The Effect of Enterprise Risk Management Implementation on the Value of Companies Listed in the Nairobi Stock Exchange

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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ABSTRACT

This study assesses the level of implementation of Enterprise Risk Management (ERM) in companies listed in the Nairobi Stock Exchange. The study also seeks to test the significance of factors affecting this level of ERM implementation and to investigate whether the level of ERM implementation has a positive effect to the value of companies as measured by Tobin's Q.

Data for this study was collected from a sample of 22 companies listed on the Nairobi Stock Exchange (NSE) for the periods ended December 2009. A quantitative research design was used and the key variables of interest were the level of ERM implementation and the value of the companies (as measured by Tobin's Q).

The research findings show that most of the organizations sampled (82%) viewed ERM implementation as a strategic business initiative as compared to a compliance requirement. The study also found that 50% of the organizations sampled measured the value of their ERM activities to the organization through its level of earnings volatility reduction. Thirty six percent of the respondent companies did not have an ERM framework in place but had a plan to introduce one in the short-term. However, 27% of the respondent companies had a well formulated ERM framework across the business and it was fully implemented. Forty five percent of the respondents indicated that ERM implementation in their companies was championed by a Chief Risk Officer/Risk Champion while 36% indicated that this implementation is championed by the head of internal Audit.

The study also finds that there is a significant relationship between the appointment of a Chief Risk Officer and the level of Enterprise Risk Management Implementation in companies. However, it does not find a significant relationship between the level of ERM implementation and the following variables; industry of operation, level of board independence, size of the firm, and growth rate of the firm.

Lastly, consistent with prior research, this study finds a significant relationship between a company's level or Enterprise Risk Management implementation and the

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company's value. The results of this study show that an increase in the level of ERM implementation in companies had a positive contribution to the value of the companies.

The limitations to this study included the subjective information that was collected to determine the level of ERM implementation in the companies listed on the Nairobi stock exchange. This subjectivity was partly reduced by interviewing the Chief Risk Officer or in their absence, the Chief Internal Auditor of these companies since their understanding of general risk management concepts and practices in their institutions is considered to be at a higher level than the rest of the staff in the organization.

Other than that, the Nairobi Stock only has 47 companies listed. Only 22 of these companies responded to the research questionnaire. The low response might result in the findings being unique to the small sample only thus not representing the entire population.

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1. CHAPTER 1: INTRODUCTION

1.1. Introduction

This chapter lays down the background torisk management and enterprise risk management identifying arguments for and against risk management as a tool for value addition. The chapter also outlines the research problem and objective of undertaking this research.

1.2. Background of the Problem

In business, there is no way of avoiding risk without giving up the opportunity to gain profits. Therefore, to be competitive, companies must learn how to manage risk intelligently. This means identifying risks early, expecting the unexpected and knowing which risks are worth taking and which to avoid.

In the past, companies have been using the "Traditional Risk Management"[1] concept to manage risk. However, this approach is limited in scope and application as noted by [Kleffner et al, (2003), Hoyt et al, 2008). The "Traditional Risk Management" concept appears to be lacking in terms of total integration. This is because risk exposures are being managed in silos hence the incompleteness of such an approach, (Lam, 2000; Davenport & Bradley, 2001; Barton, Shenkir& Walker; 2002). As a result of this shortcomings, the gradual change from traditional risk management to an all encompassing risk management concept, Enterprise Risk Management (ERM)[2] has gained substantial acceptance in the recent years.

Kleffner et al (2003) define ERM as the management of operational and financial risks simultaneously in order to maximize the cost effectiveness of

[1]March and Shapira (1987) define traditional risk as simple variance. This concept focused more on financial risk management and viewed risk management as a special function rather than a part of decision making (Boyer et, al, 2005). In traditional risk management, risks are separately managed in silos and are centered on two risk management activities – Insurance and hedging (Hoyt et al 2008). In essence, this concept seems to focus more on safety and security rather than value creation (Hussin et al, 2008)

[2] ERM is synonymous with Integrated Risk Management (IRM) and Enterprise wide risk management (EWRM). For consistency we use the acronym ERM in this study.

risk management within the constraints of the organization's tolerance for risk. Though this definition encompasses operational risks, it fails to appreciate that companies are exposed to other risks like strategic and reputational risks and also fails to identify who is responsible for risk management in organizations. The definition also fails to show the linkage of risk management to the organization's objectives. COSO (2004) on the other hand defines ERM as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives".

From the different definitions of ERM, the underlying principles of ERM seem to be an integrated approach to risk management across silos, backed by corporate risk philosophy or strategy with the aim of maximizing organization value (Kleffner et al, 2003; COSO, 2004; Beasley et al, 2005; Panning, 2006). The concept of ERM is discussed further in chapter two.

Though the implementation of risk management is gaining prominence globally, (Economist Intelligence Unit, 2001; Kleffner et al, 2003; Liebenberg and Hoyt, 2003; Beasley et al,2005),some studies undertaken have shown that the implementation of risk management practices does not have any value addition to companies (Sharpe, 1964; Lintner, 1965). These studies argue that in the absence of market inefficiencies, investors can undo any financial transaction undertaken by a firm thus the firm value is independent of the risk management strategy (Efficient market hypothesis)[3]. For example,the Modigliani and Miller (1958) theorem states that in perfect markets a company's capital structure which is an integral component of its risk management, is irrelevant to the company's value.Jin and Jorion (2005) also studied the hedging activities of 119 U.S. oil and gas producers from 1998-2001 and concluded that, while hedging, which is a common form of risk

[3]Efficient market hypothesis (EMH) is an idea partly developed in the 1960s by Eugene Fama. It states that it is impossible to beat the market because prices already incorporate and reflect all relevant information.

management, reduced the company's stock price sensitivity to oil and gas prices, it did not appear to increase the value of the firm. Other studies that concluded that risk management does not have a significant effect on the value of companies include; Nain (2004) and Lookman (2004).

However, contradicting this argument, Yow and Sherris (2008) argue that, in practice, market imperfections exist and informational asymmetries create frictional costs for the firm.They argue that risk management can add value to the company through different ways like reducing earnings, Cashflow or stock price volatility. These studies have a limitation in measurement of the value of companies because, though a reduction of volatility increasing predictability of returns from the firm, the reduction of volatility does not seem to have a direct correlation to the value of the firm.

To address this issue of value measurement in the firm, Hoyt et al, (2008), investigatesthe value of ERM in the US insurance Industry by measuring the effect of ERM implementation on the value of the firm as measured by Tobin's Q (ratio of acompany's market value to its replacement cost of assets).

In light of the contradictory arguments on the value proposition of ERM, and the need to justify the cost of implementing ERM in companies, this study seeks to investigate whether the implementation of risk management has a positive contribution to the company's value (using Tobin's Q as a measure of firm value). The results of this study will contribute to a better understanding of the value proposition of ERM for corporate executives thus giving them a quantifiable business case through a cost benefit analysis of ERM implementation.

It will be noted that most of the research work quoted in this study focused on companies in developed countries with only a few in emerging markets[4].

[4]In general, countries are characterized as `*emerging*´ when they profit from a substantial economic growth based on significant productivity gains, technological change and a change in their economic philosophy. Frequently these economies are characterized by political instability,strong currency turbulence and a high foreign debt. Therefore emerging markets are also called `*Less Developed Countries*´. Included are the countries in the regions of Southeast

However, although the underlying principles in ERM generally apply to most companies and countries, there are some aspects of risk management that might be specific to emerging markets. These markets generate higher rates of return on capital markets than mature markets, are characterized by high rates of volatility and are more susceptible to external impact including regulatory and operational, (Fuss, 2002). Therefore, this research will also assess the significance of factors previously identified to possibly have influence on the level of implementation of Enterprise Risk Management but with a specific focus on emerging markets.

While the choice of sample of the study, timeframe and its methodological implications is further discussed in chapter three, it suffices to note here that this study is limited to companies listed on the stock exchange. This choice has been made because due to the fact that, not all companies that are listed on the NSE have implemented ERM and those that have, are at different stages of implementation. Besides that, the study will be using the market value of companies to measure the value of ERM to these companies thus it is easier and more accurate to use only those companies that trade on the stock market since the market value of equity can be obtained with accuracy. This study will only cover companies Listed in the Nairobi Stock exchange as at 31st December 2009.

There are 47 companies listed in the Nairobi stock exchange making it the biggest stock exchange in Eastern Africa with a market capitalization of over 1 trillion Kenyan shillings. The companies listed in the NSE are divided into four segments namely; Industrial and Allied, Agricultural, Commercial and Services and Finance and Investment.

Asia, Latin America, Africa and the Middle East (Fuss, 2002). The following characteristics are commonly associated with these markets:low-to-middle-income onWorld Bank income per head benchmark, recent or relatively recent economic liberalization, reduction in the state's role in the economy, privatization of previously state-owned companies, removal of foreign exchange controls and obstacles to foreign investment, recent liberalization of the political system and a move towards greater participation in the political process and scale and dynamics of change (Ernst & Young, 2007)

The limitations to this study include; subjective information such as measuring the level of ERM implementation in companies. To reduce the effect of this subjectivity, research data will be collected from the Chief Risk Officer or in his absence, the Chief Internal Auditor of these companies since their understanding of general risk management concepts and practices in their institutions is considered to be at a higher level than that of other staff members.

A before and after comparison (longitudinal study) will not be possible because identifying a point in time when ERM was implemented for each of the companies will be difficult. Nevertheless, this study will still be able to provide evidence, if any, of the relationship between ERM implementation, factors associated with this implementation and its value to the firm.

1.3. Statement of the Problem

As it gains prominence globally, Kenyan companies and regulators have not been left behind in this drive to enhance risk management practices in companies through the implementation of Enterprise Risk management. For example, in 2007, the Central Bank of Kenya introduced regulation requiring all banks to develop and implement an Enterprise Risk Management Framework in their institutions and in 2010, the Insurance Regulatory Authority also introduced similar regulations for insurance companies. With the introduction of an Operational Memorandum of Understanding between regulators in the country with the aim of regulators sharing best practices, it is anticipated that the other regulators will also requires the companies that operate in the industries they regulate, implement ERM framework.

From a regulator point of view, the main aim of the regulator requiring that companies implement ERM is mainly to protect stakeholders investments in the companies thus the companies implement ERM for compliance purposes.

However,the cost of implementing ERM is significant yet the value of ERM implementation is not easily measured thus organizations are having a

challenge in assessing the cost benefit analysis of ERM. Besides that, some companies[5] are at various stages of ERM implementation despite the fact that it is not a regulatory requirement that they do so. These companies believe that ERM implementation has a positive effect on the value of companies that implement it.

