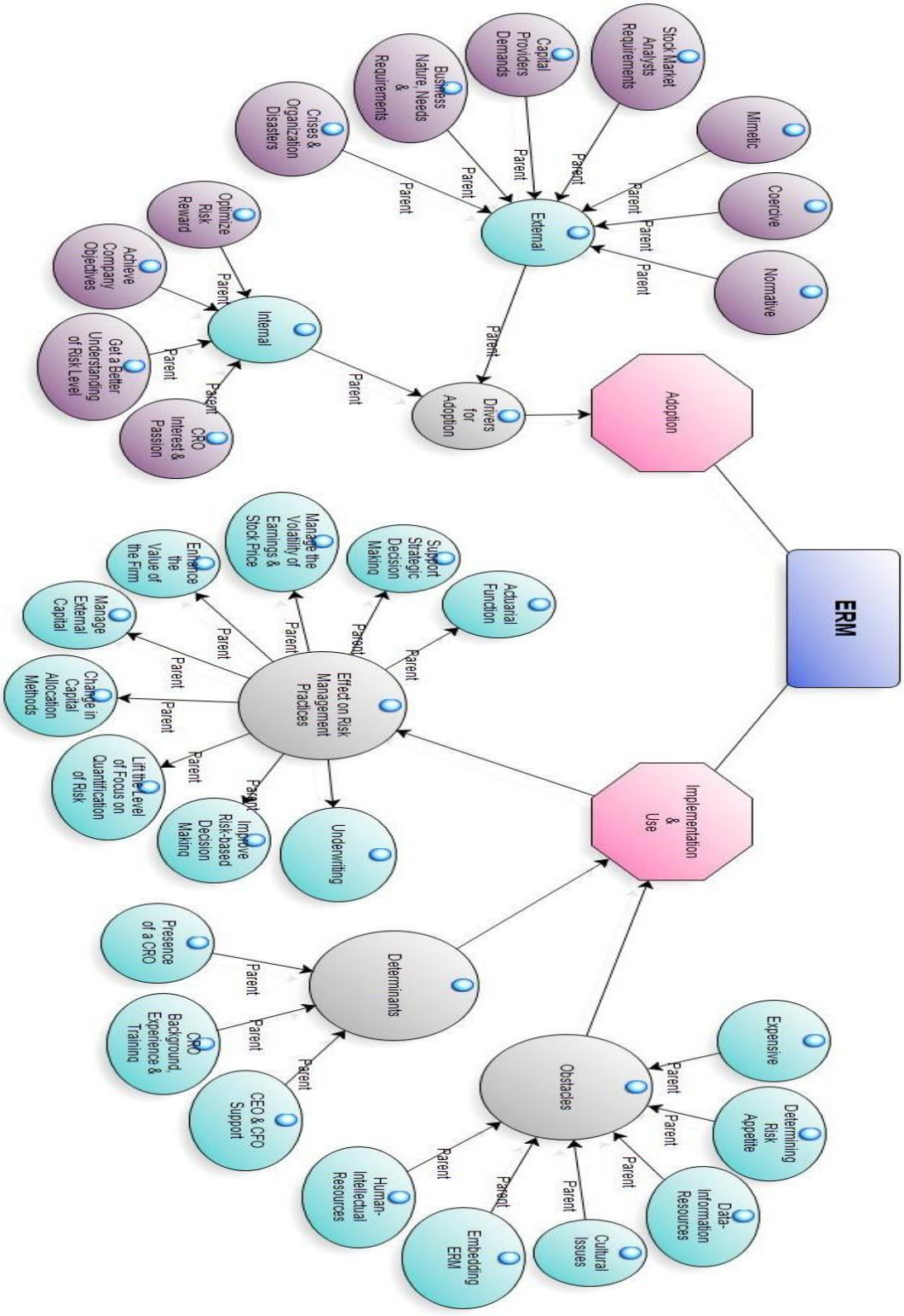
1. Having professional risk management team
2. Using ERM for making most critical decisions
3. Longevity of using ERM
4. Having a holistic understanding of ERM amongst relevant people in the organization including senior level and frontline level
5. Using ERM for capital allocation and management
6. Having high credit rating

