

**EFFECT OF ENTERPRISE RISK MANAGEMENT
DETERMINANTS ON FINANCIAL PERFORMANCE OF
LISTED FIRMS IN KENYA**

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**Effect of Enterprise Risk Management Determinants on Financial
Performance of Listed Firms in Kenya**

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DECLARATION

This Thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

This Thesis is dedicated to my parents Taita Marisin and my late mother Teresia Marisin, my family; My dear wife Anne, and our children Bramwel, Kevin, Brain, Collins and Douglas. Your patience, encouragement, understanding, support and co-operation was of great help in the success of this study.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIA	Africa Insurance Agency
BRM	Business Risk Management
CBK	Central Bank of Kenya
CEO	Chief Executive Officer
CMA	Capital Market Authority
CMC	Coopers Motors Corporation
COBIT	Control Objectives for Information Technology
COSO	Committee of Sponsoring Organizations
CRO	Chief Risk Officer
EAC	East Africa Community
ERM	Enterprise Risk Management
FERMA	Federation of European Risk Management Association
GOK	Government of Kenya
ICT	Information Communication Technology
IMA	Institute of Management Accountants
IRM	Integrated Risk Management
ISO	International Standard Organization
IT	Information Technology

JSE	Johannesburg Stock Exchange
KIPPRA	Kenya Institute of Public Research and Analysis
NPV	Net present value
NSE	Nairobi Securities Exchange
OECD	Overseas Economic Cooperation for Development
PLC	Public Limited Company
PWC	Price Water House Coopers
RMS	Risk Management Standard
SRM	Strategic Risk Management
USA	United States of America

DEFINITION OF KEY TERMS

The following definitions of terms are used in this study:

Enterprise Risk Management

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) define enterprise risk management as a process, affected by the entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that affect, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (Anderson, Boyle, Brady, Bromfield, Chambee,..., Liebfried, 2004). Since this is the standard definition of enterprise risk management, this study adopted the definition.

It is also argued that the term enterprise risk management itself has quite similar meaning with Enterprise-Wide Risk Management (EWRM), Holistic Risk Management (HRM), Corporate Risk Management (CRM), Business Risk Management (BRM), Integrated Risk Management (IRM) and Strategic Risk Management (SRM) (Razali & Tahir, 2011; Hoyt & Liebenberg, 2008 and Manab *et al.*, 2012). This study adopted ERM.

Financial Performance

Demodaran (2008) defines financial performance as a measure of efficiency in management of current assets and rate of acquisition of new assets. Pandey (2009) explains that financial performance is a measure of efficiency to meet its obligation by ensuring sound liquidity, solvency and profitability as well maintaining positive value of assets. This study adopted the definition of Demodaran.

Information Technology (IT)

Information technology is the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information by a micro-electronics based combination of computing and telecommunications (Lucy, 2005). Corbitt, Kumsurprom, Pittayachawan and Mingmalairaks (2010) define information Communication Technology as a component used to disseminate information to internal and external parties and also describe the scope of ICT domain as compose of input, processing and output (IPO). This study adopted the definition of Corbitt *et al.*.

Ownership Structure

Ownership structure is the composition of owners in terms of shareholding in form of individuals and institutional ownership (Razali & Tahir, 2011). Yazid, Razali and Hussin (2012) explain that ownership has two dimensions; first is identity and concentration of ownership and secondly, the legal status of the contract which regulates the ownership. This study adopted the definition of ownership structure by Tahir and Razali (2011).

Regulatory Framework

Risk regulatory is a variable that indicates whether implementation of ERM is a requirement by law (Waweru & Kisaka, 2012). Regulatory framework is the existing rules and regulations that guide the implementation of policy decisions taken by management or board of directors Hoyt and Liebenberg (2009). This study adopted the definition of Waweru and Kisaka (2012).

Risk

Risk is an event, the occurrence of which has the potential to influence the achievement of an organization's objectives (Terzi, 2010). Risk refers to a situation in which a business decision is expected to yield more than one outcome and the

probability of each outcome is known to the decision maker or can be reliably estimated (Dwivedi, 2006). Essinger and Rosen (1991) also define risk as undesirable effects that affect business or an entity. This study adopted definition of Terzi (2010).

Risk Management

Risk management is the practice of defining the level a firm desires, identifying the risk level a firm currently has, and using various means and instruments to adjust the actual level of risk to the desired level of risk (Chance & Brooks, 2010). Manab, Kassim and Othman (2012) explain risk management as a tool that enables an organization to develop towards its goals and objective, to strengthen corporate governance, and at the same time to fulfill its obligation toward shareholders. This study adopted definition of risk management as defined by Manab *et al.* (2012).

ABSTRACT

Nairobi Security Exchange (NSE) provides avenue for investment opportunities that encourage a thrift culture critical in increasing domestic savings and mobilizing investment resources for rapid industrialization. It is important to note that business failure due to risks affect economic development of a country causing increase in; unemployment, crime and insecurity. These problems compel firms to establish risk management systems to protect themselves. However, management of risks requires a lot of resources which might not be cost effective. Therefore, the purpose of this study was to find out the effect of ERM determinants on financial performance of NSE listed firms in Kenya. Theoretically, ERM adds value to a firm that adopts it; however there is no consensus among scholars on the contribution of ERM on financial performance. The increase in business activities, complexities in business operation, unpredictability and evolving risks have triggered clamor for ERM globally. While there was growing globally attention on ERM in recent years, alarming statistics on increasing and evolving risks continue to affect firms. The empirical evidence shows that risks keep on increasing and evolving, a manifestation of weak risk management systems. This study investigated the effect of ERM determinants on financial performance of listed firms in Kenya. The specific objectives that guided the study were to; analyze the effect of firms' characteristics on financial performance of listed firms in Kenya, determine the effect of information technology on financial performance of listed firms in Kenya, examine the effect of staff capacity on financial performance of listed firms Kenya, and establish the effect of regulatory framework on financial performance of listed firms in Kenya. A semi structured questionnaire was administered to a finance officer, an auditor and a staff in-charge of ERM department while survey sheet was used to collect secondary data from annual financial statements of each of the listed firms. A census study was used where all listed firms that had submitted audited financial statements to NSE were chosen. The study population composed of a finance officer, an auditor and a risk management officer. The descriptive and inferential statistics

were generated and regression analysis was done to test the null hypotheses using F-test at 5 percent level of confidence and interpretation done accordingly. The results were interpreted in line with the reviewed literature and theoretical literature. The major findings from the study show that effective management of ERM determinants (firms' characteristics, staff capacity, information technology and regulatory framework) has effect on financial performance of the listed firms in Kenya. The results from the study showed that there was a positive correlation between all the independent variables (firms' characteristics, information technology, staff capacity and regulatory framework) and the dependent variable (financial performance). All the models were significant. The null hypotheses in this study were rejected. The overall model was tested using the F-test at 5 % level of significance. The results of analysis revealed higher inter-correlation between the independent variables and the overall model showed that there was significant correlation between combined ERM determinants and financial performance ($p\text{-value } 0.000 < 0.05$). However, the multiple linear regression model showed staff capacity was the only significant ($p\text{-value } 0.000 < 0.05$) variable in predicting financial performance. The study makes the following recommendations; firms should mobilize resources needed to institute effective risk management system, put in place effective information technology to monitor and report risks and identify risky areas in real-time, build staff capacity on ERM and ensure effective compliance to various regulatory requirements to avoid risk arising from litigation. On the policy implication, the government of Kenya through the National Treasury should create an agency to coordinate development and success of firms to promote economic growth as envisioned in the Vision 2030. Firms should also establish an industry profession association for risk officers to promote compliance to ERM requirements and professionalism.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Despite the fact that enterprise risk management (ERM) has gained momentum globally; risks continue to increase, new risks were emerging and evolving (Golshan & Rasid, 2012). ERM is geared to address risks that can occur to a business organization such as financial risks, strategic risks and operation risks (Tazhir & Razali, 2010). Weak risk management system was a major contributing factor to the financial crisis in United States of America (USA) in 2008. The crisis affected the economy and financial markets in the USA leading to collapse of the mortgage industry (Soileu, 2010). In a survey done in Kenya among chief executive officers (CEOs) of the listed firms, majority of the CEOs (90%) felt that risks were not being well managed and the survey rated financial risks highly (64%) prevalent followed by; both market risks (58 %) and operation risk (58 %) and the third rated was reputation and brand risks (56 %) as affecting the firms in Kenya (PWC, 2012).

Although enterprise risk management is a paradigm shift in risk management, there are many firms that were yet to adopt ERM. Golshan & Rasid (2012) reported that a longitudinal research done in United States of America (USA) from 1997 to 2001 showed that only 41 percent of the firms had adopted ERM and in another research done from 1999 to 2005 in the same country showed that only 42 % of the firms had adopted ERM. Similarly, a study done by Economic Intelligence Unit showed that only 41 % of companies in Europe, North America and Asia had implemented some form of ERM (Watt, 2008). The reasons behind low adoption of ERM were attributed to lack of information on the value of ERM (Golshan & Rasid, 2012). Other barriers and challenges faced by firms in implementing ERM include lack of adequate facilities to capture accurate data on risk profile, difficulty in quantifying risk, lack of support from board of directors and lack of clear policy on compliance with regulations (Watt, 2008). Beasley, Hancock and Branson (2009) added that

complexities of business transactions, advancement in technology, globalization, speed of product life cycles and overall increase in pace of change continue to increase the volume and the scale of risks facing organizations.

The Economic Intelligence Unit in 2008 indicated that globally, credit crisis facing firms had forced firms to scrutinize risk management practices and regulatory agencies were also exerting pressure on the firms to adopt modern ERM practices. Majority (59 %) of the firms were focusing on credit crisis and growing regulatory pressure as a risk management strategy (Watt, 2008). On the other hand, financial crisis, credit rating agencies and pressure from the exchanges were increasing the clamor for enterprise risk management (COSO, 2009). A study conducted by the Permanent Subcommittee on Homeland Security and Governmental Affairs of the United States Senate in 2007, identified a number of factors that affect financial performance of firms in the USA. Such factors identified include; high risk lending, regulatory failure, inflated credit ratings and investment bank abuses were identified as the main cause of financial crisis in USA (USA Senate, 2013).

Enterprise risk management has an impact on management practices. Integration of risk management across an organization not only influences mindset towards risks efficacy, but enhances capacity to manage liquidity and cash flow (Casualty, 2006). This element of financial strength is a source of profit or drain, because failure to meet obligations leads a firm into financial ruin. Fraser, Schoening-Thiessen and Simkins. (2008) highlighted the key elements of ERM value proposition that complements effective management practices; risk opportunities, robust risk intelligence information, alignment of incentives, cost reduction and better coordination. Management practices manifested through; training, supporting, communicating and compensating risk-smart behaviour influences firm's mindset and efficacy towards ERM (Casualty, 2006).

1.1.1 Overview of Enterprise Risk Management (ERM) and Financial Performance

Investment in ERM can influence financial performance in terms of cost savings and return on assets. A study done in USA in the insurance industry found out that firms that had invested on ERM achieved cost savings which translated into return on asset (ROA) ranging between a US \$19.8 and \$73.6 million which is 34 and 89 percent respectively (Grace, Leverty, Philips & Shimpi, 2010). The findings from the study imply that investment on ERM influences financial performance.

The cause of United States of America (USA) financial crisis linked to the mortgage industry of 2007-2008 had elicited a lot of debate from many scholars. However, one thing which is very clear is the failure in risk management. Allen and Carletti (2009) alluded that systemic failure in securitization by investment banks and individuals who had pooled together to provide mortgages as risk strategy did not vet the borrowers properly and therefore quality of borrowers was not taken into consideration. This led to significant losses to insurance companies and pension funds triggering collapse of other sectors. In 2008 alone pension funds in Overseas Economic Cooperation for Development (OECD) lost huge amount of US \$ 3.5 trillion in market value, down from \$ 18.7 trillion at the end of 2007. Aggregate country-level statistics suggest that pension industry had made losses in most countries during 2008 and equity markets collapsed by 50 percent between mid-2007 and March, 2009. This was reflected in the sharply dropped aggregate investment returns among OECD countries (Praet, 2011).

Failure to comply with various regulations is costly and therefore can be a source of risk to a firm. A World Bank study of firms in Mexico in 2000 indicated that firms were using substantial amount (ranging from 17% to 32%) of their revenue to meet cost of no-compliance (OECD, 2000). The Australia government has developed a legal framework known as Australian/New Zealand Standard on risk management (ASINZ 4360), other relevant policy documents being used are; Enterprise Risk Management Integrated Framework published by Committee of Sponsoring

Organization (COSO) and Internal Control Integrated Framework. The framework provide a useful description of risk management and internal control systems being used as; point of reference when considering a company's risk management and internal control framework (PWC, 2011). Effective integration of firms' ERM is expected to enhance compliance to various policies and regulations leading to reduction in cost incurred in mitigating non-compliance.

Gupta (2011) examined the current status of risk management in Indian companies and found out that risk management in most of the organizations was not integrated, blended into corporate strategy and the use of information technology was minimal. Majority (97 %) of the Chief Executives Officers interviewed consented that effective ERM could improve financial performance. In addition, a significant (56 %) number of the respondents indicated that critical factors that affect effective implementation of ERM were; inadequate training for staff and low level of use of information technology to manage risks. Gupta (2011) pointed out that effective ERM system has significant influence on financial performance. The benefits are derived from efficiency in staff productivity and significant improvement on information technology risk management. The above study implies that improved financial performance is attributed to effective risk management system in place.

Rudolph (2009) carried a survey in the health insurance sector in United States of America found out that the risks that were previously considered unrelated in the health insurance industry blew up the market, with balance sheet items pummeled by liquidity, interest rate, and credit risks. Some of the publicly traded companies recorded drop in stock prices by 50 percent. This situation made many of the companies to reduce their staff leading to low income to firms that were dealing with health insurance. The emergence of risks not previously affecting the health sector and drop in stock prices for quoted companies could be attributed to weak risk management.

In Sub-Sahara Africa, home grown risks were increasing and therefore eroding financial performance of firms in the region. The International Monetary Fund

(2014) survey report indicated that risks such as; fiscal vulnerabilities, security, declining prices for commodity goods and growing capital flows was dynamics for risk management. In Zambia, general increase in wages was affecting firms' income by increasing cost of production, while in Ghana growing deficits in the national budget and political instability was affecting the local currencies against the major currencies and therefore putting pressure on locally produced goods. Growing insecurity in Central Africa Republic and Southern Sudan was the main cause of slowdown in growth prospect and therefore affecting the local firms in the region (IMF, 2014).

In conclusion, the reason for adoption of ERM is to leverage on financial performance as well as to reduce surprises that might arise. Apart from improving financial performance through reduction on regulatory cost, effective ERM is expected to contribute to; cost saving, enhance income, reduce business volatility, stabilize stock prices, cushion firms from financial crisis and improve corporate governance and regulatory compliance. The findings from the global perspective shows that effectiveness of firms is measured by the ability to; meet shareholders' expectations, stabilize market volatilities, cushion firms against risks and improve regulatory compliance. These elements have an implication on firm's financial performance.

1.1.2 Enterprise Risk Management and Financial Performance in Kenya

Despite the fact that Kenya has tried to address risks such as economic crime and fraud through various legislation, risk in Kenya was still high (52%) above the African average of 50% and substantially higher than the global average of 37% (PWC, 2014). The common types of risks reported in the survey were; asset misappropriation, accounting fraud, bribery and corruption, procurement fraud and cybercrime. Asset misappropriation in form of theft, accounting fraud, bribery and corruption, procurement fraud and cybercrime increases the cost of doing business and therefore affects financial performance of the firms (PWC, 2014).

The statistics available shows that risk facing firms in Kenya was increasing while traditional risks were evolving. A study by Price Water House Coopers in 2011 on risk in Kenya showed that majority (81 %) of the chief executive officers (CEOs) interviewed from various firms felt that risk to their organizations was increasing and traditional risks were evolving (PWC, 2012). Waweru and Kisaka (2011) found out that implementation of ERM by firms in Kenya was low and therefore could be attributed to weak performance of firms in Kenya. Nyang'aya (2012) found out that traditional risks such as operational, regulatory and market risk were key risks affecting firms. Majority (95 %) of the respondents indicated that operation risk was facing the firms, followed by regulatory failure at 89 percent and market risks at 83 percent.

Financial institutions in Kenya form a critical segment in Nairobi Securities Exchange contributing significantly to the development of a country. The Central Bank of Kenya (2005) showed that despite the fact that majority (94%) of the commercial banks and financial institutions in Kenya had developed ERM framework, a big number (74%) of the institutions had challenges in term of high rates of non-performing loans (CBK, 2010). This could be a manifestation of failure to address key intervening issues on ERM system in place. Apart from fraud and misappropriation of funds, the other main cause of increase in risks are; business complexity, unpredictable business environment, evolving risks and globalization of trading activities (PWC, 2012).

There is a perception that senior executives and their board of directors were aware about the existing risks but they were not prepared to manage them (COSO, 2009). Weak risk management system could affect the competitiveness of the country as a business destination (KIPPRA, 2009). Increasing, evolving and emerging risks affecting firms in Kenya could consequently lead to unpredictable business environment.

Effective risk management practices affects financial performance of firms which when aggregated has an impact on the economic growth (Adeuji, Akele, Adbisi & Olundunjoye, 2013). Kenya was ranked in position 86 out of 207 countries in terms of GDP while in attractiveness as a business destination it was ranked at number 72 out of 178 countries (KIPPRA, 2009). In comparison with Singapore, Taiwan and Malaysia which were ranked in position six, eight and nine respectively. The reason for better performance of Singapore, Taiwan and Malaysia in terms of business destination can be attributed to effective ERM system which leads to better financial performance and therefore attracting business firms (KIPPRA, 2009).

The development of risk management policies, risk based system, profiling of risks and compliance to risk management policies is critical in putting in place an effective ERM. In terms of policy and regulations on ERM, some regulators in Kenya had developed guidelines on risk management; however, the Capital Market Authority (CMA) which is a regulator for NSE listed firm in Kenya was yet to develop enterprise risk management policies. The Central Bank of Kenya (a regulator of financial institutions) had developed risk management guidelines in 2005 for commercial banks and financial institutions (CMA, 2010). The Capital Market Authority was in the process of developing risk based framework to manage risks in Kenya (Kilonzo, 2011). The risk-based framework would enable the NSE to profile various risks affecting enterprises in Kenya and this was expected to improve accuracy in investment decisions (Kilonzo, 2011). It would also provide advance knowledge and information based on a ratings system, the firms that were perpetually risky in terms of operations, those facing financial distress with continuous losses and those which engaged in unethical practices would be put in the profile (Capital Market Authority, 2010).

1.1.3 Relationship between ERM and Financial Performance

Studies on the relationship between risk management and financial performance of the firms mostly have been conceptual in nature (Nocco & Stulz, 2006). Theoretically, effective risk management practices leads to improved financial performance of a firm. Adeuji *et al.*. (2013) pointed out that issues of risk management have greater impact not only to the firm but also on the economic growth. The benefits that accrue to the firm from effective risk management include; high level of compliance, increase in reputation and opportunity to attract more customers and hence increase in revenues.

Effective enterprise risk management creates competitive advantage which has an impact on the share market and revenues (Nocco & Sultz, 2006). Similarly, Schroek (2006) and Smith (1995) propose financial benefits that accrue to a firm with effective risk management such as reduction on volatility in firm's financial performance. Volatility in financial performance has an impact on net profit, earnings from investments, market value of shares, value of assets, cost of capital and return on equity.

The Deloitte and Touche report on enterprise risk management of 2012, found out that majority (85%) of the CEO interviewed felt that effective ERM has an impact on financial performance. The impact was manifested in the following; reduced volatility, better cash flow management, compliance and enhanced liquidity stability. In terms of corporate governance, as contained in the Capital Market Authority (CMA) legal Notice Number 3362 of 2002, one of the role of directors of listed firms was to develop risk policy plan and the same information be disclosed in the annual financial reports (GOK, 2002).

The above studies supports conceptual link between enterprise risk management and financial performance. However, the empirical evidence in Kenya shows that although most of the listed firms embrace ERM as part of the corporate governance, the statistics were showing different trends; risks were increasing, tradition risks were evolving while news ones were emerging. The key risks affecting firms' financial performance include; volatility, misappropriation of assets, procurement

fraud, cybercrime, insecurity and accounting fraud. This implies that there could be some issues that have not be addressed in the enterprise risk management in place. This study therefore endeavour to find out the effects of ERM on financial performance by looking at four selected indicators of effective ERM namely, firms' characteristics, information technology, staff capacity and regulatory framework.

1.2 Statement of the Problem

This study arises from the need to manage enterprise risks effectively and efficiently keeping in mind effect on financial performance of a firm. Theoretically, risk management plays a key role in improving firms' financial performance (Kaplan *et al.*, 2008). Enterprise risk management affect financial performance of a firm by reducing surprises arising from business complexities, unpredictable business environment and evolving risks. However, statistics in Kenya shows a different picture; traditional risks were evolving while new ones were emerging. The economic crime, cybercrime, cases of fraud was also increasing while cases of misappropriation of assets were increasing. Risks in Kenya was still high (52%) above the African average of 50% and substantially higher than the global average of 37% despite the fact that firms in Kenya have embrace ERM (PWC, 2014). The common types of risks reported in the survey were; asset misappropriation, accounting fraud, bribery and corruption, procurement fraud and cybercrime. Increasing cases of theft, accounting fraud, bribery and corruption, procurement fraud and cybercrime was worrying and therefore increasing cost of business and hence affecting financial performance (PWC, 2014). Complexities in business organizations, unpredictable business environment and globalization have also increased risks facing firms and consequently leading to poor financial performance in Kenya. On the other hand, traditional risks that were not a threat to firms were now evolving while new risks were also emerging. Price Waterhouse Coopers (2012) found out that majority (90 %) of the chief executive officers (CEOs) felt that risks facing their firms were increasing; evolving and new ones were emerging. The financial sector in Kenya has also had problems in financial performance. In 2011,

over 520 cases of fraud valued at US \$ 3.3 billion were reported (KPMG, 2011). Such cases of fraud not only erode firms' financial performance but in some instances have led to business failure.

Ineffective ERM system mean that financial performance of firms in Kenya was weak and therefore not competitive compared with others with strong risk management system (Nocco & Sultz, 2006). Similarly, ineffective risk management implies that firms were facing high volatility in financial performance reflected in low net profit, earnings, firms' market values and share return (Schoech, 2002 and Smith, 1995). Weak financial performance leads to high rate of projects failure, disruption of operations, lack of coordination of project, damage in organizational reputation, high cost of regulatory scrutiny and capital (Hoyt & Liebenberg, 2008; Manab, Kassim & Othman, 2012 and Stulz & Nocco, 2006). Low economic growth and high cost of doing business makes a country uncompetitive as a business destination. Kenya was rated low (26%) in credit risk while the cost of doing business was relatively high at US\$ 46.3 compared with Botswana and Singapore at US\$ 10.6 and US\$ 0.8 respectively (Africa Insurance Agency, 2009 & KIPPRA, 2009).

The empirical evidence on effect of ERM on financial performance in Kenya is hardly available; most of the studies have concentrated on adoption and implementation of ERM. Similarly, there is no consensus on how firms could leverage on risk management to improve financial performance. The statistics in Kenya on weak financial performance is attributed to; increasing risks, traditional risks were evolving and new risks emerging. The findings also indicated that risks were manifested in the increasing economic crime and fraud (PWC, 2014, Waweru & Kisaka, 2012; Deloitte & Touche, 2012; KPMG, 2011 and CBK, 2010). Despite the fact that there was growing clamor for ERM, statistics showed that firms' financial performance remains unchanged while in some instances there were cases

of business failure in Kenya. This therefore means that there could be some underlying issues that have not been addressed in ERM.

This study takes a departure from adoption and implementation of ERM to finding out the perceived effect of ERM determinants on financial performance of the NSE listed firms in Kenya. To better understand these assertions, the study sought to carry out analysis of ERM determinants with objective of determination effect on financial performance of the NSE listed firms in Kenya. Such analysis is hardly available in Kenya and the outcome of the study forms a basis on enterprise risk management by firms in Kenya and also would fill in on the existing knowledge gap that firms could leverage on to improve financial performance.

1.3 Objective of the Study

1.3.1 General Objective of the Study

The broad objective of this study was to find out the effect of enterprise risk management determinants on financial performance of the NSE listed firms in Kenya.

1.3.2 Specific Objectives of the Study

The specific objectives of this study were;

1. To analyze the effect of firms' characteristics on financial performance of the NSE listed firms in Kenya.
2. To determine the effect of information technology on financial performance of the NSE listed firms in Kenya.
3. To examine the effect of staff capacity on financial performance of the NSE listed firms Kenya.
4. To establish the effect of regulatory framework on financial performance of the NSE listed firms in Kenya.

1.4 Research Hypotheses

The research hypotheses examined the effect of ERM determinants on financial performance of the NSE listed firms in Kenya:

H₀₁: There is no correlation between firms' characteristic and financial performance of the NSE listed firms in Kenya.

H₀₂: There is no correlation between information technology and financial performance of the NSE listed firms in Kenya.

H₀₃: There is no correlation between staff capacity and financial performance of the NSE listed firms in Kenya.

H₀₄: There is no correlation between regulatory framework and financial performance of the NSE listed firms in Kenya.

1.5 Justification of the Study

The aim of the study was to determine the effect of enterprise risk management factors on financial performance of NSE listed firms in Kenya. Firms that were targeted in this study were the ones listed in NSE in Kenya. These are the firms that play a critical role in economic development of a country by mobilizing resources for investment. A study of Africa Economic Outlook of 2012 indicated that Nairobi Securities Exchange (NSE) handles large amount of investment. Its capitalization was valued at KES 845.55 billion as at December, 2011. In terms of volume of capital mobility, equity turnover ranged between KES 272 million to 345 million daily (NSE, 2012). While having ERM process is not a guarantee of success, a solid risk culture and well communicated process can provide a competitive advantage that helps firms to make better investment decisions (Rudolph, 2009).

Enterprise Risk Management Survey conducted by Deloitte and Touche (2012) indicated that majority (71 %) of the firms within East African namely Kenya, Uganda and Tanzania had not implemented ERM. On the other hand, majority (75

%) of the CEOs indicated that the ERM was a responsibility of board of directors while in terms of rating (scale of 1 to 3, where 1 is the best, 2 is fair and 3 is weak) the effectiveness of ERM program by firms was indicated as either fair or weak (2 or 3) respectively. This implies that ERM in East Africa was weak and therefore this could be the reason for low mobilization of investment in the NSE. The following are the beneficiary of this study.

a). Board of Directors

The findings from this study will enable firms to develop relevant policies to guide firms in; capacity training for staff on ERM, allocation of resources to strengthened risk management functions, putting in place information technology that will be used in risk management and improving compliance to regulations on ERM. The directors of companies play a critical role in making investment decisions. Financial leverage decision involves planning on sources of capital to the business. These sources of finance to a business affect the capital structure, either through dilution of one particular source of capital or increasing one source of capital and therefore shifting control to the new majority owners. The findings from this study would assist directors of companies in carrying out their duties and in making decisions that affect capital structure.

b). NSE Investors

The findings from this study would provide additional knowledge to investors that will assist them on investment decision. The effect of ERM determinants on financial performance would provide additional information that could be used by firms to leverage on capital structure. Similarly, the study has also covered various types of risks such as economic crime and fraud, this information is useful to investors in determining the level of risks facing firms in Kenya. In terms of regulatory framework the NSE is the main player and therefore this study identified regulatory

challenges that might determine effectiveness of ERM programs and what needs to be done to address these challenges.

c). Stock Broker and other NSE players

The findings from this study will equip stock brokers and investors with additional information useful in understanding underlying issues on enterprise risk management that they need in advising their clients on prospective firms to invest. The effect of ERM on financial performance uses the variables that are of interest to investors such as earnings per share, share price per share and price earnings (P/E) ratio to measure financial performance. This study is useful in development of functional risk management structures within an organization that are needed to improve capacity on enterprise risk management.

d). Staff and Management

The findings from this study is useful to the management and all staff in various firms in the following way; implementation of ERM structures, building capacity for staff and designing integrated risk management functional departments to manage risk in organizations. Similarly, this study is useful to all managers heading risk management functions in Kenya. Through establishing effect of staff capacity on financial performance of firms, managers would be able to identify appropriate and effective methods to use in building staff capacity on ERM within their firms.

e). Researchers, Policy Makers, Professional and Chief risk Managers

Finally, the findings from the study will contribute to the body of knowledge by identifying how Kenyan firms manage risks in local setting. A enterprise risk management framework for research, policy makers, professional and chief risks officer has been formulated that will guide further research, appraise current risk management system and provide basic model for new policies and guidelines in changing business environment.

1.6 Scope of the Study

This study covered all the listed firms that had submitted their annual financial statements for the years ending on 31st December, 2008 to 2012 at Nairobi Securities Exchange (NSE). The listed firms were chosen because they are legally obligated by law to report in their financial statements measures put in place to manage risks and also they are obligated by law to submit every year audited financial statements to NSE. This implies that their financial statements reflect fair view of financial position and therefore are more reliable than the ones of firms not listed.

A census of all the NSE listed firms that had submitted audited financial statement were selected and from each firm three officers (managers) were chosen purposively from finance, audit and risk departments. In most cases they were involved in risk management and therefore could provide reliable information on the topic. The criterion used in choosing the target population is that all the firms that were operating within the period from 1st January, 2008 to 31st, December, 2012 were chosen. The firms that were listed within the period were excluded in the study since they did not submit the financial statements for the whole period of five years.

The study covered four key ERM determinants (firms' characteristics, information technology, staff capacity and regulatory framework) that influence financial performance of the NSE listed firms in Kenya since it was not possible to look at all the factors that influence effectiveness of ERM.

1.7 Limitations of the Study

There were three challenges in the study. First, the firms that did not have all the audited financial statement published in NSE handbook for the five year study period, however, information was collected from Capital Market Authority of Kenya. Secondly, the study experienced an initial slow rate of response from the respondents who complaint about sensitivity of risk management information. Mitigation was

done through assuring confidentiality of information given. Third; relating perception data collected through ordinal scale does not give the investigator the level of precision required in a study particularly, when strong statistical procedures are to be applied to financial analysis data. The problem was solved by use of time series which enabled determination of trends on financial performance which was compared using correlated figures of ERM determinants. Similarly, the use of open ended questions assisted also in capturing data which might not be included in the likert scale questions.

HAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the literature review and is divided into the following sections; 2.1 is the introduction, 2.2 theoretical review, 2.3 conceptual framework, 2.4 empirical literature review, 2.5 critique of the empirical literature and 2.6 research gaps.

2.2 Theoretical Review

This section covers the theories, models and frameworks that are relevant in explaining the effects of enterprise risk management on financial performance of listed firms in Kenya. The financial theories covered include capital structure theory, pecking order theory, trade off theory and agency theory. The ERM framework include ERM-Integrated framework developed by the Committee of Sponsoring Organizations of Treadly Commissions (COSO) and ERM maturity Model. The other theories relevant to ERM include Diffusion innovation theory, institutional theory and organization learning theory.

Theoretically, risk management plays a key role in improving firms' financial performance (Kaplan *et al.*, 2008). Despite substantial interest in ERM programs, there is limited empirical evidence regarding the impact of such programs on firms' financial performance (Hoyt & Liebenberg, 2008). Similarly, there is contradiction between various scholars on the importance and benefits of ERM to the value of the firm (Pagach & Warr, 2010 ; Razali & Tahir, 2011). Tahir and Razali (2011) found out that although there was relationship between firm value and ERM, the relationship was not significant. However, Pagach and Warr (2010) found out that there was little evidence on any significant change in value of the firms that had adopted ERM. The inconsistency on impact of ERM and the fact that most of the studies on ERM had concentrated on implementation and adoption of ERM is the reason for choosing this study.

2.2.1 Cost and Revenue Efficiency Theory

Cost and revenue efficiency theory is useful in measuring financial performance of a firm. Grace *et al.*. (2010) explained the efficiency theory as a firm's ability to marshal its resources for productivity. Cost efficiency is a strategy of operating with minimum required costs to produce a given level of output while revenue efficiency is a ratio of the revenues of a given firm to the revenues of a fully efficient firm within input vector and output prices.

Demodaran (2008) explained that financial performance can be measured in terms of efficiency in management of current and rate of acquisition of new assets. Pagach and Warr (2008) used financial efficiency and operation efficiency to measure a firm's value. Pandey (2009) used ratios to measure financial performance of a firm such as; liquidity ratio, solvency ratio, profitability ratio, asset ratio, and current ratio. On the other hand, Grace, Leverty, Phillips and Shimpi (2010) used efficiency in mobilizing resources for production to measure financial performance of firms.

Other methods that can be used to measure financial performance include; financial analysis, agency costs, Tobin's Q, corporate social responsibility and discounted cash

flows. Altuntas *et al.* (2011) assert that shareholders want managers to invest in a project where the expected returns exceed the expected costs. In this spirit, integrated financial performance measurement is a risk management tool in which financial performance measures are linked to business success strategies.

The agency relationship between the shareholders and managers can influence financial performance. A conflict between the management and the board of directors has a cost implication to a firm. This cost is known as agency costs and it affects market value of shares. Demodaran (2008) explains that agency costs are in four categories namely; costs associated with the conflict arising from the relationship between stockholders and managers, costs arising from conflict between stockholders and lenders, costs arising from conflict between a firm and financial market on information released by a firm and cost arising from the conflict between a firm and the society in the process of maximizing stock prices creating substantial costs to the society.

Pandey (2009) pointed out that financial performance can be measured financial analysis using the balance sheet items and the income and expenditure accounts by calculating ratios. A ratio is used as benchmark for evaluating the financial position and performance of a firm (Pandey, 2009). The financial analysis items used to measure financial performance in this study were extracted from balance sheet and profit and loss account. The items extracted from the audited financial statements of the firms were; share price, net profit, earnings per share, dividend per share, price earnings ratio and net asset value.

Tahir and Razali (2011) explain that Tobin's Q method is also used to measure financial performance of a firm. The Tobin's 'Q' method is named after the founder of the method, James Tobin in 1969. The measure uses a percentage of firm's market value of asset to replacement cost of the firm's assets. The 'Q' is an alternative solution for firms to measure performance since it contains a combination of accounting and market information and it is free from managerial manipulation. The approximate 'Q' derived is from the product of a firm's share price and the number

of common stock shares outstanding plus firm's preference stocks plus total net debt; then divided by the book value of the total assets of the firm (Hoyt & Liebenberg, 2009 and Tahir & Razali, 2011).

Tahir and Razali (2011) recommended the use of Tobin's Q as standard proxy to measure the value of a firm using a model. This method had been used in determining economic decisions such as the cross-sectional studies of differentiation between investment and diversification; connection between managerial equity ownership and firm value; relationship for managerial performance and earnings; relationship between investment opportunities and tender offer responses, financing, dividend and issues in compensations policies. A firm creates value if the return on investment is greater than the cost of investment. The marginal 'Q' is exceeding one if a firm is adding value and if it fails to add value then it is less than one. In the equilibrium state the marginal 'Q' is equal to unity. Tobin's 'Q' is used as a proxy of firm value to measure the effects of ERM on firm value in a situation where there exist other variables such as size, leverage, profitability, international diversification and majority shareholder (Hoyt & Liebenberg, 2009 ; Razali & Tahir, 2011).

The benefits from ERM program is reflected in improved management, accountability, governance practices, achievement of corporate strategies and organizational goals. Muralidhar (2010) pointed out that the indicators measuring corporate social responsibility include; sustainable employment to nationals, subsidized products for local markets, supporting community welfare and upliftment, leadership in environmental protection and engaging local enterprises in business. These measures and models were used to evaluate firm's financial performance and were integrated in the research instruments to assist in evaluating the influence of ERM on financial performance of listed firms in Kenya.

Revenue efficiency is another indicator of financial performance used to measure sustainability of cash flow. Discounted cash flow can be used to measure strength of a firm to generate revenues. Discounted cash flow explains the basic approach used to evaluate a firm in four ways; firm's ability to generate positive cash flow from

investment of assets, expected growth rate of its cash flows, length of time that a firm can take to reach stable growth and cost of capital (Tahir & Razali, 2011).

In conclusion, the indicators of financial performance are multifaceted and the use of ratios incorporate all the indicators namely; cost and revenue efficiency, cash flow, asset management and corporate social responsibility. This study used financial analysis to measure effect of ERM on financial performance. The key items of analysis were generated from the financial statement extracted from audited reports submitted to Nairobi Securities Exchange by NSE listed firms. The ratios extracted to measure financial performance were; share price, net profit, earnings per share, dividend per share, price earnings ratio and net asset value.

2.2.2 Capital Structure Theory

Capital structure in this study was used to explain the effect of firm's characteristics on financial performance. It is a logical argument that when a firm's size increases the nature of events threatening it will be different as well. Conceptually, large firms were able to accumulate adequate resources to protect itself from unanticipated events through effective ERM system (Beasley *et al.*, 2006). Consistent with this rational theory, Hoyt and Liebenberg (2008) found out that ERM users were systematically different from non-users, in terms of their financial characteristics, ERM users were larger, more internationally, industrially diversified and less capital constrained than non-users. Furthermore in terms of ownership, they tend to have higher levels of institutional and insider ownership than non-users.

There is discrepancy among different scholars on the effect of capital structure on firm's earnings. Modigliani and Miller (M & M) (1958) theory is considered as modern capital structure and founded on the premise that under the exclusion of brokerage costs, tax and bankruptcy cost investors can borrow at the same rate like corporations; and earnings before interest and taxes (EBIT) is not affected by the use of debt. Modigliani and Miller in essence suggested that capital structure is irrelevant on capital financing decisions (Tasseven & Teker, 2009). The M&M theory suggests

that decision whether to use debt or not does not have an impact on earnings of a firm.

On the other hand, other scholars have contested the M&M theory that capital structure has no effect on firm's earnings. Nirajini and Priya (2013) explain that capital structure plays a role in influencing firm's earning. High level of debt capital attracts high fixed costs in terms of interest payable and other management costs. Tahir and Razali (2011) explains that capital structure ratios also known as leverage ratios show the proportion of debt and equity in financing the firm's assets. Using leverage ratios financial performance of a firm can influence a firm's earnings. Generally there are two types of leverage; financial and operating leverage. Financial leverage is used to judge the long-term financial position of a firm while operating leverage is used to assess the short term financial position of a firm. Financial leverage compares the ratio of debt capital to equity capital while operating leverage ratios is computed from operating profits to assess whether they are sufficient to cover fixed cost (Pandey, 2009). These ratios indicate mix funds provided by owners and lenders.