Therefore this study seeks to contribute to research by investigating the significance of factors that influence ERM implementation and whether the implementation of ERM results in the increase of the company's value. This research differs from previous research done because it is being undertaken in companies listed in a developing market that probably faces different market characteristics from those listed in developed markets (Fuss, 2002). Findings of these studies are discussed further in Chapter 2 of this research.

1.4. Purpose of the Study or General Objective

The objective of this study is to assesswhether the level of ERM implementation in companies listed in the NSE causes an increase in the value of those companies and establish the significant factors that influence the level of ERM implementation in companies listed in the NSE.

1.5. Specific Research Objectives

The research objectives for this study are;

i. To identify the current state of ERM implementation in companies listed in the NSE and identify some of the practices employed in implementing ERM in the listed companies;
ii. To identify whether the implementation of ERM in listed companies in the NSE contributes significantly to the value of the company;
iii. To identify the significant factors that affect the level of ERM implementation in companies listed in the NSE.

1.6. Research Questions

This study sets out to investigate the following research questions:

[5] Examples of companies that are implementing ERM despite the fact that it is not a regulatory requirement in the industry they operate in include; East African Cables, KTDA, Linksoft group, LAPTRUST and ICDC.

i. What are some of the ERM practices and current state of ERM implementation in companies listed in the Nairobi Stock Exchange?
ii. What are the significant factors that influence the level of ERM implementation in companies listed in the Nairobi stock exchange?
iii. Does the level of implementation of ERM have a significant effect on thevalue of companies listed in The Nairobi Stock Exchange?

1.7. Importance or Justification or Rationale of the Study

Corporate executives are justifiably uncomfortable making deeper commitment to ERM without a clear and quantifiable business case (Hoyte et al, 2008) and a detailed understanding of what factors to take into account and challenge to expect during implementation. The question that is on many people's minds is; what is the value proposition of ERM? As noted by Aabo (2004). Some companies only implement ERM as a compliance requirement whereas others, though not required by regulation to implement ERM, still implement it as a business value adding initiative.

In light of the different reasons companies implement ERM (Tom Aabo, 2004), studies have been done to ascertain whether ERM implementation is a compliance value protecting initiative or a value adding business initiative. However, there has been no consensus on whether there is value addition in companies implementing ERM. For example The Modigliani and Miller (1958) theorem states that in perfect markets a company's capital structure which is an integral component of its risk management, is irrelevant to the company's value. However, Yow and Sherris (2008) argue that in practice, market imperfections exist and informational asymmetries create frictional costs for the firm. This market imperfections and frictional costs create the economic rationale for the firm.

Additionally, the research done and quoted in this study focused on companies in developed countries yet, although the underlying principles in ERM generally apply to most companies and countries, there are some aspects of

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risk management that might be specific to emerging markets[6]. These markets generate higher rates of return on capital markets than matured markets, are characterized by high rates of volatility and are more susceptible to external impact including regulatory and operational(Fuss, 2002).

Therefore, this study will contribute to a better understanding of the value proposition of ERM for corporate executives thus giving them a quantifiable business case. This will be achieved through measuring whether ERM implementation adds value to firms. The study will also highlight the significance of factors that lead to institutions being at different levels of implementation thus enable corporate executives to better make the decision on how to invest in ERM and on controlling the factors that would otherwise affect their level of implementation over time.

This study will also contribute to the debate on whether implementing ERM has a significant incremental effect on the value of the firm irrespective of the different internal and external environments companies operate in.

1.8. Scope of the Study

While a discussion on the choice of sample of the study, timeframe and its methodological implications is further discussed in chapter three, it suffices to note here that this study is limited to companies listed in the stock exchange. This choice has been made because of the fact that we will be using the market value of companies to measure the value of ERM to these companies thus it is easier and more accurate to use only those companies that trade in the stock market since this market information can be obtained with accuracy. This study will cover all companies Listed in the Nairobi Stock exchange as at 31st December 2009 (Appendix2: List of companies listed in the NSE).

6The following characteristics are commonly associated with these markets:Low-to-middle-income on World Bank income per head benchmark, Recent or relatively recent economic liberalization, reduction in the state's role in the economy, privatization of previously state-owned companies, removal of foreign exchange controls and obstacles to foreign investment, Recent liberalization of the political system and a move towards greater participation in the political process and scale and dynamics of change (Ernst & Young, 2007)

The study is expected to take two months and the target respondents will be the Chief Risk Officers or those charged with the responsibility of coordinating risk management in the subject companies.

1.9. Limitations to the study

The limitations to this study included subjective information thatwas collected to determine the level of ERM implementation in the institutions listed in the Nairobi stock exchange. The study intended to reduce the effect of this subjectivity by sending the research questionnaires to the Chief Risk Officer or in his absence, the Chief Internal Auditor of the sampled companies since their understanding of risk management concepts and practices in their institutions wasconsidered to be at a higher level.From the questionnaire responses, this study found that only 27% of the respondents had fully formulated and implemented an ERM framework and 36% of the respondents did not have an ERM framework but had plans to introduce one in the short run.

A before and after comparison (longitudinal study) was not possible in this study because identifying a point in time when ERM was implemented was difficult. Nevertheless, the study wasstill able to provide evidence, of the relationship between ERM implementationand its value to the firm. And the significance of factors associated with this ERM implementation.

2. CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

The objective of this study is to identify whether the implementation of Enterprise risk management has a positive effect to the value of companies listed in the NSE and to assess the significance of factors affecting the level of ERM implementation. To that end, this chapter critically analyses literature related to the definition and measurement of the implementation of risk management. This chapter also analyses different methods used to measure the change in value of firms and how this change can be linked to the implementation of ERM in those firms. In addition to that, the chapter evaluates issues and the contingency theory concept that explains the factors affecting ERM implementation and support or negate the value proposition argument of ERM and. Some other theories concepts analyzed include decision theory, stakeholder theory, contingency theory and the portfolio theory. Finally, this chapter refines focus to indicate how the research questions have been developed and highlights the research gap in the proposed study.

Definition of risk

In classical decision theory, risk is most commonly conceived as reflecting variation in the distribution of possible outcomes, their likelihoods, and their subjective values. Risk is measured either by nonlinearities in the revealed utility for money or by the variance of the probability distribution of possible gains and losses associated with a particular alternative (Pratt 1964). However, this definition of risk fails to factor in human judgment which could also have influence on the perception of whether something is a risk or not.

In a study of managerial perspective of risk and risk taking, March and Shapira (1987) finds that managers see risk in ways less precise and different from risk as it appears in decision theory. The study finds three differences between managers perception of risk and decision theory. It finds that management does not treat uncertainty about positive outcome as an important

aspect of risk but rather associate risk with negative outcome. This means that positive variations from possible outcomes will not be considered as risks. Secondly, the study suggests that for managers, risk is not primarily a probability concept but rather defined risk in terms of amount of loss.

In this study, risk will be defined as the possibility of loss or sub-optimization of gain to companies. This is because this definition takes into account both the increase of variability of outcomes below the expected value and the reduced opportunity of increasing the variability of outcome above the expected value.

2.2. The Concept of Enterprise Risk Management (ERM)

ERM has become a common concept with consultants advertising their ERM services, Universities introducing ERM courses, research papers on ERM gaining prominence in journals and companies spending millions of dollars in implementing the concept. Rating agencies have also developed an interest in ERM and have now introduced it as one of the criteria for assessing the credit worthiness of companies (Standards and Poor's, 2007).

According to the Casualty Actuarial Society (CAS enterprise risk management is defined as: "The process by which organizations in all industries assess, control, exploit, finance and monitor risks from all sources for the purpose of increasing the organization's short and long term value to its stakeholders." This definition defines risk management as a process and recognizes the fact that risks are from different sources in the organization thus breaking the barrier of looking at risks from a financial perspective only. However, the definition misses out on the important aspect of risk integration and the overall responsibility for risk management that underpins the concept of ERM, CAS (2001).

In 2001, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) initiated a project, and engaged PricewaterhouseCoopers, to develop a framework that would be readily usable by managements to evaluate and improve their organizations' enterprise risk

management. The COSO ERM framework explicitly defines Enterprise Risk Management (ERM) as a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives, COSO (2004).

This definition suggests that value is maximized when management incorporate ERM in strategy setting so as to achieve an optimal balance between growth and return goals and related risks. It further points out that the underlying premise of enterprise risk management is that every entity exists to provide value for its stakeholders and because all entities face uncertainty, management are expected to determine how much uncertainty to accept as they strives to increase stakeholder value. In the COSO ERM definition, uncertainty presents both risk and opportunity, and therefore with the potential to erode or enhance value COSO (2004). Due to the depth of ERM description, the COSO definition of ERM was used in this study.

2.3. Theoretical framework

There are several theories that lend themselves to ERM. Some of these theories include stakeholder theory, contingency theory and decision theory.

In his study of the effect of stakeholder theory on risk management,Aabo (2004) investigates the relationship between the objectives of companies and the risk management strategy that the companies employ. The study shows a distinct difference between the two groups of companies in relation to actual risk management decisions which in turn have an effect on whether the risk management decisions will have a value addition or value retention effect on the company. This study concludes that this difference in risk management behavior could not be explained by company characteristics normally identified in the literature as being decisive for the extent of hedging such as firm size, leverage, and export ratio. Rather, the study finds a unique relationship between the managerial focus on stakeholders taking a conservative risk management strategy (that focused more on value

preservation) and managerial focus on shareholder taking a forward looking risk management strategy (that focused on value addition).

Other than that, the level of ERM implementation and the factors that affect this level thereof seem to follow contingency theory. This theory contends that there is no one best way of organizing and that an organizational style that is effective in some situations may not be successful in others (Fiedler, 1964). That is, optimal organization style is contingent upon various internal and external constraints. Four important ideas of Contingency Theory are: There is no universal or one best way to manage, the design of an organization and its subsystems must 'fit' with the environment, effective organizations not only have a proper 'fit' with the environment but also between its subsystems and the needs of an organization are better satisfied when it is properly designed and the management style is appropriate both to the tasks undertaken and the nature of the work group (Wade and Tomasevic, 2006).

According to Innes and Mitchell (1990), the specific circumstances influencing an organizations management accounting practices comprise a set of contingent variables which may include but are not limited to; the external environment, technology, organization structure and age of firm.