In one instance, where ERM was seen to be at a mature stage, it was mentioned that they have stronger ERM probably in the last 5-6 years. Some of the elements such as risk register, risk assessment has been already in use since ERM adoption, but capital management were not present until 5 or 6 years ago, which is way before the announcement of Solvency II in December 2009. Therefore, the level of ERM maturity is linked to its usage for the purpose of capital allocation in this case. This finding is consistent with the survey findings indicated by AON (2010). However, the analysis shows that ERM is also used for managing and allocating capital in the companies interviewed, where ERM is seen to be at the early stages of implementation. Therefore, mature ERM concept is not necessarily related to being used for capital management and allocation. This could be attributed to the forthcoming regulations such as Solvency II, which will be in effect starting 2013, in the companies that have adopted ERM recently.

"I can see very clearly that Solvency II for instance is pushing a lot of smaller players to adopt sometimes against their own wish because they just never think about that sort of things like potential positive impact for their business. So, I can say I could imagine that political has quite a big influence in the market in general but probably again not too much for the largest players because all we do we are convinced, so we need to do." (CRO – Company C)

In this section we describe ERM adoption, as well as ERM implementation and the associated risk management practices change and the forces shaping these processes. Figure 2 presents a summary of the above results using NVivo software.

Figure 2: Results Summary



5.1 ERM process

During the period before adopting ERM, little consideration was given to risk management systems. Before adopting ERM, traditional approaches to risk management such as silo, scenario oriented etc. were being used. Those 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 to another. Some firms used more developed approaches to risk management, such as risk-based capital approach in which a capital model that is used to assess return on equity by sub-product and sub-business. Some managers also had a sort of intuition that one risk can affect various aspects of the company, but the big difference is now they have got a framework and have to report on that type of topic.

In most firms interviewed, the process of ERM adoption was mostly described as incremental changes within existing systems. It generally starts with building a capital model and then incremental steps is regularly taken in adopting ERM. However, in some cases, ERM process is described as revolutionary system changes. Scapens and Jazayeri (2003) argue that revolutionary change occures when there are major threats to the company's survival or what Giddens (1984) calls 'ontological security'. Although there were different opinions on this issue, it seems like it was somewhere mid way- that is to say it was neither evolutionary nor revolutionary. Thus, there is no consensus view in terms of how these changes happen revolutionary or evolutionary. A CFO exemplifies this analysis:

"I think 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 5 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 – Company B)

Burns and Scapens (2000) describe the processes of change as evolutionary processes which comprise a combination of random, systematic and inertial forces. These forces create together the context out of which new practices emerges. ERM adoption, implementation and its associated risk management practice change were path-dependent. Random elements, inertial forces and systematic mechanisms have shaped the adoption and implementation processes.

As Dhaene et al. (2009) argues, a major part of ERM framework is the exercise of capital allocation, the CROs and CFOs interviewed pointed similar notion.

"When I arrived at the company they already had a reasonable capital measurement system where we could allocate capital to lines of business, and they have been doing that anyway because they found it useful. So I've just made it, well embedded is the horrible word but it is used, I've just made it more deeply inside every department's working practices." (CRO – Company B)

Next, the drivers for ERM adoption are analyzed.

5.2 ERM adoption drivers

ERM was adopted in the companies investigated since 5-10 years ago. Some interviewees indicated that ERM was mainly adopted in response to regulatory requirements and rating agencies. Solvency I is an example of how regulatory changes have an impact on ERM adoption and implementation. For instance, solvency II may require insurance

companies to adopt ERM, and demand for more experienced people. Thus, insurance companies have started to take this into consideration already even though solvency II is yet to be announced. However, regulatory requirements are seen to have no much impact on the adoption decision because they are way ahead in adopting ERM (since 10 years).