The manner in which assets are financed has a number of implications. Tahir and Razali (2011) explain two ways in which capital structure can affect financial performance of a firm: First between debt and equity, debt is more risky from the firm's point of view. The firm has a legal obligation to pay interest to debt holders, irrespective of the profit made or losses incurred by the firm. If the firm fails to pay debt holders in time, they can take legal action against it to get payments and in extreme cases, can force a firm into liquidation. Second, use of debt is advantageous for shareholders in the following ways: they can retain control of the firm with a limited stake and their earnings will be magnified and when the firm earns a rate of return on the total capital employed higher than the interest rate on the borrowed funds.

a. Pecking Order Theory

Pecking order theory is related to the capital structure theory in the sense that it informs the decision on the strategy used to attain optimal capital structure which reduces risks involved. Pandey (2009) explains that pecking order theory is the preference in use of financing decision starting with the internal sources of financing to equity financing. If internal financing does not meet the needs of the firm, then they can use external financing. The financing decision procedure starts with a firm using bank loan, then preference shares before eventually issuing ordinary shares. Thus the profitable firms are less likely to opt for debt for new projects because they have available funds in form of retained earnings (Gill & Mathur, 2011). Effective mix of capital structure stabilizes income in terms of profit and less litigations cases leading to improved financial performance. The Pecking order phenomenon is consistent with firms slowly changing their capital structure as internal equity is made available or if the debt levels can be supported (Turner, 2010).

b. Tradeoff Theory

The tradeoff theory was used in this study to explain the reasons behind decisions to use specific capital financing strategy. The theory suggests that a firm's target leverage is determined by taxes and cost of financial distress. Sorana (2012) explains the tradeoff theory as the balance between tax gains provided by debt and bankruptcy costs, a balance obtained through a debt to equity ratio that ensures an optimal structure. Based on this theory, since the interest payments are tax deductible (allowable), in effect, debt provides tax shelter benefits. Consequently, adding debt to a firm's capital structure lowers its corporate tax liability and increases after-tax cash flow available to providers of capital. However, in practice, firms rarely use totally debt financing. When a firm raises excessive debt to finance its operations, it may default on this debt and thus can be exposed to bankruptcy costs. For these reasons, trade off theory claims that tax shield benefits of debt financing need to be adjusted for financial distress cost that rise with increasing debt levels, creating an optimal capital structure that balance both forces (Tasseven & Teker, 2009; Pandey, 2009). This implies that decisions on capital structure is also influenced by costs

associated with debt capital such as bankruptcy costs and financial distress and therefore balance on gains and losses on firm's capital structure is important.

c. Agency Cost Theory

Firms' characteristic is also measured by ownership structure and management organization. Investment decisions are influenced by ownership structure. Mathur and Gill (2011) argued that proper match of capital structure assist a firm to make better financial decisions. Arnold (2008) explains that managers (the agents) may not always act in interests of shareholders. One way in which shareholders use to regain some control over the use of their money is to insist on relatively high payout ratios. The Institute of Chartered Accountants (ICA) (2005) explains that agency problem arises due to lack of information, self-interest, lack of trust and temptation to pursue personal goals. The principals (shareholders) would seek to resolve these concerns by putting in place mechanisms to align the interests of agents with those of principals and to reduce lack of information.

Donaldson and Davis (1991) suggested mechanisms that can be used to reduce costs associated with agency such as incentive schemes for managers which reward them financially for maximizing shareholders' interests, tie executive compensation and levels of benefits to shareholders returns and have part of executive compensation deferred to future to reward long-run value maximization of corporation and deter short-run executive action which harms corporate value. Pandey (2009) also explain that agency relationship affect decisions of managers on investment. Major decisions which may affect the interest of principals involve financing decisions (leverage) and employment of staff to implement strategies being pursued. The mistrust between shareholders and managers can lead to risks in terms of costs associated with agency relationship.

Enterprise risk Management is a strategic intervention targeted at reducing undesirable and unpredictable events in business. It is aimed at improving decisions made by management on financial decisions. Emery *et al.* (2007) explain that proper

mix of financial leverage assist a firm to finance its operation with losing control as a result of dilution of capital. Tasseven and Teker (2009) explain that debt financing creates leverage, because interest charged on loan is tax deductible (allowable expense) is expected to free up some amount of cash for investment activities.

On the other hand, there are risks that might arise from the use of debt capital, the higher the debt ratio, the riskier the company hence eroding firm's creditworthiness. Companies with low earnings can experience cash flow problems leading to liquidity crisis and financial distress. Financial leverage can be used to acquire more assets needed to generate income and hence improve financial performance of a firm. ERM assist in reducing unpredictable events affecting businesses, improved income flows and low agency costs is an indicator of sound financial performance.

2.2.3 Diffusion Theory

Diffusion theory was used to explain the process of managing risk in an organization using information technology. Pincher (2008) assert that diffusion of innovation is a process that incorporate changes in an organization to solve existing problem and seeks to explain the process of acquiring new innovations. The key elements of innovation are; significant change in products or service, communication channels, time and solid system. The level of technology adoption is explained in terms of usage of technology to manage risks in an organization. Pincher (2008) added that the process of adopting technology in an organization by use of technology acceptance model (TAM). The TAM influences user acceptance factor and it determines the success of an IT adoption, captures an individual's intention to accept or adopt information technology. Pincher further, pointed that intention to adopt information technology is highly correlated with actual adoption.

The Institute of Management Accountants (IMA) (2007) found out that information technology using intranet plays an important role in risk identification process. The

group responsible for a company's ERM process can encourage units to place their best practices on the ERM site. Risk checklists, anecdotes and best practices on the intranet serve as stimulation and motivation for operating management to think seriously about risk in their unit (IMA, 2007). The use of information technology prevents and assists in mitigating risks. Prevention and risk mitigation has cost implication to a firm and most likely leads to a positive impact on financial performance of a firm.

Anderson *et al.* (2004) argued that in some organizations, information technology is managed separately by unit or function, whereas others have integrated systems. The component on information and communication on COSO ERM – Integrated Framework shows that with added focus on information technology assist in monitoring risks from a central point and thereby saving costs if silo-base information technology was maintained. Anderson *et al.* (2004) added that web service-based information strategies enable real-time information capture, maintenance, and distribution across units and functions, often enhancing information capture, better controlling multiple sources of data, minimizing manual processing of data, enabling automated analysis and reporting. The improvement on financial performance could be attributed to introduction of real time risk management which leads to reduction in risks.

Using risk-integrated information technology system, an open architecture, technologies such as extensible business reporting language (XBRL), extensible markup language (XML) and web services are used to facilitate data aggregation, transfer and connectivity between disparate or stand-alone systems. The XBRL is; an open, royalty-free, and internet-based information tool for business reporting of all kinds. The XBRL labels data so that they are provided with context that remains with them and brings conformity to the names by which they are recognized by disparate software. Web service is an internet protocol for transporting data between disparate applications, within a company. The XBRL, used web services, facilitates automated business information exchange across diverse platforms and different applications

and automates business reporting processes. The aggregation of risk management provides a well-coordinated system that leads to cost saving with an implication on financial performance (Anderson *et al.* (2004).

2.2.4 Organization Learning Theory

Staff capacity on ERM is based on the premise that knowledge is important to all firms and in knowledge based economy the capability of individual firm is critically underpinned by knowledge. Organization learning theory was used to explain the process and importance of staff development to an organization. Johnson and Scholes (2002) pointed out that the theory of critical success factors is anchored on cross functional staff. Manab *et al.*, (2012) explain a cross function team as a group of people from various disciplines who have high skills, knowledge and experience and are put together as a team for a specific and temporary task within a time frame under significant pressure or conflict. This implies that cross functional staff is responsible for responding to risk encountered by a firm and they clearly understand how to manage these risks.

Organization learning theory explains the process which leads to changes in organization knowledge on behaviors with implication on organizational outcome. Organization learning draws much of its appeal from the presumption that organizations are capable of intelligent behavior and that learning is a tool of intelligence (Schulz, 2001). This theory therefore means that organization collects experiences, draw inferences and encode inferences in repositories of organizational knowledge. In this view, staff behaviors shapes the complex learning processes which combine current experiences with lessons learned.

a). Benefits of Knowledge Management

Mullins (2010) argued that staff capacity development has a positive impact on financial performance of a firm in the following ways; changed organizational

behavior, respond to issues, use of resources and improved managerial capability and integrity. The change in behavior influences financial performance by increasing profitability, improved service delivery, meet demand of customers, adaptable to specific requirements, changes in the environment and demands of the situation. Lucey (2005) on the other hand, explains knowledge management as the processes by which an organization formally creates, gathers, organizes, analyses, shares and applies new ideas in production. The application of knowledge is manifested in effective use of resources, quality of documents and products produced.

Lucey (2005) expounded knowledge management by linking it to tacit and explicit knowledge. Tacit knowledge is intuitive and involves personal beliefs, perspective and values. It is the knowledge we each carry in our mind about how to do things, deal with problems and the lessons learned from experience. Explicit knowledge is recorded or formal knowledge. Explicit knowledge deals with details of processes, procedures, records of all types, manuals and data bases accessible to all in the organization. One of the key objectives of knowledge management is to transform tacit knowledge into explicit knowledge thus enabling individual, to engage in productive activities.

Lucey highlighted three targeted intervention areas of staff capacity which has an impact on financial performance of a firm; strategic, tactical and operation level of staff. The target for capacity at the strategic level is on; objective setting, policy development, long-term planning and investment. The target for tactical level is; establishment and monitoring of budget, acquisition of resources and implementation of policies. The target for operation level are; effective use of facilities and resources and making routine day-to-day decisions.

b). Organization of Training

Effective staff capacity development depends on; organization's training areas, objectives and resources. The success of enterprise risk management depends on employees who implement risk management policies and strategies developed. Staff capacity development is expected to change behaviour of an employee in terms of job performance. Cole (2002) pointed that effective training is influenced by the trainee behavior, experience and condition of the training. The current understanding of learning has been influenced by a variety of past scholars and researchers. Early scholars such as Plato and Aristotle saw that the exercise of mental faculties (reason, memory and willpower) can contribute to the development of individual and the community. Training requires extensive self-discipline and control, relying firmly on the belief that learning is fundamental matter of innate intelligence. The effect of extensive self-discipline assumes that learning is structured, teaching methods are didactic (telling/directing), and the subject matter is taken to be important. Learning is a complex process of acquiring knowledge, understanding, skills and values in order to be able to adapt to the environment. This process depends on a combination of factors such as innate (inherited) characteristics such as intelligence, readiness to respond to learning opportunities (motivation), teaching skills of the trainers and conditions under which training takes place. Effective implementation of strategies on risk management training enables a firm to achieve its objective and hence leading to improved financial performance of a firm.

Mullins (2010) identified five basic features of a learning organization; first, systematic thinking which recognizes that things are interconnected and organizations are complex system; second, personal mastery with competences and skills for management and spiritual growth; third, mental models drives organization and fundamental values and principles; fourth, shared vision promotes importance co-operation and a shared vision by team members and fifth, team learning ensures mutually complementary practices of dialogue and discussion. Effective integration of competences, teamwork, mental models and skills required in improving ERM in a firm leads to improve financial performance of a firm.

c). Knowledge-Creation Model

Effective staff capacity program is expected to equip staff with competences that promotes innovation and efficiency reflected in firm's financial performance. Cole (2002) explain training methods is the means by which a trainer intend to communicate information, ideas, skills, attitudes and feelings to a learner. Training methods is categorized into two groups; off-the-job location and on-the-job location. The off-the-job location, such as a training centre or educational institution, emphasis is on learning new skills to apply in job performance, understanding of general principles, providing background knowledge and generating an awareness of comparative ideas and practices. The emphasis on-the-job location is more on the acquisition of specific and local knowledge in a real situation. Both blend of skills strategies are required in risk management because of evolving risks, understanding the background, awareness, acquisition of specific and local knowledge enable a staff trained to handle risks in a better way.

Nonaka and Takeuchi (1995) alluded that the success of most of the Japanese firms is based on creativity and innovation which is attributed to use of tacit knowledge. It was discovered that the success was not from mechanical processing of some objective knowledge, but from elements interacting with a market and observing what is required. It is therefore, necessary to integrate cross cultural diversity to bridge the knowledge gaps to enable production. Knowledge creation normally begins at individual level and moves to the organizational (Nonaka and Takeuchi, 1995). Staff creativity and innovation in meeting the expectation of customer needs and market challenges can equip staff with capacity to manage in an innovative manner.

Using Nonaka and Takeuchi model, it can be deduced that knowledge creation takes place in a continuum in all compartments of the organization. The model shows four modes of knowledge conversion. The creation of organizational knowledge represents the amplification of individual knowledge and its transformation into general applied knowledge. Figure 2.1 show the Knowledge – creating system which

can be used to encourage innovation and creativity. In the risk management the interaction is expressed through socialization, social interaction among the risk management employees and shared risk modeling experience; combination, merging, categorizing, reclassifying and synthesizing the risk modeling process and internalization, learning and understanding from discussions and mathematical modeling review (Cristea & Capatina, 2009).

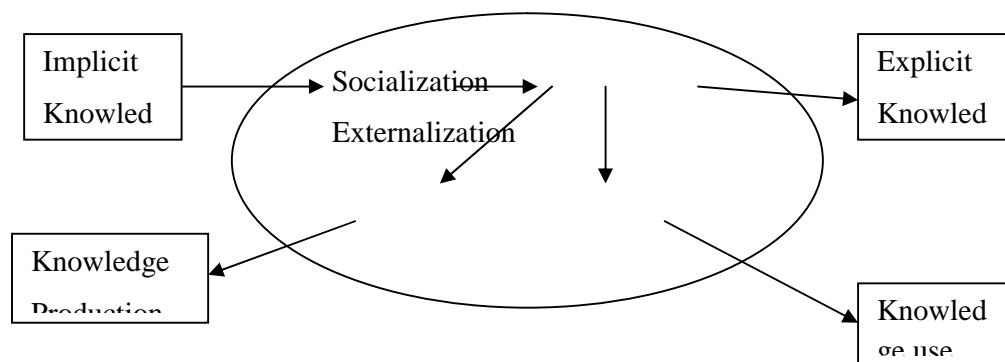


Figure 2.1: Knowledge – Creating System (Adopted from Nonaka & Takeuchi, 1995)

Rodriguez and Edwards (2009) explain that knowledge processes in risk management passes through four stages. Stage one; knowledge creation where new ways of managing risks are developed and potential effects identified. Acquisition, synthesis, fusion and adaptation of existing risk knowledge are parts of the way to understand new and current risks. Stage two involves knowledge storage and retrieval, risk management actions and methods required in codification, organization and presentation of risk knowledge. The key activities are; preservation, maintenance and indexing of risk knowledge. Third stage is concerned with knowledge transfer, since ERM is a multidisciplinary activity; interdepartmental development and a holistic view of risk across the organization require knowledge dissemination and distribution in order to develop risk management. The final stage is knowledge application, this involves conversion and adoption of best practices in risk management, developing products and methods for risk control. Staff capacity

development is necessary in implementing organizational strategies, this involve defining the roles and responsibilities of staff, identifying champions to implement policies developed, developing processes, methodologies, tools, techniques and technologies used in ERM system. This model was used to assess effectiveness of training methodology on ERM.

d). Training Assessment Model

Training assessment model was used to evaluate effectiveness of staff capacity training on risk management. Training assessment is a process done to evaluate the value or worth of training, to find out training activity and look for possible improvement to the training (Cole, 2002). Hamblin (1974) developed a model used to evaluate training. The model identifies a number of evaluation strategies linked to training effects. According to Hamblin's view the training can bring about a chain reaction in the organization and evaluation strategy at each key stage can be selected as indicated in Table 2.1. The Hamblin's model assesses training events namely training, reactions to training, learning outcome, changes in individual trainees, organizational changes and impact of training on outcomes.

Table 2.1: Training Effects and Evaluation Strategies (Adapted from Hamblin, 1974)

Event	Evaluation	Focus
training	training centred	training resources
↓		
training reactions	Reactions-centred	Learners
↓		
Learning	learning-centred	Learners
↓		
changes in job behavior	Job-behaviour related	learners and supervisors
↓		
changes in the organization	Organization development	the corporate organization
↓		
impact on goals of a firm	Cost-benefit analysis	Financial considerations

Similarly, training assessment can also be done using Kirkpatrick's learning and training evaluation model. The model is divided into four levels namely; reaction, learning, behaviour and results levels of training program. The expectation at each level of training are critical as it is expected to address the following evaluation objectives, characteristics portrayed, evaluation tools methods and relevance of the training (Nonaka, 2000). The model can be used to assess effectiveness of ERM training in addressing staff capacity.

The Kirkpatrick's learning and training evaluation model has four levels of evaluation targeting training objectives (what the trainees think about the training), training effects, training impact reflected on behavior change, skill improvement reflected on results and implementation of assigned tasks and the effects on the business environment. Every level has indicators to measure characteristics, tools and methods and relevance (Nonaka, 2000). The grid in Table 2.2 illustrates the basic Kirkpatrick levels of learning and training evaluation. The model is also used to assess effectiveness of ERM training.

Table 2.2: Learning and Training Evaluation Model (Adapted from Nonaka, 2000)

Level	Evaluation type	Nature of Evaluation	Evaluation tools and methods	Relevance
1	Reaction	Trainee's feelings on training.	Forms/ Verbal reaction, post-training surveys or questionnaires.	Quick, cheap to gather or analyze.
2	Learning	Increase in knowledge - before and after.	Assessments or tests before and after the training. Interview or observation can also be used.	Clear-cut for quantifiable skills. Less complex learning.
3	Behaviour	Behaviour/application of learning on the job.	Observation/ interview over time on change behaviour, relevance and sustainability of change.	Reports from managers.
4	Results	Environment Effects	Management systems and reporting - related to the trainee.	Easy/attribute clear accountabilities.

In comparison, Hamblin's model captures more aspects of evaluation elements than Kirkpatrick model. Such aspects are training resources, methodology and impact of training by looking at changes in an organization through evaluation of effectiveness in terms of corporate organization and development.

2.2.5 Institutional Theory

Institutional theory was used to explain the relationship between regulatory framework and financial performance of the listed firms in Kenya. Institutional theory describes a firm in terms of legal system, anti-trust regulations, patent protection, market size and development of financial market (Jonsson, 2007). Manab *et al.*, (2012) alluded that compliance to regulations and standards is considered as one of the critical success factors. Compliance is considered as an essential complement to ERM hence an effective value based enterprise requires a strong reinforcement of compliance systems. Rasid and Golshan (2012) explain that firms operating in intensive regulated industries were more likely to adopt ERM than those which were in a less regulated industry. This implies that firms are influenced by rules and regulations from either host or country of origin. In addition, Manab *et al.*, (2012) found out that firms that had complied with rules, regulations and standards for listing regarding corporate governance and risk management had improved value.

A firm can be classified in terms of ownership, organization structure and the legal system. Bauman and Kaen (2003) explained that a firm can be classified according to technological capacity, organizational structure and institutional framework. The technological capacity is based on the ability to use modern technology in production process, physical capital, economies of scale and scope as the variables that can determine organizational firm size. The Organization structure is based on profitability and size together with organizational transaction costs, agency and span of control costs. Organization structure includes critical resource and competences held by a firm. The institutional framework relates to a firm ability to influence operation through legal system, anti-trust regulation, patent protection, market share and development of financial market.

The relationship between a principal and an agent is guided by laws developed such as companies Act 486 (GOK, 2009). The principal and agent relationship separates corporation ownership and control potential that can lead to self-interest actions by managers who might want to pursue personal benefits such as more prestige, better pay and stock option. Jonsson (2007) explained the forces within an organization that influence operation of a firm through Porters Generic model. The Porter's generic model is used to explain institution capacity in terms of; overall cost leadership, product differentiation and focus-based domination. The institution framework suggests that an organization seek to behave in a way that would not cause it to be noticed as different and consequently be singled out for criticism. A firm that is able to manage conflict arising from the agency relationship maximizes combination of generic strategies and control behavior that could make it to be singled out for criticism.

In terms of ownership, William (1985) alluded that the strength of a firm is based on asset ownership and volume of transactions, routines, control activities and tasks which can influence decisions to make or buy an asset. The asset ownership gives a firm the right of usage unlike when the asset is not owned. A firm would consider vertical integration when asset ownership is shared or horizontal and one party has comparative advantage over another. The decisions on ownership structure, volume of transactions, control, integration and mergers are guided by existing regulatory framework.

Mullins (2010) explains that in America and Canada, organizations codes of conduct were very common and in many cases members of an organization were expected to sign the code of conduct to confirm formally their acceptance. In United Kingdom (UK) an increasing number of organizations, of all types, were also now publishing code of ethics (or code of conduct). The Chartered Management Institute has developed a Code of Professional Conduct and Practice, which is binding to all members of the institute, and sets out professional standards of conduct and competence, as well as personal values, members are expected to exemplify.

Effective implementation of rules and regulations improves financial performance by reducing costs of mitigation and litigations arising from risks.

In Kenya, public listed firms are governed by a number of regulations such as; the Companies Act Cap 486, Nairobi Security Exchange Regulations, Capital Market Authority Act Cap 485. Insurance companies are also governed by Insurance Act (Amendment) 2006, Cap 487. A number of rules and regulations have been developed to govern risk management in various sectors in Kenya. Among the policies developed in Kenya to govern risk management include; National Disaster Management Policy of 2009, Central Bank of Kenya guidelines of 2005 on risk management by commercial banks and financial institutions insurance. The Central Bank of Kenya Act Cap 491 empowers the CBK to supervise commercial banks and financial institutions. The development of enterprise risk management policy assist in minimization of costs associated with risks leading to improvement in financial performance of firms. The other key legislations that have been enacted to assist in operation of business activities include; Public Health Act, Occupation Safety and Health Act (OSHA), Environmental Management and Coordination Act and the Work Injury Benefit Act are among the laws that guide operation of businesses in Kenya. Failure to comply with any of these acts leads to litigation which has cost implication to a non-compliant firm and can be a source of risk.

The United State of America has a procedure for risk management; Sarbanes-Oxley Act has been developed to assist in implementation of ERM (COSO, 2006). The Germany has developed legislation on risk management known as Kong Trag legislation, it requires that large companies establish risk management supervisory systems and report controls mechanism to shareholders periodically. In United Kingdom (UK), firms listed in London Stock Exchange and incorporated in UK are required to report to shareholders on a set of defined principles relating to corporate governance (known as the combined code and supported with guidance provided by the Turnbull Report) (Protiviti, 2006). The new Basel Capital Accord, issued by the Basel Committee on Banking Supervision, requires financial institutions to report on

operational risk (Protiviti, 2006). These laws and procedures are meant to guide operation of a firm and therefore reducing litigation and scrutiny costs leading to improved financial performance of the firm that comply.

Financial Reporting Council in United Kingdom has developed and published the combined code on corporate governance in 2003. The code provides the role of the board of directors in risk management that include development of a framework for effective control and management of risks. In 2005, the Financial Reporting Council also published Internal-Revised Guide for directors on combined code, which is a revision of the Turnbull report first published in 1999. This guide assumes that a company's board uses risk-based approach for internal control (IMA, 2011). Similarly, the King II Report on Corporate Governance for South Africa (King II Report) was published in 2002 to promote corporate governance. The report explains the role of board of directors, risk management committee and internal audit in risk management. The specific role of the board on risk management and risk management committee is to; develop policies on risk, monitor implementation and take remedial action. The internal audit or risk officers implement risk management policies developed, assess the risk processes; assess the risk exposure in terms of physical and operational risks, human resource risks, technology risks, business continuity and disaster recovery, credit and market risks and compliance risks (Shenkir & Walker, 2011). This implies that integration of risk regulatory framework improves compliance to business regulations and therefore promotes corporate governance and reduction on risks leading to improved financial performance of a firm.

2.2.6 ERM Maturity Model

Enterprise risk management theories for this study are grouped into two; ERM maturity model and ERM integrated framework. Enterprise risk management framework developed by Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2004) was used to measure the indicators of ERM while

Enterprise risk management maturity model was used to measure the level of ERM for each firm.

a. Enterprise Risk Management Maturity Model

Enterprise risk management maturity model was used to explain the level of adoption of ERM by the firms. An entity's risk management philosophy is the set of shared beliefs and attitudes characterizing how an entity considers risk in everything it does; starting with strategy development and implementation, policy statements and all communication within and without the organization (Anderson, Boyle, Brady, Bridge, Bromfield, Chamblee,..., Liebfried, 2004). Enterprise Risk Management is viewed by many scholars as a fundamental paradigm shift in managing portfolio of risks confronting organizations (Gordon, Loeb & Tseng, 2009; Hoyt & Liebenberg, 2009 and Nocco & Stulz, 2006). It is a new concept fast ascending the corporate agenda globally (PWC, 2012 ; Woon, Azizan & Samad, 2012). The fact that ERM is gaining support in corporate agenda is an indicator that ERM can influence financial performance. Effective ERM assist in addressing the challenges arising from changing business practices, complexities in business operation, unpredictability of business environment and increasing regulatory scrutiny.

Enterprise risk management promotes increased risk awareness which facilitates better operational and strategic decision making (Hoyt & Liebenberg, 2009). Driving this trend is the belief that ERM offers companies a more comprehensive approach towards risk management than the traditional silo-based risk management approach (Gordon *et al.*, 2009). Contrary to this, looking at portfolio theory, in a frictionless capital market with no asymmetric information, risk management at a firm level has a negative net present value (NPV) (West, 2006). However, Nocco and Stulz (2006) argued that risk management activities add value to shareholders when agency costs, market imperfections and information asymmetries interfere with the operation of perfect capital markets. Goshan and Rasid (2012) alluded that in today's business environment firms have become more risk-aware and this may be the result of

corporate governance scandals and improper financial management cases and also to some extent terrorist attacks threat for firms.

Institute of Management Accountants (2007) developed a framework used to assess the level of risk management known as ERM maturity model. The ERM maturity model implementation has three phases. Phase one is building foundation on ERM, phase two is ensuring ERM is devolved to all business levels in an organization and phase three is ensuring ERM has been implemented in an organization. The model is shown in Figure 2.2.

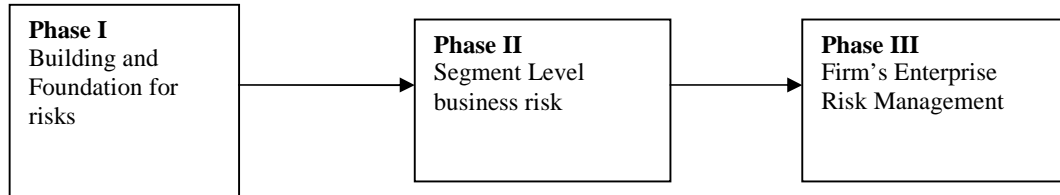


Figure 2.2: ERM Maturity Model (Institute of Management Accountants, 2007)

As expounded by the Institute of Management Accountant (2007), phase one describes activities undertaken at the initial stage in ERM implementation such as; building executive-level support, strengthening core team and operating model, aligning expectations through a risk management commitment process and developing segment-level risk management commitment. Phase two involves devolving ERM to all departments within an organization and the key activities include; executing a consistent risk management approach across all segments, engaging specific areas to help the business remediate significant risk issues, fulfilling segment risk management commitment and ensuring all staff at appropriate levels engage in risk management process and demonstrate the tangible value of discipline risk management process within each segment. Phase three involves creating commitment and accountability by connecting all the segments dealing with ERM in an organization. The ERM maturity model was used to assess the effects of ERM on financial performance.

b. Enterprise Risk Management-Framework

Enterprise risk management framework was used to assess the relationship between ERM and financial performance. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) developed a framework known as ERM-Integrated Framework which is used to assess effectiveness of ERM (Anderson *et al.*, 2004). The framework is a landmark model broadly used for benchmarking and as well as improving organizational risk management systems (Muralidhar, 2010). In addition, the framework is used to improve internal control systems and provide a system that

addresses organizational risks in comprehensive manner as opposed to dealing with individual types of risks through a “silo-based” risk management (Quinn, 2006). The COSO integrated framework has eight components used to evaluate ERM and to assess efficiency of a firm. These components are used for; internal control mechanisms, objective-setting, event identification, risk assessment, risk response, control activities, information and communication and monitoring (Anderson *et al.*, 2004). The diagrammatic representation of the COSO model is contained in figure 2.3.

COSO ERM Integrated Framework

Internal Environment

Risk Management Philosophy – Risk Appetite – Board of Directors – Integrity and Ethical Values – Commitment to Competence – Organizational Structure – Assignment of Authority and Responsibility – Human Resource Standards

Objective Setting

Strategic Objectives – Related Objectives – Selected Objectives – Risk Appetite – Risk Tolerances

Event Identification

Events – Influencing Factors – Event – Identification Techniques – Event Interdependencies – Event Categories – Distinguishing Risks and Opportunities

Risk Assessment

Inherent and Residual Risk – Establishing Likelihood and Impact – Data Sources

Risk Response

Evaluating Possible – Selected Responses – Portfolio View

Control Activities

Integration of Risk Response – Types of Control Activities – Policies and Procedures
– Controls over Information Systems – Entity Specifics

Information and Communication

Information – Communication

Monitoring

Ongoing Monitoring activities – Separate Evaluations – Reporting Deficiencies

Figure 2.3: Elements of ERM–Integrated Framework (Anderson *et al.*, 2004)

Anderson *et al.* (2004) explain that the internal environment component reflects an entity's ERM philosophy, risk appetite, board oversight, commitment to ethical values, competence and development of people, and assignment of authority and responsibility. It encompasses the “tone at the top” of an enterprise and influences the organization's governance process, risk and control consciousness of its people. The internal environment framework aspect was used to assess effect of ERM determinants on financial performance.

The objective-setting component encompasses the level of setting strategic objectives, establishing a basis for operations, reporting procedure and compliance objectives. The objectives are aligned with the entity's risk appetite, which drives risk tolerance levels for the entity. The event identification component covers factors that influence risks, techniques used to identify risks, how linkages to manage risks can be created, categories of risk, distinguishing risks and opportunities. The objective component of the COSO ERM framework was used to assess the effect of regulatory framework on financial performance.

The risk assessment component comprises inherent risk and residual risk, establishing likelihood and impact of risk and data sources. Anderson *et al.* (2004) distinguished between inherent and residual risk as follows; (inherent risks are those risks that affect an entity in the absence of any actions to alter either the likelihood or impact while residual risks are those risks that remain after action have been taken). Risk response component is concerned with evaluating possible action that could be undertaken by a firm to manage risk through avoiding, reducing impact, sharing or accepting. Factors considered at this level include risk likelihood, impact, costs and benefits and effective methods that could bring residual risks to tolerance point. Risk assessment was used to assess the effect of ERM determinants on financial performance.

The control activities component deals with policies and procedures used by an organization to manage risks. Activities at this level include approvals, authorizations, verifications, and reconciliations, review of operating performance, security of assets and segregation of duties. The information and communication component comprise of ways used by an organization to identify, capture, communicate pertinent information on risk. It also covers the timeframe to carry out responsibilities, clear message on ERM from top management and effective communication. The monitoring component was used to assess the effect of regulatory framework on financial performance.

In relation to the effectiveness of ERM; COSO ERM–integrated framework is used to assess effectiveness of firm’s characteristics (internal environment), Staff capacity, information technology and regulatory framework. In addition, Anderson *et al.* (2004) indicated that enterprise risk management integrated framework can be used for benchmarking, in evaluating the effectiveness of ERM and suggesting remedies that can be used to improve ERM. This framework was used to develop items in the questionnaires to assess effectiveness of ERM on financial performance.

Gordon *et al.* (2009) used ERM index developed from COSO ERM Integrated Framework from objective setting part of the framework. The index was used to

measure effectiveness of an organization's ERM based on its ability to achieve its objective relative to strategies, operations, reporting and compliance. The basic goal of the ERM index is to combine the achievement of the objectives into one metric. Using the COSO (2004), achievement of ERM objectives are categorized into; strategic, operation, reporting and compliance. Strategic category involve aligning goals with mission and vision, operation ensures effective use of resources, reporting ensures that reliability of reporting while compliance promotes adherence to laws and regulations. In this study, four categories from the COSO ERM integrated framework were used as indicators to measure effectiveness of ERM. The ERM index was then constructed by summing up all the four indicators for the categories as follows; n^i .

$$\text{ERM Index} = \sum(st + op + re + co) / n^i$$

Where;

st =Strategy,

op =operations,

re =reporting,

co =compliance

n^i = the number of indicators used in the model.

2.2.4 COBIT Principle Framework

Information technology plays a role in risk management. Kumsupron *et al.*. (2010) explain that control objectives for information technology (COBIT) is a framework used to measure effectiveness of information technology in managing risks in an organization. The COBIT framework is top-down or high-level framework for governance and control risks using information communication technology. The

main purpose of COBIT framework is to clarify the business objectives, processes required, control measures and requirements at every stage.

The COBIT Principle Framework was used to assess effectiveness of ERM on financial performance. The COBIT Principle Framework developed by Institute of Governance explains the level of technology usage to manage risks, and provides good practices across domain and process framework and presents activities in a manageable and logical structure (Ataya, Augusto, Boni, Johnson, Kadam, Leignel,..., Saull, 2007). Use of information technology on risk management improve service delivery and provide mechanism to control potential risks. Ataya *et al.* (2007) explain that COBIT framework contributes into internal control systems by linking risk management with business requirements, organize IT activities into a generally accepted process model, identify major IT resources to be leveraged and defining the management control objectives to be considered. The operation of COBIT framework is explained in figure 2.4.

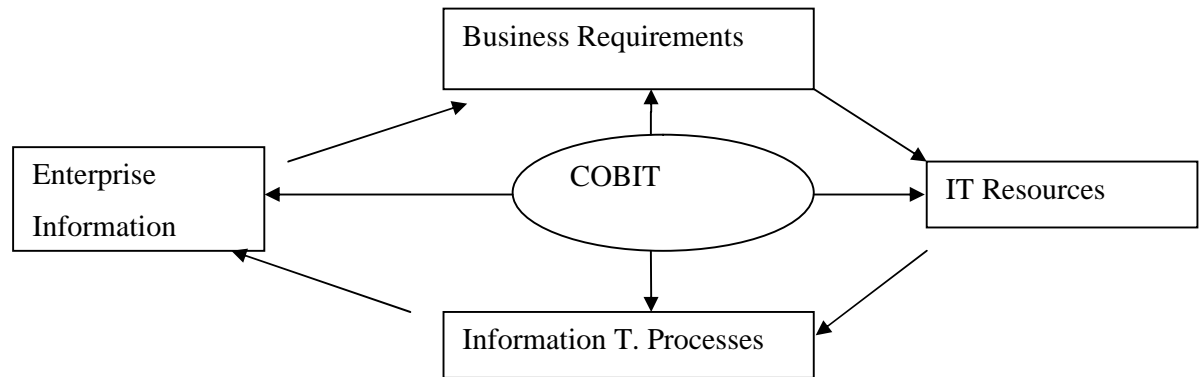


Figure 2.4: Basic COBIT Principle (adopted from Johnson *et al.*, 2007)

The COBIT Principle model like COSO ERM–Integrated Framework (figure, 2.2) shows that information and communication is one of the key elements in ERM. Anderson *et al.* (2004) argue that information is needed at all levels in an organization to identify, assess, and respond to risks, and to otherwise run the entity and achieve its objectives. Information technology plays a critical role in enabling the flow of information in an organization, as well as in monitoring various risks that can affect an organization. The selection of specific technologies to support ERM for an organization typically can be attributed to firm’s approach to ERM, degree of sophistication, types of events affecting a firm, firm’s overall information technology and degree of centralization of supporting technology (Anderson *et al.*, 2004).

2.3 Conceptual Framework

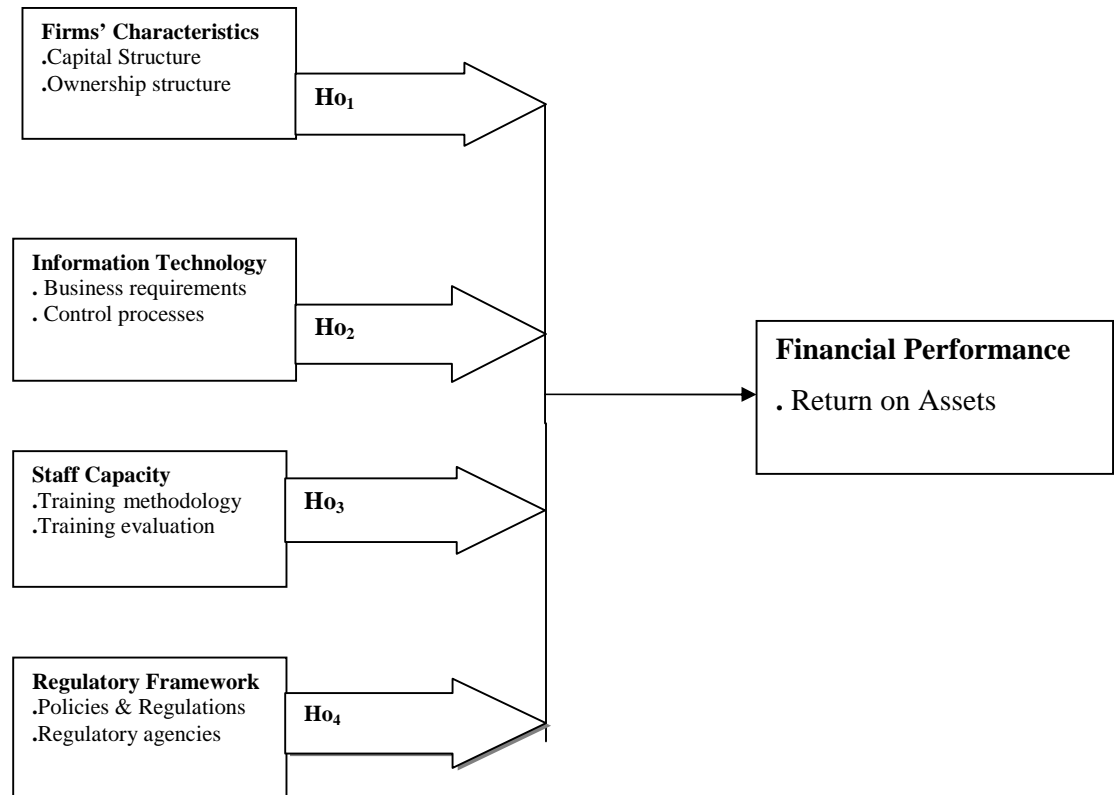
Conceptual framework is a tool used by a researcher to develop awareness and understanding of the situation under scrutiny and to communicate (Kombo & Tromp, 2006). Mugenda (2008) define a conceptual framework as a concise description of a phenomenon accompanied by a graphic or visual depiction of major variables of the study. The description of the conceptual framework emphasizes the researcher’s

overarching view on how variables interact or could be made to interact under conditions that can be manipulated.

A conceptual framework is made up of variables. A variable is defined as a measurable characteristic that assumes different values among units of specific population (Mugenda, 2008). Kothari (2009) define a variable as a concept that can take different quantitative value such as weight, height, or income. The key variables in this study were categorized as independent variables and dependent variable. Mugenda (2008) explain that the independent variables as predictor variables because they predict the amount of variation that occurs in another variable while dependent variable is a variable that is influenced or changed by another variable. A dependent variable varies as a function of the independent variable or variables changes in the study.

Gordon and Tseng (2009) explain that a firm is affected by both internal (staff and firm's characteristics) and external environment (regulatory and technology). In this study effectiveness of ERM were attributed to firm characteristics, information technology, staff capacity and regulatory framework (figure, 2.5). These are variables that were considered to influence effectiveness of ERM (Hoyt & Liebenberg, 2008; Pagach & Warr, 2010; Razali & Tahir, 2011; Golshan & Rasid, 2012). The empirical evidence suggests that effective ERM can lead to positive financial performance. The diagrammatic influence of ERM on financial performance is contained in figure 2.5.

ERM DETERMINANTS



Independent Variables

Dependent Variable

Figure 2.5: Conceptual Framework of ERM Determinants and Financial Performance

2.4 Empirical Literature Review

Regardless of the theories used enterprise risk management affect financial performance of a firm. The factors that influence effectiveness of ERM system can be grouped into four categories; firm's characteristics, information technology, staff capacity and regulatory framework. Section 2.4.1 contain discussion on financial performance while empirical literature review on ERM and ERM determinants are

covered in section 2.4.2 to 2.4.6. The subtopics of effect of ERM determinants are; firms' characteristics, information technology, staff capacity and regulatory framework.

2.4.1 Financial Performance

Financial performance can be explained by three principles of finance namely; investment, financing and dividend (Demodaran, 2008). The investment principle states that firms should invest in assets only when they are expected to earn a return greater than a minimum acceptable return (hurdle rate). Financing principle posits that the mix of debt and equity chosen to finance investments should maximize the value of investments made. The dividend principle states that firms sometimes cannot find investments that earn their minimum required return and therefore if this shortfall persists, firms have to return any cash they generate to the owners.