Therefore, Contingency theory will also apply in this research because the level of ERM implementation in a company might be influenced by a set of contingent variables which include size, industry, auditors, growth rate, regulatory requirements, ownership structure and board independence among others.

2.4. Measuring ERM Implementation

There is limited research on criteria to be used in assessing the implementation of ERM in institutions. Most of the criteria used has been developed by consulting firms such as Deloitte with their risk intelligence maturity model and Standard and Poor's with the criteria used for measuring the implementation of ERM to be used in rating insurance companies (Standard & Poor's RatingsDirect, 2007).

When evaluating ERM capabilities, Standard & Poor's (S&P) primarily looks at how an insurer's management defines the company's loss tolerance and how it ensures that it keeps within that loss tolerance. S&P focus on the degree to which the institution's management accounts for risk and return for risk taking in setting corporate direction and in strategic decision-making. The areas that S&P looks at are;

Risk Management culture- S&P examines whether the company has clearly articulated its risk tolerance.

Risk control- S&P reviews summary descriptions of risk-control programs and examples of how the programs are executed.

Emerging risk management- S&P looks for evidence that the company is managing emerging risks in anticipation of problem events. It also looks at how effective emerging risks management has been during and after adverse events.

Risk and economic capital models – S&P looks for evidence that the insurance company: has appropriately developed risk capital amounts consistent with its risks and risk-management programs; has an update and validation process that produces a result consistent with the intent of the company and are produced on a schedule that will support usage in the company's Strategic Risk Management processes.

Strategic risk management – S&P's analysis of SRM starts with understanding the risk profile of the insurer and getting management to explain the reasons for recent changes in the risk profile and the changes it expects to make in future.

S&P then combines the ratings of the five areas above to come up with a single classification for the level of ERM implementation at the company.

Table 2. 1: S&P Enterprise Risk Management Rating categories

Classification	Definition
Excellent	Insurer has extremely strong capabilities to consistently identify, measure, and manage risk exposures and losses within the company's predetermined tolerance guidelines. This study only focused on companies listed in the Nairobi Stock Exchange because of the ease of availability of data on market value of companies listed in the stock exchange. This data is used to compute the value of the companies measured using Tobin Q.
Strong	Strong ERM insurers have exceeded the Adequate criteria for risk control and have a vision of their overall risk profile, an overall risk tolerance, a process for developing the risk limits from the overall risk tolerance that is tied to the risk-adjusted returns for the various alternatives, and a goal to optimize risk-adjusted returns.
Adequate	Adequate insurer ERM programs have fully functioning risk control systems in place for all major risks. The risk management process is solid, classical, and silo-based.
Weak	Insurer has limited capabilities to consistently identify, measure, and manage risk exposures across the company and thereby limit losses. Execution of its risk-management program is sporadic, and losses cannot be expected to be limited in accordance with a set of predetermined risk/loss tolerance guidelines. Risk and risk management are sometimes considered in the insurer's corporate decision-making. Business managers have yet to adopt a risk-management framework, are satisfying regulatory minimums without regularly applying risk management to their business decisions, or have very recently adopted a risk-management system that has yet to be tested.

Source: (Standard & Poor's RatingsDirect, 2007).

However, other than this criterion being customized specifically for the insurance industry, S&P also points out that the criteria is primarily subjective (Standard & Poor's RatingsDirect, 2007) thus introduces the limitation of human bias in judgment and is not customized to measure the level of ERM implementation across different industries.

On the other hand, Liebenberg and Hoyt (2003) acknowledge the fact that "an obstacle to empirical ERM related research is the difficulty in identifying firms that are indeed engaging in ERM. Their study therefore uses the appointment of a Chief Risk officer (CRO) as a signal of ERM

implementation. The key limitation of this method is that it does not seem to take into account the fact that there are companies where ERM implementation is championed by the Chief Audit Executive (CAE) thus some companies may be judged as not having implemented ERM when in actual fact they have. This method also does not consider the transitory nature of ERM implementation thus only assumes two states, that is ERM is fully implemented or not implemented at all.

As a consequence of the above limitations, Beasley et al (2005), measures ERM using and ordinal dependent variable, (ERM STAGE) which reflects a value ranging from 1 to 5 where; 5 = Complete ERM in place, 4=Partial ERM in place, 3 = planning to implement ERM, 2 = Investigating ERM but no decision made and 1 = no plans exist to implement ERM. This data was collected through an online survey with Chief Audit Executives who are members of the institute of internal auditors being the main respondents. This method of measurement has also been used by the Economist Intelligence Unit (2009) study of the new era for risk management in financial services. Beasley et al (2005) found that 50% of the entities in the sample had either partially or completely implemented ERM, while 35% had not made a decision to implement ERM or had no plans to implement ERM.

Though the methodology used by Beasley et al (2005) has some level of subjectivity in it, we will use it in this study to measure the level of ERM implementation because it is not industry specific, does not link ERM implementation to a single event and allows us to capture stages of implementation between the full state and non implementation. To mitigate the level of subjectivity in response, the study used Chief Internal Auditors as the respondents to the questionnaire. These targeted respondents provide some level of objectivity in the response given since they usually have a better understanding or ERM implementation in their companies.

Though previous research, (Beasley et al, 2005) used 5 levels of ERM implementation in the study, the levels are not clearly defined and cover a very wide scope of ERM implementation levels thus open to ambiguity and also lack the appreciation that at different levels of ERM implementation, the value

derived differs. Therefore, in this research, I have selected our levels of ERM implementation of ERM from research done by the Economist Unit Intelligence Ltd, (2009) in which the levels have been broken down into distinct stages that would reduce any ambiguity in responses. I will also target the Chief Risk Officers and the Chief Internal Auditors of the companies in my population so as to increase the level of objectivity in the responses.

2.5. Factors Influencingthe Level of ERM Implementation

Pagach and Warr (2007) investigate the characteristics of firms implementing ERM and find that firms that are more levered, have more volatile earnings and have exhibited poorer stock market performance are more likely to initiate an ERM program. The study also finds that when the value of the CEO's option and stock portfolio is increasing in stock volatility, the firm is also more likely to implement ERM. Several other studies have found that there are different firm characteristics that influence the level of ERM implementation in those companies. Some of these characteristics include;

Organization size: (Kleffner et al, 2003) suggests that larger firms would be more likely to adopt ERM because of the need for a more comprehensive risk management strategy. Hoyt et al (2008) also studies the value of Enterprise Risk Management in the US insurance industry and finds that ERM usage is positively related to firm size. The larger the organization, the more complex its operations will probably be and the more its exposure to threatening events. Besides that, the larger the organization, the more resources it will probably have to implement a more comprehensive ERM program. Consequently we investigate the following hypothesis.

Hypothesis 1 – *Larger firms measured by asset base, are more likely to adopt ERM than smaller firms.*

The Institution's auditors - Most studies that examine audit quality classify the largest international accounting firms (The Big Four firms), as high quality auditors. It is then assumed that there is a possibility that organizations committed to engaging such high quality auditors are also committed to risk

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management (Beasley et al, 2005). However, we will not test for this variable in our research as most of the companies listed in the Nairobi Stock exchange are audited by the big four firms.

Industry of operations - The financial institutions globally seem to be at the forefront in implementing risk management due to the nature of business. Regulators in the financial services industry have come up with different regulations pushing companies in this industry to be at the forefront in implementing risk management. For example Basel II, Solvency II and Central Bank of Kenya risk management regulations among other financial institutions regulators others. The Economist Intelligence Unit (2001) examined six industries on ERM implementation and concluded that the financial services and utilities industries were more likely to be using ERM as their risk management strategy. Beasley et al (2005) also finds more extensive ERM implementation in the banking, education, and insurance industries. Therefore, we investigate the following hypothesis;

Hypothesis 2 – *Companies in the financial services industry are more likely to implement ERM compared to other companies listed in the NSE.*

Board independence - Kleffner et al (2003) studies the factors that affect the level of ERM implementation in companies in Canada. They investigated whether Corporate Governance has played any role in the decision for companies to adopt ERM. Their study concluded that support from the board of directors plays a key role in determining ERM adoption in the company. Beasley et al (2005) also studied the effect of board independence on the level of ERM implementation in companies and finds that more independent boards are positively associated with the company's level of ERM implementation. Board independence is usually associated with better corporate governance. Therefore, we investigate the following hypothesis;

Hypothesis 3 – *The level of Board independence is positively associated with the Level of ERM implementation in companies.*

Presence of a Chief Risk Officer (CRO)/Risk champion - Risk managers have an important role in the implementation of risk management in institutions. Liebenberg and Hoyt (2003) studied the determinants of ERM as evidenced by the appointment of a Chief Risk Officer and observed that though there was an absent explicit disclosure for ERM implementation, the appointment of a CRO can be taken as a strong signal of ERM implementation in the companies. Beasley et al (2005) also investigated whether the presence of a CRO is positively associated with the deployment of ERM. The study finds that the presence of a CRO/Risk champion in senior management significantly increases the entity's stage in ERM implementation. Therefore, we investigate the following hypothesis;

Hypothesis 4 – *The presence of a CRO/Risk champion is positively associated with the company's stage of ERM implementation.*

Regulatory pressure - Though regulators in many countries are pressing companies to have more comprehensive risk management practices and reporting (Kleffner et al, 2003) and research undertaken by Deloitte (2004) shows that companies approaching ERM generally fall into one of the following categories: Those for whom ERM is a logical approach for addressing new regulatory requirements in an efficient and integrated manner and those for whom ERM is a strategic initiative that provides distinct benefits over and above simple regulatory compliance. For these firms, ERM is not a defensive undertaking but an offensive strategy that yields potential competitive advantage through an integrated, enterprise-wide perspective on their risk profile.