However, political decision is also made by the main big companies because the government will never apply specific regulations if they do not have a sort of lobbying. As such, the CEOs of the main companies in Europe had long discussions with government and their CEOs are heavily involved in such regulations. As mentioned by the Head of Operational Risk and Fraud:

"You cannot apply Solvency II without a strong buying 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 say benefit and the benefit was we saw the credit crunch we saw so lots of our risks, which were not managed properly. As an insurance industry, we had in mind; ok I think it is good to move on in Solvency II and to put probably more effort on it. Do not try to have this vision of black and white and political in one side and the companies in the other side. These people work together." (Head of Operational Risk and Fraud – Company E)

Alongside with these coercive pressures, capital providers' demands, stock market analysts' requirements, crises and organization disasters, as well as the business nature, needs and requirements are seen as other main external drivers.

"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 – Company B)

Moreover, there is strong evidence in the analysis that internal drivers have an important influence on the adoption decision. Few examples of internal drivers include: CRO interest and passion, and achieving the company objectives, which includes increase profits, optimize 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 is seen as a social responsibility for massive companies, which lead the world and hold so big risk, because if they went bankrupt, there will be a great knock up effect on the economy and worldwide. As mentioned by the CUO:

"Our target has not, never been to be approved by the FSA. Of course, these are very important things. Very formally, it is around the objectives... These are our main drivers." (CUO – Company C)

The ERM adoption was also driven by successful competitors and their feedback except in two instances where industry players are seen to have no effect on the adoption decision. Competitors also affect the adoption and implementation of ERM in the sense that CROs of various insurance companies meet and provide each other good feedback about how they are doing these things and the difficulties faced throughout the process. However, those had less effect because the main drivers are seen to be internal ones, as well as regulatory and rating agencies drivers rather than external competitors. For the same reasons, the adoption

decision was not driven by suggestions from consultants except in two instances where consultants played a role in the adoption decision. As the CRO commented:

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

As expected, the adoption decision of ERM and its implementation was significantly driven by the CRO education and professional qualifications. As mentioned by the CRO of one company:

"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 – Company A)

The above quote clearly exemplifies that the professional bodies behind the professional educational schemes have been pushing for ERM since some time now.

Although it was the professional qualifications that led to ERM adoption, the adoption itself called for people with certain educational backgrounds and professional qualifications. The latter argument is consistent with Solvency II requirements.

Consequently, the CRO is heavily involved in the adoption decision. He is responsible for building the risk management model and then adopting it for all areas of business that includes insurance and investments.

On one hand, some CROs' highlighted a very positive view about their prior qualifications having an impact on ERM adoption. On the other hand, some of them have alternative point of view:

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

Furthermore, background and qualifications are seen by some CROs as affecting the ERM implementation process more than its adoption decision as they increase the awareness and sensibility about certain aspects of the business, which leads to better management of risk.

Table 2 presents the adoption drivers for ERM in each insurance company.

Table 2: ERM Adoption Drivers

Adoption Drivers \ Insurance Companies	A	B	C	D	E	F
Regulations, government demands and rating agencies	✓	✓	✓	✓	✓	___
Successful competitors	✓	✓	___	✓	___	___
Education and professional qualifications	✓	___	✓	✓	___	___
Consultants' suggestions	___	___	✓	✓	___	___
Other External drivers						
Capital providers' demands	___	✓	___	___	___	___
Stock market analysts' requirements	___	✓	___	___	___	___
Business nature, needs and requirements	___	✓	✓	___	___	___
Other Internal Drivers						
CRO interest and passion	___	✓	___	___	___	___
Achieving the company objectives						
avoid excessive volatility	___	___	✓	___	___	___
Optimizing risk reward	✓	___	___	___	___	✓
Increasing profits	___	___	✓	___	___	___
Getting a better understanding of risk level	___	✓	___	✓	✓	___
Improving ROC	___	___	✓	___	___	___
Improving return on risk	___	___	✓	___	___	___

Note:

= Strong impact on ERM adoption decision

= Medium impact on ERM adoption decision

= No or very low impact on ERM adoption decision

The next sub-section focuses on ERM implementation and its associated change in risk management practices.