Pandey (2009) suggested methods to use in measuring financial performance of a firm namely current ratio, return on employed capital and net profit margin. The current ratios are used to measure relationship between current asset and current liabilities; return on capital employed is used to measure the contribution of equity and borrowed capital on net profit and Liquidity ratio is used to measure the ability of firm to meet its current obligation. Similarly, financial performance of a firm can be measured by; average share income and net asset value.

Callen, Livnat and Segal (2000) pointed out that earnings per share is calculated by dividing profit or loss attributable to ordinary equity holders of the entity by the weighted average number of ordinary shares outstanding. Calculation of EPS assists investors to gauge best paying portfolio to invest. The EPS is important when calculating the market value of equity, because it provides a comprehensive and easily accessible source about the potential dilution in the number of outstanding shares due to conversion of capital share capital. Demodaran(2008) suggested a formula which can be used to measure earnings per share as; $\text{profit} - \text{preferred dividends} / \text{weighted average common shares}$.

Price Earnings (P/E) ratio is calculated by dividing the market value per share by the earnings per share. The P/E ratio is a valuation ratio of company's current share price compared to its pre-share earnings (Pandey, 2009). Wood's (2008) explain that price earnings (P/E) ratio is a useful indicator for measuring stock prices of a company. It is very useful when a company proposes an issue of new shares, in that it enables potential investors to better assess whether the expected future earnings make a share worth to investment.

Demodaran (2008) also explain that dividend per share can also be used to measure performance of a firm in terms of rewarding investors. Dividend per share is the amount of dividend that a shareholder expects to receive per share of stock held. It can be calculated by taking the total amount of dividends paid and dividing it by the total shares outstanding. $DPS = \text{Dividend} / \text{Shares outstanding for period}$.

The market price per share of stock is current measure of price not an accounting or historical measure and is based on information of a company's balance sheet. The market price per share is a financial metric that investors use to determine whether to sell or to purchase a share (Demodaran, 2008). The Nairobi Securities Exchange published daily quoted selling price of shares. The selling price is determined by market forces and it measures risk tolerance level of an investor in buying a security. This price is important as it is a main component in calculating the returns achieved by an investor. It is an indicator of a value of a business. An increase in the share price of a business shows that value of a business is improving.

Pandey (2009) explain that financial performance can also be measured by profit which is the excess of income over expenses. $\text{Gross profit margin} = (\text{sales} - \text{cost of sales}) / \text{sales}$. Gross profit margin reflects efficiency with which management produces each unit of product. $\text{Net profit margin} = \text{Earnings before interest and tax (EBIT)} / \text{sales}$. Net profit margin ratio tests a relationship

between net profit and sales and indicates management's efficiency in manufacturing, administering and selling the products.

Net asset is the value of an entity's assets less the value of liabilities. Wood's (2008) explains asset turnover as a measure of how effectively the assets are being used to generate sales. It is one of the ratios considered when interpreting the results of profitability of a firm. The calculation involves dividing sales by net total assets (total assets-current liabilities). Where a company's assets turnover is significantly lower than those of its competitors, it suggests the firm is over-investing in asset and this can make it vulnerable.

The value of a firm manifested in financial performance is determined by how well it manages its existing assets as well as how it invests in new assets (Demodaran, 2008). The firm's financial performance can also be measured by financial efficiency and operation efficiency in use of resources (Pagach & Warr, 2008). In this context, the balance sheet and income expenditure items can be used to measure financial performance such as; liquidity, solvency, profitability, asset ratio and financial efficiency (Pandey, 2009). Grace, Leverty, Phillips and Shimpi (2010) explain that financial performance of a firm is also measured by efficiency in mobilizing resources for production.

Liquidity problem is a risk to a firm because failure to meet debts obligation in time can lead to litigation and ultimately liquidation or a firm being declared bankruptcy Pandey (2009). The most common ratios which indicate the extent of liquidity or lack of it are current ratio and quick ratio. Emery *et al.* (2007) explain that current ratio is calculated by dividing current assets by current liabilities and is a measure of a firm's short term solvency. A current ratio of 2:1 or more is considered very good while quick ratio of 1:1 is considered satisfactory.

The indicators in this study were classified into two broad categories; income and growth. Income includes earnings per share, dividend per share, price earnings ratio and net profit while growth was categorized based on share price and net asset value.

The indicators used to measure financial performance were assessed in terms of growth in the following variables; selling price per share, earnings per share, net profit, net asset value, price/earnings ratio and dividend per share. The growth was measured in terms of increase in each item (selling price per share, earnings per share, net profit, net asset value, price/earnings ratio and dividend per share) for five year period from the financial year 2008 to the financial year 2012. A firm that had recorded growth in each item of financial performance measurement for the five years was awarded 5 marks in scale of 1 to 5 while a firm that had recorded growth for one year in the period was awarded 1 mark.

2.4.2 Effect of ERM on Financial Performance

Risk can be defined in many ways: expected loss, variance of a loss, probability that a loss will exceed a defined amount or the average amount by which it does exceed a defined amount (Corrigan, Decker, Hoshino, Delft & Vergeugen, 2009). From this definition, risk is a form of uncertainty which usually causes serious financial implications to businesses and industries globally. Manab, Othman and Kassim (2012) posited that managing risk and uncertainty has always been a challenge to any type of organization due to conflict between corporate governance and costs incurred in mitigating and minimizing potential losses.

Most scholars use appointment of chief risk officer (CRO) as a proxy to identify firms that had put in place ERM system (Rasid & Golshan, 2012). The reason for utilization of this proxy for measurement of ERM adoption is that most firms do not disclose complete information about their risk management. Manab *et al.* (2009) used balance score card to assess effectiveness of enterprise risk management. The balance score card is used to assess effectiveness of existing practices of risk management in terms of infrastructure, skills and knowledge among staff.

Waweru and Kisaka (2011) used a model developed by Deloitte consultants the risk intelligence maturity model and Standard and Poor's to measure the implementation of ERM as used in rating insurance companies (Standard & Poor's Ratings Direct, 2007). When evaluating ERM capabilities, Standard & Poor's (S&P) primarily defines the company's loss tolerance and how it ensures that it is kept within that loss tolerance level. The 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 strategic decision-making. The areas that S&P looks at are; risk management culture, control and emerging risk management. Risk Management culture examines whether the company has clearly articulated its risk tolerance, Risk control reviews summary descriptions of risk-control programs and examples of how the programs are executed. Emerging risk management requires evidence-based managing systems to assist in managing anticipated risks and problem events. It also looks at how effective emerging risks management has been during and after adverse events.

Gordon, Loeb and Tseng (2009) developed an enterprise risk management index to measure firm's ERM. The index is based on COSO's four objectives of ERM. The index measures the effectiveness of an organization's ERM based on its ability to achieve its objectives relative to strategies, operations, reporting and compliance. The basic goal of ERM index is to combine the achievement of the above four indicators of ERM categories into one metric. Two indicators are used to measure achievement of each objective. The ERM index is then constructed by summing up all four indicators as shown;

$$ERM\ I = \sum S + \sum O + \sum R + \sum C$$

Where

S = strategy,

O = operation,

R = reporting,

C= Compliance.

For this study, the following aspects of COSO ERM integrated framework (Figure 2.3) were chosen to represent ERM index; strategic objective, operation, reporting and compliance were combined to form one metric to measure (ERM index). The figure was calculated as:

$$\text{ERM Index} = \sum(st + op + re + co)/n^i.$$

Where

st=strategy,

op=operation,

re=reporting,

co=compliance

nⁱ=number of indicators.

2.4.3 Effect of Firm's Characteristics on Financial Performance

The choice of this variable was informed by a number of theories; the Modigliani and Miller theory, pecking order theory and the agency theory. Environmental uncertainty creates difficulties for firms due to increasing unpredictability of future events affecting the firms. Thus, there is need for a firm to put in place strategies to mitigate against the risks. Firm's characteristics are considered as internal environment to a business and are manifested in terms of; organizational structure, size, ownership and management (Anderson *et al.*, 2004).

Firms' characteristics in this study was analyzed using the following aspects; firm size, ownership structure, influence of key stakeholders, role of shareholders and directors in management of risks. They are considered as internal environment to a business and are manifested in terms of organizational structure, size, ownership and

management (Anderson *et al.*, 2004). A firm endowed with adequate resources is able to put in place sound risk management system.

Ownership structure in an organization influences decision making, in democratic process majority shareholders' influences decision making. In this context the decision to implement ERM as an integrated approach can also come directly from a company's board of directors (Yazid, Razali & Hussin, 2012). Tahir and Razali (2011) explain that institutional ownership if they control majority shares can influence significantly decisions made on risk management. Hoyt and Liebenberg (2008) use percentage of share ownership between external and insider owners to determine how they influence ERM. Tahir and Razali (2011) explain that ownership structure is determined by percentage of individual ownership to percentage of institutional ownership. In this, factor loading score for each of the items was used to determine the importance of each aspect. Board of directors in this study was used to determine their influence on ERM and also to find out their influence on financing decisions. In real business, it is believed that most companies use debt to finance operations.

Manad, Othman and Kassim (2012) examined the critical success factors of effective Enterprise-Wide Risk Management (EWRM) Practices. A survey of fifty five financial and non-financial companies was studied and found out that one of the critical factors for effective risk management was appropriate resources and these resources include; people, tools and technologies. A firm with adequate resources can employ qualified staff members who are able to understand company's strategic direction, customer needs and can use modern technology to manage risk exposure. Endowment with appropriate resources can be attributed to effective ERM.

Yazid, Razali and Hussin (2012) explain that the size of a firm is reflected in the assets owned which represents the economic resources to the firm. The assets can be divided into two categories namely tangible (buildings, inventories and equipment)

and intangible (copyrights, franchises and trademarks). Effective management of assets can lead to reduction of costs associated with prevention and mitigation of risks providing overall benefits to both firms concerned and shareholders. Effective enterprise risk management program for a company requires modern software useful for the purpose of measuring and effectively managing risks for the whole company. Similarly, Waweru and Kisaka (2012) explain that the size of a firm which is reflected in form of assets owned can influence effectiveness of risk management systems. The larger the organization, the more complex its operations become and therefore its exposure to threatening events increases. Acquisition of modern software required to implement effective ERM can lead to investment of substantial amount of money and therefore affecting financial performance of a firm.

Tahir and Razali (2011) using the firm size as one of the predictor variable, examined the relationship between enterprise risk management and firm value. The findings from the study indicated that there is positive relationship between firm size and firm value. The size influences a firm performance because large firm can increase their current size very fast by accumulating earnings from past performance and this enhances their value. In terms of structure which is firm's characteristics, institutional shareholders can influence any decision by management of firms. The accumulation of funds assists in putting up effective risk management structures.

Altuntas, Stolzle, and Hoyt (2011) found out that group affiliation in ownership was positively related to the likelihood of adopting ERM. However, in terms of relationship between organizational form of ownership and ERM, the findings showed that there was a negative correlation. This meant that firms with high financial leverage were more likely to have effective ERM this is because of obligation to pay debt holders before rewarding the owners. Similarly, aspects such as institutional ownership, majority, minority shareholders and country of origin of firms were also noted to have influence on effectiveness of ERM. The Economic Intelligence Unit Survey of 2008 indicated that chief executive officers (CEOs) felt that ERM was critical for firms facing financial crisis. Hoyt and Liebenberg (2008)

found out that excessive leverage increases probability of bankruptcy and leading to financial distress to a firm. This therefore supports the assertion that high leverage firms were

Grace, Leverty, Phillips and Shimpi (2010) examined the impact of enterprise risk management based on efficiency of a firm to marshal its resources for production. Firm's efficiency was measured in terms of cost and revenue. Cost efficiency is that ratio of the minimum required costs to the actual cost utilized to produce a given level of output. A firm can be considered inefficient if actual input usage exceeds optimal input usage. Revenue efficiency can be measured by a ratio of revenue of a given firm to the revenues of fully efficient firm with the same input vector and output prices. The finding from the study indicated that firms that had adopted ERM system on market principles were more cost efficient. The firm characteristics variable includes size and value of assets. In addition, the firms that had adequate resources were able to hire qualified risk officers to coordinate risk management functions.

Gordon, Loeb and Tseng (2009) undertook a study on the relationship between enterprise risk management and firm performance. The study looked at five factors that affect a firm among the factors considered was firm size. Firm size which translates into resource endowment was critical and important when considering management control systems, hiring staff to implement ERM and designing ERM system. The results from the regression model show that firm size had significant ($p\text{-value } 0.004 < 0.05$) effect on the enterprise risk management. Similarly, in the same study the role of board of directors on enterprise risk management was also analyzed and the findings showed a significant relationship between ERM adoption and firm size. Hoyt and Liebenberg (2008) also found out that large firms were more likely to have effective ERM compared with smaller firms. The findings showed there was a positive correlation between institution ownership ERM programs. This implies that a company with institutional share ownership influenced adoption of ERM program.

Similarly, firms with higher percentage of institutional ownership were more likely to engage on ERM than those with individual ownership.

Golshan and Rasid (2012) carried a study to find out whether there was any significant difference between the firms that adopt ERM from those that did not adopt ERM. The T-test results indicated that there was no significant difference on firm size for the firms that had adopted ERM from those that had not adopted ERM. However, the findings from the study pointed that firms that had adopted ERM had significant difference from those that had not adopted ERM in terms of financial leverage and engaging big auditors (KPMG, Ernst and Young, Price Waterhouse Coopers and Deloitte and Touche). The findings mean that higher financial leverage indicates that the firms were depending more on debts to pay their liabilities and this could easily trigger higher risk of default. On the other hand, the ability to hire and use big four auditors is a confirmation that a firm with adequate resources is able to put in place effective ERM system.

In conclusion, it is clear from the literature review that resources were required in mounting effective ERM system. Resources are required to track risk areas, buy modern equipment required and ensure compliance to quality expectation. These resources are classified into two categories tangible and intangible. On the other hand, another aspect of firms' characteristics that influence effectiveness of ERM is the ownership. Effective ERM improves cost efficiency as it leads to reduction in wastage and scrutiny costs as a result of non-compliance to various standards.

Ho₁: There is no correlation between firm characteristics and financial performance of the NSE listed firms in Kenya.

2.4.4 Effect of Information Technology on Financial Performance

The choice of this variable was informed by the following theories and models; COBIT Principle Framework and Technology Acceptance Model. Information communication technology has a positive and a negative effect on a firm; it enhances

efficiency and can also be a source of risks. Information technology enables consolidation of risk management requirements and data integration from various business units (Althonayan, Keith & Misiura, 2011). The COBIT framework is recognized as a top-down or high-level framework for governance and control over ICT risk as well as being used to clarify business-focused, process-oriented, control-based and measurement driven objectives (Kumsurprom, Corbitt, Pittayachawan & Mingmalairaks, 2011). Information technology is commonly used in an office, factory, bank, and supermarket or at home to carry out transactions, provide information, record data, make decisions or perform a task (Lucey, 2005). In this context, information technology is useful in risks management within a firm. The usage of information technology and the type of information technology used on ERM was evaluated in this study.

Lucey (2005) further explain that information technology simplifies and reduces manual tasks skills and therefore strengthened all forms of production. Information technology influences organizations in a variety of ways such as; altering skills' requirements for individuals, jobs, relationship between individuals and departments within an organization and relationships outside an organization. Based on the above, it is therefore clear that use of information technology on ERM improves efficiency and organization image leading to improved financial performance of a firm.

Halliday, Badenhorst and Solms (1996) looked at computer in terms of information systems on which the critical business functions and processes depend and as information technologies which support the processing, storage and distribution of a company's data and information. A study by Deloitte and Touche (2012) found out that information technology on risk management can be attributed to an organization's effectiveness and shareholders' value addition. The benefits arising from the use of information technology include provision of consistent and reliable risk information, enhance the capabilities of technology infrastructure to support new

functional requirements needed by a business and support regulatory compliance, enable a firm to carry out stress testing and enhanced risk reporting.

Althonayan, Keith and Misiura (2011) carried a study on aligning enterprise risk management with business strategy and information systems. Creating a comprehensive data platform that enables re-alignment of key risk aspects to be adapted by innovative enterprise. The study found out that lack of unified risk and information infrastructure can lead to communication failure, between risk, strategy and performance groups, increase inconsistency and data quality issues caused by disintegrated systems, disrupt information flow and decreased business efficiency and productivity of a business as a whole organism. The study findings suggest that alignment of ERM with business strategy and information technology can lead to creation of a comprehensive data platform hence improving firm's financial performance.

Corbitt, Kumsuprom, Pittayachawan and Mingmalairaks (2010) carried a study on ICT risk management in Thai business organizations. The findings from the study indicated that effective planning of enterprise information security was a critical factor that helps an organization to mitigate, prevent and avoid operational, technical and strategic risks related to ICT. Straub and Welke (1998) suggested the nature of information technology risks that can affect an organization ranges from physical systems that hinders a firm from delivering goods and services customers. Such risks are computer-based systems which can affect a firm from delivering critical information that are used in risk management.

The types of information technology adopted influences effectiveness of ERM. Nayak and Mohanty (2009) explain that effective system on risk management improves business performance and most companies usually focuses on limited resources at their disposal in order to control risks effectively, whenever a major problem occurs. Nayak and Mohanty added that the degree to which a firm can

utilize the leverage of its ICT risk management processes to exploit commercial business opportunities can depend on factors such as governance, product management, customer management, and knowledge management and how each of these processes of a firm in question are matched. The interaction between these generalizations in business processes and a firm's ICT risk management process characterizes a firm's culture in managing risks. The improvement in business performance reflected through corporate governance, customer satisfaction, product quality improvement and innovation can be attributed to use of information technology on ERM. This suggests that effective information technology on ERM affect financial performance of a firm.

Corbitt, Kumsurprom, Pittayachawan and Mingmalairaks (2010) explain that COBIT Principle Model is recognized as top-down framework used for governance and control of risks. Using the COBIT principles model, the respondents were asked to indicate how information technology was used on ERM. The findings the study showed that use of information technology on ERM leads to improved financial performance of a firm. Johnson *et al.* (2007) explain that information technology can be used in internal control to link business operations with expected requirements, identify major resources required and control processes.

From the above literature review, it is clear that use of information technology on risk management influences financial performance in the following way; enhances efficiency, consolidation of risks management and integration as well as monitoring of risks and simplification of operations. Information technology on risk management assists a firm to strengthened production systems, supports processing of goods, storage and in logistics. Similarly, creation of risk management data platform is useful in developing and aligning organizational strategies to risk management. The null hypothesis tested was;

H₀₂: There is no correlation between information technology and financial performance of the NSE listed firms in Kenya.

2.4.5 Effect of Staff Capacity on Financial Performance

The choice of this variable was chosen because of the following theories; agency theory, learning theory, evaluation and assessment theories. Cole (2002) argued that the most important single resource is people. Mullins (2010) explains that learning is inevitable and involves examination of how changes take place, acquiring skills for coping with turbulence and change. Staff capacity on ERM attained through learning has the following benefits to a firm; it increases staff efficiency contributing to the success of a firm, enables a firm to meet its goals; and emancipates a firm from frequent clarification of roles, purpose, vision, values and behavior; and thereby increases individual performance and assist in succession management.

The modern capitalist economies have influenced management of firms, where shareholders of firms delegate their responsibility to board of directors and top management. Their legal obligations and liabilities needs to be clearly stated. Through corporate governance the institutions and mechanism are designed to monitor compliance of rules and regulations. This relationship between the principal (owner) and the management (agent) is the basis of the agency theory (Walker, 2008). Compliance to ERM rules and regulations and reduction of costs associated with agency relationship is attributed to staff capacity to manage firms effectively on behalf of the owners.

Cole (2002) explain training methods as means by which the trainer intend to communicate, pass information, ideas, skills, attitudes and feelings to a learner. The training methods are categorized into two; off the job location and on the job location. The off the-job location method include; lecture, classroom instruction, programmed instruction, group discussions, case-study and simulation exercises while on-the-job location methods include; job instruction, learning from experienced workmates, coaching, delegation, secondment and special projects. Kumsuprom *et al.* (2010) explain that apart from the training methodology integrating planning, information flow, support policy and organizational standards; effective training can be measured in terms of the number of training participants,

assiduity (perceived usefulness of training) and successful completion of all training phases. The training program should be relevant to the area of interest. Kumsuprom *et al.* (2010) in explaining the importance of training on ERM, suggested aspects to be incorporated in the training such as; clarification of roles, responsibilities and identification of specific authority for all staff. Staff capacity on ERM is attained through training and development which leads to effective communication and acquisition of competence on risk management.

Cole (2002) also defines evaluation as means of assessing a value or worth of something. It is important to evaluate effectiveness of training program. Training assessment is done to determine whether training objectives were attained, content was appropriate, training implementation was as expected, trainers were effective, training had impact on trainees and whether training program require improvement. Altuntas *et al.* (2011) in their study found out that effectiveness of ERM improves when an organization staff appraisal system has measurable indicators. The staff appraisal system should indicate measurable skills linked to overall firm's financial performance.

Firms uses a lot of resources to build staff capacity required in instituting effective risk management. However, it is important to determine training efficiency and this can be done by assessing outcome of a training program. Training assessment (Evaluation) is a process done to evaluate effectiveness of training in meeting the objectives of training by finding out training activity and identifying areas of improvement (Cole, 2002). Hamblin (1974) developed a model used to evaluate training. The model identifies a number of evaluation strategies linked to training effects. According to Hamblin's view the training should bring about a chain reaction in an organization and that each key stage on evaluation strategy can be selected as indicated in Table 2.1. The success of training in attainment of skills required to meet organizational objectives such as risk management is attributed to improvement in firms' financial performance. This implies that staff capacity on ERM influences financial performance of a firm.

Similarly, training assessment can also be done using Kirkpatrick's learning and training evaluation model (Table 2.2). The model is divided into four levels namely reaction, learning, behaviour and results levels of training program. At each level of the training the evaluation on the individual trainee is anchored on reaction to problems solving, learning abilities, behavior change and results can lead to improved financial performance (Nonaka, 2000).

The two models used to evaluate training (Kirkpatrick's learning and training evaluation model and Hamblin model) are similar in the sense that four critical areas are targeted; the reaction to training, learning process, behavior change and results of training which are reflected on job performance. In addition, the objective of the models is geared towards changing the organization through staff as the agent of change while the long term effect is the attainment of organizational goals. However, Hamblin's model further looks at the training resources, and impact of training to organizational development.

Danziger and Dunkle (2005) looked at training methodology in two dimensions in terms of the degree of interaction and degree of formality. It is expected that both degree of interaction and the degree of formality of workplace training can be affected differently by characteristics of an organization, the worker's socio-technical environment, and the individual characteristics of a worker. It is also expected that both individual and organizations may have preferences for particular types of training modalities that may lead to the attainment of specific skills required. The findings from study showed that majority (75%) of the respondents had engaged in self-training in the workplace by use of training manuals, or 'trial and error', while only one-third of the respondents having used any type of e-learning during the past three years. Similarly, the common methods identified include instructor-led class or workshop, job training where supervisor and co-worker is involved in the training, self-training, trial and error (use of manuals), peer training as well as instructor-led classes and e-learning. The findings from Danziger and Dunkle suggest that training

in an organization was continuous and improves staff capacity on risk management. This implies that less risks incidence means a better financial performance of a firm.

Rodriguez and Edwards (2009) used a model developed by Nonaka and Takeuchi (1995) in the study on knowledge management and ERM in financial services. The findings from the study showed that Japanese companies use oriental approach which is tacit knowledge. The oriental culture believes in unity between mankind and nature, body and mind, own person and others. In such an environment, knowledge is mainly found not at the individual but in groups and it is converted, shared and transferred. The success of Japanese firms in innovation can therefore be attributed to development of staff capacity.

Manab, Othman and Kassim (2012) examine the most significant factors of effective enterprise-wide risk management (EWRM) practices that may have effects on shareholder value in public listed companies in Malaysia. Using the theory of critical success factors, the study found out that critical success factor in enterprise-wide risk management was attributed to commitment of staff, acquisition of skills, knowledge and experience of staff on risk management. The study used both survey design and case study and data was collected through questionnaires and in-depth interviews. The findings from the study suggest that improvement on shareholders' value can be attributed to effectiveness of staff capacity.

Jafari, Chadegani and Biglari (2011) investigated the relationship between enterprise risk management and company's performance by investing in innovation and intellectual capital. The study used exploratory survey to test average level of performance for return on asset (ROA) and return on investment (ROI). The result of the study showed that companies that had invested in intellectual capital created value and developed unique features that led to better performance as well as gaining competitive advantage. The above findings of Jafari *et al.* suggest that development of competitive advantage and improvement of performance by the firms is attributed to staff capacity.

Pagach and Warr (2010) examine the effect of ERM on firm's performance and to establish whether firms adopting ERM actually achieve observable results consistent with the claimed benefits of ERM. Since most of the firms do not announce risk management, the appointment of chief risk officers or equivalent was used to determine ERM adoption. A cross-sectional analysis of the results showed that firms in non-financial industries were more likely to experience costly low tail outcomes and to have a positive stock-price reaction around adoption of ERM. The positive stock-price reaction on adoption of ERM confirms that staff capacity indeed influence financial performance.

Grace, Leverty, Phillips and Shimpi (2010) examined the value of investing in enterprise risk management in Malaysia insurance industry by focusing on cost and revenue efficiency to evaluate the value of ERM. Using a survey of risk management practices in the insurance industry examined the impact of enterprise risk management on firm performance. The findings from the study showed that firms with chief risk officers, dedicated risk committees, and risk management entities that report to chief financial officers recorded higher cost efficiency, return on assets and improve on shareholder value than those without. The findings from the study suggests that improved financial performance of firms in terms of cost efficiency, return on assets employed and shareholders' value can be attributed to staff capacity.

It is important to note that staff capacity on risk management influences financial performance. Learning and training is continuous due to dynamic business environment. Targeted training on ERM is expected to; clarify roles of each staff, responsibilities and their expectation. To achieve these objectives, staff appraisal system should be linked to ERM to ensure that all the staff within organization was conscious on ERM and therefore making intelligent decisions. In mounting ERM training, it is important to consider the content, training methodology and quality of trainers and therefore the need for training evaluation. Training evaluation emphasizes on; reactions from the trainees, training process, expected behaviour

change, impact of training on an organization and quality of trainees in performing risk management tasks. The hypothesis tested was;

H₀₃: There is no correlation between staff capacity and financial performance of the NSE listed firms in Kenya.

2.4.6 Effect of Regulatory Framework on Financial Performance

This factor was chosen based on institutional theory; COSO ERM integrated framework and the ERM Maturity Model. Mullins (2010) explain that control can be applied in a number of functions manifested in observance to rules and regulations, recommended codes of practice, policies and procedures, standards and orders, organization's structure and relationships and type of production system. Control can also be applied on systems that focus on the measurement of inputs, outputs, processes or behavior of people, compliance to quality standards and total quality control. Coglianese (2012) explains that regulations can be put in place to improve financial performance by changing individuals or organizational behavior in ways that can generate positive impacts in terms of solving organizational, societal and economic problems. Effective control mechanism geared towards improving financial performance can be attributed to compliance to rules and regulations, meaning that ERM has a positive impact on financial performance.

In the East Africa region (Kenya, Uganda and Tanzania) there has been growth in risk-based supervision among regulatory agencies and these regulatory reforms have contributed to increased cost of compliance. The Costs of compliance include cost of implementing systems for use, processes and human resources to monitor and ensure compliance (Deloitte and Touche, 2012). Regulatory framework in this study applied the existing policies and practices to evaluate contribution of ERM on financial performance of listed firms in Kenya.

Implementation of ERM policies and regulations depends on effectiveness of regulatory agencies. Deloitte and Touche (2012) in a survey done in East Africa

(EA) (Kenya, Uganda and Tanzania) found that across in the EA region regulatory reforms were being spearheaded by capital market regulators and industry. The report added that regulators were now focusing more closely on the role of board of directors in setting risk management policies, determining level of risk appetite and in monitoring effectiveness of risk policies and level of compliance. The growing demand for reforms and active participation of regulators on supervision of ERM can be a pointer to importance of ERM on financial performance of a firm.

Waweru and Kisaka (2012) explain that regulators in many countries were pressing companies to have more comprehensive risk management practices and reporting and distinguish regulators as those who enforce regulations, register firms and professional groups who register members. Effectiveness of ERM can be achieved when rules and regulations are integrated into ERM strategic initiatives that can provide distinct benefits over and above simple regulatory compliance. According to Economic Intelligence Unit report of 2008, regulators, industry groups and rating agencies were likely to step up pressure on firm to adopt best practice in risk management systems and processes (Watt, 2008).

Manab, Othman and Kassim (2012) argued that compliance to all relevant laws and regulations is considered as one of the critical factors. The primary stage of enterprise-wide risk management (EWRM) can be more about corporate governance and compliance. The compliance functions check that all relevant laws were being properly complied with. Corporate governance contributes to effective EWRM in terms of compliance which normalizes the relation between shareholders, board of directors, top management and shareholders. The integration between corporate governance, risk management, and compliance lead to achievement of organizational objectives and maximization of shareholders' value. This implies that the success of corporate governance and compliance to business and operational regulations is a move towards having effective ERM.

The Economic Intelligence Unit Survey of 2008 indicated that regulators and rating agencies were likely to set up pressure on firms to adopt best practices on risk

management systems, processes and particularly in stress-testing. The Basel II recommendations on banking regulation worldwide and the more recent Solvency II regulatory requirements for insurers operating within European Union (EU) were shifting regulatory focus from traditional geographic indicators to more holistic, risk-based capital view. Majority (72 %) of the executives surveyed indicated that they felt pressure from regulators to adopt an enterprise-wide approach to risk management (Economic Intelligent Unit, 2008).

In Kenya, public listed firms were governed by a number of regulations. The Companies Act Cap 486, the Capital Market Authority (CMA) Act Cap 485 and Nairobi Securities exchange Regulations. Under these Acts and regulations, activities of registered and quoted companies in Kenya are controlled (GOK, 2009). The CMA Act regulates activities of listed firms (GOK, 2000). A number of rules and regulations had been developed by the government to manage disasters in Kenya. Such legislations and policies that had been developed in Kenya to govern risk management include National Disaster Management Policy of 2009 (GOK, 2009). Similarly, the Central Bank of Kenya has developed risk management guidelines for commercial banks and financial institutions (CBK, 2005). The Central Bank Act Cap 491 empowers the CBK to regulate activities of commercial banks and financial institutions in Kenya. The fact that there is positive move in Kenya to develop legislation and regulations on management of risks suggests that there is shift towards ERM.

The report of Protiviti (2006) show that ERM was voluntary among firms; however, the ISO 31000:2009 emphasizes development of a framework that fully integrate risk management into an organization management system. The framework assures that the corporate-wide process is supported, interactive and effective. Risk management therefore, is expected to support corporate governance, strategy planning and management, reporting processes, policies, values and culture. The framework provides for the integration of risk management, reporting and accountability (COSO, 2009). This suggests that regulatory framework plays a key on ERM.

The Capital Market Authority through the Kenya Gazette Legal Notice Number 125 of 2002 gives regulations for the NSE listed firms in Kenya to comply with requirements to disclose risks management on annual reports, audit, internal control and measures put in place to manage risks (GOK, 2002). The regulatory framework can be measured by the level of control of activities at all levels such as approvals, authorizations, verification and security mechanism (Anderson *et al.*, 2004). The shift from single control system also known as “silo-based” risk management is an indicator that firms in Kenya were embracing ERM.

Risk management standards have been developed by Federation of European Risk Management Association (FERMA). A consortium of United Kingdom (UK) organizations, including the Association of Institute of Risk Management, the Association of Insurance and Risk Managers, and the National Forum for Risk Management in the public sector, published a Risk Management Standard (RMS) in 2004. The RMS represents best practices that companies can benchmark themselves against to determine how well they are doing in the prescribed areas (Shenkir & Walker, 2011). Australian and New Zealand formed a joint technical committee composed of representation from numerous organizations to publish two documents on risk management in 2004. The document developed is known as Australian / New Zealand Standard 4360 – Risk Management. The committee was diverse and included groups that focused on computer, customs, insurance, defense, emergency management, safety, securities and accounting. The growth in performance as a result of benchmarking, standardization and industry collaborations is attributed to improved risk-based supervision by regulatory agencies implying regulations are important in enhancing ERM.

In inclusion, the above empirical evidence suggests that strong regulatory framework on ERM contribute to firm’s financial performance in terms of reduction of scrutiny costs, legal costs for non-compliance and guides operational procedure. This implies that investment on regulatory framework on ERM improves financial performance of a firm. The success of regulatory framework requires collaborative approach between

regulatory agencies and the firms affected by the policies that need to be implemented. Key regulations that are critical in reducing risks are the ones that compel board of directors to oversee risk management, setting of risk tolerance and monitoring manifestation of risks. To examine the influence of regulatory framework on financial performance, the null hypothesis tested was stated as:

Ho₄: “There is no significant correlation between regulatory framework and financial performance of the NSE listed firms in Kenya”.

2.4.7 Effect of Combined ERM Determinants on Financial Performance

The broad objective of the study was to find out the effect of combine ERM determinants (firms’ characteristics, information technology, staff capacity and regulatory framework) on financial performance of the NSE listed firms in Kenya. The conceptual framework was composed of the indicators of ERM determinants as listed above (firms’ characteristics, information technology, staff capacity and regulatory framework). The ERM determinants were identified as the indicators that influence effectiveness of ERM and ultimately affect financial performance of a firm.

Hoyt and Liebenberg (2009) carried a study on the value of enterprise risk management in the United States of America (USA) insurance industry. The objective of the study was to measure the extent to which ERM program influence the value of a firm. The focus of the study was the U.S. insurance companies. The study used profit maximization theory to evaluate the effect of firm’s financial policy and investment policy. Costs associated with agency conflicts of interest between shareholders and managers, expected bankruptcy, tax burden and regulatory scrutiny. The sample consisted of firms that had implemented ERM.

To identify the firms that had engaged ERM, keywords were used to search for the firm that had adopted ERM such as “ERM”, chief risk officer “CRO”, “holistic risk management”, strategic risk management” or “corporate risk management”

engagement. The findings from the study showed that there was a positive relationship between firm size and adoption of ERM. The growth in firm size of a firm that had adopted ERM was indication that ERM influences financial performance.

Gordon, Loeb and Tseng (2009) carried a longitudinal study on internal control, enterprise risk management and firm performance in China. The objective of the study was to examine the market value of the firm that had adopted ERM. The sampled companies were the ones that had disclosed ERM programs in their annual financial statements for the period 2002 to 2006. The result from the study found out that firms with weak ERM had low market for their shares. The low market value of firms' shares was attributed to weak ERM system in place which showed the importance of ERM in improving financial performance of a firm.

The success of ERM can be attributed to a firm ability (firms' characteristics, information technology, staff capacity and regulatory framework) implement effective ERM. Staniec (2011) identified the main barriers in implementing effective enterprise risk management as lack of adequate preparation of staff and lack of mechanism to make them aware of the importance of ERM. Effect of overall ERM determinants is reflected in financial policies and investment policies; firms' characteristics (resources) needed to implement effective risk management, use of information technology to monitor risks in a firm, staff capacity on risks management and regulatory framework. .

2.5 Critique of Related Literature

Waweru and Kisaka (2011) investigated the effect of ERM implementation on the value of companies listed in the NSE. The results of the study found out that there was a positive effect on the values of the companies that had implemented ERM. Despite the fact that the results of Waweru and Kisaka concurs with the findings of the current study, caution should be taken due to the following: the study used email questionnaire to collect data, and therefore the people who responded to the

questionnaire might not be involved on ERM activities; the response rate was low (49%) and concentrated in three sectors (commercial services, industrial and finance) and the financial statements used was for one year. The small (22) size of respondents limited the extent of statistical analysis and therefore implying that care is needed before generalizing findings to the NSE listed firms in Kenya.

Tahir and Razali (2011) examined the relationship between ERM and firm value in the Malaysian public listed companies. The data on ERM status was generated from OSIRIS database, a sample of 528 companies were selected from business and economic segment. The respondents per sector ranged between 26.48 % and 1.39%. Similarly, the secondary data used was only for one year and yet ERM value could be effectively observed over a long period. Due to the fact that the study concentrated in financial sector, used of one year financial statements and low percentage of respondents mean that the results from the study was limiting and therefore care is needed before generalizing the findings to large firms with long term ERM history.

Hoyt and Liebenberg (2009) analyzed the value of ERM in the United States of America insurance industry. The study used search engine to identify firms that had engaged ERM. However, the study concentrated in one sector which in most cases is highly regulated (insurance). By use of search engine to identify the firms that had engaged ERM, might have led to exclusion of some firms which had adopted ERM and yet they had not put their ERM information online. The study was unable to identify the point in time when ERM was implemented and therefore cannot be replicated or generalized.

From the above analysis, it is clear that the studies have concentrated in two critical sectors; insurance and finance which in most instances are highly regulated and therefore are expected by the same regulations to have structured ERM. In such instances the motivation for adoption of ERM might be due to regulation rather than financial motive. Similarly, the studies have also concentrated in the developed countries and those countries that were developing at a higher rate (also referred as

“tigers”) than Kenya. The dynamics and challenges facing firms in such economies might not be same as Kenya.

2.6 Summary of the Literature Review

From the literature review, it is clear that ERM influences financial performance. An effective ERM requires adequate resources which are needed to mount structures required. The critical ERM determinants are; firms’ characteristics, information technology, staff capacity and regulatory framework. The review of the literature on ERM determinants showed that they contribute to financial performance of a firm in the following ways:

Firms’ characteristics play a significant role in enhancing ERM capability and hence financial performance. Firms’ characteristic which is manifested in terms of ownership and capital structure determines the level of risks and preparedness of a firm in managing the risks. Manab *et al.* (2012) investigated the critical factors that contribute to effective implementation of enterprise-wide risk management (EWRM) in Malaysia and found out that a firm with adequate resources can employ qualified staff and can install modern technology needed on ERM.

Information technology enhances efficiency of a firm to manage risks and therefore improve financial performance. Effective information technology system provides the following benefits; efficiency in service delivery, improves quality and standards of products and services, creates a platform that firms’ can use to monitor their activities and therefore reduces cases of risks. By adopting COBIT Principle Model which is a top-down framework for governance and control of risks, a firm can improve business stability and predictability and hence its financial performance (Corbitt, *et al.*, 2010).

Staff capacity on ERM not only improves financial performance but also impact on corporate image and organizational culture. These are reputation brand which makes a firm to have unique advantage over the rest. Efficiency of staff needs continuous

training and development because of the nature of risks which are evolving and new ones emerging. Training programs can be effective if it has checks and balances and this can be done through putting in place effective evaluation mechanism.

Effective regulatory framework improves financial performance of a firm by reducing cost involve in controlling and mitigating against non-compliance to various business regulations. A good regulatory framework should be able to identify various regulations that are in place for compliance. The board of directors and top management are very key in enforcing compliance and this can be done through creating system for collaboration with various regulatory agencies.

2.7 Research Gaps

Most of the empirical studies on ERM above are from the developed countries and mostly in the insurance and financial institutions. The insurance and financial sectors in Kenya and in most other countries are highly regulated and they offer service in specific area. The financial performance of these sectors therefore may not necessarily be attributed to effectiveness of ERM system in place nut rather on compliance to other statutory obligations.

Waweru and Kisaka (2011) examined the effect of ERM implementation on the value of companies listed in the Nairobi Security Exchange. The limitations of the study include: First, the level of ERM implementation was not measured effectively since the study relied on online questionnaire responses to identify the level of ERM implementation in the companies and therefore care is required in applying the findings to other firms because of subjectivity. Secondly, the response rate was low (49%) of the target population and most of the responses were from the financial services segment and therefore there is a probability of industry bias in the research findings. The small size of respondents also limited the extent of statistical analysis.