Growth - Beasley et al (2005) states that as companies growth rate increases, the scope of events threatening it are likely to differ in nature, timing, and extent. Therefore the faster a company is growing, the more likely it will embrace ERM.However, Hoyt et al (2008) finds no significant relationship between the rate of growth of a company and its level of ERM implementation. Allayannis and Weston (2001) control for the effect of growth opportunities on Tobin's Q using the ratio of R&D expenditure to sales, or capital expenditure to assets. However, data related to R&D

expenditure was not available for this study thus consequently the study used historical (one-year) sales growth as a proxy for future growth opportunities. This method was also used in Feng-Li Lin (2010) and Hoyte et al (2008). We therefore investigate the following hypothesis;

Hypothesis 5 – *The higher the rate of growth of a company, the higher the level of ERM implementation in the company*

Table 2.2 - Independent Variables

Variable	**Initial**	**Description**	**Source**
Size	LNASST	Represents organization size as a measure of the natural log of the organization's Asset base.	Hoyt et al (2008)
Industry of Operation	INDU	A variable representing the industry as categorized in the NSE market segmentation: 1-Finance and investments, 2-Commercial and Services, 3 – Industrial and allied, 4 - Agricultural	Beasley et al (2005)
Board Independence	BODINDEP	A variable for Board independence and will be measured by the percentage of independent board directors.	Kleffner et al (2003)
Appointment of a Chief Risk Officer	CRO	A dummy variable with 1 representing the existence of a CRO and 0	Liebenberg and Hoyt (2003)

Variable	Initial	Description	Source
		indicating non existence of a CRO	
Rate of Company Growth	GROWTH	Measured as the percentage increase in revenue of the company. This variable is used to measure whether the rate of growth of a company has an effect on the level of ERM implementation of the company.	Beasley et al (2005)
ERM a regulatory requirement	RGLT	A dummy variable that indicates whether implementation of ERM is a regulatory requirement or not.	Kleffner et al, 2003

Table 2.3 - Dependent Variables

ERM Level	Description
ERM LEVEL = 6	ERM framework is well formulated across the business and fully implemented
ERM LEVEL = 5	ERM framework is well formulated across the business, with implementation in progress and a clear timetable for completing implementation.
ERM LEVEL = 4	ERM framework is well formulated across the business, with a clear timetable for implementation but implementation has not started.
ERM LEVEL = 3	ERM framework is a partially developed concept and there is no clear timetable for implementation
ERM LEVEL = 2	No ERM framework is in place but there is a plan to introduce one in the short-term
ERM LEVEL = 1	No ERM framework and no plans to introduce one

Note: *The Dependent Variable, ERM Level, reflects a value ranging from 1 to 6 (Beasley et al, 2005; Economist Intelligence Unit, 2009)*

2.6. ERM and Value Addition to Companies

For a long time it was believed that corporate risk management is irrelevant to the value of the firm and the arguments in favor of the irrelevance were based on the Capital Asset Pricing Model (Sharpe, 1964; Lintner, 1965; Mossin, 1966) and the Modigliani-Miller theorem (Modigliani and Miller, 1958). One of the most important implications of CAPM is that diversified shareholders should care only about the systematic component of total risk. On the surface it would appear that this implies that managers of firms who are acting in the best interests of shareholders should be indifferent about hedging of risks that are unsystematic. Miller and Modigliani's proposition supports CAPM findings.

However, proponents of the value adding effect of ERM define ERM as a body of knowledge - concepts, methods, and techniques - that enables a firm to understand, measure, and manage its overall risk so as to maximize the company's value to shareholders and policyholders (COSO, 2004). It has been argued that, while traditional risk management is largely concerned with protecting the firm against adverse financial effects of risk, Enterprise Risk management makes risk management part of the company's overall strategy and enables companies to make better risk adjusted decisions that maximizes shareholder value (Lam and Kawamoto, 1997, Meulbroek, 2002).

Hoyt et al, 2008, studies the value of ERM in the US insurance Industry by measuring the effect of ERM implementation on the value of the firm as measured by Tobin Q (ratio of company's market value to its replacement cost of assets).

Tobin suggested that the combined market value of all the companies on the stock market should be equal to their replacement costs, Tobin (1969) and Hayashi (1982). The Q ratio is theoretically defined as the market value of a company's assets divided by the replacement value of the company's assets.

Then, when the assets are priced properly in the capital market, the Q ratio should be equal to one. In their survey of evidence of whether risk management adds value to companies, Smithson et al (2005) found that 9 studies on risk management and the value of the firm also used Tobin's Q to proxy firm value.

This study uses the natural logarithm of Tobin's Q as a proxy for firm value because it dominates other performance measures. Unlike other measures, Tobin's Q does not require risk adjustment or normalization. Lindenberg and Ross (1981) also find Tobin's Q to reflect market expectations and as being relatively free from managerial manipulation. This study defines Tobin's Q as: – (market value of equity + book value of liabilities) / (book value of assets) (Cummins, Lewis & Wei 2006; Chung and Pruitt, 1994).

Table 2.4 - Variables being studied

Variable	Initial	Description
ERM Level	ERM	The level of ERM implementation in the company
Firm value	FIRM VALUE	The value of the firm measured by Tobin's Q

2.7. Controlling variables

To distinctly isolate the relationship between ERM and value of the company, we need to control for other factors that could influence firm value (Liebenberg and Hoyt, 2003; Beasley et al, 2005; Hoyt et al, 2008). The controlling variables we will use are similar to those used by Hoyt et al (2008);

Table 2.5 - Control variables

Variable	Initial	Rational
Size	SIZE	There is evidence that large firms are more likely to have ERM programs in place (Colquitt et al, 1999, Liebenberg and Hoyt, 2003, Beasley et al., 2005). Thus, it is necessary to control for size in the model because the ERM indicator may proxy for firm size. This study uses the log of the book value of assets to

Variable	Initial	Rational
		control for size related variations in Tobin's Q.
Leverage	LVG	To control for relationship between capital structure and the company's value, this study includes a leverage variable that is equal to the ratio of the book value of liabilities to the market value of equity.
Profitability	PROFIT	Profitable firms are more likely to trade at a premium thus to control for profitability this study includes return on assets (ROA) in our regression model.
Dividend Policy	DIV	This study will include in the model a dividend payment indicator equal to 1 if the company paid dividend in the year 2009 and 0 if it did not
Growth opportunities	GWTH	Emulating Hoyte et al (2008), this research uses historical (one-year) sales growth as a proxy for future growth opportunities.

2.8. Research gap

Most literature on risk management assesses the value of risk management based on how institutions manage their financial risks using derivatives to hedge, and conclude for or against the value adding ability of risk management. However, there is very little research on how the integrated approach to risk management (ERM), taking into account both financial and non-financial risk management activities, would have an effect on companies, in particular in emerging markets.Besides that, there seems to be limited research on factors associated with the implementation of ERM and how these factors affect the level of ERM implementation in companies in different markets.

Therefore, this study seeks to find out the level of ERM implementation and significant factors influencing the ERM implementation by companies listed in the NSE, which is a developing market. The study also investigates whether, in a developing market like Kenya, ERM implementation has a

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significant positive effect on the value of the companies listed in the stock exchange.

2.9. Conceptual framework

Drawn based in contingency theory, the diagram below depicts the expected relationship between the factors that affect the level of ERM implementation in a company, the level of ERM implementation and the value of the company. The diagram shows how the level of ERM implementation in a company is contingent to several factors and in turn how the value of a company can be affected by the level of ERM implementation.

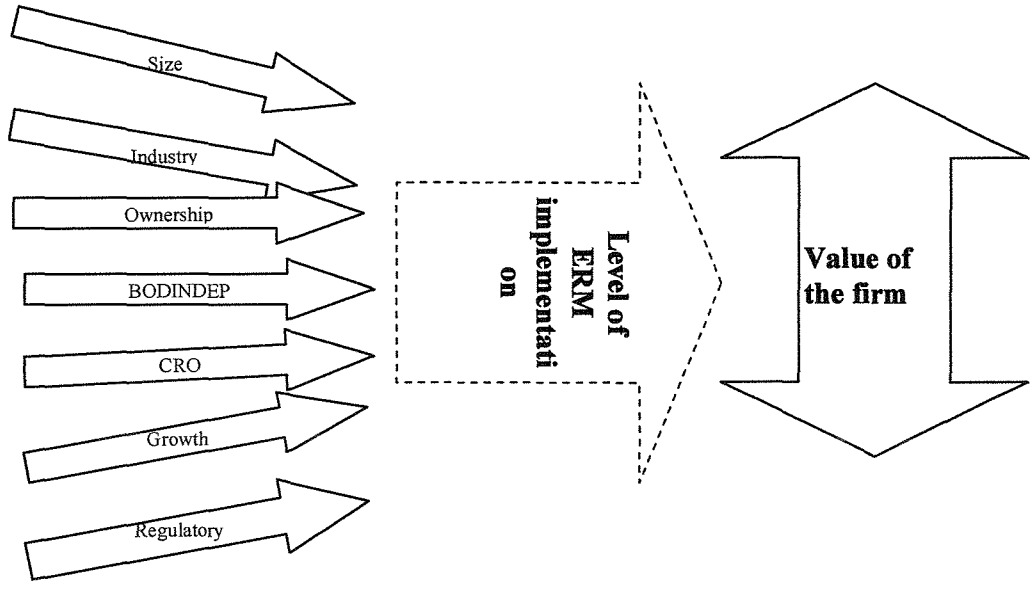


Figure 1- Contingency theory diagram

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

The aim of this chapter is to justify and defend the assumptions underpinning the choice of a quantitative research design in answering the question whether implementing Enterprise Risk Management (ERM) leads to in an increase on the value of the company. The approach selected was used to assess the level of implementation of ERM in organization and measure whether this implementation has a significant increase in value of the company. This chapter will also be used to examine the rationale used for identifying the population and selecting the sample studied, the data collection method used in this study and the data analysis undertaken to arrive at my conclusions.

3.2. Research Design

This study requires a quantitative research design to determine the level of ERM implementation and significance of factors influencing this level of implementation. This research design is used to investigate whether there is a positive relationship between the implementation of ERM and the value of the firm. A qualitative design is used because it allows for comparison of the relationship between variables studied in the research and allows for the research findings to be generalized beyond the confines of the context in which the research was conducted (Bryman and Bell, 2003).

This method is also best suited in measuring variables, testing for hypothesis (Neuman, 2006) and also allows for the research to be replicated. A cross-sectional survey of the Chief Risk Officers (CRO), Chief Internal Auditors (CIA) or the Chief Financial Officer (CFO), in that order is undertaken from companies listed in the Nairobi Stock exchange (Kleffner et al, 2003; Beasley et al, 2005). Due to their job responsibilities, the selected respondents were best suited to be more knowledgeable on ERM thus this will increase the validity of the information collected.

3.3. Population and Sampling Design

Liebenberg and Hoyt (2003) draw their sample from all US firms that announced the appointment of a Chief Risk Officer (CRO) between 1997 and

2001. Though this sample was easy to pick, it had a limitation in the assumption that the announcement of a CRO was an indication of the date the companies implemented ERM. This is not a good measure of a company having implemented ERM. Kleffner et al (2003) on the other hand surveyed all companies listed as members of the Canadian Risk and Insurance Management Society. This was a very effective approach since companies that registered with such a society would ideally place a relatively high amount of importance to risk management. The response rate in this study was high with only one non-respondent. However, a similar risk management body does not exist in Kenya thus the inability to use this approach in this study.