5.3 ERM implementation

The determinants for ERM implementation and use are mainly related to the risk management experience of CRO, which is through their significant prior experience in the risk management in insurance industry, as well as from ERM training programs (both internal and external). Furthermore, the organizational structure has mostly changed after using ERM as companies have started to set up a risk management department directed and managed by CRO. Although, companies had different types of functions related to risk management before implementing ERM, but management have got a sort of acknowledgement that risk is becoming a key function as such they get new role like CRO and new department like risk management that do not exist in the past. This occurred approximately at the same time when ERM was adopted. Another important determinant for ERM adoption and implementation is the significant support provided by CRO, CEO and CFO in terms of financial support, educational support and promoting the culture. According to Burns and Scapens (2000), if those who are responsible for implementing new system posses' sufficient power, they may be able to impose change, possibly with some difficulties. There was resistance to change associated with ERM implementation from some companies members as risk management department recommendations normally led to change request to the way the departments run the processes and then the normal human change issues appear.

Moreover, there is a coordinating effort towards ERM. Insurance companies are moving towards the holistic approach and one of the indicators is having a steering committee, which consists of all risk sponsors in the company such as CRO, CFO, COO, CUO and CA who have precise risk responsibilities, to run and develop the risk management

function and to prepare for Solvency II requirements. These people produce information about the risks and the CRO oversees and manages it. All departments including finance, actuarial, strategy etc. assist in the implementation. However, the CRO is the one who is primarily responsible for ERM implementation. Therefore, he/she and his/her department are heavily involved in this process. He/she sets the ERM manuals and polices, then the process is taken forward by him/her and people from his department. As described by the CRO and confirmed by the CFO in the following quotes respectively:

"We are the engines of the activities taking place."

"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 – Company B)

Moreover, in one of the firms, external auditors were quite involved in the implementation process of ERM, which is an interesting but unexpected result. This is stated by the CRO:

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

The process of ERM was described by CROs in various ways. It varies from being unstructured (where it is not seen as a separate function and is seen as an integral part of day to day business); semi structured; or fully structured (where there are detailed policies laid out and frameworks in operation). 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 (ORSA), risk reporting, and culture and communications framework. In general, ERM process is seen to have both qualitative and quantitative elements.

The 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, continues internal risk management training programs has been carried out to educate people across the whole organization more and more about ERM. Furthermore, compulsory training initiatives have recently started that compose two lines of compulsory training. One 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. The latter discussion is mentioned by the Chief Actuary in the following quote:

"Underwriters have not understood the interaction of capital in the decisions that they make. Now we are teaching them what that means..... So this is a fundamental shift in the way that underwriters would have got those process in the past..... This is quite difficult to change for underwriters have been doing the same thing the same for 20 years to do it and think differently." (CUO – Company C)

The challenges encountered during the implementation of ERM are mainly cultural issues, difficulties of getting specialized people in time, limitations to data recourses, as well as understanding the information and having sufficient output to achieve what is needed. This implies that risk modelling is an important issue for the insurance industry. It was mentioned by CROs interviewed that there is a great demand for more experienced people. It is difficult

to find experienced manpower because the whole industry is facing this demand a result of the Solvency II requirements. The following quotes by CROs and CFOs exemplify these problems:

"It is mainly recourses and people because of solvency II has lots of demand for experienced people." (CRO – Company A)

"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. And then secondly, 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 – Company B)

"I think data and understanding the information is always a difficult thing to do." (CFO – Company B)

Other challenge is to determine the risk appetite and to make sure that ERM is actually embedded throughout the organization. Therefore, when people say ERM is implemented, it should be done by the point of being fully embedded.