Altuntas, Stolzle and Hoyt (2011) carried a study in dynamic determinants of ERM adoption in the property-liability insurance industry in Germany. Apart from the

study concentrating in the insurance industry, the study looked at the factors that influence a firm to start an ERM program and therefore did not look at the effect of ERM on financial performance. The use of telephone interview might not have been appropriate for a questionnaire with many (81) items, meaning that concentration on the items might have affected quality of responses.

Pagach and Warr (2010) examined the effect of ERM on firm's performance in the United States of America. The study looked at the benefits of adopting ERM. The results from the study showed little evidence on effect of ERM adoption on firm's performance. The sampled firms were from a well-regulated (financial and utility) industry and using appointment of chief risk officer (CRO) might not have provided an opportunity to firms that had effective ERM without designating the person in charge of risk management as CRO.

Hoyt and Liebenberg (2008) examined the value of ERM in the U.S insurance industry. The study concentrated in one industry (insurance) which is regulated as stated above. Apart from using the search engine to identify the firms that had implemented ERM, the use of quantitative data analysis method limited study from capturing feelings and perception of people involved in ERM. Firms that had not put their information on ERM online were not captured. This therefore means that care needs to be considered before applying the results of the study to other situations.

Grace, Leverty, Phillips and Shimpi (2010) examine the value of investing in ERM by insurance firms in the U.S. Apart from using appointment of CRO and data from computer search engine, the study was done in the regulated (insurance) sector and therefore positive financial performance cannot wholly be attributed to ERM. There is no consistency on the method used to evaluate the contribution of ERM; there are no indicators in the study to measure ERM. In addition, the use of frontier efficiency method to form a "best practice" frontier function is hypothetical value which does not reflect real financial performance.

In conclusion, most of the studies on ERM relied on secondary data from online financial statements collected through computer search engines. Sampling concentrated in two sectors (financial and insurance) which are normally highly regulated. Measurement of the level and effectiveness of ERM was subjective because it relied mostly on firms that had appointed chief risk officer (CRO) which might not necessarily mean having ERM system in place. Finally, most of the literature review on ERM available of is mainly on implementation and the studies have concentrated in developed and to some extent developing countries. This study was intended to fill in the pertinent gaps in the knowledge concerning effect of ERM determinants on financial performance in the whole spectrum of NSE listed firms in Kenya. The study used primary data for the independent variables and secondary data for the dependent variable.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research methodology used in this study and it is arranged as follows: section 3.1, is introduction; 3.2, research philosophy; 3.3, research design; 3.4, population; 3.5, data collection instruments; 3.6, piloting; 3.7, data collection procedure; 3.8, measurement and scaling techniques; 3.9 statistical data processing and analysis and 3.10, Assumptions of study and hypotheses testing.

3.2 Research Philosophy

Research philosophy relates to the development of knowledge, the nature of that knowledge and contains important assumptions about the way in which researchers view the world (Mugenda, 2008). The practice of academic research is fundamentally driven by an epistemic imperative or the quest for the creation of knowledge. Epistemology derives from episteme, the Greek word for “knowledge” or “how we come to know”. Epistemology refers to the assumption that the best way to study the world is either to use an objective or subjective approach to study social reality (Bhattacharjee, 2012). In addition, a scientific inquiry involves the pursuit of knowledge which seeks to close an approximation of truth as possible (Remenyi, Pather & Klopper, 2011). Bryman and Bell (2007) explain that epistemology is categorized as descriptive where one can describes philosophical position that can be discerned in research. This study was intended to describe the philosophical position about enterprise risk management in relation to financial performance and by doing so add knowledge on what inform correlation between the two.

Bryman and Bell (2007) explain that there are three epistemological positions: positivism, realism and interpretivism. The term positivism was originated from a French philosopher Auguste Comte (1798–1857) the founder of the discipline of

sociology. He attempted to blend rationalism and empiricism in a new doctrine called positivism. He suggested that theory and observations have circular dependence on each other. While theories may be created via reasoning, they are only authentic if they can be verified through observations. The emphasis on verification started the separation of modern science from philosophy and metaphysics and further development of the “scientific method” as the primary means of validating scientific claims. Comte’s ideas were expanded by Emile Durkheim in his development of sociological positivism (positivism as a foundation for social research) and Ludwig Wittgenstein in logical positivism (Bhattacharjee, 2012). Positivism advocates for application of natural sciences to the study of social reality and beyond.

The anti-positivists in the early 20th century, rejected positivism by equated it with quantitative research methods such as experiments and surveys and without any explicit philosophical commitments while anti-positivism employed qualitative methods such as unstructured interviews and participant observation (Bhattacharjee, 2012). Cohen, Manion and Morrison (2007) explain that positivism cannot be applied to the study of human behavior where immerse complexity of human nature and elusive and intangible quality of social phenomena contrast strikingly with the order and regularity of the natural world. The anti-positivists emphasized that social actions must be studied through interpretive means based upon an understanding the meaning and purpose that individuals attach to their personal actions, which inspired Georg Simmel’s work on symbolic interactionism, Max Weber’s work on ideal types, and Edmund Husserl’s work on phenomenology (Bhattacharjee, 2012). By use of both qualitative and quantitative methods in this study, qualitative data provided respondents with an opportunity to provide information on their views and perception (philosophical commitment).

Interpretivism is a term given to a contrasting epistemology to positivism. The term subsumes the views of writers who have been critical on applications of scientific model and are influenced by different intellectual traditions. Realism is a belief that the natural and social sciences can and should start with collection of data,

explanation, commitment, and view that there is an external reality to which scientists direct their attention in other words. Positivism entails an element of deductivism, which maintains theories and hypotheses that aim at data collection (Bryman & Bell, 2007). In current study, analysis of data were interpreted and compared with theoretical evidence in order to make conclusion.

The study was conducted based on positivism paradigm. This perspective is characterized by a belief theory before research is statistically justified by testing hypothesis (Cooper & Schindler, 2011). The study is an empirical analysis of the effect of ERM determinants on financial performance of listed firms in Kenya that was guided by theories, models and frameworks. The theories include agency theory, leverage theory, pecking order and tradeoff theory. The frameworks used were COSO ERM-Integrated Framework, ERM Maturity Framework and COBIT Principles Framework. The theories used in the study were to explain what informed the choice of ERM determinants; staff capacity, information technology, and regulatory framework. The study was essentially geared towards establishing possible correlation between ERM determinants and financial performance and find out the strength of such relationships if they existed.

3.3 Research Design

To achieve the objective of the study, research design provided a roadmap. Research design constitutes the blue print for collection, measurement and analysis of the data (Cooper & Schindler, 2011; Kothari, 2009; Kombo & Tromp, 2006). Cooper and Schindler (2011) explain that research design enables a researcher to allocate limited resources by ensuring appropriate methodology is used. Kothari (2009) explain that design includes an outline of what the researcher will do from writing hypothesis and its operational implications to final analysis of data.

This study used cross-sectional correlation descriptive survey design which was considered to be appropriate in description of the state of affairs as it existed. The method also provided a basis for analyzing correlation and testing of hypotheses. Kombo and Tromp (2006) explain that descriptive studies are not only restricted to fact findings, but may often result in the formulation of important principles of knowledge and solution to significant problems. Apart from collection of data descriptive studies involve measurement, classification, analysis, comparison and interpretation of data. Descriptive studies also serve as direct source of valuable information concerning human behavior and assist in planning and solving of problems of various aspects (Sing & Bajpai, 2010). Sekaran (2010) alluded that descriptive studies provide information for future course of action. Descriptive survey is flexible enough to provide opportunity for considering different aspects of a problem under study (Kothari, 2009). Similar methods of research design have been used by other scholars in Kenya such as Wanjau (2010) in the study on “The role of quality growth of small and medium enterprises in Kenya”.

Cooper and Schindler (2011) suggested that using descriptive research enable an in-depth study of phenomena or characteristics associated with subject population such as who, what, when, where, and how of a topic; estimation of proportions of population that have these characteristics, determine bivariate or multivariate correlation between variables, cross tabulation of information, strength of relationship or magnitude of relationship and determine the correlation between different variables. Similarly, Orodho (2005) explains that descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals while Sing and Bajpai (2011) outline the objectives of descriptive research such as; identifying present conditions and pointing out the present needs, studying immediate status of a phenomenon, finding out facts about a problem and examining the relationships of traits and characteristics (trends and patterns).

3.4 Population

The population for this study composed of all the listed firms that had submitted audited financial statements to Nairobi Securities Exchange. Sekaran (2010) explain that population refers to the entire group of people, events or things of interest that a researcher wishes to investigate. Cooper and Schindler (2011) explain that a population is the total collection of elements about which we wish to make some inferences. The above definitions on population suggest that a population is composed of the entire total collection of elements about which some inferences can be made.

3.4.1 Census Survey

A census survey was used in this study because the universe was small. The population frame consists of all the listed firms in Kenya. A complete enumeration of all items in the population is known as a census inquiry. Census study ensures that no element of chance is left and highest accuracy is obtained (Kothari, 2009). Cooper and Schindler (2011) define a census as a count of all the elements in a population. Bhattacharjee (2012) recommended that census research method is best suited for studies that have individual people as unit of analysis and can also be used in the descriptive, exploratory or explanatory research.

In order to use a census study two conditions are appropriate: first, census is feasible when the population is small and secondly, when the elements are quite different from each other (Cooper & Schindler, 2006). Using the NSE Handbooks of 2012, 44 firms were on the roll in ten segments. These segments are unique and the risks facing each firm are different. Similar studies that had used the same approach include; Pagan and Warr (2010) and Liebenberg and Hoyt (2009). Other scholars that have used census in their studies are; Grace, Leverty, Phillips and Shimpi (2010) in the study on the value of investing in enterprise risk management while in Kenya, Ongore and K'Obonyo (2011) used census survey in the study on effects of selected corporate governance characteristics on firms' performance.

3.4.2 Population Frame

The population frame is the list of all elements in the population from which the sample is drawn (Sekaran, 2006). Table 3.1 shows the population frame extracted from the NSE Handbook of 2012. The study population was selected from the population and composed of three managers (officers) from each of the following departments; finance, audit and a department that handles risk functions in the listed firms. When the population of the study is small and located in narrow geographical area, the target population is closely comparable to the assessable population (Mugenda & Mugenda, 2003).

Under the positivist paradigm, subjects are sampled from the accessible population. The accessible population is that part of the target population, which the researcher can practically reach (Mugenda, 2008). The ERM managers, auditors and finance officers were the target study population because in most cases they were the ones who coordinated ERM activities in the firms, especially for those firms that had not appointed chief risk officer. In most cases risk management is domesticated in either finance, audit or risk management department and for this study these departments were chosen. Table 3.1 contains the target of the study population. Three members of staff (finance, audit and risk management) were chosen from each NSE listed firms because the strategies used by each sector are different. In most cases auditing deals with post events while finance is focus on prevention rather than post occurrence.

Table 3.1: Study Population of each NSE Segment

Segment/Sector	No. of Firm	Target	Department		
			Finance	Audit	Risk
Agricultural	7	21	7	7	7
Automobile & Accessories	2	6	2	2	2
Banking	9	27	9	9	9
Commercial & services	4	12	4	4	4
Construction & Allied	4	12	4	4	4
Energy & Petroleum	4	12	4	4	4
Insurance	4	12	4	4	4
Investment	1	3	1	1	1
Manufacturing & Allied	7	21	7	7	7
Telecommunication & Technology	2	6	2	2	2
Total	44	132	44	44	44

3.4.3 Study Population

Kombo and Tromp (2009) define target population as a group of individuals, objects or items from which samples are taken for measurement. Cooper and Schindler (2011) explain that a target population is the entire group under study and that the

population parameters are the summary descriptors such as incidence proportion, mean and variance. The selection of respondents depends on the nature of analysis needed, the kind and number of comparison that are to be made.

The target population for this study was all the listed firms in Kenya during the period beginning on 1st January, 2008 to 31st December, 2012. The number of listed firms that had submitted audited financial reports for the period was 44, (NSE Handbook, 2012). The 44 firms had complied with Companies Act 486, and Capital Market Authority (CMA) Act Cap 485, which require all the listed firms to submit their annual audited financial statements every year for publication.

3.5 Research Instruments

This study used two types of research instruments to collect data from each of the firms targeted. The targeted cadre of officers was the ones in-charge of finance, audit and risk management department. A record survey sheet was used to collect secondary data for each of the firm. Research instruments are means by which data are collected in social research. They include questionnaires, observation schedules and record analysis schedules (Peter, 2008; Kothari, 2009).

This study collected information from two sources; primary source and secondary sources. Data for the independent variables were collected from primary sources while data for the dependent variable was collected from secondary sources. Cooper and Schindler (2011) explain that where sources of information targeted for the study are varied such as primary and secondary, then other instruments can be used. Kothari (2009) explain that selection of appropriate method of collection of data depends on the nature of data, the scope and the object of enquiry, availability of funds, time factor and precision required (see table 3.1).

3.5.1 Questionnaires

The questionnaires were the main instruments used in this study. Information on independent variables such as firm's characteristics, information technology, staff

capacity and regulatory framework was collected using questionnaires. Kothari (2009) pointed out the merit of using questionnaires to collect data such as; low cost when the universe is large, the instrument is free from bias of the interviewer, respondents have adequate time to give well thought answers and large samples can be reached. Questionnaires were chosen because of these advantages.

The questionnaire consisted of closed ended, open-ended and dichotomous questions and divided into four parts to capture information for each of the variable (firm characteristics, information technology, staff capacity and regulatory framework). Bryman (2008) explain that questionnaires consist of a series of specific, usually short questions that are either asked verbally by an interviewer or answered by the respondents on their own. The closed ended (likert scale) and dichotomous questions had categorized and exhaustive response while the open ended questions had unlimited response. The questionnaires were given to respondents to fill on their own and where clarification was needed they were assisted accordingly. Other scholars that have used self-administered questionnaires include; Musimba (2010); Simiyu (2012); Namusonge (1998). Table 3.2 shows the number of questionnaires for each sector.

Table 3.2: Distribution of Questionnaires per Segment

Segment	No. of firms	No. of questionnaires
1. Agricultural	7	21
2. Automobile & Accessories	2	6
3. Banking	9	27
4. Commercial & services	4	12
5. Construction & Allied	4	12
6. Energy & Petroleum	4	12
7. Insurance	4	12
8. Investment	1	3
9. Manufacturing & Allied	7	21
10. Telecommunication & Technology	2	6
Total	44	132

3.5.2 Record Survey Sheets

Data for dependent variable (financial performance) was collected from secondary sources using record survey sheet. The record survey sheets were used to collect data from the sources that already existed such as financial statements (income and expenditure accounts and position statements). The financial statements provided data that were needed to determine financial performance (dependent variable). The Capital Market Authority (CMA) regulations require listed firms to publish their final audited accounts every financial year (GOK, 2002).

The analysis of financial statements was done for five years (2008-2012). The record survey sheets were necessary because the annual reports, figures relevant to the study had to be calculated for the purpose of this study unlike in the format provided by the NSE. Using the record survey sheet, figures necessary were extracted from the financial statements such as net asset value, earnings per shares, price/earnings (P/E) ratio, net profit, dividend per share and selling price per share. The data collected were further analyzed to determine the trend for five years. Pagan and Warr (2010) in their study of effects of ERM on firms' performance, Hoyt and Liebenberg (2009) in their study of the value of ERM, Tahir and Razali (2011) in their study on the relationship between ERM and firm value used record analysis sheet as research instruments.

3.6 Pilot Test

Pilot test was done to check the construct validity and internal consistency reliability of research instruments. A pilot study was carried out from April 2013 to June 2013. Three firms that had met the criteria (listed and had audited financial statements) were chosen. The firms that had submitted their audited financial statements were listed in the NSE Handbook. The sample chosen for pilot study was had similar characteristics with the ones chosen but had not submitted audited report to NSE. The purpose of pilot testing was to establish the accuracy and appropriateness of the research instruments (Cooper & Schindler, 2011).

The pilot study was conducted in firms that were listed at NSE and had operated for five (2008-2012) years. Mugenda and Mugenda (2003) posit that the pretest sample is between 1 % and 10 %. For this study the three questionnaires were dropped and collected later. The respondents to the questionnaires for each firm were from three key departments in risk management; finance, audit and risk management. Coopers and Schindler (2011) pointed out that in piloting, selection of respondents need not be done statistically. Cronbach's alpha coefficient of 0.7 and above was set as a threshold for both construct validity and internal consistency.

Mugenda (2008) pointed out that measurement of many constructs in the social sciences is subject to response bias or response set which are categorized into; acquiescence, extremity and non-response. This is the tendency of particular subjects to respond in a particular way regardless of the content of the questions or items.

To counter response bias, development of the instruments was done in such a way that acquiescence bias was avoided by interchanging the pattern of items in the instrument; extremity bias was handled by using other approaches to confirm data such as published audited reports and record survey sheets.

3.6.1 Validity Test

Three sets of validity tests were done for research instruments used in this study. Three broad validity tests conducted were; content validity, construct validity and criterion-related validity. Sekaran (2009) alluded that content validity ensures that the measure includes an adequate representative set of items that tap the concept. The more the scale items represents the domain or universe of the concept being measured, the greater the content validity. Content validity is a measure of the degree to which data collected using a particular tool represents a specific domain of indicators or content of a particular concept (Mugenda, 2008).

Mugenda (2008) define validity as the degree to which an instrument measures what it purports to measure. It establishes the correlation between data and variable or construct of interest. Ridley (2005) added that validity refers to the degree to which an instrument measures what it is intended to. Sekaran (2010) pointed out that in experimental design, the concern about validity is on the authenticity of cause-and effect relationship (internal validity) and their generalizability to the external environment (external validity).

Bhattacharjee (2012) assert that construct validity is the extent to which a measure adequately represents the underlying construct that is supposed to measure. Construct validity, therefore, examines how well a given measure relates to one or more external criterion based on empirical observations. Mugenda (2008) and Sekaran

(2009) pointed out that construct validity testifies to how well the results obtained from the use of measure fit the theories around which the test is designed. Similarly, Wainer and Braun (1998) describe the validity in quantitative research as “construct validity”. The construct validity is the initial concept, notion, question or hypothesis that determines what is to be gathered and how it is to be gathered.

Sekaran (2009) explain that criterion-related validity is established when the measure differentiates individuals on a criterion it is expected to predict. Bhattacharjee (2012) states that criterion based validity uses exploratory factor analysis which measures discriminant and convergent validity and assessment is based on quantitative analysis of observed data using statistical techniques such as correlation analysis and factor analysis among others. Mugenda (2008) also assert that criterion-related validity refers to the correlation between a tool or a scale and a criterion called validity coefficient.

Testing of validity for quantitative data was done using all the three methods namely content validity, criterion-related validity and construct validity while qualitative data were coded and related responses were put together in a code book to get the frequencies. Hoyt and Liebenberg (2008) used content validity method by using key phrases such as “enterprise risk management”, “chief risk officer” and “risk committee” in analyzing the adoption of enterprise risk management and construct validity to determine factors that were correlated with the firm’s choice to adopt ERM. Lassar, Haar, Montalvov and Hulser (2010) while testing for content validity organized qualitative data into theoretical themes. Therefore, this allowed multiple investigations into different relationships to assist in the analysis of the broad open-ended questions. Pagach and Warr (2010) used criterion validity test by matching sample and logit model to determine if there were differences between the firm sample and the industry matched sample. Altuntas *et al.* (2011) used criterion-related validity to test whether past performance and firms lagged changes affects ERM adoption process as a whole. Corrigan, Decker, Hoshino, Delft and Verheugen

(2009) recommended use of construct validity in testing the interaction effects on the risk factors.

Using the record survey sheets, the growth of the variables used to measure financial performance was extracted from the annual financial statements submitted by firms to Nairobi Securities Exchange. The growth of variables used to assess financial performance for the listed firms in Kenya for five years (2008-2012) was analyzed to assess growth in the following; share selling price, earnings per share, price earnings ratio, net asset value, dividends per share and net profit for the period (financial year ended 2008 to 2012).

Factor analysis was done to determine whether there were items that did not meet the threshold for analysis. Costello and Osborne (2005) opine that the aim of factor analysis is to reveal any latent variables that cause observed variables to covary. Timm (2002) explain that exploratory factor analysis is a causal modeling technique that attempts to explain correlations among a set of observed variables through linear combination of a few number of unobserved (latent) random factors.

3.6.2 Reliability Test

This study tested internal consistency reliability test of the research instruments used to collect data. Reliability is a measure of the degree to which a research instruments would yield the same results or data after repeated trials. Sekaran (2010) stated that reliability indicates the extent to which an instrument is without bias (error free) and hence ensures consistent measurement across time and across various items in the instrument.

In this study, internal consistency reliability test was conducted for the questionnaires using Cronbach alpha coefficient. Brown (2002) suggests that internal consistency reliability test is based on a single form of test administered on a single occasion using one of the many available equations. The internal consistency can be estimated using the following equations; Spearman-Brown Prophecy formula,

Kuder-Richardson formulas 20 and 21 and Cronbach alpha. The calculation of Cronbach's alpha is as

$$= k/k-1 \times [1 - (s^2)/s^2_{\text{sum}}].$$

Where; Cronbach's alpha = Reliability co-efficient of internal consistency

k= Number of items used to measure the concept

S²= Variance of all score

s²= Variance of individual items

The piloted data collected was analyzed and coded before entering into SPSS data sheet. Cronbach's Alpha coefficient had a threshold of 0.70 for both ERM determinants and financial performance. If α is greater than 0.70 it is considered reliable otherwise below 0.70 will be considered unreliable (Mugenda, 2008). Hoyt and Liebenberg (2009) in the study of value of enterprise risk management are among the scholars who used Cronbach's Alpha coefficients to measure internal consistency reliability of research instruments.

3.7.2 Data Collection Procedure

Two instruments were used to collect data in this study; questionnaires and record survey sheet. Data collection refers to the gathering of information to serve or prove some facts (Kombo & Tromp, 2006). Prior to collection, a research assistant who assisted in collection of data was trained and given a letter of introduction. The approach of collection of data was to start from reporting to the office of the chief executive officer (CEOs) for formal introduction and to seek permission. The questionnaires were self-administered to the respondents (officers in charge of finance, audit and risk management sections); however, provision for clarification on the instruments was done wherever it was necessary. Those who were able to finalize questionnaires were given time and the questionnaire collected immediately, otherwise the rest were given time to fill and collection date was agreed upon.

Record survey sheet was used to collect data extracted from secondary sources such as balance sheets and other annual financial statements. The NSE handbook for 2012 was acquired from Nairobi Securities Exchange. The handbook contained analysis of financial statistics (share price, Earnings per share, price earnings ratio, net asset value, net profit and dividend per share) that were required in determining financial performance. Secondary sources according to Cooper and Schindler (2011) are interpretation of primary data. They are collected from the libraries, text books, internet, newspapers, academic journals, Government documents and publications, magazines, research findings, annual reports, course work lecture notes and discussions in professional forums. Historical financial statements for the listed firms formed major sources of secondary data for quantitative analysis (Coopers & Schindler, 2011, Kothari, 2008 ; Peter, 2008).

3.8 Measurement and Scaling Technique

In developing data collection instruments, three types of items were used in the questionnaires; closed ended responses ranging from 1 to 5 in the likert scale, dichotomous questions and open ended questions. The questionnaires were structured to capture responses in terms of dichotomous scale, a 5 point likert scale and open ended questions. Dichotomous questions were used to elicit a 'Yes' or 'No' answer; open ended questions gave chance to the respondent to add information that might not have been included in the closed ended questions while Likert scale questions provided an opportunity to respondents to rate items used in the questionnaire in the scale of numbers 1 to 5. Bhattecharjee (2012) suggests that Likert scale is a very popular rating scale for measuring ordinal data in social science research. Sekaran (2010) and Kothari (2009) pointed out that Likert scales questions are used because they are more reliable and can provide more information. Ordinal scale group rank subjects or objects into some order. The numerals used in the ordinal scale are used to represent a relative position, but not the measured quantity (Mugenda, 2008).

The measurement of the responses used both deductive and inductive models of reasoning. Mugenda (2008) assert that measurement involves assignment of real numbers to some characteristics or attribute according to specified rules while scaling involve development of systematic rules and meaningful units of measurement to represent empirical observations. Cooper and Schindler (2011) argued that deduction is a form of inference that purports to be conclusive and whose conclusion must follow the reasons given. Deduction is a process by which we arrive at a reasoned conclusion by logical generalization of a known fact and induction is a process where we observe certain phenomena and on this basis we arrive at the conclusion (Sekaran, 2010). Inductive reasoning moves from specific facts to general but tentative conclusions and also regards statistical inference as an application of inductive reasoning (Cooper & Schindler, 2011).

This study ensured that all information collected were categorized and measured according to the scale indicated. Similar responses for open ended questions were put together for analysis. The studies that have used likert scale measure method and structured questionnaires in Kenya to collect data in their research include; Deloitte (2012); Moti, Masinde, Mugenda and Sindani (2012); Mugenda, Momanyi and Naibei (2012) ; Waweru and Kisaka (2009).

3.8.1 Data Measurement

The responses were put together in tables to determine frequency and percentage for the dichotomous and open ended questions. On the other hand, the likert scale items were analyzed in two stages, descriptive analysis and quantitative analysis. The descriptive analysis was done to determine the mean (calculated in percentage terms) in order to identify the critical ERM indicators that influence financial performance of a firm.

Quantitative data was analyzed using correlation and regressions analysis after conducting factors analysis and sample adequacy tests. The effect of ERM determinants on financial performance was measured in terms of the strength and

direction of the relationship. A positive correlation shows that investment on ERM determinants improves financial performance of a firm and vice versa. The values of correlation denoted by “r” ranges between +1 and -1, a value with a +1 means that there is a perfect positive correlation, a value of -1 means there is perfect negative correlation and a 0 correlation means that there is no correlation. The hypothesis was tested using the F-test at 0.05 level of confidence. The null hypothesis was rejected if the calculated F-value (F_{cal}) was greater than the F critical (F_{cr}) value and the second condition satisfied ($p\text{-value} < 0.05$). The analysis of variance (ANOVA) $F_{cal} < F_{cr}$ then null hypothesis (either $\mu_1 = \mu_2 = \mu_3 = \mu_4$) is accepted otherwise rejected if the $F_{cal} > F_{cr}$. The overall null hypothesis expressed as $\mu_1 = \mu_2 = \mu_3 = \mu_4 = 0$ while the alternative hypothesis is that at least one of the $\mu_j \neq 0$, where $j = 1, 2, 3, 4$. The Multiple linear regression model produced analysis of variables (ANOVA) output showing calculated F-value and p-value (Cooper & Schindler, 2011; Sekaran, 2008; and Siegel, 2003).

3.8.2 Testing of Financial Performance

Performance of capital market is significant to investors as they expect good returns on their investment. To policymakers, stock market parameters such as indices are recognized as leading indicators of economic activity. The level of stock prices can also have a direct impact on consumption through wealth effect. Studies of comparative performance of various sectors/countries are crucial in driving performance of a country. There are many ways of measuring financial performance of a firm such as efficiency in managing resources, corporate social responsibilities, efficiency in agency conflict resolution, share market and returns on investment (Demodaran, 2009; Grace *et al.*, 2010; Altuntas *et al.*, 2011, Muralidhar, 2010; Razali & Tahir, 2011).

Financial performance can be assessed using the reports contained in the annual financial statements. The key financial statements that could be used in the analysis include; balance sheets, income and expenditure account and cash flow statements to interpret financial performance of a firm. The types of financial performance of

interest to prospective investors in a capital market include; current ratio, earnings per share, price/earnings ratio, dividend per share, pay-out ratio, dividend yield and net asset value ratio among others (Nairobi Security Exchange Handbook, 2013).

Using the record survey sheets, the growth of the variables used to measure financial performance was extracted from the annual financial statements submitted by the listed firms to Nairobi Securities Exchange. The growth of income indicators (selling price of shares, earnings per share, dividend per share, price/earnings ratio, net profit and net asset value) were used to measure financial performance for the NSE listed firms in Kenya for five years (2008-2012). The average income indicators were determined as following; average income composed of share selling price, earnings per share, price earnings ratio, dividends per share and net profit and average of net assets value for the period (financial year ended 2008 to 2012).

Despite the fact that the government had taken drastic measures to address the crisis in the first medium term plan for the period 2008 to 2012, the review of the first medium term identified other challenges and emerging issues that could affect business operations in the country. The emerging challenges identified in the second medium term for the period 2013 to 2017 that expected to slow growth in financial performance include; low level of information technology, vandalism and sophistication in cyber-attacks and cybercrimes (GOK, 2013).

The questionnaires were structured to capture likert scales, open ended and dichotomous questions. The likert 5-scale questions were tested for internal consistency and construct validity to ensure what was collected was valid and reliable. Sekaran (2008) explain that reliability of measure is established by testing both consistency and stability. Consistency indicates how well the items measuring a concept hang together as a set. Cronbach's alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another.

The minimum coefficient measuring validity and reliability of the variables in this study was fixed at 0.7. Tavakoi (2011) pointed out that Cronbach's alpha is used to

measure of internal consistency of a test or scale and it ranges from 0 to 1. The value above 0.70 is acceptable, above 0.8 is good and above 0.9 is considered excellent. Sekaran (2008) suggested that Cronbach' alpha coefficient above 0.7 is acceptable and above 0.8 is good and George and Mallery (2003) also provided similar scales of above 0.9 is excellent, above 0.8 is good, above 0.7 is acceptable, below 0.7 is questionable, below 0.6 is poor and below 0.5 is unacceptable.

3.8.3 Testing of Research Hypotheses

Four null hypotheses were used to test the objectives while linear regression models were used to test the correlation between ERM determinants and financial performance. The analysis of variance (ANOVA) output was used to reject or fail to reject null hypothesis. The calculated F-value with a significant calculated probability value less than ($p\text{-value } .000 < 0.05$) critical p-value was used to determine the significance of the correlation between ERM determinants and financial performance.

The first null hypothesis stated as: "There is no correlation between firms' characteristics and financial performance of the NSE listed firms in Kenya". The firms' characteristic composed of internal environment such as resources and capital structure was compared with financial performance of the listed firms. Ownership structure and capital structure was used in the questionnaires to determine the effects of shareholders on ERM. The descriptive analysis frequency distribution table shows the role of board of directors on capital financing decisions. A univariate regression model used to test correlation between firms' characteristics and financial performance.

The second null hypothesis stated as; "There is no correlation between information technology and financial performance" and was tested by univariate linear regression model. Using the COBIT model principles, types of information technology and technology adoption model, the questionnaires were structured to capture the level of information technology being used by firms to manage risks. The calculated F-value

determined was used to either reject the hypothesis or accept the alternative hypothesis. The model summary output shows the coefficient of information technology denoted by the value of “r”. The value of “r²” measures the changes in financial performance attributed to information technology. The coefficient of determination output show the coefficients of the model used to predict the dependent variable (Y).

The third null hypothesis stated as; “There is no significant correlation between staff capacity and financial performance”. The hypothesis was tested using univariate linear regression model. F-test was used to test hypothesis and $F_{cal} > F_{cr}$ with a significant (p-value < 0.05) means that there is a significant correlation between staff capacity and financial performance. The staff capacity theories namely the; Kirkpatrick’s levels of learning and training evaluation, knowledge management model and knowledge movement model, the questionnaires were structured to capture effectiveness of staff capacity on ERM and also to capture the influence of staff capacity on financial performance of the NSE firms. The univariate model was used to measure the effect of staff capacity on financial performance.

The fourth null hypothesis stated as; “There is no correlation between regulatory framework and financial performance of the listed firms in Kenya” was tested using F-test. The univariate model was used to measure the effect of regulatory framework on financial performance. The ANOVA output from the regression model produced calculated F-value and p-value. A significant F_{cal} value (p-value < 0.05) means that the null hypothesis is rejected implying that there is a significant correlation between regulatory framework and financial performance. The aspects of regulatory framework as collected by questionnaires were measured in terms of existence of guidelines on ERM, disclosure requirements, risk management standards and existence of regulatory agencies.

Related studies in enterprise risk management that have used linear regression analysis to test the correlation and the strength of the relationship between the independent variables and the dependent variable include Hyot and Liebenberg

(2008), Kumsurprom *et al.* (2010), Waweru and Kisaka (2012), Pagach and Warr (2010) among others.

3.9 Data Processing and Analysis

The data collected was first cleaned, sorted and coded using numerical numbers. Kombo and Tromp (2006) alluded that collected data is “raw” and therefore need to be organized to become information. Kothari (2009) suggested that since data collected is raw, then there is need to process them by editing, classifying and tabulating so that they are amenable to analysis. Editing involves a careful scrutiny of completed questionnaires/schedules to assure data collected is accurate, consistent and uniformly entered. Coding refers to the process of assigning numerals or other symbols to answers received so that response can be put into a limited number or categories or classes. Tabulation is the process of summarizing raw data and displaying the same in compact form for further analysis (Peter, 2007; Kothari, 2009 and Cooper & Schindler, 2011).

Quantitative data was analyzed using descriptive analysis methods. The descriptive statistics was conducted using Statistical Package for Social Science (SPSS) version 21. The correlation analysis and regression analysis were done for each independent variable against dependent variable and for multiple regression model. In this context analysis was conducted to determine; whether to accept/or reject the null hypothesis tested and to measure the effect of the independent variables on the dependent variable. The coefficient values in the model were used to predict the dependent variable (financial performance). Tahir and Razali (2012) examined the relationship between enterprise risk management and firm value using linear multiple analysis to determine the effects of independent variables on the dependent variable. Jafari *et al.* (2011) used bivariate regression analysis and in the combined model; they used multiple linear regression analysis to investigate the correlation between implementation of ERM and company’s performance in innovation and intellectual capital.

The open ended questions elicited unlimited responses, dichotomous questions had a “Yes” or “No” response while the Likert-type scale questions had the response ranging from 1 to 5 with the following equivalence; ‘1’ for strongly disagree, ‘2’ for disagree, ‘3’ for neutral, ‘4’ for agree and ‘5’ for strongly agree. Such questions are used to collect data for qualitative and quantitative research (Cooper & Schindler, 2011; Kothari, 2009 and Bajpai & Sing, 2011). The independent variables were tested using two models; one to test the correlation between dependent and independent variable and the other model to test the effect of combined independent variables on financial performance of the NSE listed firms. Similar model was used by other scholars in their studies; Hoyt and Liebenberg (2008) and Pagach and Warr (2010).

Kothari (2009) recommended that qualitative data after classification according to similar attributes which are either descriptive or numerical can be analyzed statistically. Such variables were measured using measures of central tendency (statistical averages), measures of dispersion, measures of asymmetry (skewness), and measures of relationship. The measures of central tendency that were used include mean, mode and median; measures of dispersion were standard deviation and coefficient of standard deviation. Measures of skewness were used to measure peakedness (kurtosis) of the curves of frequency distribution; while Karl Pearson’s coefficient of correlation was used to measure the correlation between variables (Kothari, 2009 and Coopers and Schindler, 2011). In addition, the hypothesis was tested at 95 % level of significance. This study used the same statistical measures to test the correlation between independent variables and dependent variable.

The dependent variable (financial performance) was predicted by a regression model after determining the coefficients substituted in the model (constant and coefficients of each independent variable). The indicators for financial performance were measured by; earnings per share, price/earnings (P/E) ratio, net profit, dividend per share and selling price per share. The analysis done in the NSE handbook was used to identify growth of each of the indicators in five years (2008-2012). The growth for

each of the indicator for one year was rated at 1, growth for two years rated at 2, growth for three years rated at 3, growth for four years rated at 4 and growth for five years rated at 5.

The Statistical Packages for Social Sciences (SPSS) version 21, Word Office Excel 2007 and R statistical package were used to analyze the data. Kothari(2009) and Cooper and Schindler, (2011) define data analysis as the process of understanding the meaning of information collected by bringing order, structuring for decision making or making a conclusion. Data methods are either qualitative or quantitative processes. In the past, a number of studies used SPSS program to analyze their data with the same theme of enterprise risk management and financial performance such include; Waweru and Kisaka (2011).

Descriptive analysis was the first step in the analysis. Descriptive statistics is concerned with the development of indices from the raw data, whereas quantitative analysis was done to determine the correlation and significance of the relationship between the independent and dependent variable. The descriptive statistics show the mean and percentages. Before quantitative analysis was carried out, two tests were conducted to determine whether factor analysis was necessary; namely; Kaiser-Meyer-Olkin and Barlett's test of sphericity analysis. Kaiser-Meyer-Olkin and Barlett's test served two purposes; it was used to examine the appropriateness of factor analysis and adequacy of the items used in the study. High values (above 0.5) indicate that factor analysis is appropriate (Tabachnick & Fidell, 2007). Anastasiadou (2011) alluded that Kaiser-Meyer-Olkin (KMO) compares the sizes of the observed correlation coefficients to the size of the partial correlation coefficients for the sum of variables analyzed.

The test for sample adequacy also uses Barlett Sphericity test to test the hypothesis that the correlations between variables are greater than the expected by chance. Barlett test was also used to confirm whether the matrix used was an identity matrix. Using the p-value, if the coefficient is significant then the null hypothesis is rejected

and only if all the off-diagonal correlations coefficients p-values are zero (Kaiser, 1974).

After carrying out KMO and Barlett's tests, factor analysis was conducted. The principal component analysis was used as a data reduction technique to reduce a large set of measures to smaller, more manageable number of composite variables to be used in subsequent analysis. All composite variables with factor loading of less than 0.4 were eliminated from further analysis (Velicer & Fava, 1998).

Pearson's correlation, regression and analysis of variance analysis (ANOVA) were tested. Karl Pearson's correlation tested the nature of the relationships between ERM determinants and financial performance. A number of related studies have used Pearson's correlation, regression and ANOVA analysis. Adeusi, Oluwafemi, Akele, Niyi, Adebisi, Obawale, ... Olawale (2013) used a Pearson's correlation and regression analysis to test the association between risk management and performance of banks in Nigeria. Waweru and Kisaka (2011) used three models to examine the effect of ERM implementation on value of companies in the NSE. Taraf and Majeske (2008) used three models to investigate the impact of risk taking on bank financial performance during 2008 financial crisis.

In this study, an analysis of partial correlation between variables was determined. Srivastava, Sheng and Sharma (2005) suggested that partial coefficient of correlation is used to measure the relationship between two variables in a way that the effects of other related variables are eliminated. The aim of partial correlation in this study was to measure the relationship between an independent variable on the dependent variable holding all other variables constant; thus each partial correlation measured the effect of the independent variable on the dependent variable. Coefficient correlation between each set of pairs of variables was computed guided by research hypothesis using a t-test of 5% level of significant.

Finally, the study used multiple linear regression analysis to determine the causal relationship between financial performance and ERM determinants. Mugenda (2008)

points out that multiple linear regression model is a statistical analysis that uses two or more independent variables to predict a dependent variable. The regression coefficient 'b', estimates the expected change in the dependent variable given 'a' one unit change in the independent variable, while controlling for the independent variables in a prediction study. The magnitude of beta coefficient associated with the independent variables can be compared to determine the strongest independent variable in predicting the dependent variable. Kothari (2009) also points out that multiple regression technique is appropriate when the researcher has single criterion variable (dependent variable).

The linear regression analysis is used as descriptive tool in three types of situations namely; where self-weighting equation is needed to predict values for criterion variable (dependent variable) from value for several predictor variables (independent variables), where there is need to control for confounding variables to better evaluate the contribution of other variables and it is used to test and explain causal theories often called path analysis (Cooper and Schindler, 2011).

The multiple regression analysis method was therefore chosen, because the problem under study needed testing of the hypothesis between the overall ERM determinants (independent variables) on financial performance of the listed firms. In addition, multiple regressions analysis was used as descriptive tool as well as an inferential tool to test hypotheses and to estimate population values. The main objective in using this technique was to predict the variability between the dependent variable based on its covariance with all the independent variables. To achieve this objective, the testing involved the causal correlation between the linkage of theory and findings and therefore the visible model to use was a multiple regression model. Since there was only one dependent variable (Y) to be predicted by four predictor variables then the best model to apply was linear regression model (Cooper & Schindler (2011)).