This study only focused on companies listed in the Nairobi Stock Exchange because of the ease of availability of data on market value of companies listed in the stock exchange. This data is used to compute the value of the companies measured using Tobin Q. The NSE has 47 companies listed and we sampled all the 47 companies.

3.4. Data Collection Methods

Beasley et al (2005) selected their sample from the Institute of Internal Auditor's Global Audit Information Network thus used an online questionnaire to collect data. Though this method is cheap and easy to use and has a very wide reach, the study noted that the response rate was very low (10.3%) compared to other Internal Auditor surveys which had a response rate near 30% (Scarbrough et al, 1998; Raghunandan et al, 2001). Email questionnaires were used in this study (Appendix 1).

The questionnaires were sent to the Chief Risk Officers for organizations where the position existed. In the absence of a CRO, the questionnaires were emailed to the heads of internal audit or Chief Financial Officer. The questionnaires were used to gather information on the level of ERM implementation in the companies. The questionnaires were also used to collect the information on the perceived significance of factors affecting the level of ERM implementation in those companies. The questionnaire was designed from a collection of questions from similar research done on ERM (Hoyt et al, 2008; Beasley et al, 2005; Kleffner et al, 2003).Data related to the factors

influencing the implementation of ERM was collected from the financial reports of the companies and the NSE website.[7]

3.5. Data collection procedures

A list of all the 47 companies listed in the NSE as at December 2009 was obtained from the NSE website (Appendix 2). Details of whether the companies had a Chief Risk Officer or Chief Internal Auditor (CIA) were gathered from the company websites and financial statements. Where this information was not available in the company websites and financial statements, the information was acquired through phone calls to the respective companies. Questionnaires were then circulated to their CRO/CIA or the Chief Financial Officers. Two companies were however excluded from the study since they have been suspended from trading in the NSE.

Thereafter, the companies' financial statements were obtained from the company websites to collect information on the average size, growth, leverage and profit of the companies as at the last audited accounts. Information on the ownership and board's level of independence in the companies was also obtained from their financial statements.

3.6. Data analysis and presentation

Data collected using the research questionnaire was analyzed using descriptive statistic to identify the mean and percentage of responses received. The data collected was presented in pie charts indicating the distribution of the different responses received.

A multivariate regression equation was used to analyze data on factors influencing ERM implementation and relationship between ERM and the value of the firm because it allows us to use several predictive variables simultaneously (Beasley et al, 2005). Information gathered for assessing the effect on ERM to the value of the firm was modeled into a multivariate regression;

[7] The study used December 2009 financial statements for companies whose year end is in December and used year 2010 financial statements for companies whose year ends fall between January and June.

FIRM VALUE = f [ERM LEVEL, SIZE, LVG, PROFIT, DIV, INSID, GWTH].

Table 3.1 - Regression variables (Value of the Firm)

Variable	Initial	Measured by;
Size	SIZE	We use the log of the book value of assets to control for size related variations in Tobin's Q
Leverage	LVG	Equal to the ratio of the book value of liabilities to the market value of equity.
Profitability	PROFIT	Measured by return on assets (ROA).
Dividend Policy	DIV	Equal to 1 if the company paid dividend in the year 2009 and 0 if it did not
Growth opportunities	GWTH	Historical (one-year) sales growth as a proxy for future growth opportunities.

Minitab was used to model and analyze the regression results. From the Minitab regression analysis output, the explanatory power of the model is measured by analyzing the coefficient of determination R-Sq. Consistent with Beasley et al, 2005, to address the seven hypotheses on factors influencing the implementation of ERM the study models the level of ERM implementation as a function of determinants of ERM implementation.

ERM LEVEL = *f* [LNAST, INDU, BODINDEP, CRO, GROWTH, RGLT].

Table 3.2–Regimen Variable(ERM implementation)

Variable	Initial	Description
Size	LNAST	Represents organization size as a measure of the natural log of the organization's Asset base.
Industry of Operation	INDU	A variable representing the industry as categorized in the NSE market segmentation: 1- Finance and investments, 2-Commercial and Services, 3 – Industrial and allied, 4 - Agricultural

Variable	Initial	Description
Board Independence	BODINDEP	A variable for Board independence and will be measured by the percentage of independent board directors.
Appointment of a Chief Risk Officer	CRO	A dummy variable with 1 representing the existence of a CRO and 0 indicating non existence of a CRO
Rate of Company Growth	GROWTH	Measured as the percentage increase in revenue of the company. This variable is used to measure whether the rate of growth of a company has an effect on the level of ERM implementation of the company.
ERM a regulatory requirement	RGLT	A dummy variable that indicates whether implementation of ERM is a regulatory requirement or not.

This study used the Variance Inflation Factors (VIF) to test for multi-collinearity. The VIF shows how much the variance of the coefficient estimate is being inflated by multi-collinearity. The study found multi-collinearity to exist between the CRO variable and the dummy variable for regulatory pressure thus the dummy variable for regulatory pressure was eliminated from the regression model.

4. CHAPTER 4: PRESENTATION OF RESEARCH FINDINGS

4.1. Introduction

In this chapter, the data analysis and the results of the study are presented. The responses to the questionnaires completed are tabulated and presented in graphs and the results of financial statements analysis for the sample companies is also presented in a table.

To add to that, the regression models used to assess whether ERM implementation adds value to companies that have implemented it, and to assess the significance of factors affecting the level of ERM implementation in the companies are derived from the data collected.

4.2. Initial data analysis

Table 4.1Sample representation

Industry	Number of Companies Listed*	Number included in the sample	No of respondents	Percentage response
Agricultural	3	3	0	0%
Commercial and Services	*12	10	6	60%
Industrial and Allied	17	17	4	24%
Finance and	15	15	12	80%
Total	**47**	**45**	**22**	**49%**

* Two companies in this segment are suspended from trading.

From our sample responses, companies listed in the finance and investment segment registered the highest response whereas no company listed in the Agricultural segment responded to the questionnaire. A total response of 49% was achieved in this study. This response rate is higher than the response rate of 35% in Kleffner (2003) and 10.3% response rate for Beasley (2005). However, the sample sizes for these two previous researches were over 200 respondents unlike in this study where the sample size was only 47 companies.The t-test was used to test for significant differences between the

characteristics of the respondents and those of non responding companies. There were no significant differences between the characteristics (e.g. size and profitability) of responding and non responding companies.

4.3. Level of ERM Implementation and some of the ERM implementation practices

4.3.1. Level of ERM implementation in listed companies

Thirty Six percent of the respondents indicated that their companies that they don't have an ERM framework in place but had plans to introduce one in the short run. Twenty Seven percent of the respondents on the other hand indicated that their companies have fully implemented an ERM framework across the company.

Table 4.2- State of ERM implementation

ERM State	Response	%age response
ERM framework is well formulated across the business and fully implemented	6	27%
ERM framework is well formulated across the business, with implementation in progress and a clear timetable for completing implementation.	3	14%
ERM framework is well formulated across the business, with a clear timetable for implementation but implementation has not started.	1	5%
ERM framework is a partially developed concept and there is no clear timetable for implementation	4	18%
No ERM framework is in place but there is a plan to introduce one in the short-term	8	36%
No ERM framework and no plans to introduce one	0	0%

No respondent indicated that they had no plans of introducing an ERM framework. These results indicate that all the companies listed in the NSE recognize some benefit of implementing ERM whether from an anticipated regulatory compliance perspective or from a business value addition perspective. However, most companies are still at the planning stage especially industries where ERM is not a regulatory requirement. With and exception of two companies, all the other companies that indicated that they have fully implemented an ERM framework were in the financial services industry where ERM implementation is a regulatory requirement.

4.3.2. ERM as a compliance tool or a value adding business partner

Based on the study findings, only 18% of the respondents viewed ERM as a compliance function with a key focus to satisfying regulatory requirements. The other 82% of the respondents viewed ERM as a value adding business partner with a key role to value addition to the business. This could be an indication that the respondents expect that the implementation of ERM will have a positive effect on the value of the companies.

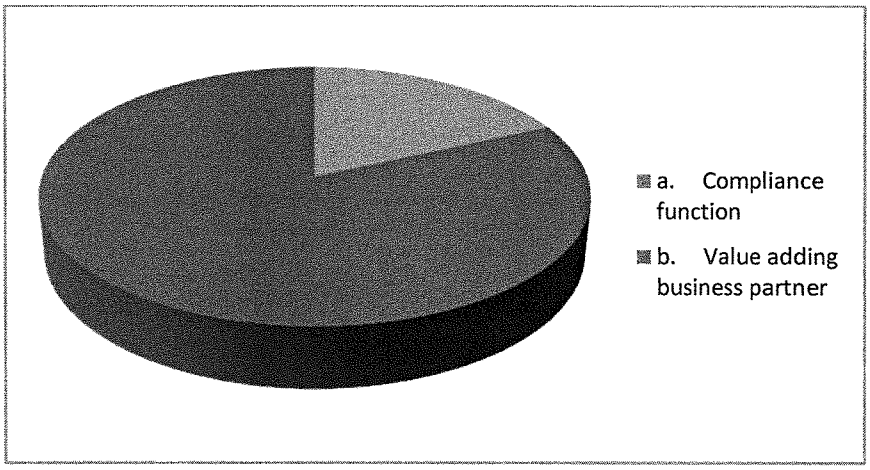


Figure 2 - Respondents view of Enterprise Risk Management Implementation

Though Mazier (2001) concluded that the Enterprise Risk Management function varies from company to company, the study did not identify what company characteristics engineer this variation. However, in a survey done by PWC (2007) where 400 senior executives in financial services, the authors found out that some executives think their organizations' risk management function is most effective at ensuring regulatory compliance; and they identify better relationships with regulators as the most common source of competitive advantage from successful risk management. In other words, there appears to be a tendency among respondents for successful risk management to be defined in regulatory terms. This study arrives at a different conclusion from that of PWC (2007) because 82% of the respondents view ERM implementation as a value adding business initiative rather than a regulatory compliance initiative.