"I still think that the question is ERM embedded throughout the organization. So I'd say most organizations have got ERM implemented but is that ERM embedded within the organization 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 organization." (CFO – Company B)

In terms of the embeddedness of the ERM in all parts of the company and its activities, the view of the CRO's team, which initiates the project, seems to be 'yes' technically, whereas when it comes to operational level the view from the others (for eg. CFO) it seems to be 'no' operationally.

ERM is also seen as expensive because of two reasons. The first one is that it calls for new teams, new skills, and training. The second one is because it is changes the culture. Thus, ERM calls for significant changes in terms of education and operations.

CROs have confidence about being at a mature level of ERM implementation and about getting benefits from using ERM system as they have now a better understanding of their risk, and can reduce the capital needed because they have a proper control environment. However, the ultimate advantage of the ERM system is still clear. In addition, ERM may lead insurance companies to come back to the basic and simpler notion concerning the communication aspect and structure of the company etc. as this would be easier to manage.

Various risk management practices were changed because of implementing and using ERM. The analysis revealed that underwriting practice is significantly affected by ERM implementation. This is pointed out by the CRO in the following quote:

"For instance I would recognise that in Lloyds, because of historical reasons, an underwriter has always been a little bit more like a portfolio manager who just does a case by case, 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 and taking only informed information." (CRO – Company C)

Actuarial functions and practice are also shown to be much affected by ERM implementation. This result is clearly illustrated in the following quote:

"I think particularly in our actuarial functions where there's a lot of good work going on but previously they probably didn't have to share it as explicitly as they do now. So I think that's had a very significant impact." (CRO – Company D)

The analysis indicated that communications is another practice affected by ERM implementation because people with different roles in the company can discuss using the same language. Thus, the process of decision making is facilitated which could lead to better decisions. The latter discussion is exemplified in the following quote:

"Decision is much more with more bigger confidence. And also we can discuss the same language.... 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, a silly decision." (CUO – Company C)

Capital allocation is significantly affected because ERM helps people in the company to start thinking more realistically and be more aware of their capital requirements. ERM implementation drives a change in capital allocation methods. Currently, what is called risk-based capital allocation is mainly used. It is done at the portfolio level, not at an individual level, and is an understanding in terms of the portfolio needed to make sure that there is a balance for risks within that portfolio. Marginal capital requirements are also used. Moreover, blend of two approaches are used in companies, such as a marginal fair value at risk approach that is supplemented with the earnings variability approaches. In addition, capital is allocated more in detail and to all segments and lines of business. While before ERM, capital allocation was based on traditional return measures like combined ratios and loss ratios, and other profitability measures rather than return on capital. Factor-based capital approach was also used, which tended to revise the factors once a year and to be less precise and less granular. Capital allocation was a fixed percentage of the premium in some cases. Thus, there is no risk assessment in allocating capital. As one of the CRO's interviewed explains:

"We had a factor-based capital approach. It was not marginal it tended to be about once a year we revised the factors. It was not wrong, but it was just less precise and less granular. 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 – Company B)

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."

The risk management activity is linked with the management of capital in the companies under study. 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.

Risk-based decision making of the companies interviewed was improved by ERM usage in the sense that they allocate capital according to the risk in order to produce the appropriate return on capital. Moreover, there is a greater awareness of the cost of capital to most lines of business, risk and the downsides they are facing, which allows them to manage their portfolios against risk-based targets in a better way. Therefore, risk-based decision making is mainly related to capital allocation. As reflected in most interviews, ERM also supports strategic decision making as it adds the quantifying theme to it, as well as risk appetite is set at the same time as strategies are set. Strategic decision making is also significantly related to capital allocation. The latter discussion is exemplified in the following quotes:

"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 – Company C)

"It supports it to the extent that you are able to, when you're looking at your strategy, you're 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 – Company D)

Moreover, ERM is claimed to enhance the value of the insurance companies because it optimizes rewards and returns. In addition, it enables to articulate what are the company's risks and how to manage them, and therefore it reduces the scope for their being unknown and unmanaged risks, which can enhance the value of the company. The value may also increase because the credibility of what insurance companies do has been validated. ERM also has the potential to create value because it allows companies 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. Furthermore, it would add value to the companies' reputation by educating the stakeholders how things are done and demonstrating how their capital is being used. Although it is said that ERM improves the value of the company, this is hard to measure practically.