The key operational terms used in the analysis were defined to serve this study. Appendix xii shows the operational definitions of terms used in the study for the

dependent variable (financial performance) and the independent variables (firms' characteristics, information technology, staff capacity and regulatory framework).

3.10 Assumptions of study and Hypothesis Testing

This study used statistical models to measure the variables. Five models were used in this study; four regression models to measure the correlation between each independent variable and the dependent variable, one multiple regression model to measure the correlation between the overall independent variables and the dependent variable. The inferential statistics is concerned with testing of null hypothesis in order to determine the validity of making conclusion and estimation of population parameters (Kothari, 2009 : Coopers & Schindler, 2011).

The dependent variable was subjected to normality test to check whether the data was normally distributed or not. Ghasemi and Zahediasi (2012) opine that Kolmogorov-Smirnov is the most used test of normality. An absolute value of the score greater than 1.96 or less -1.96 is significant at $p < 0.005$, while greater than 2.58 or less than -2.58 is significant at $p < 0.01$ and greater than 3.29 or less than -3.29 is significant at $p < 0.001$. The test of normality can also be conducted using graphs (quantile-quantile plot, Q-Q Plot) for the variables measuring financial performance. The frequency distribution (histogram), the stem-and-leaf plot, boxplot, probability-probability plot (P-P plot) and Q-Q plot are used for checking normality graphically. Srivastava *et al.* (2005) suggest that normal distribution is the most widely used probability model for continuous random variables. The probability density curve is symmetric around the mean, μ and indicates the spread of the curve in terms of probabilities of various intervals around the μ .

F-test was used to test the hypothesis and the significant of the correctional was determined by the p-value at 0.05 level of confidence. If the result of the analysis shows the calculated p-value (p-value < 0.05) then it means that the correlation between variables was significant. The calculated F-value was also compared with the critical F-value. Similarly, if the result shows the calculated F-value is greater

than the critical F-value, then it means that the null hypothesis is rejected and therefore concluded that indeed there is significant correlation between independent variable and the dependent variable.

3.10.1 Assumptions of the Study

The assumption of the study was that there were no outliers in the data collected. However, univariate method was used to test outliers in the items used to measure the dependent variable. Ben-Gal (2005) pointed out that most of the earliest univariate methods for outlier detection relied on the assumption of an underlying known distribution of data which is assumed to be identically and independently distributed. Davis and Gather (1993) suggested ways of identifying outliers by observing items lying in a so-called outlier region. The definition of the outlier region for any confidence coefficient α , $0 < \alpha < 1$ and the outlier region of the $N(\mu, \sigma^2)$ distribution is defined by; Outlier

$$O_{\alpha}(\mu, \sigma^2) = \{x : |x - \mu| > z_{1-\alpha/2} \sigma\}$$

Where

z_{α} is the quantile of $N(0,1)$. A Number x is an α -outlier with respect to F if $x \in O_{\alpha}(\mu, \sigma^2)$.

Barnet and Lewis (1994) asserted that an outlier observation deviates markedly from other members of the sample in which it occurs. Seo (2002) caution that outliers may cause a negative effect on data analysis in univariate data sets.

a). Test of Autocorrelation

Independent observations are assumed by most statistical procedures. The independence test for each of the four predictor variables was conducted using Durbin-Watson d statistics. Durbin-Watson is used to test auto correlation, a situation whereby the independent variables repeat themselves or influence each other and therefore cannot sufficiently predict the dependent variable. Srivastava, Shenoy and

Sharma (2005) pointed out the importance of testing autocorrelation as it assist in showing the distribution of disturbance (errors). It is always important to determine the presence of auto-correlated disturbance term in a series before the least squares techniques for estimating “*a*” and “*b*” are developed. The Durbin-Watson statistics value ranges from 0 to 4, an ideal value of 2 indicates non-autocorrelation, a value closer to 0 indicates a positive autocorrelation, a value closer to 4 indicate a negative autocorrelation (Srivastava *et al.*, 2005). This means that coefficient values ranging from 1.5 to 2.5 shows no presence of autocorrelation while above 2.5 to 4 show a positive autocorrelation.

b). Test of Multicollinearity

Multicollinearity test was done to check the presence of superfluous variables. When multicollinearity is present, the exclusion of one of the variables from the model does not decrease the explanation of the dependent variable (Y). The strength of the relationship among independent variables is measured by the coefficient of correlation. When the relationship between two independent variables is strong, it is known as multicollinearity (Waters, 2011). The presence of multicollinearity indicates that one variable can successfully predict an outcome of another variable (Srivastava, Shenoy & Sharma, 2005).

O’Brien (2007) recommends that variance inflation factor and tolerance are both widely used to measure the degree of multicollinearity of the i^{th} independent variable with the other independent variables in a regression model. In such a scenario it is advisable to remove one of the variables creating this problem. Presence of multicollinearity is indicated by a tolerance of less than 0.1 or a variance inflation factor (VIF) of over 10. Robinson and Schumacker (2009) explain that a VIF measure the impact of multicollinearity among X’s in a regression model on the predictors degrades the precision of an estimate. Variance inflation factor (VIF) is a statistic used to measure possibility of multicollinearity amongst the predictor of explanatory.

3.10.2 Testing Hypotheses

The objectives of the study and effect of ERM determinants on financial performance were analyzed. The analysis involved the null hypotheses where F-test was used to reject or accept the null hypothesis. The calculated F-value produced by analysis of variables (ANOVA) was compared with the critical F-value from the statistical table. The decision to reject or accept the hypotheses was based on the outcome of F-value and p-value (probability value). The rejection of null hypothesis was based on condition that the calculated F-value (F_{cal}) is greater than the critical F-value (F_{cr}) and the second condition must be satisfied; $p\text{-value} < 0.05$ (Siegel, 2003).

The assumption was that $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ and if this was not the case then it confirms the nonexistence of correlation between ERM determinants and financial performance. That is; one of the β_j is not equal to zero, that is $\beta_j \neq 0$, where $j=1\dots4$. β_1 to β_4 are the beta coefficients of ERM determinants (firms' characteristics, information technology staff capacity and regulatory framework) while financial performance is the dependent variable (Cooper &Schindler, 2011; and Kothari, 2009). The analysis of variance (ANOVA), the F-test provided information for rejection/acceptance hypothesis and coefficients for predicting regression model.

The first null hypothesis started as; there is no significant correlation between firm's characteristics and financial performance of the listed firms in Kenya was tested using univariate model. A univariate model was used to measure the strength of the relationship between independent variable and dependent variable (Cooper & Schindler, 2011). The model had two variables; financial performance and firms' characteristics and was expressed as;

$$Y = \beta_0 + \beta_1 X_1 + \epsilon$$

Where

Y = financial performance and β_1 is the coefficient of firms' characteristics (X_1), β_0 is the constant ϵ is error term.

The second objective and null hypothesis stated as; there is no significant correlation between information technology (IT) and financial performance of listed firms in Kenya was tested using a univariate regression model expressed as; $Y = \beta_0 + \beta_2 X_2 + \epsilon$. β_2 is the coefficient of information technology (X_2). The third null hypothesis started as; confirmed that there is no correlation between staff capacity and financial performance of firms listed in Kenya". The univariate model was expressed as; $Y = \beta_0 + \beta_3 X_3 + \epsilon$. β_3 is the coefficient of staff capacity (X_3).

The fourth null hypothesis was used to test the fourth objective. The null hypothesis tested to confirm whether there was no correlation between regulatory framework and financial performance of firms listed in Kenya. The regulatory framework was the independent variable while financial performance was the dependent variable. The model used to test the effects of regulatory framework on financial performance was expressed as;

$$Y = \beta_0 + \beta_4 X_4 + \epsilon$$

Where,

β_4 is the coefficient for regulatory framework (X_4).

The multiple regression analysis was used to test the overall effect of ERM determinants (firms' characteristics, information technology, staff capacity, regulatory framework) on financial performance of firms listed in Kenya. The multiple linear regression model was expressed as;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$. The assumption of the study was that $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ and if this was not the case then it confirms that there was no correlation between ERM determinants and financial performance. That is; one of the β_j is not equal to zero, that is $\beta_j \neq 0$, where $j=1 \dots 4$.

Cooper and Schindler (2011) pointed out the use of multiple linear regression analysis in three types of situations: first, it is often used to develop a self-weighting

estimation equation by which to predict values for a dependent variable (DV) from the values of several independent variables (IVs). Second, it is used where there is need to control for confounding variables to better evaluate the contribution of other variables and thirdly to test the hypotheses and to estimate population values. Based on this, multiple linear regression analysis was chosen since model for predicting the dependent variable was required, effects of each variable on Y was to be determined and there was need to test the hypothesis in order to reject or accept.

3.10.3 Statistical Model

In this study, the standard multiple regression model had one dependent variable (Y) for financial performance and four independent variables (X_1 , X_2 , X_3 & X_4) being X_1 (firms' characteristics), X_2 (information technology), X_3 (staff capacity) and X_4 (regulatory framework). Srivastava *et al.* (2005) pointed out that a regression model with a significant p-value uses all the values in the model.

Siegel (2003) explain that regression analysis is used to predict one variable from another while linear regression analysis is used for predicting one variable from the other when the two have a linear relationship. Cohen *et al.* (2007) explain that a simple linear regression model contains explanatory variables and one explained variable.

The regression model was given by the following equation;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Y = Financial Performance

β_0 = Constant

X_1 = Firms' Characteristics

X_2 = Information Technology

X_3	=	Staff Capacity
X_4	=	Regulatory framework
β_1	=	Regression coefficient of variable X_1 (Firms' Characteristics)
β_2	=	Regression coefficient of variable X_2 (Information Technology)
β_3	=	Regression coefficient of variable X_3 (Staff Capacity)
β_4	=	Regression coefficient of variable X_4 (Regulatory framework)
ϵ	=	Error term

This study used a census which means that every unit of the population was considered and the respective data on various characteristics were captured. The analysis made on the basis of census applying to correlation analysis regression and testing of the hypothesis is very accurate and reliable. In addition, in one time studies of special importance, only census method is adopted in order to get accurate and reliable data (Srvastava *et al.*, 2005).

Similar studies in the same area of ERM had also used linear regression models and multiple regression models. Among the scholars that had used multiple regression models include Kumsuprom *et al.* (2010) in the study of determinants of successful ICT risk management in Thailand and Pagach and Warr (2010) on the study of effects of ERM on firm performance. Namusonge (1998) in the study of determinants of growth oriented small and medium enterprises in Nairobi, Kenya, used linear regression model to determine socio-economic variables on the rate of return and used the same model to test the effect of types of various determinants of growth.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and discussions of findings of the study. The presentations are organized as follows; section 4.1 is the introduction, 4.2 is summary of demographic information, 4.3 is the effect of ERM determinants on financial performance, 4.4 is the discussion of the results and 4.5 is the summary of the findings.

4.1.1 Pilot Test

A pilot test was done to check the construct validity and internal consistency reliability of the questionnaire in gathering the data. A sample of three (3) firms that had met the criteria (listed and had audited financial statements) were chosen. The firms that had submitted their audited financial statements were listed in the NSE Handbook. The sample chosen for pilot study was three firms (6.8%) with similar characteristics but had not submitted audited report to NSE. The return rate for the pilot was 100 %. Factor analysis was carried with a threshold of a factor loading of 0.3. All composite measures that gave a factor loading of less than 0.3 were subsequently dropped from the questionnaire. The composite measures that were retained constituted all the questions in the questionnaire that were administered to the respondents during main study. The results of factor analysis are shown in table 4.1 below:

Table 4.1: Factor Analysis Results

Item	Composite measures	Dropped Measures	Retained Measures
Firms Characteristics	18	2	16
Information Technology	27	3	24
Staff Capacity	25	2	23
Regulatory Framework	19	0	19

The results of the reliability test are shown in table 4.2. The study used cronbach's alpha coefficient with a threshold of above 0.7. All the variables had cronbach's alpha coefficients ranging from 0.788 and 0.948 and therefore all the items used in the instruments were retained for further study.

Table 4.2: Reliability Test Results

Variable	Cronbach's Alpha
Firm's Characteristics	0.788
Information Technology	0.948
Staff Capacity	0.848
Regulatory framework	0.868

4.2 Summary of Demographics and Statistics

4.2.1 Response Rate

A total number of 132 questionnaires were administered to the targeted respondents who were the managers in finance, audit and risk management departments. A total number of 98 completed questionnaires which represented 74.24 % response rate, 9 questionnaires (6.8%) were incomplete and 25 questionnaires (18.9%) were not received back. The response rate for this study was considered to be sufficient for analysis. A response rate of over half (50 %) is good while a response of over 70 percent is very good (American Association for Public Opinion Research, 2011). Sekaran (2011) explain a response rate as the rate of complete questionnaires with reporting units divided by the number of eligible reporting units in the sample. Non response bias was omitted from the analysis since the percent was insignificant (100-74). The response was representative since they were from all the sectors of NSE.

The response rate in this study was considered very high compared with similar studies on ERM such as; Manab, Othman and Kassim (2012) and Kumsuprom, Corbit, Pittayachawan and Mingmalairaks (2010) where the response rate was 64.7 percent and 30.2 percent respectively. In Kenya Waweru and Kisaka (2012) reported a response rate of 41 % in their study on the effect of ERM implementation on the value of listed firms in Kenya. From 98 questionnaires there were no inconsistencies and errors. The drop and pick method was used in administering questionnaires and this method partly contributed to the high rate achieved in this study. Similarly; the high rate was attributed to the fact that respondents were assured of confidentiality and they were given an option of not disclosing their identities. The response rate for the returned, incomplete and the ones not returned is in Table 4.3.

Table 4.3: Rate of Response by Respondents

Response	Respondents	Percentage
Returned	98	74.24
Incomplete	9	6.82
Not Returned	25	18.94
Total Distributed	132	100.0

The response rate per segment was also analyzed. Table 4.4 shows the response rate from each segment. Highest (100 %) response rates were from Automobile and Accessories and Investment segments followed by a significant (83.3 %) number of firms in telecommunication technology, commercial services, energy and petroleum, construction and allied and insurance segments was third (75%). The lowest (66.7 %) segment was agriculture segment. The analysis results show a fair (above 50%) representation of the entire NSE segments.

Table: 4.4: Response Rate per Segment

Segment	N. of Questionnaires	N. Returned	Percent
Agriculture	21	14	67
Automobile and Accessories	6	6	100
Banking	27	19	70
Commercial and Service	12	9	75
Construction and allied	12	9	75
Energy and petroleum	12	9	75
Insurance	12	9	75
Investment	3	3	100
Manufacturing and allied	21	15	71
Telecommunication and Technology	6	5	83
Total	132	98	74.24

4.2.2 Level of Risks Awareness

The awareness level of risk management was analyzed and majority (62.2) of top managers indicated that they were aware of existence of risks facing their firms while a few (20.4% & 17.4%) of their fellow employees in the middle and operational levels indicated that they aware on the existence of risks facing their firm. The reason

why a high percentage of top management employees were aware about existing of risks is attributed to their proximity to decision making level and normally were involved in development and implementation of policies which include risk management policies. This shows that by involving staff on policy development improves their level of awareness. On the other hand, the managers had better chance to train on ERM while the middle and the operation level staff were likely to miss train opportunities. The philosophy of ERM is that everybody in a firm is expected to participate in risk management. Table 4.5 illustrates levels of risks awareness.

Table 4.5: Level of Risks Awareness

Level in management	Frequency	Percent
Top Management	61	62.2
Middle Management	20	20.4
Operation/technical level	17	17.4
Total	98	100.0

Kassim *et al.* (2012) explain that successful implementation of ERM requires everybody in an organization to be involved in risk management and the success of ERM depends on right people at the top positions with diverse backgrounds from different functions. Effective risk management depends on the “tone” at the top and the appointment of chief risk officer (CRO). The support from the board is critical in driving success of ERM (Golshan and Rasid, 2012; Hoyt and Liebenberg, 2008; Pagach and Warr, 2010 & Waweru and Kisaka, 2009).

4.2.3 Firms' Market

The respondents were asked to indicate the market served by the firms. Table 4.6 shows that majority (83 %) of the firms were either serving global, international or regional markets while a few (17 %) of the firms were serving the local (national) market. The regional market is composed of Kenya, Uganda, Tanzania, Rwanda and Burundi. The fact that majority of the firms were serving global market means that they were at risk of being affected by global crisis and therefore there was need to have effective ERM.

The fact that firms in Kenya were global in term of operation, confirms that they could be facing complex risks and challenges. This being the case means that they need to prepare strategically to survive. This can be done by ensuring compliance to the rules and regulations of countries where they operate. Similarly, they were also expected to comply with requirements of the international practices such as; the international standard organization (ISO) compliance and standards on risk management.

Table 4.6: Markets Served by NSE Listed Firms in Kenya

Market	Frequency	Percent
National	17	17.3
Regional	39	39.8
International	30	30.6
Global	13	12.3
Total	98	100.0

The findings from the study justify the clamor for adoption of ERM, Golshan and Rasid (2012) explain that various rules and regulations in different countries have put pressure on firms to implement ERM. Muralidhar (2010) explain that regional organizations such as Gulf Cooperation Council may encounter strategic challenges such as; regional geopolitics, common currency, reserve-to-production ratio and national depletion policies.

4.2.4 Existence of Risks Facing NSE Listed Firms

The question sought to find out the existence of risks facing firms in Kenya. Figure 4.1 show that firms in Kenya indeed face various risks. Figure 4.1 shows that majority (95.3 %) of the respondents indicated that their firms were facing enterprise risks while a few (4.7 %) of the respondents indicated that they were not sure whether risks existed. The findings from the study showed that firms in Kenya were actually facing risks and therefore confirming the need to put in place effective risk management systems.

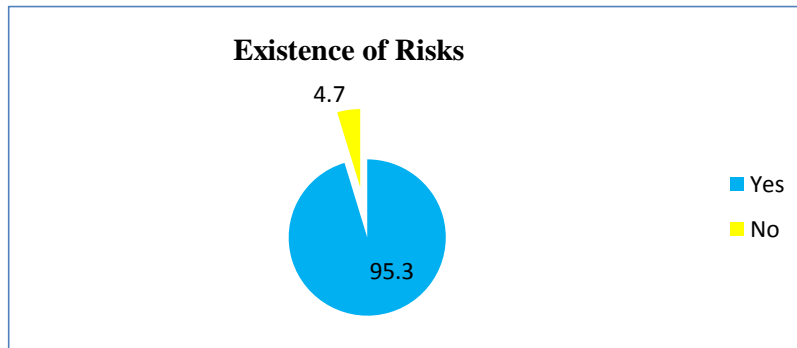


Figure 4.1: Existence of Risks Facing NSE Listed Firms

Table 4.7 shows the specific risks facing the NSE listed firms in Kenya. Majority (95.3 %) of the respondents indicated that their firms were either facing financial risks (credit risk, market risks on foreign exchange risks), theft/fraud, industry and operational risks while a few (4.7 %) of the respondents were not sure about the types of risks facing their firms. The results from the study confirmed existence of risks facing the NSE listed firms and therefore justifying the need for investment on effective risk management system.

Deloitte (2012) survey report found out that majority (95 %) of the respondents indicated that operational risks were emerging and evolving and therefore requires critical attention. Price Waterhouse Coopers (2011) found out that majority (80 %) of the chief executive officers felt that their firms were facing increasing risks. In terms of global competitiveness index, Kenya was ranked at position 144 out of 155 countries (3.75 in a scale of 1-7). While having ERM process is not guarantee success, a solid risk culture and well communicated process can provide a competitive advantage that helps firms to make better investment decisions (Rudolph, 2009).

Table 4.7: Types of Risks Facing NSE Listed Firms

Types of risks	Frequency	Percent
Non/no risk	9	10
Theft/fraud	14	14
Industry Risks	16	16
Operation Risks	15	15
Financial Risks (Credit, Market, Foreign)	44	45
Total	98	100

4.2.5 Preferred Method for Risk Prevention

The question sought to find out the preferred method to manage risks facing the NSE listed firms. Figure 4.2 shows preferred methods used by firms to prevent risks facing them. As indicated in Figure 4.2 shows that majority (94%) of respondents indicated that the NSE listed firms had either strengthened their internal control systems, cover themselves by transferring risks, ensure regulatory compliance or hired a firm to manage potential risks. A very small (6.1 %) number of respondents indicated that they had not taken any action to prevent themselves against potential risks facing them. The findings from the study indicated that firms were conscious on risk prevention and management. Similarly, firms were also taking risk prevention measures according to the nature of industry they were operating in.

The current study points out the measures that assist in managing risks facing firms. Other requirement for effective implementation of ERM is ensuring compliance with all regulations. Firms can also hiring risk management function, transfer risks by taking insurance cover; use of financial derivatives for hedging and internal control mechanism can also be improved to identify risks early enough. Effective ERM framework can also provide strategies required by risk managers in planning, setting risk appetite level and in developing mitigation measures.

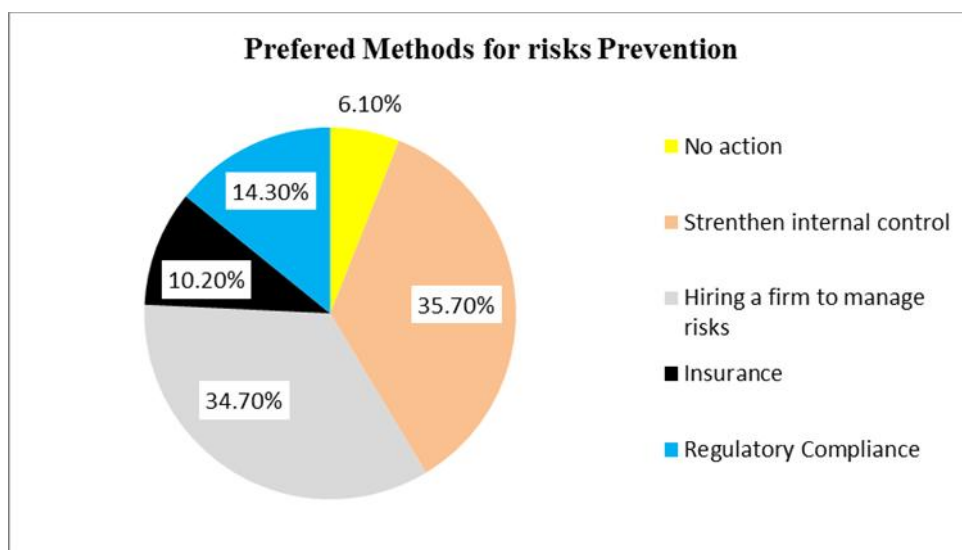


Figure 4.2: Preferred Methods for Risks Prevention

4.2.6 Effectiveness of Risk Management Framework

The respondents were asked to assess effectiveness of risk management framework in place. Table 4.8 shows the rating of effectiveness of risk management framework in place. Table 4.8 shows that a significant (52 %) number of the respondents rated effectiveness of risk management in place ranged from 50% to 74% while 29.6% of the respondents rated the effectiveness of risk management below 50%. This implies that there were gaps existing in risk management that need to be addressed. These

gaps could also be the cause of inconsistency in financial performance of the NSE listed firms.

Table 4.8: Effectiveness of Risk Management Framework

% Rating of Risk Management	Frequency	Percent
Below 24	9	9.2
Between 25-49	20	20.4
Between 50-74	51	52.0
Between 75-100	18	18.4
Total	98	100.0

4.2.7 Test for Financial Performance Indicators

Using the record survey sheets, the growth of the variables used to measure financial performance was extracted from the annual financial statements submitted by the firms to Nairobi Securities Exchange. Table 4.9 shows growth of variables used to assess financial performance indicators for the listed firms in Kenya for five years (2008-2012). The analysis was done to assess growth in the following; share selling price, earnings per share, price earnings ratio, net asset value, dividends per share and net profit for the period (financial year ended 2008 to 2012).

Table 4.9: Financial Performance Indicators of NSE Listed Firms (2008-2012)

Indicators of Financial performance	Percentage Growth								
		1&2	1	2	3	4	5	4&5	Total
	F	%	%	%	%	%	%	%	%
Selling Price	89	16.9	4.5	12.4	21.3	38.2	23.6	61.8	100
Earnings Per Share	89	9.0	1.1	7.9	31.5	41.6	18.0	59.6	100
Price Earnings Ratio	89	7.9	0.0	7.9	31.5	49.4	11.2	60.6	100
Dividends per Share	89	5.6	1.1	4.5	28.1	51.6	14.6	66.2	100
Net Asset Value	89	3.3	1.1	2.2	27.0	40.4	29.2	69.6	100
Net Profit	89	12.3	2.2	10.1	42.7	32.6	12.4	45.0	100
Average.		7.1	1.5	5.6	32.6	41.5	18.7	60.2	100

Key: **1** = Growth for a year, **2** = Growth for two years, **3** = Growth for three years,

4 = Growth for four years, **5** = Growth for five years.

Table 4.9 shows that net asset value in the period had the highest (69.6 %) growth while the net profit had the lowest (45 %) growth rate during the period. The other financial performance indicators with growth exceeding 60 % in the period were; dividend per share, selling price per share and price earnings ratio. The growth in the items measuring financial performance for the period was average (60.2 %) in the period as shown in the table. This implies that 40% of the NSE listed firms have had problems in growing their profitability base. Specifically, most of the firms recorded

low (45%) profits, a indicator of weak financial performance and this can lead to business failure.

The quarterly report of Capital Market Authority of Kenya shows that over the years (2008-2012) the capital market recorded improved financial performance in terms of share volume traded and average capital market capitalization. At the end-period of the year 2012 market capitalization grew by 26.7 percent (Kshs. 1,072.9 billion compared with Kshs. 851.7 billion registered at the end of 2007). The share volume traded at the Nairobi Stock Exchange (NSE), the growth was 7.2 percent to 5464.2 million shares at the end of 2012 from 1938.2 shares at the 2007. Contrary, the equity turnover at the NSE fluctuated over the period from Kshs. 88.6 at the end of 2007 to 86.8 at the end of 2012 (see Appendix X).

It is also important to remember that in Kenya, during the period ranging from 2008 to 2012 the general economic growth slowed down as results of adverse multiple shocks, namely, the post-election crisis, drought, global financial and economic crisis, high international oil and food prices and shown down in the global economic activity (GOK, 2007). However, the Government took strategic initiative to address the crisis through development of the first medium term plan for the period 2008 to 2012. The initiatives put in place in the First Medium Plan for the period 2008 to 2013 to address risks facing the country in general were yet to record a positive impact on businesses as reflected in the key equity market performance indicators in appendix X (GOK, 2007).

a). Normality Tests for Financial Performance

Inferential statistics are meant to infer whether there is underlying relationship within the respective variables. For the purpose of subsequent analysis, the dependent variable was subjected to normality test to check whether the data provided was normally distributed or not. Normality test for financial performance indicators was done to assess the nature of distribution of the variables used to measure the

indicators. The normality test was assessed using Kolmogorov-Smirnov and Shapiro-Wilk (K-S & S-W) (Ghasemi & Zahediasi, 2012).

Table 4.10 shows the computed values of the test of normality for both Kolmogorov-Smirnov and Shapiro-Wilk. Using Kolmogorov-Smirnov and Shapiro-Wilk at 10 % level of significant scales, the results of the test in table 4.10 indicated significant statistics (p-values of 0.006 and $0.047 < 0.05$) respectively. This means that distribution of the variables had a normal distribution pattern.

Table 4.10: Test of Normality for Financial Performance

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Financial Performance	0.114	89	0.006	0.971	89	0.047

Figure 4.3 shows the graphical distribution of financial performance. Srivastava, Shenoy and Sharma (2005) explain that normal distribution is the most widely used probability model for continuous random variables and a bell shaped curve is a symmetrical distribution with two parameters mean and standard deviation. The graph in figure 4.3 shows the distribution of the variables used to measure financial performance with a mean of 22.07 and a standard deviation of 4.095.

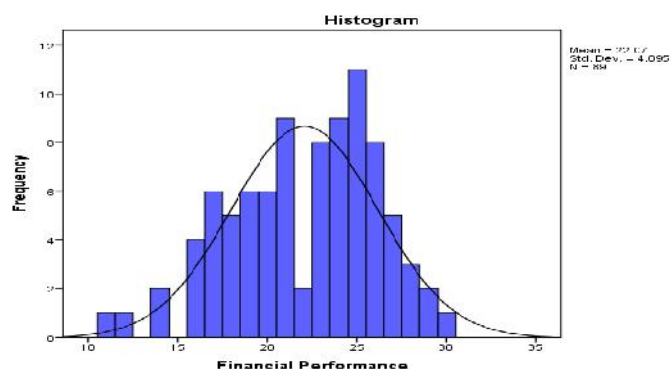


Figure 4.3: Histogram for Financial Performance

b). Validity Test for Financial Performance

Table 4.11 shows the distribution of factor loading scores ranging from 0.570 to 0.833. On the other hand, Costello and Osborne suggested that all factors with eigenvalues above 1.0 and factor loading above 0.3 are retained. Velicer and Fava (1998) add that items with communalities output above 0.8 are considered high, those ranging between 0.4 and 0.7 are considered moderate while communalities below 0.4 are considered low. Communalities output below 0.4 may either be unrelated to the other items or suggest that additional factor analysis should be explored.

The results from exploratory factor analysis in Table 4.11 imply that all the items used to measure financial performance were retained because all of them met the threshold score required. The results did not only confirmed that items used to measure financial performance were meaningful, interpretable and manageable, but also meant that there were no latent items that cause the observed variables to covary.

Table 4.11: Exploratory Factor Analysis for Financial Performance)

Indicators of Financial Performance	Factor Loading
Net Asset Value	0.833
Share Price	0.820
Earnings Per Share	0.811
Net Profit	0.767
Dividends Per Share	0.713
Price Earning	0.570

c. Testing of Sampling Adequacy of Financial Performance

Sample adequacy test was done for the dependent variable (financial performance) as shown in Table 4.12. Table 4.12 shows the coefficient of the observed correlation is greater (0.84) than the desired partial correlation coefficient of 0.5. The sum of analysis is 84 percent (0.84) and therefore it is considered reliable because it overcomes the minimum threshold of 50 percent. Similarly, supposition test of Sphericity by the Barlett test (H_0 : all correlation coefficients are not quite far from zero) is rejected on a level of statistical significance $p < 0.0005$ for approximate Chi-Square equal to 211.020. Consequently, the coefficients are $p(0.000)$ all zero, so that the second acceptance of factor analysis is satisfied. As a result, the acceptance of both tests conducted for factor analysis was satisfied, therefore, the analysis continued.

Table 4.12: Kaiser-Meyer-Olkin Measure of Sampling Barlett Test Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.840
Approx. Chi-Square		211.020
Bartlett's Test of Sphericity	Df	15
Sig.		0.000

4.2.8 Tests for ERM Determinants

The specific objectives of the study were to; investigate the influence of firm's characteristics on financial performance of NSE listed firms in Kenya, determine the effect of information technology on financial performance of listed firms in Kenya, examine the effect of staff capacity on financial performance of listed firms Kenya and establish the effect of regulatory framework on financial performance of listed

firms in Kenya. The assumptions in the study were; free from autocorrelation and multicollinearity, adequate sample were used, the distribution were normally distributed and there were no outliers. Similarly, the null hypotheses also formed part of the assumptions.

a). Autocorrelation Test of ERM Determinants

Table 4.13 shows the analysis of autocorrelation of Durbin-Watson 'd' coefficients extracted. The table shows the output of autocorrelation analysis ranging from 1.587 to 1.846. This implies that the variables did not have a serious problem of autocorrelation and therefore appropriate for analysis and interpretation.

Table 4.13: Autocorrelation Test of ERM Determinants

Variable	R	R²	Durbin-Watson
Firms' Characteristics	0.621	0.386	1.587
Information Technology	0.528	0.279	1.846
Staff Capacity	0.619	0.383	1.756
Regulatory framework	0.537	0.288	1.598
Combined Variables	0.670	0.449	1.658

The results from autocorrelation analysis in Table 4.13 imply that all the ERM determinants (firm's characteristics, information technology, staff capacity and regulatory framework variables) showed no presence of autocorrelation and therefore the variables had possibility of influencing each other (inter-correlation).

b). Multicollinearity Test for ERM Determinants

The findings from the analysis in Table 4.14 confirmed that there was no serious multicollinearity among the ERM determinants and financial performance. The results further confirmed that all the tolerance values were greater than 0.1 while all the variance inflation factors were below 10. This therefore means that the consequence of multicollinearity such as decline in accuracy of estimates which is manifested in large errors due to high correlation among the variables and very large coefficients of the variance was avoided.

Table 4.14: Test of Multicollinearity on ERM Determinants

Model	Collinearity Statistics	
	Tolerance	VIF
Firm Characteristics	0.271	3.692
Information Technology	0.192	5.218
Staff Capacity	0.218	4.584
Regulatory Framework	0.226	4.421

c). Reliability Test of ERM Determinants

The questionnaires were structured to capture likert scales, open ended and dichotomous questions. The likert scale questions were tested for internal consistency and construct validity to ensure data collected was valid and reliable. The Cronbach's alpha coefficients were computed for each likert scale items and the results presented in Table 4.15. The table shows the Cronbach alpha coefficients ranged from 0.788 to 0.894.

Table 4.15: Reliability Assessment of Variables

Scale Items	Variable	No. of Items	Cronbach alpha
Firms' Characteristics	Independent	9	0.788
Information Technology	Independent	16	0.894
Staff Capacity	Independent	18	0.873
Regulatory Framework	Independent	18	0.854
Financial Performance	Dependent	6	0.849

Table 4.15 shows that items used in the study had internal consistency and therefore valid and reliable since they all passed the threshold of above 0.5 (Sekaran, 2008; Tavakoi, 2011 and George and Mallery (2003). This implies that the variables used in the study measured what was expected and were therefore sufficient for further analysis and subsequent interpretation.

The results from the reliability analysis shows that investment on enterprise risk management requires resources (firms' characteristics), information technology, staff capacity and regulatory framework has a positive impact on financial performance of a firm.

d). Validity Test for ERM Determinants

Validity tests were conducted in two stages; before exploratory factor analysis (EFA) was conducted and after EFA was done. The results of exploratory factor analysis for the independent variables (firms' characteristics, information technology, staff capacity and regulatory framework) are shown in Appendix VI, VII, VIII and IX respectively. The exploratory factor analysis results showed that all the items used to

measure ERM determinants with coefficient above 0.30 were taken while those below were eliminated. The items which did not meet the thresholds for each of the ERM determinants were eliminated. The remaining items after factor analysis were used to test validity for each of the ERM determinants. Table 4.16 show validity tests before and after EFA. The table shows that a part from firms' characteristics, the rest of the variables (information technology, staff capacity and regulatory framework) had items that were eliminated because they didn't meet the threshold of above 0.30. The elimination of the items that didn't meet the threshold improved EFA as shown in table 4.16.

Table 4.16: Validity Test for ERM Determinants before and after EFA

Scale Items	No. of Items	Cronbach alpha Before Factor Analysis	No. of Items	Cronbach alpha After Factor Analysis
Firms' Characteristics	9	0.788	9	0.788
Information Technology	17	0.892	16	0.894
Staff Capacity	22	0.849	18	0.873
Regulatory framework	18	0.848	16	0.861

e). Test for Sample Adequacy for the ERM Variables

Sample adequacy test was done for ERM determinants as shown in table 4.17. Table 4.17 shows the result of Kaiser-Meyer-Olkin (KMO), Barlett p-values and the Chi-Square values test for ERM determinants. The KMO values for the predictor variables were; 0.770, 0.834, 0.779 and 0.709 for firms' characteristics, information technology, staff capacity and regulatory framework respectively. The entire variables were significant (p-values < 0.05).

From the output of the test of adequacy in Table 4.17, the coefficients of the observed correlations were greater than the partial correlation coefficients for the sum of analysis of each ERM determinants. All of the predictor variables overcame the minimum threshold of 50 percent and were significant. Similarly, supposition tests of Sphericity by the Barlett test (H_0 : all correlation coefficients were not quite far from zero) were rejected in all levels of statistical significance since all the p-values were less than the critical value (0.005) for all Approximate Chi-Square as shown in the table. Consequently, the coefficients were all zero (p-value 0.000) and therefore second condition of factor analysis was satisfied.

Table 4.17: Test of Sampling Adequacy for ERM Determinants

Variable	Kaiser-Meyer-Olkin	Barlett's Test Adequacy	
		Df	Sign
Firms' Characteristics	0.770	36	0.000
Information Technology	0.834	120	0.000
Staff Capacity	0.779	153	0.000
Regulatory Framework	0.709	55	0.000

Anastasiadou (2011) pointed that Kaiser-Meyer-Olkin (KMO) compares the sizes of the observed correlation coefficients to the size of the partial correlation coefficients for the sum of analysis variables.

4.3 Relationship between ERM and Financial Performance

The broad objective of the study was to investigate the effect of ERM determinants on financial performance of the NSE listed firms in Kenya. The effect of ERM determinants was tested by analyzing the relationship between each ERM

determinant and financial performance using quantitative analysis of data for the four ERM determinants; firms' characteristics, information technology, staff capacity and regulatory framework.

4.3.1 Effect of Firm's Characteristics on Financial Performance

The first objective of the study was to investigate the influence of firms' characteristics on financial performance of listed firms in Kenya. The specific aspects that were analyzed under firms' characteristics included; factors that influence effectiveness of ERM on financial performance, effects of ownership structure on ERM, role of stakeholders in enterprise risk management, sources of funds for long term projects, role of shareholders in financing long term projects and role of directors on ERM. The descriptive analysis of firms' characteristics was done for both open ended questions and Likert scale questions.

a) Qualitative Analysis of Firms' Characteristics

The open ended questions sought to find out the factors that influence effectiveness of ERM, the role of directors in long-term financing decisions and role of directors on ERM. The purpose of using open-ended questions was to elicit further information which might not have been clearly captured in the likert-scale questions and also to form a basis for comparing information generated by the likert-scale and dichotomous questions.

i). Factors that influence Effectiveness of ERM

Table 4.18 shows the factors that influence effectiveness of ERM. Table 4.18 shows that majority (52.1 %) of the respondents indicated that top management influence effectiveness of ERM while a few (6.1%) respondents indicating that risk attitude influence effectiveness of risk management. The respondents also indicated other factors that influence effectiveness of ERM was resource availability and the influence of regulators. From the results in table 4.18, it is clear that top management plays a critical role on ERM. The top management role on ERM is

manifested in terms of supporting the process of ERM development and implementation, resources mobilization, ensuring compliance to regulators' requirements and setting risk appetite. In this context the top management is composed of board of directors and senior managers who are involved in policy decision making and overseeing implementation of risk management.

Table 4.18: Factors that influence effectiveness of ERM

Factor	Frequency	Valid Percent
None	0	0
Risk Attitude/appetite	6	6.1
Regulators' influence	12	12.2
Resources availability	29	29.6
Top Management support	51	52.1
Total	98	100.0

Similar studies found out that that a strong risk management culture depends on “tone” at the top that set the momentum to drive the behavior of staff in an organization (Muralidhar, 2009 and Yazid, Razali & Hussin, 2012). Yazid, Razali and Hussin (2012) also proposed an ERM framework which is used by top managers in setting standards required to attain the best practice in risk management.

ii). Role of Shareholders in Long-term Financing Decisions

The respondents were asked to indicate whether shareholders play any role in long-term financing decisions. Involvement of shareholders in financing decisions is part of the fulfillment of corporate governance requirements as well as best practice

(Stock Exchange of Thailand, 2003). Table 4.19; show participation of shareholders in long term financing decisions.