The findings are consistent with those of Tillinghats-towers Perrin survey (2002) that found that less than half of companies surveyed in the US cited

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regulatory requirement as motivator for ERM implementation. However, the study also found that more that 70% of respondents from Canadian firms cited regulatory pressure as a key motivator for ERM implementation. Tom Aabo (2004) relates a company views its ERM activities as compliance activities or value adding business activities to shareholder theory. The study concluded that companies that focus more on stakeholders view ERM as a compliance activity while those that have a primary focus on Shareholders view ERM implementation as a value adding business activity. From the study findings(Aabo, 2004), and the results from this study, we therefore can infer that most of the companies listed in the NSE have a primary orientation towards shareholder value addition as compared to stakeholders value addition.

4.3.3. How ERM Value Is Measured In Listed Companies

Though different companies have different measures for the value of implementing risk management, 50% of the respondents measure the value of their risk management activities through a reduction in earnings volatility.

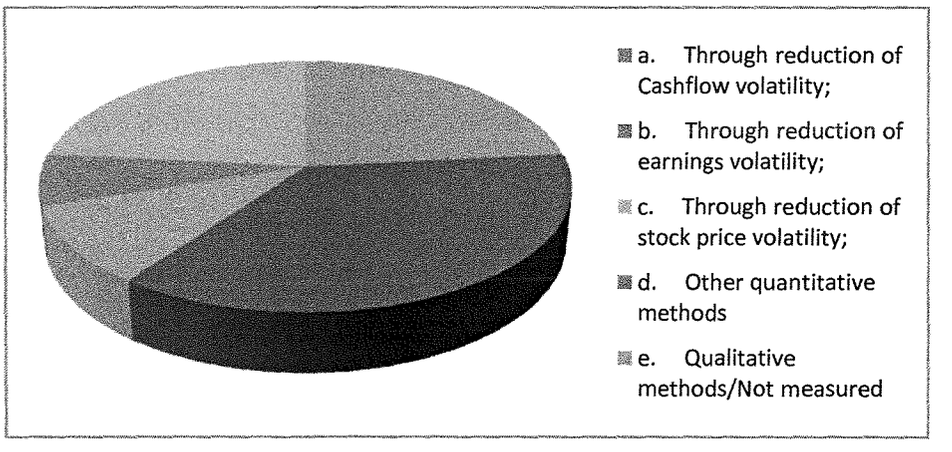


Figure 3 - How ERM value is measured

Though there is no agreement on which is the most common measure for the value of ERM, different studies have used different measures. For example, Panning (2006) uses discounted future earnings thus earnings volatility was a key measure in the study. The study notes that the volatility of profit leads to a lower value to at least some of the company's stakeholders thus a good measure for firm value. Liebenberg (2003) also points out that implementation of ERM reduces a companies' earnings volatility by preventing the

aggregation of risk across different sources thus increasing the companies' value. Klimczak (2007) on the other hand measures the value through reduction of Cashflow volatility. Though this study finds that 50% of the companies in the NSE measure the value of their ERM programs through its reduction of earnings volatility, this method has some inherent weaknesses including; identifying what portion of the earning volatility can be directly attributed to the ERM initiatives as compared to other variables that also affect earnings, volatility and also translating the reduction in earnings volatility to actual company valuation.

4.3.4. Person responsible for ERM implementation

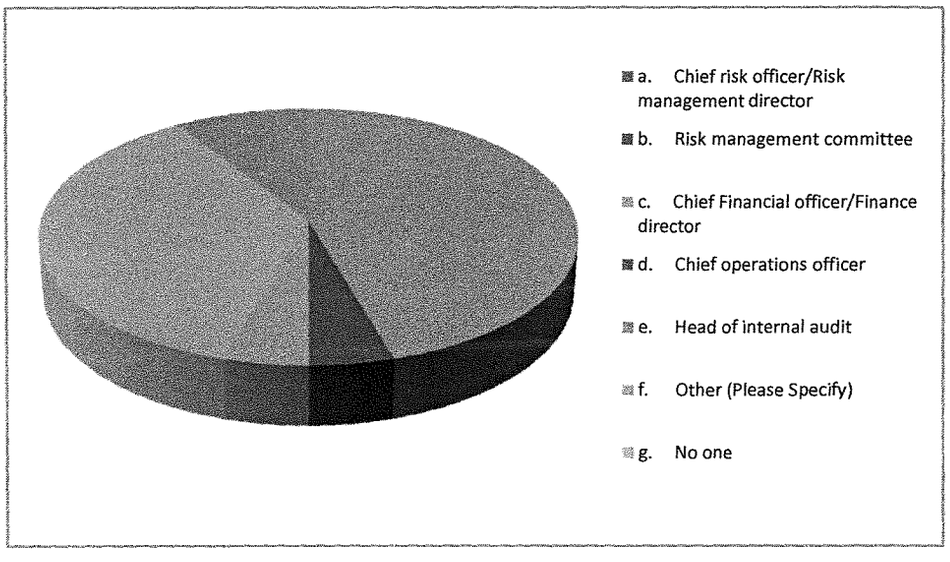


Figure 4 - Responsibility for ERM

Forty Five percent of the respondents indicated that ERM implementation in their companies are championed by a Chief risk officer/risk champion while 36% indicated that this implementation is championed by the head of internal Audit. The high percentage of respondents indicating that ERM implementation is championed by a Chief Risk Officer is attributed to the fact that most of the sampled respondents who responded to the questionnaire were from banks and the Central Bank of Kenya has a requirement that all banks should appoint a Chief Risk Officer to champion their risk management initiatives. The high percentage of respondents who indicated that their risk management activities are championed by a CRO or internal audit is

consistent with the findings of Haubenstock (1999) that it's better for risks to be managed via a single organizational unit that bears direct responsibility for supervising the entire process rather than via a committee or group.

4.3.5. Summary

Analysis of the data collected from questionnaires indicates that most companies listed in theNSE 1) View ERM as a value adding business initiative, 2) Still don't have an ERM framework in place but plan to introduce one in the short run, 3) Measure the value of their ERM activities by measuring its effect on earnings volatility and 4) have heir ERM activities either championed by a Chief Risk officer (45%) or the head of internal audit (36%).

4.4. Regression Analysis of Modeled Data

4.4.1. Effect of ERM on firm value

Table 4.3- Descriptive Statistics

Variable	Observations	Mean	Min	Median	Max	StDev
ERM Level	22	3.55	2.00	3.00	6.00	1.68
Tobin Q	22	0.88	0.13	0.44	2.98	0.89
Size	22	24.11	21.56	24.28	26.00	1.33
Leverage	22	2.15	0.04	1.89	7.30	2.00
Profitability	22	0.07	0.01	0.04	0.23	0.07
Div paid	22	0.86	-	1.00	1.00	0.35
Growth	22	0.25	(0.02)	0.20	1.65	0.35

The table above represents the descriptive statistics of the variables used in the regression model. From the descriptive statistics, the study finds that the highest level of ERM implementation in the NSE is in companies that have managed to fully implement their ERM framework with the lowest being companies that still plan to implement ERM in the short run but are yet to develop the ERM framework. The average value of listed companies as measured by Tobin's Q is 0.88. This value is higher than the Q value of most of the sampled companies because of a few respondent companies that had relatively high Q ratios. Mean ERM level of 3.55 indicates that on the average, companies listed in the NSE either have an ERM framework that is a partially

developed concept and there is no clear timetable for implementation or have an ERM framework with an implementation timetable but implementation hasn't begun. This finding is consistent with the findings of The Economist Intelligence Unit (2009) which found that on the average, respondents had implemented an ERM strategy but had not communicated the strategy well across departments. This was also the case in Beasley (2005).

Table 4.4- Pearson correlations

	ERM Level	Tobin Q	Size	Leverage	Profitability	Div Paid
Tobin Q	-0.074					
Size	0.503**	-0.459**				
Leverage	0.219	-0.726***	0.487**			
Profitability	-0.159	0.880***	-0.181	-0.659***		
Div Paid	-0.271	0.005	0.078	-0.457**	0.109	
Growth	-0.159	-0.146	-0.186	0.001	-0.214	-0.002

The significance of the coefficients is obtained using the p-values with *, ** and *** denoting significance at the 10%, 5% and 1% levels respectively.

The independent variables are not highly correlated against each other (most have a correlation of less than 0.7), suggesting that multi-collinearity is not a significantfactor (Tibachnick and Fidel, 1996).

Regression results

Tobin Q = 6.90 + 0.158 ERM Level - 0.307 Size + 0.0005 Leverage + 11.3 Profitability + 0.077 Div Paid - 0.011 Growth

In the first equation of the firm value is modeled as a function of ERM and other value-determinants.FollowingHoyt et al (2008), this study uses *Tobin's Q* as a proxy for firm value. Tobin's Q is a ratio that compares the market value of a company's assets to their replacement cost. The table below shows the Minitab results of the regression analysis.

Table 4.5- Regression results (ERM Level vs. Firm value)

Variable	Coefficient	T-Value	P-Value	VIF
ERM Level	0.15766	3.02	0.009	2.1
Size	-0.30711	-3.70	0.002	3.3

Leverage	0.00045	0.01	0.995	5.5
Profitability	11.260	7.20	0.000	2.9
Div Paid	0.0772	0.27	0.790	2.7
Growth	-0.0113	-0.06	0.952	1.1

The coefficient of determination for the regression model (R-Sq) is **92.9%.** This is an indication that the model has a strong explanatory power. The **F ratio** is used to test whether the model as a whole has statistically significant predictive capability. This model has an F ratio of 32.83 with a p-value of 0.000 thus the model has a statistically significant explanatory power.

This study also uses the Variance Inflation Factors (VIF) to test for multi-collinearity in the linear equation. The results show that all the VIF values are less than the rule of the thumb of 10, (Kutner, Nachtsheim, Neter, 2004) hence multi-collinearity is not considered serious.

From the regression analysis results, the study finds that there is a significant relationship between the value of the firm and the Level of ERM implementation, the company's size and the profitability of the firm. Consistent with Hoyt et al (2008) and Beasley et al (2005) this study finds that the implementation of ERM has a strong positive linear effect on the value of the company. The coefficient on ERM level is positive and significant. The coefficient estimate of 0.157 indicates that companies engaged in ERM are valued at 15.7% higher than other companies. This finding s similar to that of Hoyte et al (2008) that found that insurance companies engaging in ERM are valued at 16.7% higher than other insurance companies.

In line with evidence that large firms are more likely to have ERM programs in place (Colquitt et al, 1999, Liebenberg and Hoyt, 2003, Beasley et al., 2005), this study also finds that the size of the organization has a significant influence of the value of the firm. To add to that, Allayannis and Weston (2001) find that profitable firms are more likely to trade at a premium thus a positive relationship between a company's profitability and its value as measured by Tobin's Q.