The analysis also reveals that there is no standard answer for the question whether ERM reduces external capital requirements- it depends also on the organizational structure of each company. In some cases, ERM helps to reduce external capital in the future, but not at this stage. In most cases, ERM enables companies managing and thus deciding the external capital that is required according to the risk appetite desired. Using ERM might also even help companies 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.

Unlike previous research, this analysis reveals that ERM enables companies to manage the volatility of earnings and stock price as it helps them to take decisions that are more informed. This result is not consistent with findings from previous research, which indicates that ERM decreases the volatility of earnings and stock price. As CRO and CFO said respectively:

"We were aware of it and we measured it. So, we had a risk appetite around how much volatility we want to take, so our decisions reflected our appetite for volatility"(CRO – Company A)

"ERM helps you to understand what the volatility is. You can then take a decision on whether it is the right or the wrong time to take that on." (CFO – Company B)

6. Discussion and conclusion

It is documented in the literature that risk management has tended to be in silos even in the most successful businesses (Cowherd and Manson, 2003), which is empirically confirmed by this research. Moreover, Dhaene et al. (2009) argues that a major part of ERM framework is the exercise of capital allocation. In the analysis above, a number of CROs and CFOs interviewed pointed out similar notions.

Similarly, a number of external and internal drivers for ERM adoption were indicated in the literature. Some studies have shown how regulations and rating agencies are major factors that has driven the trend toward ERM in both insurance and other financial industries; for example, Colquitt et al. (1999), Kleffner et al. (2003), Liebenberg and Hoyt (2003), Lam (2006), Shenkir and Walker (2006), Hoyt and Liebenberg (2008), and Acharyya (2008).

Nielson et al (2005) argue 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. The insurance business, like other businesses, should be responsible for the other stakeholders' interests such as employees, suppliers, etc (Acharyya, 2008). Furthermore, it is argued that financial crisis has showed that risk management should evolve towards explicit models, which are based on coherent risk measures, fat tailed distributions and non linear dependence structures (Varma, 2009). Organization disasters were also documented in the literature (Lam, 2006).

Moreover, Lam (2006) argues that ERM is a systematic process for optimizing risk-adjusted profitability. Kleffner et al. (2003) show that the influence of the risk manager and encouragement from the board of directors are also reasons for adopting ERM. It is also argued that the goal of risk management is to increase return on equity capital (Froot et al., 1998; Strongin and Petsch, 1999).

It is also indicated in the previous literature 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), which is similar to what is mentioned by the CROs.

Although the professional qualifications have led to ERM adoption, the adoption itself called for people with certain 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).

In addition, the findings concerning the determinants of ERM implementation is consistent with the findings of previous research. Ceniceros (1995) argues 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 stage of ERM implementation is also positively related to the presence of a chief risk officer and CEO and CFO apparent support for ERM in insurance industries (Beasley et al., 2005; Bomhard, 2006).

Although the process of ERM was described by CROs in various ways, ERM process is generally geared to achieve similar objectives to the ones addressed by the ERM framework released by COSO (2004). In addition, the components of these processes are pretty much similar to the ones presented by COSO. However, they are less detailed and so simple in some cases. As argued by Schneier and Miccolis (1998), Bomhard (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. In addition, Mikes (2005; 2008) shows that there is systematic variations in ERM practices in the financial services industry.

Some of the obstacles that face ERM implementation and revealed by this study such as cultural issues, and insufficient human, systems, and data resources are indicated in a number of previous studies, such as Lam (2006), Shenkir and Walker (2006), El Baradei (2006), Jablonowski (2006), Salvador (2007) and Yilmaz (2009).