Table 4.19 shows that majority (58.8%) of the respondents indicated that shareholders participated in long term financing decisions by voting at the annual general meetings (AGM) where such plans are approved. A few (5.9%) respondents indicated that shareholders supervise staff. The results of the study in table 4.19 imply that shareholders play a key role in long term financing decisions. Their role includes approving organizational budget by voting in annual general meetings, they also contribute equity capital required in investment and monitor use of money in various projects. Through delegated authority to the directors, the shareholders supervise management by ensuring organizational strategies, goals and objectives were achieved.

Table 4.19: Role of Shareholders in Long Term Financing Decisions

Statement	Frequency	Valid Percent
Voting at AGM	40	58.8
Sourcing of funds	16	23.5
Approval of projects	6	8.8
Supervise staff	4	5.9
Total	68	100.0

Altuntas, Berr-Stolzle and Hoyt (2011) in the study of Dynamic determinant of ERM adoption found out that shareholders play a key role in influencing contracts entered by management through oversight role. Hoyt and Liebenberg (2008) identified

institutional shareholders as the ones who influence adoption of ERM. Stock Exchange of Thailand (2003) outlines the key role of shareholders as; overseeing policy development, monitoring management performance and protect the assets of their companies. Similarly, Ganiyu and Aboidun (2012) found out that shareholders infuse better management practices, monitoring utilization of resources and compliance to various regulatory requirements.

iii). Role of Directors in Enterprise Risk Management

The respondents were asked to indicate whether directors were involved on enterprise risk management. Figure 4.4 shows that majority (82.1%) of the respondents indicated that directors plays a key role in enterprise risk management while a few (17.9%) number of the respondents indicated that directors did not play any role in enterprise risk management.

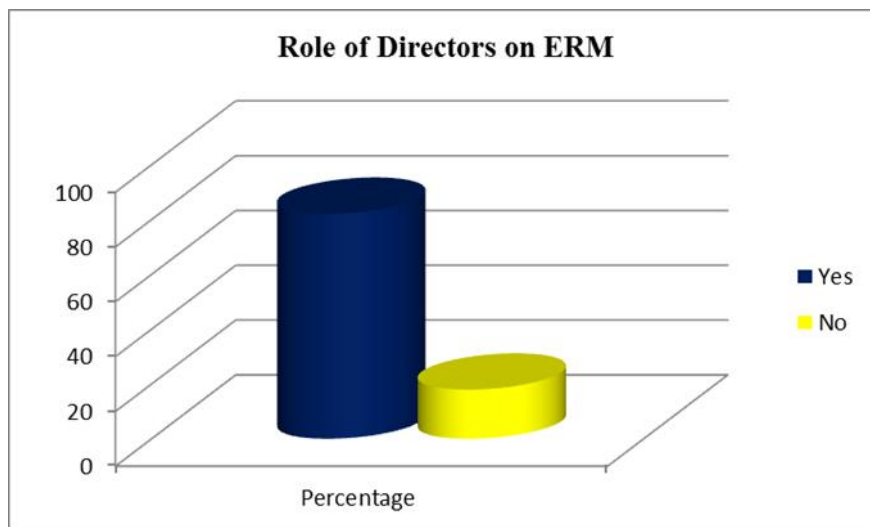


Figure 4.4: Role of Directors on ERM

On the specific roles, Table 4.20 shows that directors were involved in risk management through development of ERM policies and guidelines. The other roles of directors indicated by the respondents were; setting of risk management objectives and goals, ensuring communication system on risk management between staff and board of directors was effective, regular briefs on status of risk management trends and monitoring ERM implementation.

Table 4.20: Role of Directors in Risk Management

Role		
Non/ No role	2	2.0
Setting risk management objectives	20	20.4
Developing ERM policies	48	49.0
Monitoring ERM	13	13.3
Communicating ERM report	15	15.3
Total	98	100.0

The findings in table 4.20 suggest that the key role of board of directors was development of risk management policies. Apart from providing leadership and mobilization of resources required in achieving organizational goals, they set the risk appetite level for the organization, monitor ERM activities and communicate and report risk management strategies. This implies that board of directors spent most of their time managing risks.

iv). Role of Directors in Capital Financing Decisions

Capital financing decision affects capital structure which is a component of firm size. Golshan and Rasid (2012) explain that firms with higher financial leverage are more

likely to incur higher costs in management of financial distress. Table 4.21 shows that majority (99 %) of the respondents indicated that directors were involved in capital financing decisions either through approval of budget and loan contract process and sourcing of funds. On the other hand, a few (1%) respondents indicated that board of directors did not play any role in capital financing decisions.

The findings from the analysis implies mean that the mechanisms that prevent risks starts from budgeting, loan contract and sourcing of funds. Loans contracts if not well executed can be a key source of financial distress with consequences on financial performance. It is also important to note that decisions on capital financing are critical in determining the level of risks facing a firm. High use of debt capital can be beneficial when there is high profit. The board of directors oversees the company by setting policies, monitoring management performance, and protecting assets of the company (Stock Exchange of Thailand, 2003).

Table 4.21: Role of Directors on Capital Financing Decisions

Statement	Frequency	Valid Percent
None	1	1.0
Approve firm's budget	37	37.8
Approve loan contracts	32	32.7
Sourcing of funds	28	28.5
Total	98	100.0

b). Quantitative Analysis of Firms' Characteristics

The aspects analyzed under firms' characteristics were ownership structure, stakeholders' influence and capital structure (financing). The respondents were asked

to rate importance of the aspects describing the level of contribution on financial performance in likert scale. Table 4.22 shows the descriptive analysis of indicators of effect of firms' characteristics on financial performance. The table shows that majority (79.7 %) of the respondents indicated that shareholders influence effectiveness of ERM while a few (20.3 %) respondents indicated that shareholders did not influence. Other factors that influence financial performance indicated were minority shareholders and institutional ownership with 77.5% and 70.8% respectively.

Golshan and Rasid (2012) recommend that directors' involvement in capital financing decisions prevents unethical practices. The other reason for directors playing a key role on capital financing was to; ensure reduction of free cash which the managers might divert to non-profitable projects and control liabilities arising from such obligations in order to avoid financial distress (Hoyt & Liebenberg, 2008 and Razali & Tahir, 2011).

The findings in table 4.22 suggest that all shareholders (ordinary, minority or institutional) are concern about their investment, therefore clamor on ERM was driven by the desire to improve financial performance. This being withholding, means that any strategic initiative such as ERM which is expected to yield positive financial performance would form their key agenda in pursuing effective firms' characteristics initiatives. The interest of shareholders on ERM was likely driven by income motive rather than any other reason which means firms' characteristic has an influence on financial performance of a firm.

A few (30%) respondents indicated that long term loan contributed to financial performance while a significant (70%) number of respondents indicated that long term loan did not contribute to positive financial performance of the listed firms. This is an indication that poor management of long term loans can be a source of risks to a firm.

Table 4.22: Firms' Characteristics Results

ERM on Financial Performance	F	Response in Percentage								Total %
		1	2	1&2	3	4	5	4&5		
Instit. Ownership	89	2.2	4.5	6.7	22.5	47.2	23.6	70.8	100	
Min. Shareholders	89	0	3.4	3.4	19.1	49.4	28.1	77.5	100	
Ord. shareholders	89	0	2.2	2.2	18	39.3	40.4	79.7	100	
Country of Origin	89	1.1	4.5	5.6	32.6	46.1	15.7	61.8	100	
Short Term Creditors	89	16.9	19.1	36	23.6	25.8	14.6	40.4	100	
Top Management	89	13.5	18	31.5	25.8	29.2	13.5	42.7	100	
Operational Managers	89	11.2	14.6	25.8	39.3	27	7.9	34.9	100	
Board of directors	89	10.1	7.9	18	30.3	39.3	12.4	51.7	100	
Long term loan	89	11.2	23.6	34.8	34.8	23.6	6.7	30.3	100	
Average		10.7	14.6	25.3	31.1	31.8	18.1	43.6	100	

Key: **1** = Strongly Disagree, **2** = Disagree, **3** = Neutral, **4** = Agree, **5** = Strongly Agree, Inst.= Institutional, Ord. = Ordinary, Min= Minority, Mgrs =Managers, S. = short, F= Frequency

Yazid, Razali and Hussin (2012) in the study of determinant of ERM, proposed ERM framework which gives shareholders and the board of directors' key responsibility on implementation and management of ERM as an integrated approach. Tahir and Razali (2011) also found out that there was a positive correlation between institutional ownership and effectiveness of ERM. Hoyt and Liebenberg (2008) found out that firms that had adopted ERM were large, more internationally,

industrially diversified and less capital constrained than those which had not adopted ERM.

Similarly, Burkahart, Gromb and Paninzi (1997); Stout (2012) and Reese and Weisback (2002) also found out that the interest of shareholders and other key stakeholders on ERM is to; leverage on performance, avoid risks by complying with regulatory requirements and ensure their interest in the firm was well protected.

The results in table 4.22 also show that country of origin and board of directors contributes to financial performance of a firm. This means that when putting in place ERM system it is important to consider influence of these factors. The board of directors provides leadership role in achieving organizational goals, while the country of origin can provide best practices and benchmarking opportunities.

Apart from policy development, the top management was involved in coordination, planning, communicating, supervising, leading and organizing of ERM activities within and without the firms. It is clear from this study that interest on ERM by shareholders and top management is motivated by profit expected on investment. In addition, effective ERM is expected to lessen scrutiny costs which might lead to financial distress.

i). Correlations and Regression analysis of Firms' Characteristics and Financial Performance

The Pearson correlation analysis was done to find out the type of correlation between firms' characteristics and financial performance. Table 4.23 shows a positive significant (0.519 and p-value of $0.000 < 0.01$) correlation between firms' characteristics and financial performance. The results in table 4.23 imply that an improvement on firms' characteristics has a positive influence on financial performance. In addition, the calculated p-value is lower (0.000) than the critical p-value (0.01), confirming further significance of correlation between firms' characteristics and financial performance.

Table 4.23: Correlation between Firms' Characteristics and Financial Performance

		Fin. Perf.	Firm Characteristics
Financial Performance	Pearson Correlation	1	.519**
	Sig. (2-tailed)		.000
	N	89	89
Firm Characteristics	Pearson Correlation	.519**	1
	Sig. (2-tailed)	.000	
	N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

ii). Regression Analysis Model

Table 4.24 shows a coefficient value of “R” is equal to 0.519 while the coefficient value for “R²” is equal 0.271 with a standard error of 3.519. This means that only 27 % of changes on financial performance are attributed to firms' characteristics (X₁) while the rest (73 %) of variability in financial performance (Y) is explained by other factors outside the model.

Table 4.24: Model Summary for Firms' characteristics

R	R Square
0.519	0.270

A one way analysis of variance (ANOVA) that provided information about levels of variability within the regression model and which formed a basis for test of significance was used. ANOVA for linear regression model is presented in Table 4.25 of firms' characteristics and financial performance. The ANOVA output presented in table 4.25, shows the calculated F-value is equal to 32.129 which is significant with p-value of 0.000 lower than the critical p-value of 0.05 level of confidence. This implies that the model is significant in the prediction of financial performance in the NSE listed firms in Kenya. The null hypothesis was rejected that there is no correlation between firms' characteristics and financial performance and confirmed that there is a significant correlation between firms' characteristics and financial performance.

Table 4.25: ANOVA of Firms' Characteristics and Financial Performance

	Sum Squares	of Df	Mean Square	F	Sig.
Regression	397.971	1	397.971	32.129	.000
Residual	1077.624	87	12.386		
Total	1475.596	88			

The linear regression model for predicting the effect of firms' characteristics expressed as; $Y = \beta_0 + \beta_1 X_1 + \epsilon$, where Y is the dependent variable (financial performance), β_1 is the coefficient of firms' characteristics (X_1), β_0 is the constant and ϵ is the standard error. Table 4.26 shows the following values for substitution in the model; β_0 , β_1 , and ϵ as; 10.406 for β_0 and 0.373 for β_1 respectively.

The output on table 4.26 shows the variables (firms' characteristics) used in the linear regression model to predict financial performance (Y). Both the constant and coefficient of firms' characteristics were significant (p-value = 0.000 < 0.05). This suggests that the constant and the coefficient of firms' characteristics were useful in the model. Similarly, an investment on firms' characteristics yield positive results translated into income to the firms. The model for predicting the effect of firms' characteristics on financial performance is expressed as; $Y = 10.406 + 0.373X_1$

The model is therefore used to predicting the value of Y given X_1 . Where Y = financial performance and X_1 is firms' characteristics.

Table 4.26: ANOVA for Firms' Characteristics and Financial Performance

	Coefficients		T	Sig.
	B	Std. Error		
(Constant)	10.406	2.091	4.977	.000
Firm Characteristics	0.373	.066	5.668	.000

c). Conclusion on the Firms' Characteristics

The success of a firm in terms of financial performance can be attributed to firms' characteristic which is manifested in availability of resources from income received, support from the top management and effective capital financing strategies. The key role of shareholders in financing decision is to approve financial reports as well as approve budgets for projects. Through participation in the annual general meetings, shareholders are able to carry out oversight role. The results also show that indeed directors play a significant role on ERM. This implied that an effective ERM system in place has an influence on financial performance of a firm. Through oversight role, financing of projects, strategic planning and alignment of strategy with business objectives is driven by the need to improve financial performance.

Despite the fact that the results from the study show ideal firms' characteristics, there is room for improvement on investment on firms' assets to ensure maximum benefit is derived on financial performance. The available resources at the moment used for risk management may be appropriate today, but since the nature of risks keep on evolving and new risks were increasing then firms need to investment continuously to ensure they maintain the ideal.

4.3.2 Effect of Information Technology on Financial Performance

The aspects for analysis were contribution of information technology on financial performance, role of IT risk management, contribution of IT to attainment of the firms' ERM strategies and the use of IT to manage risk activities.

a). Qualitative Analysis of Information Technology

The respondents were asked to indicate whether their firms were using information technology (IT) to manage risks, how information technology was used by the NSE listed firms to manage risks and whether information technology contributed to financial performance of the firms.

i). Contribution of Information Technology on ERM

Figure 4.5 shows that majority (80.9 %) of the respondents indicated that information technology contribute to enterprise risk management while a few (19.1%) of respondents indicated that information technology does not contribute to enterprise risk management. This implies that an investment on information technology assist a firm to prevent risks and therefore prevent losses arising from such risks.

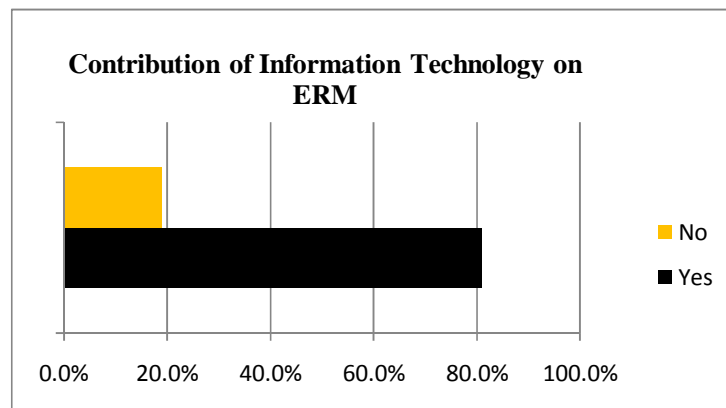


Figure 4.5: Contribution of information Technology on ERM

Table 4.27 shows specific contribution of information technology on enterprise risk management. Majority (86.7 %) of the respondents indicated that information technology contribute to enterprise risk management in the following ways; used to

assess impact of risks in case of an occurrence, provide mechanism for monitoring risks and in identify potential risk areas. A few (14.6 %) respondents indicated that information technology did not contribution to enterprise risk management.

Table 4.27: Contribution of Information Technology on ERM

Respond	Frequency	Percent
Non/ no contribution	13	13.3
Monitoring risk objectives	12	12.2
Early Identification of risks	28	28.6
Assessing impact of risks	45	45.9
Total	98	100.0

The results in Table 4.27 mean that investment on information technology on enterprise risk management prevents risks that affect a firm. Reduction on risks implies that less cost is incurred and therefore leads to better financial performance. The benefits that accrue to a firm that uses information technology to manage risk include; enhances firms' capability on setting risk management objectives, leads to effective risk assessment and reporting, improved systems that can prevent risks before occurring, assist in identification of risks and detection of errors. These measures not only reduce costs involve in risk mitigation which has financial implication but also enhances a firms' competitiveness and reputation.

Streif (2013) found out that integration of information technology (IT) risk management improves business enterprise risk management program which is reflected in business operation and performance. Information technology on risk management improves internal company's potential, reputation as well as creating competitive advantage. This can be done by; developing in-depth defense mechanism, diversifying control systems; creating denial features to unauthorized, creating protective permission, setting risk "flags" functions and protocols. A firm can also set up a system with a feedback mechanism on risk direction, report security threats, control error handling system, detect unfamiliar internal and external interference, segregate duties and ensure compliance to various regulations.

ii). Contribution of Information Technology to Service Delivery

Poor service delivery to clients is a source of risk to a business and therefore affects financial performance. Table 4.28 shows that majority (95.9 %) of the respondents indicated that information technology assist in service delivery in the following was; improves quality of goods and services, used to manage firms' asset, monitor operation efficiency and enhance risk mitigation systems. On the other hand, a few (4.5 %) of the respondents indicated that information technology has no role on service delivery.

Table 4.28: Contribution of Information Technology on Service Delivery

Statement	Frequency	Percent
Non/ no effect on service delivery	4	4.1
Improves quality of service and goods	44	44.9
Used for company's assets management	10	10.2
Monitor operation efficiency	24	24.5
Enhances risk mitigation systems	16	16.3
Total	98	100.0

The findings on Table 4.28 confirm that information technology contribute to enterprise risk management and hence influences financial performance of a firm. The contribution is reflected on improvement in service delivery and quality of products, operational efficiency, asset management and mitigation of risks. Information technology on ERM can also be used to control production system, tracking performance management systems in a firm and provide a platform is used to monitor other operating systems within an organization. All this leads to efficiency as well as having a positive impact on financial performance of a firm.

Johnson *et al.* (2007) using COBIT framework found out that internal control systems of an organization was strengthened when effective ERM was in place. Effective ERM can also improve linkages required in business, organize IT activities into risk management platform, identifies major IT risks areas and defines management control objectives to be considered. In addition, Althonayan *et al.* (2011) also found out that alignment of ERM and information systems provides

holistic integration of risk management and therefore improves organizational effectiveness and hence financial performance.

b). Quantitative Analysis of Information Technology

The aspects analyzed were; the extent to which information technology contributes to the firms' goals and objectives and effectiveness of information technology on ERM in assessing the level of preparedness by the NSE listed firms on enterprise risk management.

Table 4.29 shows the descriptive analysis of contribution of information technology on financial performance. The table shows that slightly above average (52.2%) number of the respondents indicated that information technology contributed positively to financial performance of the NSE listed firms while 47.8% of the respondents indicated that information technology did not contribute to financial performance of the firms. This implies that the listed firms had not fully embraced information technology on risk management and therefore no linkage to financial performance.

On specific contribution of information technology on financial performance, majority (85.4 %) of the respondents indicated that information technology assisted an organization in linking risk management control strategies with investment objectives. This was followed by a significant number of respondents who indicated that contribution of information technology on financial performance was reflected in; organizing work activities and processes effectively, putting in place effective management controls and providing performance management systems to monitor risks in and organization (82%, 76.4%, and 74.2% respectively).

This implies that information technology had an impact on financial performance of a firm, meaning that investment on IT would improve risk control and therefore positively influence financial performance. Apart from expected future survival of a

firm in some global markets; information technology on ERM enhances compliance to risk managing requirements, assist in building organization reputation, management capacity on risk management and tracking of organization performance.

Table 4.29: Contribution of Information Technology ERM on Financial Performance

Indicators			1&2	1	2	3	4	5	4&5	%
			%	%	%	%	%	%	%	
Link with business requirements		89	2.2	1.1	1.1	12.4	49.4	36.0	85.4	100
Organize activities & processes		89	4.5	0.0	4.5	13.5	48.3	33.7	82.0	100
Identify major IT resources		89	18	3.4	14.6	33.7	38.2	10.1	48.3	100
Management control objectives		89	3.3	1.1	2.2	20.2	52.8	23.6	76.4	100
Identify risks		89	22.5	5.6	16.9	29.2	38.2	10.1	48.3	100
capability of infrastructure		89	14.6	4.5	10.1	31.5	40.4	13.5	53.9	100
Increase stress testing,		89	15.7	5.6	10.1	34.8	38.2	11.2	49.4	100
Enhance risk reporting		89	12.4	3.4	9.0	41.6	37.1	9.0	46.1	100
Provide perf. metrics for risk mon.		89	9.0	1.1	7.9	16.9	47.2	27	74.2	100
Security mechanism		89	28.1	10.1	18	33.7	31.5	6.7	38.2	100
Recovery mechanism		89	47.2	13.5	33.7	22.5	27	3.4	30.4	100
Risk profile mechanism		89	42.7	18	24.7	30.3	23.6	3.4	27.0	100
Documentation standards		89	30.4	13.5	16.9	34.8	30.3	4.5	34.8	100
Risk broad-based management		89	22.5	9.0	13.5	39.3	32.6	5.6	38.2	100
Corrective Mechanism		89	18	7.9	10.1	31.5	40.4	10.1	50.5	100
Average			19.9	7.0	12.9	28.4	38.4	13.9	52.2	100

Key: **1** = Strongly Disagree, **2** = Disagree, **3** = Neutral, **4** = Agree, **5** = Strongly Agree

Price Water House Coopers (PWC) (2013), Anderson *et al.* (2003) and Althonayan *et al.* (2011) in their studies recommended that information technology on ERM was a global requirement and therefore firms can build their competitive advantage using information technology. Similarly, some regulated industries were moving towards

enforcing financial penalties to firms that were not compliance on use of information technology to manage risks. This has an impact on organization reputation and can lead to revoking of license for firms which were not compliance in some countries.

Comparison with COSO ERM integrated framework (Anderson *et al.*, 2003), Table 4.29 shows that use of information technology on ERM was still weak. This is because key indicators such as; risk-based, risk profile, risk recovery system, risk reporting and risk identification, was not effective (27%, 30.4%, 34.8% and 38.2%). This means that the NSE listed firms were yet to fully embrace use of information technology risk management. Althonayan *et al.* (2011) recommended that apart from adding value to an organization, information technology on risk management provides a milieu for setting up organization's risk appetite and risk measures in the long ran.

i). Correlation Analysis of Information Technology and Financial Performance

The test of the strength of the correlation between information technology and financial performance was tested using Pearson's correlation analysis. Table 4.30 shows a positive and significant correlation (0.528 with p-value of $0.000 < 0.01$) between firms' characteristics and financial performance. This implies that a change in financial performance is attributed to a change in information technology. Furthermore, a strong and significant correlation between information technology and financial performance means that an investment on information technology reduces loses arising from risk related and leads to improved financial performance.

Table 4.30: Correlation between Information Technology and Financial Performance

		Fin. Performance	Infn. Technology
Financial Performance	Pearson Correlation	1	.528**
	Sig. (2-tailed)		.000
	N	89	89
Information Technology	Pearson Correlation	.528**	1
	Sig. (2-tailed)	.000	
	N	89	89

** Correlation is significant at the 0.01 level (2-tailed).

Regression analysis was conducted to determine the amount of variation in financial performance explained by use of information technology to manage risks. The results in table 4.31 shows the regression coefficient of “r” is equal to 0.528 while the coefficient of “r²” was equal to 0.279. This implied that 27.9 % of the corresponding variation in financial performance is explained by information technology levels. The rest (72.1%) can be explained by other factors that are not in the model.

Table 4.31: Regression Model for Information Technology

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.528 ^a	.279	.271	3.497

A one way analysis of variance (ANOVA) was used to test the significance of the correlation between information technology and financial performance. Table 4.32 shows the F-value of 33.635 which was significant (p-value of $0.000 < 0.05$). This means that the overall model is significant in prediction of financial performance in the NSE listed firms in Kenya. The study therefore rejected the null hypothesis that there is no correlation between information technology and financial performance of the NSE listed firms in Kenya. It is confirmed that indeed there is a significant correlation between information technology and financial performance in the NSE listed firms in Kenya.

Table 4.32: ANOVA for Information Technology and Financial Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	411.423	1	411.423	33.635	.000 ^b
	Residual	1064.172	87	12.232		
	Total	1475.596	88			

Analysis of the regression model coefficients is shown in table 4.33. The coefficients were used to predict the effect of information technology on financial performance. From Table 4.33 there is a positive beta coefficient of 0.221 which is significant (p-value of $0.000 < 0.05$) and the constant is also significant (p-value of $0.000 < 0.05$). This implies that both the constant and information technology contribute significantly to the model. The coefficients therefore, provide information needed to predict financial performance from information technology levels. The regression

equation is expressed as: $Y = \beta_0 + \beta_2 X_2 + \epsilon$; where Y = financial performance, β_0 is constant, β_2 is beta, X_2 is Information Technology and ϵ is the standard error term.

Table 4.33: Coefficients for Information Technology ERM

	Coefficients		t	Sig.
	B	Std. Error		
(Constant)	10.025	2.109	4.753	0.000
Information Technology	0.221	0.038	5.800	0.000

c). Conclusion on Information Technology on ERM

From the study, it was discovered that although there could be other reasons why firm adopt information technology, the key reason was to be efficient in service delivery to avoid losing clients which is in itself a risk. Information was also used by firms to; monitor risks, identify risk potential areas and in assessing organization's strength to manage risks. In addition, information technology was also useful in improving management of assets, monitoring operation and production to ensure standards compliance to quality requirements.

4.3.3 Effect of Staff Capacity on Financial Performance

The aspects analyzed under staff capacity were; frequency of ERM training, procedures followed on ERM training, contribution of staff ERM training, existence of ERM training for new staff, ERM training methodology, suitability of ERM trainers, ERM training appraisal and effectiveness of staff on ERM.

a). Qualitative Analysis of Staff Capacity on Financial Performance

The response to qualitative data on effect of staff capacity on financial performance covered the following; effectiveness of procedures used to disseminate ERM

policies, ERM training programs for new employees, methods used to disseminate ERM regulations, training policy on ERM for new staff, training methodology, staff appraisal system on ERM, ERM trainers and modes of disseminating ERM messages.

i). Frequency of Staff Training

The respondents were asked to indicate frequency of ERM training. Figure 4.6 shows that majority (57.1%) of the respondents indicated that training on ERM was done once in a year while a few (5.2%) respondents indicated that there was no training on ERM. The findings from the study imply that ERM training for staff was inadequate though it was important in updating them on new trends and in equipping them with skills whenever changes in an organization occur. These changes in an organization could be due to new staff employed, promotion of staff, acquisition of new equipment and machines and change in production processes. This suggests that continuous training on ERM should form part of organizations' plans. Effective training reinforces ability to apply skills on job performance as indicated in knowledge management model (Rodriguez and Edwards, 2009).

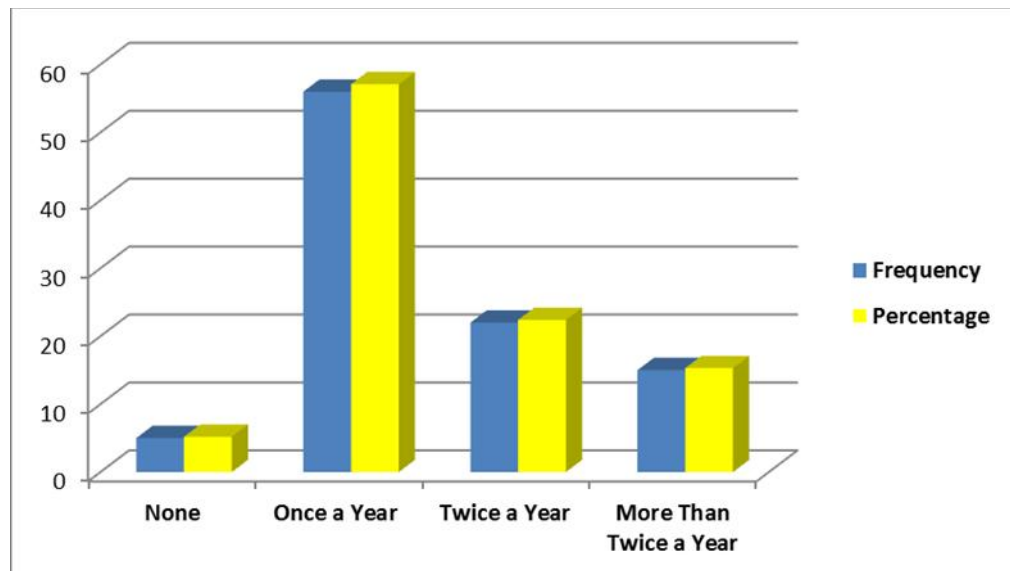


Figure 4.6: Frequency of Staff Training

Commonwealth of Australian (2004); Fraser and Simkin (2010); and KPMG (2011) found out that regular risk management training built an in-depth knowledge capacity required, training on risk management also improve planning and attainment of organizational goals. The Australian Government have regulations that requires an employer to train employees appropriately in a familiar language, correct information and use of appropriate instructional method. The supervision should also be effective to enable the employees to perform their work in a manner that is safe and without exposing themselves to risks that would affect their health (Commonwealth of Australian, 2004).

ii). Contribution of ERM Training on Financial Performance

The respondents were asked to rate contribution of staff ERM training on financial performance. Figure 4.7 shows that majority (74.5%) of the respondents indicated that ERM training contributed to financial performance while a few (25.5%) were not sure whether ERM training had any contribution on financial performance.

The implication of these results is that firms should take staff training seriously as this can improve operational efficiency among staff, corporate image and accountability. It can also improve efficiency in use of machines and equipment; reduce cases of accidents, mitigation costs and costs incurred in compensation and treatment of affected staff. These benefits on integrated ERM training on staff could be reflected in improved customer satisfaction and low scrutiny costs consequently leading to better financial performance of a firm.

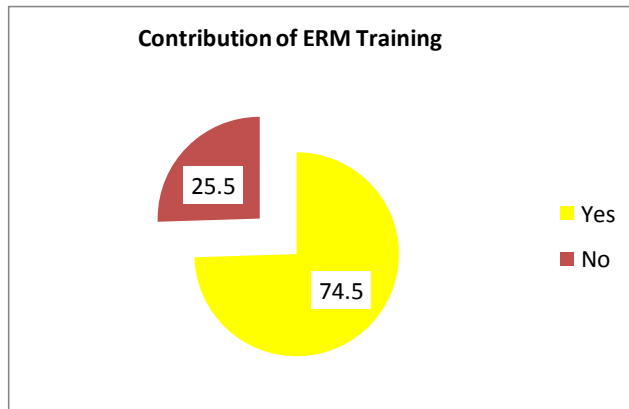


Figure 4.7: Contribution of ERM training to financial performance

Figure 4.8; show the contribution of ERM training to financial performance of the NSE listed firms in Kenya. Figure 4.8 shows that majority (88.8 %) of the respondents indicated that ERM training contributed to improvement of financial performance while a few (11.2 %) of the respondents indicated that ERM training had no effect on financial performance. On the specific contribution of ERM training the respondents indicated the following contribution of ERM training; improves operational skills, enhances staff efficiency, improve quality of service and reduces cases of accidents.

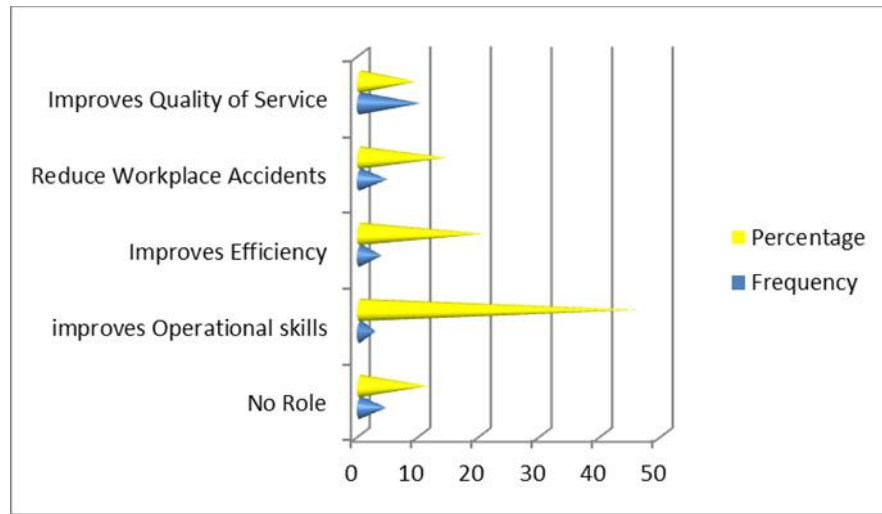


Figure 4.8: Contribution of ERM training on Financial Performance

Cress and Martin (2006) and United Nations Educational Scientific and Cultural Organization (UNESCO) (2010) in similar studies found out that training staff on risk management enhances efficiency leading to improved organizational performance. They also identified the purpose of risk management training as to; raising basic awareness on risk management, clarifying concepts and mechanism of handling risks; equipping the trainees with skills to identify and manage risks in their own units and strengthening project management by ensuring forward planning in risk management.

iii). Enterprise Risk Management Training Programs for New Employees

The respondents indicated that new employees whenever they are engaged were trained on ERM. Figure 4.9 shows that majority (85.7 %) of the respondents indicated that new staff were trained on ERM while a few (14.3 %) of the respondents indicated that there was no training program for new staff on ERM.

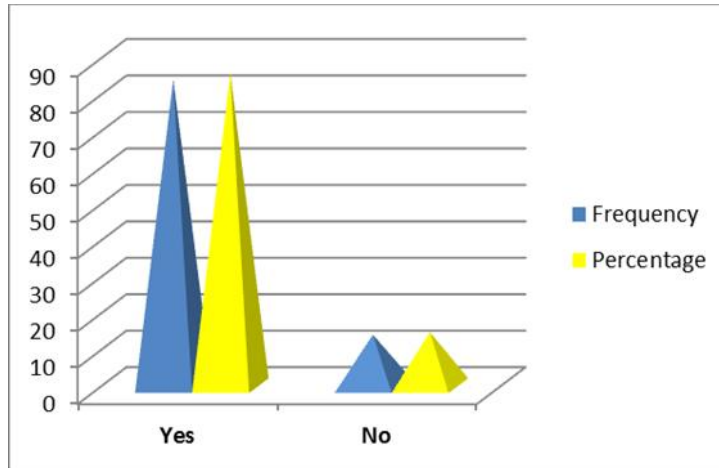


Figure 4.9: ERM Training for New Employees

There are many ways of training new staff on ERM; Table 4.34 shows the methods used by the NSE listed firms to train new staff on ERM. Table 4.34 shows that majority (91.8 %) of respondents indicated that new employees were trained on ERM whenever they were hired while a few (8.2%) of the respondents indicated that there was no specific training program for new staff on ERM. The specific training methods used to train newly employed staff on ERM were indicated as follows; induction and job training, refresher courses organized, use of training manuals and mentorship programs were commonly used.

Table 4.34: Training on ERM to New Employees

Response	Frequency	Percent
Non/ no training	8	8.2
Training Manuals	13	13.2
Refresher courses	28	28.7
Mentorship programs	13	13.2
Induction and job training	36	36.7
Total	98	100.0

The results from the study imply that training can be used to improve financial performance and it can also be used to create positive organizational culture required to drive financial performance. The objective of the training on ERM is meant to; improve efficiency, reduce cases of accidents, built confidence on ERM, improve innovation and creativity of staff on ERM and equip the trainees with skills required in planning for management of potential risks.

Danziger and Dunkle (2005), Nonaka and Takeuchi (1995) and Rodriguez and Edward (2009) in their studies found out that the most effective method to use to train staff on ERM were instructor-led class, workshop, job-training, peer training and self-training. In addition, Nonaka and Takeuchi (1995) pointed out that success of some Japanese firms in terms of creativity and innovation is attributed to the use of tacit knowledge. It was discovered that the success was not from mechanical processing of some objective knowledge, but from elements interacting with a market and observing what is required. Rodriguez and Edward (2009) also found out

that effectiveness of training is measured in terms of improve efficiency, creativity, innovations and low wastage. Creativity and innovation creates unique advantage to a firm which can be translated to high output and profits.

iv. Tools for Assessing Effectiveness of Staff on ERM

The respondents indicated the tools used to assess effectiveness of ERM system. Table 4.35 shows that majority (96.9%) of the respondents indicated that they were either using annual performance appraisal, risk compliance method, risk awareness method and ability to disseminate ERM information to their subordinates to test effectiveness of staff on ERM, while very few (3.1%) respondents indicated that there was no tool for assessing effectiveness of staff on ERM.

Table 4.35: Tools for Assessing Effectiveness of Staff on ERM

Respond	Frequency	Percent
Non/no tool	3	3.1
Annual performance appraisal	44	44.9
Risk compliance test	24	24.5
Risk awareness	15	15.3
Ability to train other staff	12	12.2
Total	98	100.0

The findings from table 4.35 pointed out the objective of staff ERM training is to improve staff efficiency reflected in individual performance and competence on risk management compliance. The table also showed that ERM training raised risk awareness as well as enhanced capacity required to train other staff on risk management. Similarly, the results confirmed that the most appropriate tools to use

in assessing staff effectiveness on ERM requires close monitoring, compliance tests, risk awareness and ability to train and disseminate risk information and messages to others.

Nonaka (2000) and Hamblin (1994) used Kirkpatrick training model and found out that training improve verbal reactions, skills competency, reports and job performance of work. On the other hand, Hamblin (1994) found out that training targets improvement of job competences; use of resources, reaction to job performance and the supervisory skills and staff management.

b). Quantitative Analysis of Staff Capacity and Financial Performance

The key contributors of staff capacity analyzed were; the board of directors, top management, trainers, training methods, effectiveness of modes used to disseminate ERM messages and effectiveness of methods used to improve ERM skills among others.

Table 4.36 shows the critical staff capacity that can be leveraged on to improve financial performance of a firm. The table shows that majority (88.7 %) of the respondents indicated that building capacity on heads of departments contributed significantly to financial performance. This was followed by ERM committees (85.4 %), social interaction groups (77.5 %) and industry forums (75 %) respectively. This suggests that policies developed and implemented by HODs and ERM committees were likely to have a positive impact on financial performance. Similarly, use of social interaction forums and industry forum improves firms' performance.

On the best mode of passing ERM messages, a significant (53.9 %) number of respondents indicated ICT as the best mode of passing ERM messages. Other modes useful in passing ERM messages identified were; informal meetings, use of robotics models and documenting of risks messages on brochures. Similarly, an average (49.4 percent) number of respondents indicated the best method for training ERM was on-

job training while other methods that were suggested include; use of risk champions and mentors, seminars and regular thrills.

The results in table 4.36 confirm that staff capacity had an effect on financial performance of the firms. The benefits of staff capacity are derived from effective implementation of risk management system, policies, and corporate governance issues. The table also shows that successful champions of ERM were the heads of departments, ERM risk management committees, organizational social groups such as trade unions and industry forums such as federation and associations. Information communication technology was found to be the best mode to pass ERM messages while job training was also found to be the best method to use when training staff on ERM.