Leverage, dividend paid and growth were found not to have a significant influence on the value of companies as measured by Tobin's Q. This is partially consistent with Hoyte et al (2008) who did not find a significant relationship between the value of the firm and the growth and leverage variables of the firm. However they found a positive relationship between dividend paid and value of the firm with the notion that dividend payments are a valuable method of reducing agency costs associated with free cash flow. This notion doesn't seem to hold in companies listed in the NSE.

4.5. Significance of Factors Affecting Level of ERM Implementation

Table 4.6- Descriptive Statistics Results

Variable	Observations	Mean	Min	Median	Max	StDev
INDU	22	1.64	1.00	1.00	3.00	0.79
LNAST	22	24.11	21.56	24.28	26.00	1.33
BODIND	22	0.50	0.10	0.50	0.78	0.15
CRO	22	0.45	0	0	1.00	0.51
GROWTH	22	0.25	(0.02)	0.20	1.65	0.35

From the descriptive statistics this study finds that forty five percent of the entities have appointed a Chief Risk Officer and Boards of directors, on average, have 50% of their members representing independent directors. On the average, 41% of the respondents were required to implement ERM by the industry regulators in the industry they operate in.

Table 4.7 Pearson Correlation Matrix

	ERM LEVEL	INDU	LNAST	BODINDEP	CRO
INDU	0.034				
LNAST	0.017	0.135			
BODINDEP	0.418**	0.403**	0.723***		
CRO	0.000	0.002	0.000	0.187	
GROWTH	0.479**	0.181	0.407**	0.908***	0.850***

The significance of the coefficients is obtained using the p-values with *, ** and *** denoting significance at the 10%, 5% and 1% levels respectively

The independent variables are not highly correlated against each other (most have a correlation of less than 0.7), suggesting that multi-collinearity is not a serious factor (Tibachnick and Fidel, 1996).

4.5.1. Regression results

In the second equation, we model the level of ERM implementation as a function of factors expected to affect the level of the ERM implementation. Our ERM implementation model sheds light on the significance of some of the determinants of ERM activity among listed companies.

ERM Level = 8.64 + 0.008 INDU - 0.245 LNAST - 0.77 BODINDEP + 3.01 CRO - 0.741 Growth

The model has an explanatory power (R-Sq) of 59.8% with an F-ratio of 4.77and p-value of 0.007thus the model has a statistically significant explanatory power.

The multivariate regression results are presented in the table below.

Table 4.8- Regression analysis

Variable	Coefficient	T stat	p-value	VIF
INDU	0.0084	0.02	0.987	2.1
LNAST	-0.2452	-0.77	0.455	2.6
BODINDEP	-0.766	-0.39	0.703	1.2
CRO	3.009	2.86	0.011	4.0
GROWTH	-0.7410	-0.87	0.397	1.2

This study also uses the Variance Inflation Factors (VIF) to test for multi-collinearity in the linear equation. The results show that all the VIF values are less than the rule of the thumb of 10, (Kutner, Nachtsheim, Neter, 2004) hence multi-collinearity is not considered serious.

4.5.2. Hypothesis analysis

H1: Companies in the financial services industry are more likely to implement ERM compared to other companies listed in the NSE. From the regression results, industry of operation has a positivecoefficient with a p-value of 0.987. This indicates that though there is a positive relationship

between industry of operation and the level of ERM implementation, the relationship is not significant. This is inconsistent with prior research, The Economist Intelligence Unit (2001) and Beasley et al (2005) that found that the financial services and utilities industries were more likely to be using ERM as their risk management strategy as compared to other industries.

This divergence from previous research findings could be as a result of the fact that most financial institutions only begun implementing ERM in 2007 as a result of a regulatory requirement from the Central bank of Kenya. This has resulted in a number of the institutions to still be in their infancy stage thus no different from other companies that are implementing ERM in line with global trends and its need rather than regulatory requirement.

H2: Larger firms measured by asset base, are more likely to adopt ERM than smaller firms. The regression results indicate that there is a negative relationship between the size of the firm and the level of ERM implementation at the firm. This is inconsistent with Kleffner et al, (2003) and Hoyt et al (2008) who suggested that larger firms are more likely to adopt ERM because the larger the organization, the more complex its operations will probably be and the more its exposure to threatening events. However, the p-value of 0.546 indicates that this relationship is not statistically significant and this finding is consistent with the findings of Beasley (2005) where the relationship between the level of ERM implementation and the size of the company were found not to be statistically significant.

This finding could be inconsistent with prior research due to the fact that ERM is still a new concept in the companies listed in the Nairobi stock exchange and thus the level of information on its implementation and the availability of skills to implement is the key driver of its implementation rather than the size of the company. Both large and small companies are still trying to acquire skills on how to implement ERM.

H3: The level of Board independence is positively associated with the Level of ERM implementation in companies. The regression results indicate that there is a negativerelationship between the level of board independence and the level of ERM implementation of companies. However this relationship is considered not statistically significant (p=0.918). This finding differs from that of Beasley et al (2005) who found that a more independent board has a significant positive influence on the level of ERM implementation in a company.

This inconsistency in findings could be attributed to the level of board members knowledge on ERM and its importance. Since ERM is a fairly new concept to be introduced in the Kenyan market, board members might not have adequate information to advocate for it to be implemented in the companies where they seat in the board.

H4: The presence of a CRO/Risk champion is positively associated with the company's stage of ERM implementation. This study finds a positive relationship between the level of ERM implementation and the appointment of a Chief Risk Officer in the company. This relationship is found to be statistically significant (p=0.011). This findings are consistent with those ofBeasley et al (2005) and Liebenberg and Hoyt (2003) who also found a positive and significant relationship between the appointment of a CRO and the level of ERM implementation in companies.

H5:the higher the rate of growth of a company, the higher the level of ERM implementation in the company. Finally, this study sought to investigate if there is a relationship between the rate of growth of companies and their level of ERM implementation. From the regression results, the study finds a negative but insignificant relationship between the rate of growth in companies and the level of ERM implementation.This finding is consistent with Hoyt et al (2008) that found no significant relationship between the rate of growth of a company and its level of ERM implementation.

4.6. Chapter Summary

Chapter four discusses the key findings from the study. The first part on the key findings reveals that there exists a significantrelationship between the level of ERM implementation and the value of the companies listed in the NSE. The second part of the findings shows that the only statistically significant factor influencing the level of ERM implementation from the regression model is the presence of a Chief Risk Officer/Risk Champion.

5. CHAPTER 5: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter focuses on the interpretation and the implications of the findings based on the research objectives. The first objective of this study was to identify the general state of ERM implementation in companies listed in the Nairobi Stock Exchange. The secondobjective was to investigate whether the implementation of ERM has a positive effect on the value of the companies that implement it. The third objective of the study sought to assess the significant factors affecting the level of implementation of ERM in those companies. A qualitative research was undertaken with two regression models being formulated to test whether the implementation of ERM has a significant effect on the value of the company implementing it and to test for significance of factors that have an effect on the implementation of ERM in companies. The key findings of this study indicate that the level of ERM implementation has a significant effect on the value of the companies that implement it.

5.2. Research Findings and Recommendations

5.2.1. Level of ERM Implementation

The research findings show that most of the companies listed in the NSE have not implemented an ERM framework but have plans to implement one in the short run. This finding differs from that of The Economist Intelligence Unit (2009) which found a bigger percentage of its respondents (26%) had implemented an ERM strategy but had not communicated the strategy well across departments. The biggest percentage of respondents (41%) in Beasley (2005) also indicated that they had partially implemented ERM. The findings of this study could have been influenced by the fact that ERM is still a new phenomenon in Kenya having gained momentum in 2005 with the introduction of a regulatory requirement by the central bank of Kenya requiring that all banks implement and enterprise Risk management Framework.

Eighty Two percent of the respondents indicated that their companies view ERM as a strategic business partner as compared to 18% who indicated ERM as a compliance initiative. This is inconsistent with the PWC (2007) survey that concluded that most companies implement ERM as a result of regulatory pressure. However, the findings are consistent with Tillinghats-towers Perrin survey (2002) that found that less than half of companies surveyed in the US cited regulatory requirement as motivator for ERM implementation. With reference to Aabo (2004) which related companies' view of ERM to shareholder theory, we can conclude that since most companies surveyed viewed ERM as a business partner, it therefore follows that this companies have a primary focus on growing shareholder value as compared to stakeholder value.

The findings also show that 45% of the respondent's companies have a Chief risk officer who champions the implementation of ERM while in 36% of the companies; ERM is championed by the head of internal audit.Consistent with contingency theory, this study found that the appointment of a Chief Risk Officer had a significant influence on the level of ERM implementation. This finding is consistent with Liebengerg (2003) that found that firms appoint CRO's to reduce information asymmetry regarding the company's current and expecte3d risk profiles thus better implementation of risk management.

5.2.2. Factors influencing the level of ERM implementation

The significant and positive coefficient for existence of a CRO/Risk champion suggests that the presence of this position is positively associated with the extent of ERM deployment. This finding suggests that the presence of a ''risk champion'' among the senior management team significantly increases the entity's stage of ERM deployment. The findings of the study are consistent with those of Beasley et al (2005) and Liebenberg and Hoyt (2003) that concluded that this finding suggests that the presence of a ''risk champion'' among the senior management team significantly increases the entity's stage of ERM implementation. However, whereas those studies also found that board independence and industry of operation had a significant influence on the level of ERM implementation of companies, these papers did not find any

significant relationship between this variables and the level of ERM implementation in companies.

Therefore, though contingency theory contends that there is no one best way of organizing and that an organizational style that is effective in some situations may not be successful in others (Fiedler, 1964), this study finds that the level of implementation of ERM in companies listed in the NSE is significantly related to the appointment of a CRO/Risk champion but not significantly related to the other variables of study. This finding seems to suggest that there is one "best way" of getting a company to increase its level of ERM implementation and this is by appointing a Chief Risk Officer or Risk Champion. The findings of this study might be inconsistent with contingency theory because ERM implementation is still at its infancy stage in Kenya having picked up in the year 2005 thus the reason it's only significantly influenced by one variable that is related with its initiation in an organization.

Therefore, for corporate executives of companies in Kenya to advance in their levels of ERM implementation so as to reap the benefits of its value addition to companies, they should ensure that their organizations appoint a risk champion at senior management level to lead their risk management initiatives.