Furthermore, previous studies illustrated that ERM have an impact on various risk management practices. The analysis in this research empirically confirms some of them such as capital allocation and risk-based decision making and; refutes others like external capital and reveals other practices such as underwriting, actuarial and communication that are also affected significantly by ERM implementation and use. Previous studies suggest that ERM is an important process for holding and allocating capital (Tillinghast-Towers Perrin, 2004; Rao and Dev, 2006; Yow and Sherries, 2007; Shim, 2007; Dhaene et al., 2009; AON, 2010). Capital allocation is also seen as the heart of ERM for financial institutions (Rao and Dev, 2006). Moreover, 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 (Sherris, 2006). This particular study provides a strong practical evidence that ERM affects capital allocation in insurance companies and drives a change in its methods.

Moreover, it is suggested in the literature that ERM enables firms to make better risk-adjusted decisions (Lam and Kawamoto, 1997; Meulbroek, 2002; Lam, 2006; Errath and Grünbichler, 2007). In my study, risk-based decision making of the companies interviewed was improved by ERM usage in the sense that they allocate capital according to the risk in order to produce the appropriate return on capital.

The analysis is also consistent with what has been presented in the previous literature, in which the performance of insurance companies is improved by implementing ERM (McDonald, 2008; Pagach and Warr, 2008). However, proving that risk management creates value separately is difficult (Acharyya, 2008)

Previous literature indicates that ERM reduces external capital (Miccolis and Shah, 2000; Cumming and Hirtle, 2001; Lam, 2001; Meulbroek, 2002; Beasley et al., 2006). However, the results of the analysis above is not consistent with the literature because it shows that ERM helps managing external capital rather than decreasing. Thus, it could be increased or decreased according to the strategy of the company.

Furthermore, unlike previous research where ERM drives a reduction in stock price volatility and earrings volatility (Cumming and Hirtle, 2001; Lam, 2001; Meulbroek, 2002; Beasley et al., 2006; Pagach and Warr, 2008), this analysis reveals that ERM enables companies to manage the volatility of earnings and stock price as it helps them to take decisions that are more informed.

In short, the analysis and discussion show that the ERM adoption decision is mainly driven by coercive, internal and normative pressures rather than mimetic ones. Thus, institutional pressures play a role in the selection and use of ERM practices (Mikes, 2005). It also provides empirical evidence regarding the impact of ERM implementation and use on various risk management practices, particularly capital allocation. Moreover, although ERM serves many purposes for insurance companies such as, improving ROC and optimizing risk reward the ultimate objective of ERM is still seen as to improve the performance of the company, which is consistent with the literature. As mentioned by the CUO:

"But our real intention is how to use it, how to improve our performance, and how can we contribute to our policyholders to give them much more confidence to us." (CUO – Company C)

In conclusion, a theoretical framework has been developed in this paper to help understanding risk management practices associated with ERM implementation. An argument concerning the theoretical perspectives which are used as the basis for the proposed model is also presented. This framework is used as a theoretical base to investigate the link between the motives for ERM adoption and ERM use within insurance companies and the relation between ERM determinants and its use, as well as to provide empirical evidence of capital allocation change process driven by ERM in insurance companies' context. This research extends previous studies considering ERM and capital allocation. Such framework can also be used by researchers in the future as a base to investigate the linkages among variables and to examine research hypotheses.

Although there were a few drivers specifically mentioned (regulation, business management, etc) there are some implicit unforeseen uses / benefits of ERM than just these drivers such as capital management, which might or might not have been recognized by some companies prior to ERM adoption. This calls for a new area of investigation: Had they foreseen these unforeseen benefits / uses, could we term these as ex post motivations? In addition, ERM could be seen as a social responsibility for massive companies, which lead the world and hold so big risk, because if they went bankrupt, there will be a great knock up effect on the economy and worldwide. This seems to be an interesting topic for investigation. ERM maturity level also differs even among similar insurance companies. The various aspects reflected by maturity still need to be investigated.

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