Table 4.36: Contribution of Staff Capacity on Financial Performance

Contribution of SC	Percentage								Total %
	F	1	2	1&2	3	4	5	4&5	
Entire Board of directors	89	14.6	16.9	31.5	23.6	32.6	12.4	45.0	100
Heads of departments	89	0	0	0	11.2	49.4	39.3	88.7	100
Enterprise risk committees	89	0	1.1	1.1	13.5	50.6	34.8	85.4	100
Chief risk officer (CRO)	89	0	3.4	3.4	22.5	37.1	33.7	70.8	100
Auditors	89	3.4	14.6	18.0	37.1	31.5	13.5	45.0	100
Social interaction groups	89	0	4.5	4.5	18	47.2	30.3	77.5	100
Industry forums	89	0	4.5	4.5	20.2	60.7	14.6	75.3	100
External consultants	89	2.2	2.2	4.4	28.1	50.6	16.9	67.5	100
Formal training program	89	3.4	4.5	7.9	19.1	39.3	33.7	73.0	100
Models for reviewing risks	89	3.4	14.6	18	33.7	38.2	10.1	48.3	100
Passing information in meetings	89	5.6	16.9	22.5	29.2	38.2	10.1	48.3	100
Document risks in brochures	89	7.9	13.5	21.4	39.3	34.8	4.5	39.3	100
Passing information through ICT	89	4.5	10.1	14.6	31.5	40.4	13.5	53.9	100
Using robotic models	89	3.4	9.0	12.4	40.4	38.2	9.0	47.2	100
On the job training	89	5.6	10.1	15.7	34.8	38.2	11.2	49.4	100
Champions and Mentor s	89	3.4	9.0	12.4	41.6	37.1	9.0	46.1	100
Seminars	89	10.1	18.0	28.1	33.7	31.5	6.7	38.2	100
Regular Risks thrills	89	13.5	33.7	47.2	22.5	27.0	3.4	30.4	100
Av.		5.7	12.9	18.6	32.2	37.6	11.6	49.2	100

KEY: 1 = Strongly Disagree, 2 = Disagree, 3= Neutral, 4 = Agree, 5 = Strongly Agree

Mullin (2010), Meinhard (2009), KPMG (2011) and Jafari *et al.* (2011) found out that success on ERM training capacity starts from the top management because they set “tone” required in risk management. ERM training can also assist in developing risk policies, objectives and in equipping the trainees to manage and handle risks and hazards in general. The findings also showed that ERM training assist in shaping organizational culture, development of risk policy, methods of risk management, tools and practices. The suggested methods to use are induction and job-training.

i). Correlation and Regression Analysis of staff capacity and Financial Performance

The strength of the correlation between staff capacity and financial performance was tested. The table 4.37 shows a positive and significant (0.619, p-value 0.000 < 0.01) correlation between staff capacity and financial performance. This implies that a firm that invests on staff capacity is likely to get a positive improvement on financial performance. Furthermore, the calculated p-value (0.000) is lower than the critical value (0.01) confirming the significance of the correlation.

Table 4.37: Correlation between Staff Capacity and Financial Performance

		Fin. Performance	Staff capacity
Financial Performance	Pearson Correlation	1	.619**
	Sig. (2-tailed)		.000
	N	89	89
Staff ERM capacity	Pearson Correlation	.619**	1
	Sig. (2-tailed)	.000	
	N	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

The effect of staff capacity and financial performance was tested by linear regression model. The model summary curve was used to measure the variation in financial performance attributed to change in staff capacity. Table 4.38 shows the coefficients

“r” and “r²” which measure the strength and the direction of relationship. The table shows the coefficient “r” is 0.619 while the coefficient value of “r²” is 0.383. This implies that 38.3 % of changes in financial performance are attributed to changes in staff capacity while 61.7 % of changes in financial performance is attributed to others factors outside the model.

Table 4.38: Regression Model for Staff Capacity and Financial Performance

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.619	0.383	0.376	3.236

A one way analysis of variables (ANOVA) was used to determine the coefficients of F-value for decision to accept or reject the null hypothesis. Table 4.39 shows the calculated F-value of 53.635 with significant (p-value $0.000 < 0.05$) coefficient. Since the calculated F-value is greater ($53.635 > 4.012$) than the critical F-value then the null hypothesis (there is no correlation between staff capacity and financial performance) is rejected and confirmed that indeed there is correlation between staff capacity and financial performance. Similarly, the fact that calculated p-value is lower (0.000) than the critical p-value (0.05) further proved that the correlation between staff capacity and financial performance is significant. The implication of these results is that firms that had invested on staff capacity recorded better income than those which had not invested on staff capacity.

Table 4.39: ANOVA of Staff Capacity and Financial Performance

	Sum Squares	of Df	Mean Square	F	Sig.
Regression	564.573	1	564.573	53.915	.000
Residual	911.023	87	10.472		
Total	1475.596	88			

Table 4.40 shows coefficients for constant and staff capacity (independent variable) used to predict financial performance (dependent variable). The table shows the insignificant (p-value $0.379 > 0.05$) coefficient for constant (2.389) while the coefficient of staff capacity (0.251) was significant (p-value $0.000 < 0.05$). This means that in the model the constant was redundant; therefore, staff capacity was sufficient in predicting financial performance. Since the constant was insignificant in the model, it means that the coefficient for staff capacity ($\beta_3 = 0.251$) was sufficient to explain the variations on financial performance. The regression model used to predict Y (financial performance) is expressed as; $Y = \beta_3 X_3 + e$. Where Y= financial performance, β_2 is beta for staff capacity (X_3) and e is the error term. The substituted model is; $Y = 0.251X_3$

Table 4.40: Prediction Model for Financial Performance and Staff Capacity

	Coefficients		T	Sig.
	B	Std. Error		
(Constant)	2.389	2.702	.884	0.379
Staff capacity	0.251	0.034	7.343	0.000

c). Conclusion on Staff Capacity

The results from the study have confirmed that staff capacity enhances the ability of a firm to improve financial performance. From the results, it is clear that a firm had employed staff with skills in risk management and therefore played a major role in improvement of financial performance. Staff capacity programs should be planned in such a way that emerging issues on risk management were captured. Similarly, methodology, trainers and effective system to evaluate training programs be put in place to assist in improving the quality of training.

4.3.4 Effect of Regulatory Framework on Financial Performance

To establish the effects of regulatory framework and financial performance the following aspects were analyzed; existence of documented ERM policies, regulatory framework on financial performance, effectiveness of ERM guidelines in reducing risks, contribution of ERM guidelines, contribution of stakeholders on ERM success, existence of ERM disclosure requirements, existence of ERM implementation agencies and effectiveness of ERM policies in achieving organizational goals and objectives.

a). Qualitative Analysis of Regulatory Framework on Financial Performance

The qualitative data collected on effect of regulatory framework on financial performance covered the following; effectiveness of procedures used to disseminate ERM policies, contribution of ERM regulations on financial performance, contribution of ERM regulations on reduction of risks; role of ERM regulations on allocation of resources, responsibilities and risk controls, management, compliance and mitigation.

i). Contribution of Regulatory Framework on Financial Performance

The respondents were asked to rate contribution of regulations and guidelines on financial performance of the NSE listed firms in Kenya. Figure 4.10 shows that majority (76.5 %) of the respondents indicated that regulations and guidelines contributed to financial performance while a few (23.5 %) respondents were not sure whether regulations and guidelines contributed to the improvement of financial performance.

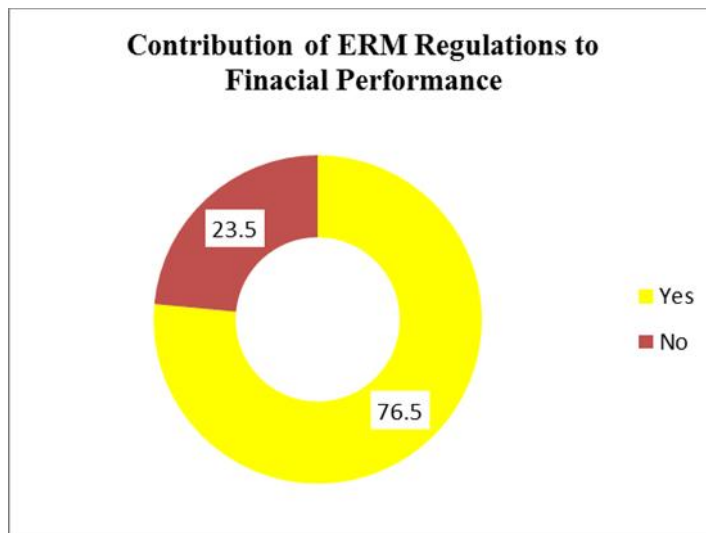


Figure 4.10: Contribution of ERM Regulations on Financial performance

Table 4.41 shows specific contribution of ERM regulations and guidelines on financial performance. Table 4.41 shows that majority (74.2 %) of the respondents indicated the benefits that would accrue to the NSE listed firms include; enhanced safe handling of hazardous products, improved corporate image, regulatory compliance and formulation of effective ERM systems. A few (25.8 %) respondents indicated that ERM regulations and guidelines did not contribute to financial performance.

Table 4.41: Effects of Regulatory Framework on Financial Performance

Reponses	Frequency	Percentage
Non/ no contribution	23	23.5
Improve on Safety and handling of hazardous products	18	18.4
Improve on corporate governance policies	35	35.7
Improve on regulatory risk compliance to policies	12	12.2
Improve on firm's ERM structures	10	10.2
Total	98	100.0

It is clear from the results that regulations and guidelines contributed significantly to financial performance. The specific contribution of regulations and guidelines on financial performance were listed as follows; safety and handling of dangerous and hazardous products, improved corporate governance, image, reputation and compliance to various standards and regulations. This suggests that failure to meet the above regulatory framework requirements can lead to “negative surprises” such as; reputational damage, credit rating downgrading, insolvency, or eventual bankruptcy as a result of an erroneous risk evaluation. These consequences have financed costs needed to mitigate and hence has financial performance implications.

Golshan and Rasid (2012); Gordon *et al.* (2009); International Business Machines (2005); Muralidhar (2010) and Organization for Economic Cooperation and Development (2000) found out that regulation compliance can lead to improved efficiency and predictability of operation. Compliance to various regulations

improves sustainability of business by protecting the public in terms of health, safety, environment and social cohesion.

ii). Contribution of Regulatory Framework on Reduction of Risks

Figure 4.11 shows the contribution of ERM regulations and guidelines to financial performance. Figure 4.11 shows that a significant (44.9%) number of the respondents indicated that ERM regulations and guidelines assisted the firms in controlling risks occurrence. Benefits of ERM were indicated as; improved risk assessment mechanism, monitoring as well as early detection of risks facing the firms. On the other hand, a few (23.5%) number of the respondents indicated that ERM regulations and guidelines did not contribute to improvement of financial performance.

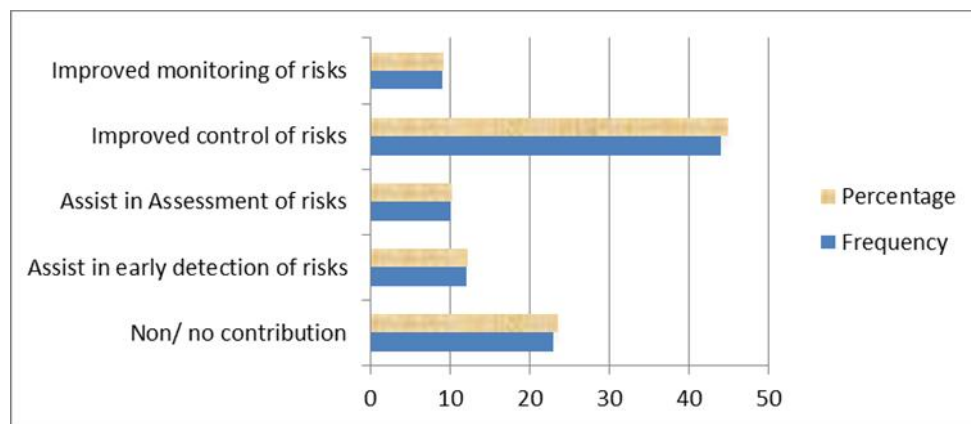


Figure 4.11: Contribution of Regulatory Framework on Reduction of Risks

Despite the fact that there was mixed results on the contribution of ERM regulations and guidelines to financial performance of the firms, generally, the results showed that ERM regulations and guidelines assisted the firms to manage risks facing them by improving mechanism used to detect, assess, control and manage risks. Effective implementation of ERM regulations and guidelines is manifested in organization risk culture, accountability and governance.

Grace *et al.* (2010), Mckinsey (2010), International Business Machines (2005) and Golshan and Rasid (2012) found out that risk management regulations contributes to the success of firms in the following ways; lead to better alignment of risk level with

business strategies, optimize capital allocation, protect and enhance the firm's reputation and boost efficiency of risk transfer as well as create value by rationalizing the interaction of risk across the enterprise and exploiting natural hedges. In addition, apart from ERM regulations guidelines enhancing risk transparency and insight, risk appetite, improving business process, risk organization and governance and risk culture, they reduce risks facing the firms by building capacity required for survival in a competitive industry and for resource planning in such a market.

iii). Existence of ERM Guidelines and Regulations on Disclosure

Figure 4.12 shows existence of guidelines and regulations on risk disclosure. Figure 4.12 shows that a significant (55.1 %) number of the respondents indicated that there were no regulations and guidelines on risk disclosure while a slightly below average (44.8%) respondents indicated that there were regulations and guidelines on disclosure of risks.

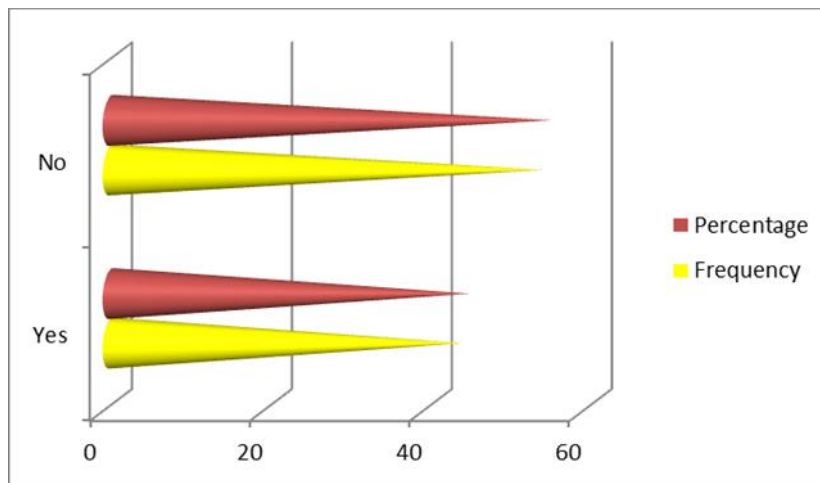


Figure 4.12: Existence of Regulations on ERM Disclosure

Business regulators assist in implementation of various regulations and legislation. Table 4.42 shows various ERM regulations in Kenya. Table 4.42 shows that average (52 %) number of the respondents indicated that they were aware on the existence of ERM regulations in Kenya while a slightly below average (48 %) number of the respondents were unsure about existence of risk ERM regulations in Kenya. The following ERM regulations were listed; government initiated, capital market regulators, industry associations/and professionals’ and the country of origin.

Table 4.42: Types of ERM Regulations on Disclosure

Response	Frequency	Percent
Non/ not sure	47	48.0
Government initiated	14	14.2
Capital market regulators’	13	13.2
Industry/professional associations ‘	11	11.2
Country of origin/donors’	13	13.2
Total	98	100.0

From the results of the findings, it is clear that the regulatory bodies such as capital market regulators, government, professional associations and industry were key players in developing and enforcing ERM regulations. The interest of these stakeholders and regulators in enforcement of enterprise risk management is to ensure effective coordination of risk management, reduce costs of managing risks and scrutiny costs. However, the results shows that there were firms that did not disclose risks facing them as part of compliance.

Economist Intelligence Unit (2008) and Golshan and Rasid (2012) found out that success in adoption of ERM is driven by industry groups, capital market regulators and credit rating agencies and their main focus on ERM is to ensure best business practices. They categorized industry regulators into; banking and finance, insurance, manufacturing, telecommunication and energy.

b). Quantitative Analysis of Regulatory Framework and Financial Performance

Table 4.43 shows that majority (85.4 %) of the respondents indicated that regulatory framework contribute to financial performance by ensuring compliance to risk management making a firm to be credit worthy. This was also followed by a high number (82 %) of respondents who indicated that contribution of ERM regulations and guidelines on financial performance was through ensuring compliance with the requirements of capital market regulations. The other significant contribution of regulatory framework to financial performance include; costs saving in reviewing risk management policies from time to time, provides procedure for building staff capacity on ERM and compliance to regulations and developing procedure for risk assessment.

The findings from study confirmed that regulatory framework affects financial performance of a firm. The benefits of regulatory framework is derived from effective implementation of risk management system, compliance to risk management policies, improvement on credit rating, compliance with industry regulations and improvement on corporate governance. However, the table also shows that a small number of respondents indicated that regulatory framework assisted firms to improve management of risks through, identification, assessment, reporting and monitoring of risks which was a requirement in compliance with COSO ERM integration framework (COSO, 2004). This suggests that though firms had good rating and reputation with capital market industry regulations, there was a challenge in linking regulatory to ERM procedure.

Table 4.43: Effect of Regulatory Framework on Financial Performance

Regulatory framework	Percentage								Total %
	F	1	2	1&2	3	4	5	4&5	
Resource Allocation	89	18	15.7	33.7	28.1	25.8	12.4	38.2	100
Responsibility Allocation	89	30.3	13.5	43.8	19.1	29.2	7.9	37.1	100
Setting up risk management teams	89	9.0	19.1	28.1	23.6	29.2	19.1	48.3	100
Review Risk Management policies	89	2.2	14.6	16.8	25.8	36	21.3	57.3	100
Risk management policy compliance	89	2.2	13.5	15.7	33.7	40.4	10.1	50.5	100
Building institutional capacity	89	4.5	11.2	15.7	30.3	46.1	7.9	54.0	100
Compliance to Government policies	89	9.0	13.5	22.5	39.3	32.6	5.6	38.2	100
Compliance to industry policies	89	7.9	10.1	18.0	31.5	40.4	10.1	50.5	100
Compliance to Credit rating policies	89	1.1	1.1	2.2	12.4	49.4	36.0	85.4	100
Capital Market Compliance	89	0.0	4.5	4.5	13.5	48.3	33.7	82.0	100
Country of origin policies	89	3.4	14.6	18.0	33.7	38.2	10.1	48.3	100
Compliance to safety policies	89	13.5	18.0	31.5	25.8	29.2	13.5	42.7	100
Risk identification procedure	89	11.2	14.6	25.8	39.3	27.0	7.9	34.9	100
Risk assessment procedure	89	10.1	7.9	18.0	30.3	39.3	12.4	51.7	100
Risk reporting Procedure	89	7.9	27.0	34.9	43.8	18.0	3.4	21.4	100
Monitoring & control of risks	89	22.5	30.3	52.8	20.2	21.3	5.6	26.9	100
Average		10.2	14.3	24.5	28.2	34.4	13.6	48.0	100

Key: **1**= Strongly Disagree, **2**= Disagree, **3**= Neutral, **4**= Agree, **5**= Strongly Agree

COSO (2004); Golshan and Rasid (2012); Grace *et al.* (2010); International Business Machines (2005) and Mckinsey (2010) found out that regulations are key indicators of effective ERM. Similarly, the reasons for implementation of ERM is to; improve assessment of risk, reporting, identifying and controlling risks. ERM also improve focus on risks as well improving compliance to various regulations, increases consistency and communication of risks within an organization.

i). Correlation and Regression Analysis for Regulatory Framework and Financial Performance

A correlation coefficient statistics describing the degree of linear association between regulatory framework and financial performance was determined. Table 4.46 indicates that there was a positive and significant linear relationship between regulatory framework and financial performance of the NSE listed firms in Kenya. This relationship is illustrated by correlation coefficient of 0.537 with a significant p-value of 0.000 at 0.01. This implies that if a firm implement ERM regulations and guidelines as required then the firm would have less scrutiny costs and few cases of legal conflicts with industry, government, professional organizations or any other stakeholders. Being rated fairly by the credit rating agencies would make a firm to access credit cheaply and hence leading to better financial performance.

Table 4.44: Correlation between Regulatory Framework and Financial Performance

		Fin. Performance	Regulatory framework
Financial Performance	Pearson Correlation	1	.537**
	Sig. (2-tailed)		.000
	N	89	89
Regulatory framework	Pearson Correlation	.537**	1
	Sig. (2-tailed)	.000	
	N	89	89

**. Correlation is significant at the 0.01 level (2-tailed).

The regression analysis was conducted to assess the gradient that measures the rate of improvement on financial performance as a result of an increase in compliance to regulatory framework. Table 4.45 shows the coefficients “r” and “r²” which measure the strength and the direction of relationship. The table shows the coefficient for “r” was equal to 0.537 while the coefficient value of “r²” was equal to 0.288. This implies that 28.8 % of changes in financial performance are attributed to improvement on regulatory framework while 71.2 % of changes in financial performance were attributed to others factors outside the model.

Table 4.45: Regression Model for Regulatory Framework and Financial Performance

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.537 ^a	0.288	0.280	3.475

The null hypothesis was tested using calculated F-value produced from the analysis of variables (ANOVA) and compared with critical F-value from the statistical table. Table 4.46 shows a significant (p-value $0.000 < 0.05$) F_{cal}-value of 35.230, meaning that the overall model is significant in the prediction of financial performance of the NSE listed firms in Kenya. The null hypothesis was therefore rejected that there is no correlation between regulatory framework and financial performance and confirmed that there was indeed significant correlation between regulatory framework and financial performance of the NSE listed firms in Kenya.

Table 4.46: ANOVA of Regulatory Framework and Financial Performance

	Sum Squares	of Df	Mean Square	F	Sig.
Regression	425.303	1	425.303	35.230	.000 ^b
Residual	1050.293	87	12.072		
Total	1475.596	88			

Analysis of regression model coefficients is shown in Table 4.47. Table 4.47 shows the coefficient for constant is 8.797 while the beta coefficient for regulatory framework was 0.216 and both coefficients were significant (p-values $0.000 < 0.05$). This therefore, means that both coefficients for constant and regulatory framework contributed significantly to the model. The regression equation is presented as;

$$Y = \beta_0 + \beta_4 X_4 + \epsilon$$

Where

Y = financial performance,

β_0 is a constant,

β_4 is beta for X_4 (Regulatory framework) and ϵ is the error term.

Substituted model for predicting financial performance (Y) is expressed as;

$$Y = 8.792 + 0.216X_4$$

Table 4.47: Coefficients of Regulatory Framework

	Coefficients		T	Sig.
	B	Std. Error		
(Constant)	8.797	2.266	3.883	.000
Regulatory framework	0.216	0.036	5.935	.000

4.3.5 Effect of Combined ERM Determinants on Financial Performance

The effect of ERM determinants (firms' characteristics, staff capacity, information technology and regulatory framework) on the dependent variable (financial performance) was assessed by a multiple regression model. The correlation analysis is shown in Table 4.48. The table shows the positive coefficients of correlation between ERM determinants and financial performance as; 0.519, 0.528, 0.619 and 0.532. Similarly, Table 4.50 also shows that the two sets of ERM determinants had high correlation namely; staff capacity and information technology (0.884) and firms' characteristics and regulatory framework (0.854). This implies that an improvement on information technology requires also upgrading of staff capacity to manage. Consequently, improvement on regulatory compliance requires adequate resources for implementation.

A linear multiple regression analysis determined the effect of combined ERM determinants on financial performance. The intercept or constant term, β_0 , and the regression coefficient β_1 , β_2 , β_3 , and β_4 were determined by analyzing the variables using the model summary. If the null hypothesis which is $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ then it means that the null hypothesis will be rejected and the alternative hypothesis that at least one $\beta_j \neq 0$ ($j=1,2,3,4$) is taken implying that the model; $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots$

Table 4.48: Correlations Analysis between ERM Variables and Financial performance

		Financial Performance	Firm Characteristics	Information Technology	Staff capacity	Regulatory framework
Financial Performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	Sum of Squares and Cross-products	1475.596				
	Covariance	16.768				
	N	89				
Firm Characteristics	Pearson Correlation	.519**	1			
	Sig. (2-tailed)	.000				
	Sum of Squares and Cross-products	1065.652	2853.506			
	Covariance	12.110	32.426			
	N	89	89			
Information Technology	Pearson Correlation	.528**	.579**	1		
	Sig. (2-tailed)	.000	.000			
	Sum of Squares and Cross-products	1859.438	2835.461	8403.775		
	Covariance	21.130	32.221	95.497		
	N	89	89	89		
Staff capacity	Pearson Correlation	.619**	.534**	.884**	1	
	Sig. (2-tailed)	.000	.000	.000		
	Sum of Squares and Cross-products	2250.371	2699.236	7673.348	8969.910	
	Covariance	25.572	30.673	87.197	101.931	
	N	89	89	89	89	
Regulatory framework	Pearson Correlation	.537**	.854**	.667**	.607**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	Sum of Squares & Cross-products	1972.697	4361.989	5852.079	5496.528	9150.022
	Covariance	22.417	49.568	66.501	62.461	103.978
	N	89	89	89	89	89

** . Correlation is significant at the 0.01 level (2-tailed).

a). Multiple Linear Regression Curve for the Combined ERM Determinants

The combined linear regression model analysis measured the strength of correlation between ERM determinants (firm's characteristics, information technology, staff

capacity and regulatory framework) and financial performance. Regression model only ‘explains’ a limited proportion of the dependent variable’s total variation. This part of the variance is measured as the sum of the squared differences between the respondents’ predicted dependent variable values and the overall mean divided by the number of respondents.

Table 4.49 shows the regression analysis with the coefficients of “r” and “r²” of equal to 0.670 and 0.449 respectively. This implies that 44.9 % of improvement on financial performance is attributed to the improvement on ERM determinants while 55.1 % of changes in financial performance is attributed to other determinants out of the model. The results of the regression model therefore mean that investment on ERM determinants (Firms’ characteristics, information technology, staff capacity and regulatory framework) led to improvement on financial performance of the NSE listed firms.

Table 4.49: Effects of Combined ERM Determinants on Financial Performance

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.670	0.449	0.422	3.112

The null hypothesis that all the partial regression coefficients are equal to zero was tested by analysis of variance (ANOVA). Table 4.50 shows the significance of the F-value statistics of 17.081 with the p-value of $0.000 < 0.05$. This confirmed the model’s goodness of fit to explain the variations of dependent variable (financial performance). The hypothesis tested was;

$$H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$$

$$H_1 = \text{At least one of } (\beta_1, \beta_2, \beta_3, \beta_4) \neq 0$$

The significance of regression analysis means that the null hypothesis was rejected that all the partial regression coefficients are equal to zero and conclude that at least one of the partial regression coefficients is not equal to zero. The implication to these results is that all the ERM determinant; firms' characteristics, information technology, staff capacity and regulatory framework have a significant combined effect on financial performance.

Table 4.50: ANOVA for ERM Determinants on Financial Performance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	661.873	4	165.468	17.081	.000 ^b
Residual	813.722	84	9.687		
Total	1475.596	88			

Table 4.51 on coefficients in the model showed that only staff capacity, coefficient had positive (0.269) and significant (p-value = 0.000) indicating the more ideal factor, the higher improvement on financial performance. The regression coefficient on firms' characteristics is positive (0.141) however, the correlation is not significant (p=0.211). The regression coefficients on regulatory framework is also positive (0.059) but not significant as well (p=0.390). The regression coefficient for information technology indicates a negative (-0.113) and still insignificant. This therefore means that for every unit of change in information technology it leads to a decrease of 0.113 in financial performance.

This model therefore suggests that once capacity for staff is build, the effect of information technology, firms' characteristics, and regulatory framework disappeared. It also mean that financial performance requires staff capacity improvement before other determinants (information technology, firms' characteristics, and regulatory framework) are changed otherwise it can lead to decrease in financial performance (-0.113). The t-values confirmed that indeed staff capacity, is the most useful predictor of effectiveness of financial performance (t=3.822), followed by firms' characteristics (t=1.260), regulatory framework (t=0.864) and the least is information technology (t=-1.457).

Table 4.51: Effect of Combined ERM Determinants on Financial Performance

Model	Coefficients		T	Sign.
	B	Std. Error		
(Constant)	-0.0915	2.914	-0.314	0.754
Firms' Characteristics	0.141	0.112	1.260	0.211
Information Technology	-0.113	0.078	-1.457	0.149
Staff Capacity	0.269	0.070	3.822	0.000
Regulatory framework	0.059	0.068	0.864	0.390

c). Conclusion on Effect of Combined ERM Determinants on Financial Performance

From the study, it was discovered that combination of ERM determinants in a regression model improved correlation and corresponding variation ($r = 0.670$ and $r^2 = 0.422$) in financial performance. It was also found that there was a significant correlation between combined ERM determinants and financial performance. However, the prediction model rendered three ERM determinants (firms'

characteristics, information technology and regulatory framework) insignificant. On the other hand, the t-test provided important information required in prioritization of resources by listing the key ERM determinants that a firm faced with scarce resources can use to plan. The order of priority starts with staff capacity, followed by firms' characteristics and finally regulatory framework.

In terms of information technology, the analysis had negative values (Beta = -0.113, t-value = -1.457). This suggests that an increase in investment on information technology leads to reduction of financial performance. This was interpreted to mean that when new technology is introduced, it affects other determinants and therefore needed extra resources for investment in terms of training of staff, cost in acquisition (firms' characteristics) and compliance to rules and regulations. This does not mean that firms should not invest in information technology; however, information technology requires appropriate skills, resources and effective regulatory compliance.

4.4 Discussion of the Results

4.4.1 Firms' Characteristics and Financial Performance

To achieve the first objective, analysis of both qualitative and quantitative data was conducted. The analysis of qualitative data confirmed that investment on firms' characteristics influences financial performance of the firms. Similarly, the quantitative data also confirmed that firms' characteristics affect financial performance of a firm. Both analyses (qualitative and quantitative) identified the importance of firms' characteristics on leveraging on financial performance. The aspects of firms' characteristics that were analyzed in the study composed of; shareholders, directors and management, resources and country of origin.

The findings from the study show that investment on firms' characteristics enhances effectiveness of ERM leading to improved financial performance of the NSE listed firms. The results showed that directors play a key role on ERM. These roles were

listed as; setting of risk management policies, objectives and monitoring of ERM. The results also showed that directors were involved in approval of budget and loan contract as well sourcing of funds. In similar studies on ERM, Hoyt and Liebenberg (2008) and Yazid *et al.* (2012) found out that firms that had adopted ERM had their firm value improved. They also identified the contributors of effective firms' characteristics as top management, share ownership and influence of the country of origin. Resources are needed to support the administrative costs of ERM programs.

Similar studies found out that that a strong risk management culture depends on "tone" at the top that set the momentum to drive the behavior of staff in the organization (Muralidhar, 2009 and Yazid, Razali & Hussin, 2012). Yazid, Razali and Hussin (2012) also proposed an ERM framework which is used by top managers in setting standards required to attain best practice on risk management.

Hoyt and Liebenberg (2008) found out that firms that adopted ERM program had a higher value than those that had not adopted ERM program while Grace Levery, Phillips and Shimpi (2010) pointed out that firms that had invested in ERM recorded higher return than the ones that had not adopted ERM. The findings from study mean that ERM intervention as reflected in the correlation and regression analysis improves financial performance.

On the other hand, Jafari, Chadegani and Biglari (2011) found out that there was no significant difference in performance between the firms that had adopted ERM from those that had not. Golshan and Rasid (2012) in their studies found out those firms that had adopted ERM recorded positive growth in stock price compared with those firms that had not adopted ERM.

Golshan and Rasid (2012) in the study of determinants of ERM adoption found out that the board of director sets and agree on overall risk appetite and corporate risk tolerance, approve capital plan and ensures appropriate corporate governance was in place. Muralidhar (2010) also found out that success in adoption of ERM was attributed to involvement of the top management and also indicated that the role of

directors in risk management include setting organizational strategic plans, providing resources, staffing, providing technical support and monitoring implementation of plans.

The theories used in the study such as agency theory, pecking order and trade off were also found to be applicable in this study. The results from analysis show that shareholders, institutional investors and country of origin influences ERM decisions. The interest of these groups of investors is profit maximization and therefore any decision that promotes this pursuit is of their interest. Capital structure theory involves balancing the ratio of equity and debt. Where any of this group (ordinary shareholders, preference, institutional) has significant control, their influence is manifested in decision making. Similarly, the fact that board of directors influences approval of budget and loan contract is also another way of controlling conflict of interest between management and board of directors.

In conclusion, this study provides initial evidence on the effect of firms' characteristics on financial performance of the listed firms in Kenya. It is important to note that firms' characteristic is an investment and therefore mobilization of resources needed to implement effective ERM system can yield positive results. The results from the study also shows that effective risk management prevent costs associated with resolving conflicts arising from agency relationship between the principal (shareholders) and the agents (management).

4.4.2 Information Technology and Financial Performance

To achieve the second objective, analysis of both qualitative and quantitative data was conducted. The analysis of qualitative data confirmed that investment on information technology on ERM affect financial performance of the NSE listed firms in Kenya. Similarly, the quantitative data also confirmed that information technology affect financial performance of the firms. The analysis (qualitative and quantitative) identified the critical aspects of effective information technology system that firms need to focus on to enhance financial performance. The contribution of information

technology on financial performance included; enhanced firms' capability to manage risks, improved risks identification, reporting, analysis and mitigation. Information technology can also be used to enhance performance management, production and quality control, tracking of performance and setting 'risks flags' to detect intruders to the system.

The COBIT principle model provided a system the coordinate management of organizational activities (Pincher, 2008, Anderson *et al.*, 2004. From the analysis of the findings, information technology on ERM linked business operation to standards and quality control systems and provide a platform where firm's operations can be monitored. The Pearson correlation and ANOVA regression model confirmed the premise that investment on information technology on ERM improves financial performance of a firm. The results from analysis implied that investment on information technology on ERM was feasible only when cost of investment is lower than expected income. The success of IT adoption is determined by the user acceptance and the influence of individual's benefits achievement of organizational objectives. This suggests that the objective to adopt information technology is driven by motivation to succeed and efficiency which is measured in terms of financial performance indicators. Acceptance Model (TAM) is driven by the benefits that accrue to firms and individuals such as managers, shareholders and directors (Institute of Management Accountants (IMA), 2007 and Pincher, 2008).

The findings from the study implied that a firm that adopt information technology on ERM improved quality of service and goods, management of assets, production process and mitigation mechanism. Anderson *et al.* (2004) pointed out the benefits of ERM-Integrated Framework using the model of Committee of Sponsoring Organizations (COSO). Such benefits include; risk assessment, risk mitigation, risk control and monitoring of risks. Similarly, the use of Basic COBIT Principle Model assist a firm to leverage on the following; internal control system which can also be used to identify risks affecting the firms as well as defining risk management controls, it could also be used to identify resources required in risk management and

provide tracking risk management process models (Institute of Management Accountants, 2007).

Effective information technology assisted in monitoring, identification and assessment of risks. This means that organizational surprises that have negative impact on income are reduced and therefore financial performance enhanced. Deloitte (2012), Althonayan *et al.* (2011), Kumsurprom *et al.* (2010), Straub and Welke (1998) and Bauman and Kaen (2003) found out that information technology risk management act as a key enabler to an organization's effectiveness and value addition through; provision of consistent and reliable risk information, enhance capabilities of technology infrastructure to support new functional requirements needed by the business and support effective regulatory compliance, increased stress testing and enhanced risk reporting.

A well-integrated information system on risk management provides a strong system that would respond to market uncertainties quickly and manage the opportunities embedded in challenging events. This would lead to; proper planning, deployment of resources, improve catering of intelligent information for better security and development of mitigation strategies. Effective information technology on risk management affects an organization's physical systems, therefore, influencing delivery of goods and services to customers. In addition, information technology contribute significantly to firm's financial performance by ensuring attainment of strategies on risk management, improving on risk information, enhances capability of risk infrastructure useful in monitoring and supporting regulatory compliance.

In conclusion, it is clear from the findings that information technology on ERM improves financial performance of the NSE listed firms in Kenya. Investment on information technology on risk management improves operation efficiency, quality of production, better customer service, low wastage, risk mitigation, assessing, reporting and control of risks. However, costs benefit analysis is needed before investing on information technology to ensure maximum returns are attained.

4.4.3 Effect of Staff Capacity on Financial Performance

The analysis of qualitative data confirmed that investment on ERM training improved financial performance of the NSE listed firms. The respondents indicated that training improves; efficiency of each staff, service delivery, effectiveness on use of machines and equipment and reduces cases of accidents in work place. These aspects have implications on financial performance of a firm by reducing scrutiny costs and costs involved in compensating for injuries and related problems. Despite the fact that ERM training has significance influence on efficiency, the training being offered by the firms were inadequate (once a year). This means that staff capacity can still be improved further if the number of training programs in a year is increased.

The quantitative data analysis provided data for testing the corresponding variations between staff capacity and financial performance. The analysis showed a positive correlation between staff capacity and financial performance of the NSE listed firms in Kenya. The ANOVA confirmed that indeed there was a significant correlation between staff capacity and financial performance of the NSE listed firms in Kenya. The implication for this is that an investment on staff capacity leads to improved financial performance by enhancing efficiency.

The findings from the study confirmed that staff capacity affects financial performance of a firm. The benefits arising from staff capacity include; improve operational efficiency among staff, corporate image and accountability, efficiency in use of machines and equipment and reduction on cases of accidents, scrutiny costs and ultimately leading to reduction on compensation costs and costs incurred in treatment of affected staff. These benefits on staff capacity are reflected in improved customer satisfaction and less scrutiny costs consequently leading to better financial performance of a firm. Similarly, the results from study showed that new employees were trained on ERM and the most appropriate training method for ERM was

identified as; induction and job training, refresher courses, mentorship programs, peer training, self- training and to some extent use of ERM training manuals.

The appropriateness of tools used to assess staff effectiveness on ERM, the results showed that annual staff performance appraisal, risk compliance tests, risk awareness and ability to train and disseminate risk information and messages were being used. The findings also showed that successful champions for ERM were the heads of departments, ERM risk management committees, organizational social groups such as trade unions and industry forums such as federation and associations. Finally, the most appropriate mode to pass ERM messages was found to be information communication technology while job training was found to be the best method to use when training staff on ERM.

Similar studies such as; Manab *et al.*. (2012), Jafari *et al.*. (2011), Cole (2002) and Staniec (2011) found out that ERM training influences effectiveness of staff in organization and improves performance. Training also improves innovation among staff, team building and acquisition of skills that were needed in a competitive market. They also suggested the appropriate ERM training methods that can be used by firms to train staff on ERM such as induction and job-training.

A comparison between the findings of this studies and theories used in training such as; training and assessment model and socialization and social interaction (Nonaka & Takeuchi, 1995) converge in the main purpose of training that training improves efficiency and training takes place through socialization and social interaction. Nonaka and Takeuchi (1995) developed a model for assessing innovative company.

The competences identified in the study were geared towards improving the image and reputation of the firms, customer loyalty and assist in implementation of assigned tasks. The other importance aspects that training is geared to address is the evaluation of training and how it can leveraged to improve on business environment. Hamblin (1974) and Nonaka (2000) developed two training models which are used to assess skills competences, training program and trainers.

It is clear from the results that staff capacity program contributes significantly to improvement of financial performance. Consequently, investment on staff capacity program is expected to lead to operation efficiency, better customer service, and successful implementation of projects and policies. Similarly, the benefits of staff capacity on ERM can also lead to improvement of corporate image, governance and accountability, efficient use of resources, low levels of accidents in the workplace. However, the investment costs on staff capacity program should not exceed the optimal investment point otherwise the marginal cost would be higher than marginal revenue leading to diminishing return.

4.4.4 Regulatory Framework and Financial Performance

The analysis of qualitative data confirmed that regulatory framework on ERM had effect on financial performance of the NSE listed firms. The improvement in financial performance is attributed to safe handling of goods, enhanced corporate image and reputation, less cases of litigation due to noncompliance to regulations and standards.

Similarly, effective risks management implies that strategies that were put in place provided a mechanism that enable early detection of risks as well enhancing mitigation against potential risks. The study identified ways that the firms can leverage on to maximize their benefits on ERM regulations and guidelines; such benefits include setting mechanism to detect, assess, control and manage risks. The regulatory bodies and agencies that oversee implementation of ERM include; capital market regulators, government, professional associations and industry regulators.