5.2.3. Relationship between ERM implementation and the value of companies

In investigating whether the level of ERM implementation has a significant positive effect on the value of companies, this study found that the level of ERM had a significant positive contribution to the value of the firm as measured by Tobin's Q. This finding contradicts studies undertaken by Modigliani and Miller (1958), Sharpe (1964), Lintner (1965), Nain (2004), Lookman (2004) and Jin and Jorion (2005). This studies concluded that implementation of risk management strategies is irrelevant to the firms value.

However, the research findings in this study are consistent with literature reviewed, that indicates that there is a significant relationship between the

level of ERM implementation and value of the company (Hoyt et al 2008; Beasley et al, 2005; Kleffner et al, 2003).This is evidenced by the results from the regression model with a positive and statistically significant coefficient for the level of ERM implementation. Lam and Kawamoto (1997) and Meulbroek (2002) also found that Enterprise Risk management makes risk management part of the company's overall strategy and enables companies to make better risk adjusted decisions that maximizes shareholder value. As discussed by Hoyte et al (2008), firms that engage in ERM are able to better understand the aggregate risk inherent in different business activities.

The findings of this study suggest that companies that have their primary focus on adding shareholder wealth should implement ERM as it does contribute to the company's market value. Therefore, an ERM level positive coefficient of 0.157 indicates that companies that implement ERM in the NSE are valued at 15.7% higher than those that have not implemented ERM.

This finding is an indication that regardless of the differences between developed and emerging markets, the implementation of ERM has a positive effect on the value ofcompanies. This finding is important in motivating corporate executives to make a deeper commitment to implementation of ERM so as to return more value to their shareholders.

5.3. Implications of the study

Not much is known about why some organizations listed in Kenya embrace ERM while others do not. The effect of ERM on the value of companies in Kenya has also not been studied before. This study provides some initial exploratory empirical evidence that highlights whether the implementation of ERM has a value addition effect on companies or not and assesses several factors associated with the organization's extent of ERM implementation and their significance to that implementation.

The findings of the study show that companies can add to their shareholders value by implementing ERM thus have a competitive advantage over

companies that have not implemented ERM or are at earlier stages of implementation.

The results suggest that though other organization characteristics like board independence, industry of operation, regulatory requirements and rate of growth of the company do not have a significant effect on the level of ERM implementation in companies, the appointment of a Chief Risk officer is critical to the level of implementation of ERM in companies. This finding is important for organizations to in implementing policies for risk management since it indicates that for the policies to be effective, the organization needs to appoint a risk management champion/chief risk officer at a senior management level.

This study provides an initial base that can trigger additional research on ERM. The academic community is positioned to greatly contribute to this growing public policy need for more effective enterprise risk management and corporate governance in both the private and public sector organizations.

5.4. Recommendations for further research

Based on the above findings and implications, the following recommendations for further research can be made:

1. A more consistent measure of ERM should be developed to reduce the level of subjectivity in measuring the level of ERM implementation in companies. This will enable further research to be more objective in findings related to ERM implementation.
2. Since different companies are at different stages of ERM implementation, a longitudinal case study should be done on a company that has fully implemented ERM to determine whether there has been a change in the value of the company that can be significantly attributed to the implementation of ERM.
3. Further research should be carried out to identify what value drivers within an organization are affected by ERM implementation to translate into overall value addition to the company.

4. To reduce any effects of multi-collinearity and make the sample more representatives of the Companies registered in Kenya, the scope of thisresearch should be expanded beyond companies listed in the Nairobi stock exchange.
5.

5.5. Limitations of the study

The limitations which arose in this study were as follows. First, it was difficult to measure the level of ERM implementation with limited subjectivity since we relied on questionnaire responses to identify the level of ERM implementation in the respondents companies.

Secondly, only 22 (49%) of the targeted population responded to the questionnaire and most of the respondents were from the financial services segment thus there is a probability of industry bias in the research findings.

Using email questionnaires in this study had a limitation in terms of response rate from the targeted respondents thus a contribution to the low response rate. The small sample size of only 22 respondents also limited the extent of our statistical analysis.

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7. APPENDIXES

7.1. Appendix 1: Questionnaire

1. Do you view ERM as simply a tool for ensuring compliance in the organization of as a business partner with a key role in value addition to the business?
    a. Compliance function
    b. Value adding business partner
2. If risk management is considered as a business partner, how is the overall value added to the firm through risk management methods measured?
    a. Through reduction of Cashflow volatility;
    b. Through reduction of earnings volatility;
    c. Through reduction of stock price volatility;
    d. Other quantitative methods (Please describe). _____
    e. Qualitative methods (Please describe). _____

3. At what level of implementation is ERM in your company? Please tick only one

ERM State	Tick box
ERM framework is well formulated across the business and fully implemented;	
ERM framework is well formulated across the business, with a clear timetable for implementation;	
ERM framework in place but not well communicated across the business or between departments;	
ERM framework in place but is not fully developed concept and there is no clear timetable for implementation;	
No ERM framework in place but plan to introduce one in the short-term;	
No ERM framework and no plans to introduce one.	

4. Who, below the Board of Directors, is primarily responsible for risk management in your organization? Please select one response.
    a. Chief risk officer/head of risk
    b. Risk Management committee
    c. Finance Director/Head of finance
    d. Head of Internal Audit
    e. Other
5. If and ERM framework has been implemented in your company, when was it implemented? _____
6. Who below the board of directors is primarily responsible for risk management in your organization
    a. Chief risk officer/Risk management director
    b. Risk management committee
    c. Chief Financial officer/Finance director
    d. Chief operations officer
    e. Head of internal audit
    f. Other

g. No one

7. Does your company have an enterprise wide risk register identifying the entity's risk profile and the impact and likelihood of each risk?

Yes No

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7.2. Appendix 2

7.2.1. List of companies listed in the NSE

Agriculture

1. Rea Vipingo Ltd.
2. Sasini Tea & Coffee Ltd.
3. Kakuzi Ltd.

Commercial and Services

1. Access Kenya Group
2. Marshalls E.A. Ltd.
3. Car & General Ltd.
4. Kenya Airways Ltd.
5. CMC Holdings Ltd.
6. Nation Media Group Ltd.
7. TPS (Serena) Ltd.
8. ScanGroup Ltd.
9. Standard Group Ltd.
10. Safaricom Ltd.

Finance and Investment

1. Barclays Bank of Kenya Ltd.
2. CFC Stanbic Bank Ltd.
3. Housing Finance Ltd.
4. Centum Investment Ltd.
5. Kenya Commercial Bank Ltd.
6. National Bank of Kenya Ltd.
7. Pan Africa Insurance Holdings Co. Ltd
8. Diamond Trust Bank of Kenya Ltd.
9. Jubilee Insurance Co. Ltd
10. Standard Chartered Bank Ltd.
11. NIC Bank Ltd.
12. Equity Bank Ltd.

13. Olympia Capital Holdings Ltd
14. The Co-operative Bank of Kenya Ltd.
15. Kenya Re-Insurance Ltd.

Industrial and Allied

1. Athi River Mining Ltd.
2. BOC Kenya Ltd.
3. British American Tobacco Kenya Ltd.
4. Carbacid Investments Ltd.
5. E.A. Cables Ltd.
6. E.A. Breweries Ltd.
7. Sameer Africa Ltd.
8. Kenya Oil Ltd.
9. Mumias Sugar Company Ltd.
10. Unga Group Ltd.
11. Bamburi Cement Ltd.
12. E.A Portland Cement Co. Ltd.
13. Kenya Power & Lighting Co. Ltd.
14. Total Kenya Ltd.
15. Eveready East Africa Ltd.
16. Kengen Ltd

7.2.2. Analysis of Data Collected From Financial Statements

Table 7.1 - Minitab data results

Company	Q ratio	ROA	Dividend paid	Leverage	Growth	ERM Status	Board Independence	LNASST	Industry of Operation	CRO	RGLT
Access Kenya Group	1.78	0.06	1	0.28	0.32	2	0.78	21.56	2	0	0
Kenya Airways Ltd.	0.23	0.03	1	3.23	(0.02)	2	0.5	25.02	2	0	0
Nation Media Group Ltd.	2.56	0.17	1	0.11	(0.01)	3	0.5	22.61	2	0	0
Standard Group Ltd.	2.32	0.11	0	0.31	(0.02)	6	0.5	21.61	2	0	0
Safaricom Ltd.	1.75	0.15	1	0.23	0.19	6	0.3	25.37	2	1	0
CMC Holdings Ltd.	0.50	0.04	1	1.21	0.02	2	0.1	23.31	2	0	0
Barclays Bank of Kenya Ltd.	0.37	0.04	1	2.30	(0.01)	6	0.6	25.83	1	1	1
CFC Stanbic Bank Ltd.	0.13	0.01	0	7.30	0.62	5	0.6	25.30	1	1	1
Housing Finance Ltd.	0.23	0.01	1	3.42	0.32	4	0.5	23.63	1	1	1
Centum Investment Ltd.	0.94	0.05	1	0.04	1.65	2	0.44	22.61	1	0	0
Kenya Commercial Bank Ltd.	0.23	0.02	1	3.79	0.16	5	0.5	26.00	1	1	1
National Bank of Kenya Ltd.	0.15	0.03	0	5.58	0.14	3	0.6	24.66	1	1	1
Pan Africa Insurance	0.29	0.02	1	2.89	0.32	2	0.4	22.75	1	0	0

Company	Q ratio	ROA	Dividend paid	Leverage	Growth	ERM Status	Board Independence	LNASST	Industry of Operation	CRO	RGLT
Holdings Co. Ltd											
Jubilee Insurance Co. Ltd	0.22	0.03	1	3.85	0.22	2	0.4	23.89	1	0	0
Standard Chartered Bank Ltd.	0.35	0.04	1	2.51	0.21	6	0.5	25.54	1	1	1
NIC Bank Ltd.	0.21	0.02	1	4.00	0.21	4	0.78	24.59	1	1	1
Equity Bank Ltd.	0.53	0.04	1	1.47	0.24	5	0.5	25.34	1	1	1
The Co-operative Bank of Kenya Ltd.	0.28	0.03	1	3.02	0.21	5	0.6	25.43	1	1	1
E.A. Breweries Ltd.	2.98	0.23	1	0.13	0.10	3	0.6	24.37	3	0	0
Mumias Sugar Company Ltd.	0.57	0.09	1	0.70	0.32	2	0.5	23.63	3	0	0
Bamburi Cement Ltd.	1.76	0.22	1	0.20	0.09	1	0.45	24.19	3	0	0
Athi River Mining Ltd.	0.91	0.05	1	0.73	0.11	2	0.4	23.22	3	0	0