Effective regulatory compliance leads to accountability, transparency and equity. The findings show that regulatory framework was used in reviewing risk management policies from time to time, provide procedure for building staff capacity on ERM and on assessment of potential risks which need attention. Enhanced

organizational performance was reflected on effective implementation of risk management system, compliance to risk management policies, improvement on credit rating, and compliance to industry regulations.

Furthermore, the analysis of qualitative data also showed that regulatory framework promoted corporate governance, improved control of risks, enhanced compliance to risk regulations, aligned risk management strategies, improved credit rating image and enabled assessment of risks facing the firms. Effective regulatory framework on risks led to reduction on costs associated with management and therefore ultimately influenced financial performance. The firm's financial performance is reflected on investment in corporate social responsibilities and compliance driven values. Deloitte and Touche (2012); Manab *et al.* (2012); Muralidhar (2010); Protiviti (2006); Waweru and Kisaka (2012) and Watt (2008) recommended that regulatory framework assist a firm to improve accountability, governance, managerial capability, use of resources at their disposal effectively and improve attainment of corporate strategy.

The results from quantitative analysis showed that there was a positive correlation between regulatory framework and financial performance of the NSE listed firms in Kenya. In terms of corresponding variations reflected by coefficient of r^2 , improvement on financial was attributed to regulatory framework. This means that firms' that had effective regulatory framework recorded improved financial performance. This was also supported by F-test results which was significant (p-value $0.000 < 0.05$), meaning that the null hypothesis was rejected. The significant correlation meant that ERM policies and guidelines contributed in reviewing of ERM strategies, attainment of organization goals and objectives. Similarly, the success in development of ERM policies and regulations was attributed to the government or semi-autonomous government agencies, shareholders and credit rating agencies.

The existence of significant correlation between regulatory framework and financial performance, also confirmed that ERM rules and regulations; ensure quality of service and products, improves standardization, integrates the risk management into the organization management system, enhances monitoring and compliance to various relevant rules and regulations leading to reduction on scrutiny costs and therefore improving financial performance of the firm. The main regulators that check the level of compliance to ERM include; industry groups, government, profession bodies and credit rating agencies.

In Kenya, public listed firms were governed by a number of regulations such as; the Companies Act Cap 486, Nairobi Security Exchange Regulations, Capital Market Authority Act Cap 485. Insurance companies are also governed by Insurance Act (Amendment) 2006, Cap 487. Various Acts of parliament and other regulations have been developed to govern management of risks in Kenya. Among the policies developed in Kenya to govern risk management include; National Disaster Management Policy of 2009, Central Bank of Kenya (CBK) guidelines of 2005 on risk management by commercial banks and financial institutions. The Central Bank of Kenya Act Cap 491 empowers the CBK to supervise commercial banks and financial institutions.

In conclusion, the findings from the study confirmed that ERM regulations and guidelines contributed to the improvement of financial performance. The results also showed that ERM policies and regulations created confidence, improved on compliance, assisted in identification of business opportunities, and enhance efficiency and accountability. Apart from shareholders, the government and its agencies and the industry plays a key role in development and implementation of ERM policies and regulations. The findings from the study in general confirmed that ERM regulations and policies can reduce scrutiny costs, improves compliance to standards and quality and therefore enhancing efficiency which had effect on financial performance.

Compliance to regulatory framework lowered overall risk of failure, reduced settlement cost arising from disputes leading to improved financial performance and value of a firm. Similarly, risk regulation compliance can lead to standardization of operation management, improved business-unit decision making, improved control of risks and enhanced risk management culture. Apart from reducing duplication of work (silo-based risk management) across business units, compliance to regulations improved ability of the firms to mitigate against unexpected risks, losses and risk expenditures arising from risks by enhancing risk coordination.

4.4.5 Effect of Combined ERM Determinants on Financial Performance

After establishing that a significant correlation between individual ERM determinants (firms' characteristics, information technology, staff capacity and regulatory framework) and financial performance; other tests were conducted as well such as; autocorrelation, multicollinearity and sample adequacy tests. The analysis showed that there was no serial autocorrelation, no multicollinearity problem found in the items used and the sample used for the study were found to be adequate and met threshold for analysis. For multicollinearity, the variables used in the study had no value with tolerance less than 0.1 or variance inflation factor (VIF) analysis value more than 10.

Althonayan, Keith and Misiura (2011), Gill and Mathur (2011), Manab *et al.* (2012) and Tasseven and Teker (2009) in similar studies found out that organizations that had invested on risk management increased shareholder value. Their findings also showed that effective risk management depended on infrastructure, skill and knowledge among staff. Knowledge encompasses information technology risk management and compliance to statutory regulations.

The involvement of board of directors, top management and all staff on ERM was a pointer to the efficiency of firms and moving towards solving problems associated with agency relationship. The results from analysis showed that major decisions which were viewed to have risks implications such as budget making and approval,

loan contract were ring-fenced by ensuring that the board of directors approves them before implementation. In comparison with the COSO ERM Integrated Framework, risk appetite, board of directors, organizational structure and human resources (staff), the only risk element which was clearly identified as being effectively applied was the board of directors (COSO, 2004).

In conclusion, although combination of ERM determinants improved correlation and corresponding variations between financial performance and ERM determinants, a prediction model rendered some ERM determinants (information technology, firms' characteristics and regulatory framework) insignificant. The t-test analysis provided the order of priority when investing on ERM determinants, this showed that staff was on top of all the others determinants, while information technology had a negative value. This means that an increase on information technology investment can lead to negative financial performance.

The findings showed that the correlation between effects of ERM determinants on financial performance of the NSE listed firms in Kenya is sufficiently measured by univariate models. The univariate models were all significant ($p\text{-value}=0.000$), meaning that all the variables contributed significantly to the success of ERM namely; firms' characteristics, information technology, staff capacity and regulatory framework. Attention should also be given to information technology on ERM and regulatory framework. The findings also showed that staff capacity and information technology complement each other because information technology requires staff capacity to be effective. Similarly, effective implementation of regulatory framework requires adequate resources (firms' characteristics).

4.5 Summary of Research Findings

This chapter presented detailed results of the data, results of the analyses, discussions and interpretation of the findings. A recap of the main objective and the specific objectives of the study were presented. Preliminary study results discussed, response rate, reliability, correlation and regression analysis were included. Descriptive

statistics of the study were analyzed, corroborated with the literature reviewed and the appropriate inferences drawn. Most of the ideas and theories reviewed were confirmed by the findings of this study. In some cases, the theories and ideas reviewed were contradicted. Regression and correlation analysis, as well as analysis of variance and other statistics and test were performed to enhance data interpretation and discussions. Regression models to predict the independent variable were also presented in the chapter.

In conclusion, this research endeavored to establish, and indeed established that ERM determinants (firms' characteristics and information technology, staff capacity and regulatory framework) had a significant effect on financial performance of the NSE listed firms in Kenya. The results showed that firms that had invested on improvement of ERM determinants had improved financial performance. However, investment on the ERM determinants (information technology, firms' characteristics and regulatory framework) should be implemented with care. This implies that the success of any strategy takes into consideration the staff capacity. Chapter five presents a general summary of the findings on each research objective, provides drawn conclusions and the recommendations made on policy and on proposed areas for further research.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The main objective of this study was to investigate effect of ERM determinants on financial performance of the NSE listed firms in Kenya. From the broad objective, the study sought to find out if firms' characteristics, information technology, staff capacity and regulatory framework had correlation with financial performance. This chapter presents the major summary of the findings, conclusions and recommendations of the study for action and future research directions in Kenya.

5.2 Summary of the Findings

The study was conducted based on the premise that there is no correlation between ERM determinants and financial performance of the NSE listed firms in Kenya. This study reviewed both theoretical and empirical literature of enterprise risk management. From the review of the related literature, a conceptual framework of argument of the correlation between ERM determinants and financial performance was formulated.

The hypothesized relationship was tested empirically guided by the following objectives to; evaluate the effect of firms' characteristics on financial performance of NSE listed firms in Kenya, determine the effect of information technology on financial performance of NSE listed firms in Kenya, examine the effect of staff capacity on financial performance of NSE listed firms in Kenya and establish the effect of regulatory framework on financial performance of NSE listed firms in Kenya.

The hypothesized correlation between the ERM determinants (firms' characteristics, information technology, staff capacity and regulatory framework) and financial performance was presented in a conceptual framework that guided this study. Using

the conceptual framework and the objectives of the study, a questionnaire and survey sheet were presented and both were tested for construct validity and internal consistency reliability. Internal consistency was tested by Cronbach's coefficient and this was done for all variables for the pilot and the final study. Validity of data was tested by exploratory factor analysis and was supplemented by other tests such as; autocollinearity, multicollinearity, test of normality, outliers and test of sample adequacy.

The test on validity showed that the sample adequacy was higher than the threshold of 50 % in case for all the ERM determinants. The study variables were also tested for multicollinearity using variables inflation factor (VIF) and absence of serial correlation using autocorrelation (Durbin – Watson's d statistics) analysis. Normality test was conducted using Kolmogorov-Smirnov and Shapiro-Wilk statistics. Owing their empirical advantage and for better graphical view, normality test was also extracted to support the parametric tests of normality.

This study is a shift from other studies in finance and specifically on ERM. Most of the studies have tended to concentrate on factors that contribute to adoption of ERM. This one is a departure in the sense that an attempt was made to look at the contribution of ERM determinants on financial performance of the NSE firms which are key variables to investors. Apart from using different approaches to collect and analyzed data, information was collected from a wide population through questionnaires, secondary data submitted to Nairobi Security Exchange, analysis reports by Capital Market Authority of Kenya and Strategic plans for each firm. The efficiency approach in this study was attained by use of analysis on the cash flow implications such as income based analysis (share price, net profit, growth in net asset, and growth in shareholders' earnings). This was to prove that the implication of investing on ERM is achieved in terms of financial benefits to the firms.

The contribution of this study is expected to fill in on the existing knowledge gaps on risk management and finance. An attempt was made to identifying ways that can be used to improve risk management by focusing on the critical factors with financial implication to the firms. The NSE firms should pay much attention to use of resources (staff capacity, information technology, firms' characteristics and regulatory framework) to leverage on financial performance.

Similarly, in relation to the Kenya Vision 2030, the findings in this study supported the critical issues (risk management, staff capacity, information technology, regulatory framework and financial performance) identified in the vision as drivers of making Kenya a middle level economic by 2030. To meet the demand for skilled labour training is identified in the vision as priority. The success of local firms to compete globally needs good credit rating which is an aspect of risk management.

Information technology is critical tool for expanding human skills, distribution and utilization of knowledge that is required in driving productivity and economic prosperity. The vision also emphasized on the importance of regulatory framework in having cohesive society that respects the rule of law. Regulations also play a key role on leadership and governance, integrity and accountability.

The critical theories used in the study include; agency theory, learning theories, Basic COBIT Principles, capital structure, pecking order and institutional theories. The findings from the study suggest ways that can be used by firms to manage risks and other conflicts and problems that can affect a firm. The model developed through linear multiple regression assist in prioritizing scarce resources for efficiency. Such theories linked to prioritization include; pecking order and leverage theories. In terms of organizational theories issues on ownership roles and legal issues and technologies challenges are addressed.

5.2.1 Effect of Firms' Characteristics on Financial Performance

The correlation analysis showed that there was a positive and significant linear relationship between firms' characteristics and financial performance. This relationship was illustrated by correlation coefficient of 0.519 at 0.01 significant levels. The R-squared was 27 % of the variation in financial performance of the NSE listed firms in Kenya. An F statistics of 32.129 indicated that the model was significant. This was supported by a significant ($0.000 < 0.05$) probability value, meaning that the model applied can significantly predict outcome variable. These findings led to the rejection of null hypothesis and therefore accepting the alternative hypothesis that the firms' characteristics influences financial performance of the NSE listed firms in Kenya.

5.2.2 Effect of Information Technology on Financial Performance

The correlation showed that there was a positive and significant linear correlation between information technology and financial performance. This relationship was illustrated by correlation coefficient of 0.528 at 0.01 significant levels. The R squared was 28 % of the variation in financial performance of the NSE listed firms in Kenya. An F statistics of 33.635 indicated that the model was significant. This was supported by a significant ($0.000 < 0.05$) probability value and therefore indicated that the overall model applied can significantly predict financial performance. The findings implied that information technology influences financial performance of the NSE listed firms in Kenya. These findings led to the rejection of null hypothesis and therefore confirmed the correlation between information technology and financial performance of the NSE listed firms in Kenya.

5.2.3 Effect of Staff Capacity on Financial Performance

The correlation analysis showed that there was a positive and significant correlation between staff capacity and financial performance. This relationship was illustrated by correlation coefficient of 0.619 at 0.01 significant levels ($p\text{-values} = 0.000$). The R

squared was 38.3 % of the variation in financial performance is attributed to staff capacity of the NSE listed firms in Kenya. An F statistics of 53.915 with a significant (p-value 0.000) indicated that the overall model applied can significantly predict financial performance. The findings implied that staff capacity influences financial performance of the NSE listed firms in Kenya. The significant of the F-statistics led to the rejection of null hypothesis confirming correlation between staff capacity and financial performance of the NSE listed firms in Kenya.

5.2.4 Effect of Regulatory Framework on Financial Performance

The correlation analysis showed that there was a positive and significant linear relationship between regulatory framework and financial performance. This relationship was illustrated by correlation coefficient of 0.537 at 0.01 significant levels. The variation on financial performance attributed to regulatory framework (R squared) was 28 % of the NSE listed firms in Kenya. The F-statistics of 35.230 was significant (p-value=0.000 < 0.05) indicated that the overall model applied significantly predict financial performance. The findings implied that regulatory framework influences financial performance of the NSE listed firms in Kenya. The significance of regulatory framework led to the rejection of null hypothesis confirming the correlation between regulatory framework and financial performance of the NSE listed firms in Kenya.

5.2.5 Effect of Combined ERM Determinants on Financial Performance

The study found out that there was a strong combined effect of the ERM determinants (firms' characteristics, information technology, staff characteristics and regulatory framework) on financial performance of the NSE listed firms in Kenya. The effect was found to be statistically significant. The findings indicated that not all independent variables in the prediction model such as; firms' characteristics, information technology and regulatory framework contributed significantly to financial performance. In addition, information technology had a negative

contribution on financial performance and the contribution was also insignificant (p-value > 0.05).

5.3 Conclusion

Based on the empirical evidence adduced from this study, a number of logical conclusions can be made.

5.3.1 Effect of Firms' Characteristics on Financial Performance

The positive and significant correlation between firms' characteristics and financial performance suggests that chief risk officers and anybody in-charge of risk management can leverage their financial performance by ensuring board of directors, top management, shareholders and adequate resources are deployed to enhance risk management systems. The diversity of the board in terms of composition, development of policies on ERM and effective coordination of firms' activities go a long way in building risk management capabilities. thus it is therefore confirmed that there exist a positive correlation between firms' characteristics and financial performance of the NSE listed firms in Kenya. This suggests that improvement on firms' characteristics statistically have a positive effect on financial performance of the NSE listed firms in Kenya.

5.3.2 Effect of Information Technology on Financial Performance

Information technology contributed to the NSE listed firms' financial performance in the following ways; improving quality of service delivery, enhances operation efficiency and improves risk mitigation systems. Similarly, information technology can assist in documenting risk management standards, assessing security systems, assessing recovery mechanism system, putting corrective mechanism, reporting 'risks hot spots', monitoring potential risks threatening the firms and putting in place broad-based risk management structures. However, firms which are investing on information for risk management should ensure that staff managing information

technology was well trained and security systems put in place to monitor potential risks were effective.

5.3.3 Effective of Staff Capacity on Financial Performance

The findings from the study showed that staff capacity was very important in influencing financial performance. The training methods used for new staff recruited were indicated as induction and job training, refresher courses, mentorship programs and use of training manuals and guides. The most suitable methods for training staff on ERM was found to be job training, taking staff for a seminar, use of risk models, industry forums and performing regular risk drills. Effective methods to use in assessing staff capacity include; annual staff appraisal on risk management, risk compliance tests, risk awareness tests and ability to mentor other staff on ERM. However, the results from the study showed that training was inadequate in most firms, it was indicated that training was done once in a year.

5.3.4 Effective of Regulatory Framework on Financial Performance

The results of the study were that majority of the NSE listed firms did not have existing policies and regulations on ERM, the few ones that had developed ERM policies and guidelines used them to identify risk facing the firms, assess risks, control risks, review risk management and monitor risks. The success in development of risk management policies indicated that shareholders, credit rating agencies, capital market authority and industry associations influenced their development. The firms that had not developed ERM policies were using corporate governance policies to implement ERM. The disclosure policies in existence were developed by regulatory bodies such as Central Bank of Kenya for commercial and financial institutions, Insurance Regulatory Authority for firms in the insurance industry while other firms were either adopting best practice models from other firms or using regulations developed by Capital Market Authority and NSE.

In addition, it was also found that extractive firms, manufacturing or those dealing with hazardous products had various pieces of legislations on risk management mostly geared towards consumer and employee protection. The legislation on employees' protection include protection against accidents caused by machines, chemicals and exposure to health hazards while the legislation on customer protection covers such areas as exploitation on quality, price, harmful products, poisonous, ingredients and effects on consumption of the products.

5.4 Recommendations

There are two types of recommendations provided in this study, namely recommendations on policy development for action and recommendations on areas of further research.

5.4.1 Policy Recommendations

The following recommendations have policy implications in Kenya. Currently some firms in Kenya had not implemented enterprise risk management and yet the results from the study showed that there was a positive correlation between ERM and financial performance. There was no clear policy on how firms were supposed to report ERM in their financial books, no clear method on how firms were to measure contribution of firms' characteristics, information technology, staff capacity and regulatory framework. The management therefore should ensure that relevant policies on ERM were developed. Firms should set out part of their resources for effective implementation of ERM, ensure all staff was adequately trained on ERM and relevant regulations and policies on ERM were developed and implemented.

5.4.1 Firms' Characteristics and Financial Performance

The shareholders, board of directors and top management should ensure ERM policies were developed and reviewed from time to time. The management, the board of directors and shareholder should work together since the results showed that the success of ERM improves financial performance. This will also reduce the agency

conflict between the principal (shareholders) and the agents (management) thus reducing cost involved in resolving conflicts. The findings of the study showed that minority shareholders and institutional ownership influences effectiveness of ERM.

5.4.2 Information Technology and Financial Performance

Information technology plays a critical role in enhancing enterprise risk management and each firm should develop a policy to guide its operation. The results from the study shows that use of information technology enhances provision of reliable information, improves quality of service, efficiency, consistency and compliance to standards. Information technology was also used in risk identification, assessment and linking business units with business strategy. With an effective ERM system investors are able to assess viability of a firm through information technology system before making decision on investment.

5.4.3 Staff Capacity and Financial Performance

The success of ERM depends on staff which is part of firm's resources. Effective training program leads to attainment of skills required on ERM and also enables staff to coordinate other ERM determinants (information technology, firms' characteristics and regulatory framework). The NSE firms therefore should develop on staff capacity by ensuring regular training is in place. It is also important to ensure suitable trainers of ERM are identified, carry out skills gaps identification, increasing training frequency and carry out training programs evaluation. This is necessary because training is expensive, time consuming and technology keeps on changing.

5.4.4 Regulatory Framework and Financial Performance

The results showed that firms did not have elaborate regulations on ERM although the respondents felt that regulations and policies on ERM were important. Firms should ensure that ERM policies and regulations were clearly distinguished from corporate governance. This can be done by developing policies and framework to ensure all stakeholders are involved in risk management. The management should

ensure that all stakeholders such as regulatory agency and industry associations were brought on board in development of risk policies to ensure success.

Apart from adopting COBIT framework, firms should develop their generic systems to implement effective ERM. Institutions that regulate firms should be given additional mandate to oversee effective implementation of ERM system. Such bodies include Capital Market Authority, Nairobi Security Exchange and various associations in key sectors such as manufacturing, professional bodies and other agencies should be at the forefront in working with the firms to develop ERM policies. Credit rating agencies were also found to assist in ensuring success of ERM and therefore their support is paramount.

5.5 Areas for Further Research

The findings show that development of ERM in Kenya was at a formative stage. ERM function was mostly domesticated under finance or audit department. Although most of the firms were in the process of embracing full ERM structure linked to all functional areas, their financial performance was still indifferent from the rest. There is need to study the factors that could be hindering firms from implementing ERM. The study recommends further research to establish the effect of economic performance as a possible determinant of financial performance among the listed firms in Kenya.

Similarly, further study is recommended on effects of such variables as; internal risk factors (company specific), exogenous shocks (turbulences in the labor market, terrorism risk or natural disasters) as determinants of financial performance of NSE listed firms in Kenya.

5.6 Policy Implication

The Government of Kenya through the National Treasury should create a unit to coordinate risk management and ensure that a separate audit is done to avoid situation where firms with public shareholding is liquidated. The unit should be

given powers similar with those of director of Audit and risk auditors should be trained and certified by recognized professional body.

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APPENDICES

APPENDIX I: Letter of Authorization

TO: The Director
 School Human Resource
 Development
 JKUAT CBD
 NAIROBI

FROM: Christopher K. Yegon
 P.O Box 543 - 00600
 NAIROBI.
 TEL. 0723478781

Dear Sir/Madam

RE: REQUEST FOR AUTHORIZATION TO COLLECT DATA TO COLLECT RESEARCH DATA

I am a post graduate student in the Faculty of Business and Economics, Jomo Kenyatta University of Agriculture and Technology pursuing PhD in Business Administration. In order to fulfill the degree requirements, a thesis research must be undertaken by each student. My thesis research topic is 'Effect of Enterprise Risks Management Determinants on Financial Performance of NSE listed firms in Kenya'.

The purpose of this letter is to request for authorization to collect data. The instruments for data collection are questionnaires and survey sheets.

Thank you for your valuable support.

Yours faithfully

Christopher K. Yegon

APPENDIX II: Letter of Introduction

To: The Respondent
From: Christopher K. Yegon
P.O. Box 543 - 00600
NAIROBI.
TEL. 0723478781

Dear Sir/Madam

RE: REQUEST FOR YOUR PARTICIPATION IN MY RESEARCH WORK

I am a post graduate student in the Faculty of Business and Economics, Jomo Kenyatta University of Agriculture and Technology pursuing PhD in Business Administration. In order to fulfill the degree requirements, a thesis research must be undertaken by each student. My thesis research topic is **‘Effect of Enterprise Risks Management determinants on Financial Performance of NSE listed firms in Kenya’**.

You have been chosen to participate in this study and I will highly appreciate if you would kindly spare some of your precious time to complete the attached questionnaire for me. The information is strictly for academic purpose and will be treated in the strictest confidence. Your name and that of the institution will not be mentioned in the report.

Thank you for your valuable cooperation in advance.

Yours faithfully

Christopher K. Yegon

APPENDIX III: Questionnaire

Questionnaire Number -----

I am a postgraduate student at Jomo Kenyatta University of Agriculture and Technology pursuing PhD in Business Administration. My thesis topic is: **Effect of Enterprise Risk Management Determinants on Financial Performance of NSE Listed firms in Kenya**. The study entail collection of data from NSE listed firms in Kenya and analysis of their financial statements. I am appealing for your support in this endaveur by filling in this questionnaire to enable me gather data for the study. The data collected from this research will be used only for academic purpose and confidentiality will be maintained. The document is divided into five parts: A, B, C, D, E and F.

A. GENERAL INFORMATION

1. Identification Particulars

Name of your firm /company -----

-

Address -----

-

Location -----

-

2. Indicate the segment in which your company is listed in

Agricultural []

Automobile and accessories []

Banking []

Commercial and services	[]
Construction and allied	[]
Energy and petroleum	[]
Insurance	[]
Investment	[]
Manufacturing and allied	[]
Telecommunication and technology	[]

3. Indicate whether you are aware of any risks affecting your firm

Level	Aware	Not Aware
Top Management []	[]	[]
Middle Level []	[]	[]
Technical Level []	[]	[]

4. What kind of market does your firm serve?

Regional	[]
National	[]
International	[]
Global	[]

5. a). Are there risks affecting your firm

b). Name the key enterprise risks that affect your firm

6. Indicate the preferred method your firm uses to prevent risks.

7. To what extent is your firm rated in level of ERM implementation.

Where 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

	level of ERM implementation	1	2	3	4	5
A	10 – 40 percent (Building Foundation)					
B	41 – 60 percent (Business level risk management)					
C	61 – 100 percent (Implementation of ERM)					

Key 10 – 40 percent (Building Foundation), 41 – 60percent (Business level risk management), 61 – 100percent (Implementation of ERM)

B FIRM'S CHARACTERISTICS

1. What are the factors that influence effectiveness of risk management in your firm?

2. How do shareholders participate in long term financing decisions in your firm?

3. Do directors of your firm have a role on ERM? Y [] N []

4. If yes, list the role of directors on ERM,

5. To what extent do the following firms' characteristics influence Financial performance of your firm:

Where 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

	Statement	1	2	3	4	5
A	Shareholders					
B	Top management					
C	Middle level management					
D	Operational management					
E	Board of directors					
F	Institutional ownership					
G	Minority shareholders					
H	Individuals with majority shares					
I	Country of origin					
J	Trustees influence					
K	Equity capital					
L	Issue of debentures					
M	Long-term loan from financial institutions					
N	Short-term loan from commercial banks					

C. INFORMATION TECHNOLOGY

1. Do you use information technology to monitor enterprise risks? Yes [] No

[]

2. If yes, how is information technology used to manage enterprise risks?

3. In which way does information technology improves service delivery of your firm?

4. To what extent do the use of information Technology on ERM contribute to financial performance of your firm;

Where 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly

Agree

	Contribution	1	2	3	4	5
A	Make a link with business requirements					
B	Organize IT activities into a acceptable processes model					
C	Identify major IT resources to be used					

D	Define management control objectives					
E	Use technology to identify risks					
F	Provide reliable and consistent risk information					
G	Enhance the capability of technology infrastructure					
H	Support regulatory compliance					
I	Increase stress testing					
J	Enhance risk reporting					
K	Performance metrics put in place to monitor risk activities					
L	Security mechanism in existence					
M	Recovery mechanism					
N	Risk profile mechanism					
O	Documentation standards					
P	Existence of broad-based					
Q	Corrective mechanism					

D. STAFF CAPACITY

1. How often does your organization provide ERM training?

Never

[]

Once a year ☐

Twice a year ☐

More than twice a year ☐

2. Does integrated staff ERM training contribute to financial performance of your firm? Yes ☐ No ☐

3. If yes, outline it contribute to financial performance

4. Does your firm offer ERM training to new employees. Yes ☐ No ☐

5. If yes, outline how training is done;

6. Which methods do your firm use to assess effectiveness of staff on management of risks?

7. To what extent does efficiency of the following contribute to staff capacity on ERM and financial performance of your firm?

Where 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

	Contribution	1	2	3	4	5
A	Board of directors					
B	Heads of departments/ Section heads					
C	Enterprise risk committees					
D	Chief risk officer (CRO)					
E	Finance officers					
F	Auditors					
G	Socialization and Social interaction					
H	Industry forums					
I	Visiting consultants					
J	Formal training program for employees					
K	Risks management models					

	Contribution	1	2	3	4	5
L	Putting potential risks on notice boards					
M	Passing risk information in meetings					
N	Documenting risk profile in brochures					
O	Passing risk information through ICT					
P	Using robotic models					
Q	Job/ performance appraisal					
R	Stress testing					
S	Risk management recall					
T	Ability to train others on risks					
U	Skills on ERM thrilling					

E. REGULATORY FRAMEWORK

1. Do the regulations and guidelines on ERM contribute to financial performance of your firm? Yes [] No []

2. If yes, outline how regulatory framework affects financial performance of your firm;

3. Outline how regulatory framework on ERM reduces risks facing your firm;

4. Are there regulations that require you to disclose the risks affecting your firm?

Y ☐ N ☐

5. If yes, list these regulations

6. To what extent does regulatory framework contribute to the following and financial performance of your firm?

Where 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

	Statement	1	2	3	4	5
A	Allocating Resources					
B	Allocating risk responsibilities					
C	Setting up risk management teams					
D	Reviewing risk management policies					
E	Risk management policy and compliance					
F	Building institutional capacity					
G	Compliance to Government policies					
H	Compliance to industry policies					
I	Compliance to credit rating policies					
J	Assist agency relationship (shareholders/staff)					
K	Compliance to capital market requirements					
L	Compliance to country of origin policies					
M	Compliance to safety policies					
N	Risk identification procedure					
O	Risk assessment procedure					

	Statement	1	2	3	4	5
P	Risk response procedure					
Q	Risk reporting procedure					
R	Monitoring and control of risks					

THANK YOU

APPENDIX IV: Record Survey Sheet

The record survey sheet will be filled in by the researcher himself. All the information required in the matrix shall come from the annual reports of the companies for the period 2007/2008 to 2011/2012.

Sector's

Category

.....

Item	2007/2008 Ks. Mil.	2008/2009 Ks. Mil.	2009/2010 Ks. Mil.	2010/2011 Ks. Mil.	2011/2012 Ks. Mil.
Earnings per share (EPS)					
Price/Earnings (P/E) ratio					
Net Asset Value					
Share Price Per share					
Net profit					

APPENDIX V: Listed Firms in Nairobi Securities Exchange

S/N	Company	Registered Office	Location
Agricultural			
1	Eaagads	Ngenda Road	Ruiru

S/N	Company	Registered Office	Location
2	Kakuzi		
3	Kapchorua Tea	William Hse, 4 th Ngong Road	Nairobi
4	Limuru Tea	Brooke Bond	Kericho
5	Rea Vipingo Plantations		
6	Sasini Ltd	Sasini Hse, Loita Street	Nairobi
7	Williamson Tea Kenya	William Hse, 4 th Ngong Road	Nairobi
Automobile & Accessories			
8	Car & General (K)	New Cargen Office Lusaka Road	Nairobi
9	CMC Holdings		
1	Marshalls (E.A.)	Marshalls Hse, 25 Kampala Rd industrial area	Nairobi
1	Sameer Africa	Sameer Bldg Mombasa Rd	Nairobi
Banking			
1	Barclays Bank	Barclay Plaza, Loita Street	Nairobi
1	CFC Stanic of Kenya Holdings	CFC Bldg, Stanbic Centre Chiromo Rd	Nairobi
1	Diamond Trust Bank	Nation Centre, Kimathi Street	Nairobi
1	Equity Bank	Equity Centre, Upper Hill	Nairobi
1	Housing Finance Co.	Rehani Hse, Kenyatta Av. Koinange Street	Nairobi

S/N	Company	Registered Office	Location
1	Kenya Commercial Bank	Kencom Hse	Nairobi
1	National Bank of Kenya	National Bank Bldg, Harambee Av.	Nairobi
1	NIC Bank	Nic- Bldg, Masaba Rd	Nairobi
2	Standard Chartered	StanbankHse, Moi Av.	Nairobi
2	Co-op Bank of Kenya	Coop Hse	Nairobi
Commercial & Services			
2	Express Kenya	Express Hse, Etcoville, Rd, A-office Enterprise Rd	Nairobi
2	Kenya Airways	Embakasi	Nairobi
2	Nation Media Group	Nation Media Centre	Nairobi
2	ScanGroup	Chancery, 5 th floor, Valley Rd	Nairobi
2	Standard Group	Standard Group Centre, Msa Rd	Nairobi
2	TPS EA (Serena)	Williamson Hse, 4 th , Ngong Av.	Nairobi
Construction & Allied			
2	Athi River Mining	Rhino Hse, Chiromo Rd, Westlands	Nairobi
2	Bamburi Cement	Kenya Retowers, Upper Hill	Nairobi
3	Crown Paints Kenya	Crown-Berger Kenya Hse, Mogadishu Rd.	Nairobi
3	E. A. Cables	Kite Rd	Nairobi

S/N	Company	Registered Office	Location
3	E. A. Portland Cement	Namanga Rd	Athi River
Energy & Petroleum			
3	Kengen	Stima Plaza	Nairobi
3	Kenya Oil Company	ICEA Bldg, Kenyatta Av.	Nairobi
3	Kenya Power & Lighting Co.	Stima Plaza	Nairobi
3	Total Kenya	Regal Plaza, Limuru Rd	Nairobi
Insurance			
3	Jubilee Holdings	Jubilee Ins. Hse, Wabera street	Nairobi
3	Kenya Re Corporation	Reinsurance Plaza, Taifa Rd	Nairobi
3	Pan Africa Insurance	Pan Africa Hse, Kenyatta Av.	Nairobi
Investment			
4	Centum Investment	International Hse, Mama Ngina St.	Nairobi
4	Olympia Capital Holdings	Nanyuki Rd, Industrial Area	Nairobi
Manufacturing & Allied			
4	B.O.C Kenya	Boc-Kenya, Kitui Rd	Nairobi
4	BAT Kenya	Likoni Rd, BAT	Nairobi
4	Carbacid Investments	Comcraft Hse	Nairobi

S/N	Company	Registered Office	Location
4	East African Breweries	Corp. Center, Ruaraka Ngumba Rd	Nairobi
4	Eveready E. A.	Standard Bldg, Wabera Street	Nairobi
4	Mumias Sugar Company	Mumias Sugar Company	Mumias
4	Unga Group	Ngano Hse, Comm. St., Ind. area	Nairobi
Telecommunication			
4	Access Kenya Group	Purshottam Place, Westlands Road, Westlands	Nairobi
5	Safaricom Ltd	Safaricom Hse Westlands	Nairobi

Source: NSE Handbook, 2011

APPENDIX VI: Exploratory Factor Analysis of Firms' characteristics

Statement	Component
Top management influences effectiveness of ERM	.743
Board of directors influences effectiveness of ERM	.715
Operational staff influences effectiveness of ERM	.691
Shareholders influences effectiveness of ERM	.691
Country of origin of firms influences effectiveness of ERM	.643

Long term loan is the main source of financing loan term projects	.524
Institutional Shareholders influences effectiveness of ERM	.516
Majority Shareholders influences effectiveness of ERM	.495
Minority Shareholders influences effectiveness of ERM	.410

APPENDIX VII: Factor Analysis for Information Technology

	Factor loadin
Enhance risk reporting	.812
Risk profile mechanism	.754
Use technology to identify risks	.739
Documentation standards	.731
Identify major IT resources to be used	.722
Increase stress testing	.710
Enhance the capability of technology infrastructure	.672
Security mechanism in existence	.661
Existence of broad-based	.601
Recovery mechanism	.555

Support regulatory compliance	.540
Make a link with business requirements	.522
Corrective mechanism	.518
Organize IT activities into a acceptable processes model	.509
Define management control objectives	.458
Performance metrics put in place to monitor risk activities	.371
Provide for reliable and consistent risk information	.344

APPENDIX VIII: Factor Analysis for Staff Capacity

Statement	Factor Loading
Use of champions	.811
Passing information in meetings	.760
On the job training	.699
Passing information through ICT	.648
Models used review risks management	.640
Socialization and Social interaction	.625

Statement	Factor Loading
Seminars	.605
Use of external consultants	.583
Industry forums	.567
Auditors	.533
Formal training program for employees	.499
Enterprise risk committees	.495
ERM regular thrills	.478
Board of directors	.468
ERM Robotic models	.453
ERM Documentation brochures	.432
Chief risk officer (CRO)	.408
Heads of departments/ Section heads	.384
ERM messages on notice boards	.330
ERM formal class sessions	.291
Frequency of ERM training	.219
Finance officers	.199

Statement	Factor Loading
-----------	----------------

Extraction Method: Principal Component Analysis.

APPENDIX IX: Exploratory Factor Analysis for Regulatory Framework

	Factor Loading
Risk assessment policies	.734
Capital allocation Resource policies	.715
Setting up risk management teams	.703
Credit Rating agencies policies	.653
Risk identification policies	.624
Compliance to Quality Standards	.624
Corporate and social risk responsibilities	.616
Risk Control policies	.572
Risk management review policies	.567
Industry policies	.554
Risk response policies	.506
Capital market regulators policies	.486
	.450

	.430
	.417
Policies on Country of origin	.402
	.400

APPENDIX X: Key Equity Market Performance Indicators for 2006-2013

YEAR	Equity Turnover	Share Volume (Mn)	Avg. Capitalization
2006	94.9	1,454.7	791.6
2007	88.6	1,938.2	851.1
2008	97.5	5,856.5	853.1
2009	38.2	3,169.1	834.2
2010	103.5	6,479.8	1,089.2
2011	78.1	5,684.7	1,035.8
2012	86.8	5,464.2	1,072.9
2013	155.75	7,564.2	1,691.5

Source: Capital Market Authority, 2013

APPENDIX XI: Annual Reports of Listed Companies in Kenya

COMPANY NAME	Years									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
A Bauman	03	04	05	06	07	X	X	X	X	X
Access Kenya	X	X	X	X	07	08	09	10	11	12
Athi River	03	04	05	06	07	08	09	10	11	12
Bamburi cement	X	X	05	06	07	08	09	10	11	12
Barclays bank	03	04	05	06	07	08	09	10	11	12
BAT	03	04	05	06	07	08	09	10	11	12
Boc Gases	03	04	05	06	X	X	09	X	11	12
Car & General	03	04	05	06	07	08	09	10	11	X
Carbacid	03	04	05	06	07	X	09	10	11	12
Centum	03	04	05	06	07	08	09	10	11	12
CFC Stanbic	03	04	05	06	07	08	09	10	11	X
City Trust	03	04	X	06	07	X	X	X	11	12
CMC Holdings	03	04	05	06	07	08	09	10	11	12
Co-op Bank	03	04	05	06	07	08	09	10	11	X

COMPANY NAME	Years									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Crown Berger	03	04	05	06	07	08	09	10	11	X
Diamond Trust	03	04	05	06	07	08	09	10	11	12
Eaagads	X	X	X	x	X	x	x	x	X	12
E A Portland	03	04	05	06	07	08	09	10	11	12
E. A Cables	03	04	05	06	07	08	X	10	11	12
E. A Breweries	03	04	05	06	07	08	09	10	11	12
Equity Bank	X	04	05	06	07	08	09	10	11	12
Eveready	X	X	X	06	07	08	09	10	11	12
Express Kenya	03	04	05	06	07	08	09	10	11	12
Housing Finance	03	04	05	06	07	08	09	x	11	12
Jubilee	03	04	05	06	07	08	09	10	11	12
Kakuzi Limited	03	04	05	06	07	08	09	10	11	12
Kapchorua Tea	03	04	05	06	07	08	09	x	11	X
KCB	03	04	05	06	07	08	09	10	11	12

COMPANY NAME	Years									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Kengen	03	04	X	x	07	08	09	10	11	12
Kenol	03	04	05	06	07	08	09	10	11	12
Kenya Orchards	X	04	X	x	07	x	x	10	X	X
Kenya RE	03	04	05	06	07	08	09	10	11	12
KPLC	03	04	X	06	07	08	09	10	11	12
Kenya Airways	03	04	05	06	07	08	09	10	11	12
Limuru Tea	03	04	05	06	07	08	x	10	11	12
Marshalls	03	04	05	06	07	x	09	10	X	X
Mumias Sugar	03	04	05	06	07	08	09	10	11	12
Nation Media	03	04	05	06	07	08	09	10	11	12
National Bank	03	X	X	06	07	08	09	10	11	12
NIC Bank	03	04	05	06	07	08	09	10	11	12
Olympia Capital	03	04	05	06	07	08	09	x	11	12
Pan Africa	03	04	05	06	07	08	09	10	11	12

COMPANY NAME	Years									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Rea Vipingo	03	04	05	06	07	08	09	10	11	12
Safaricom	X	X	X	x	07	08	09	10	11	12
Sameer Africa	03	04	05	06	07	08	09	10	11	12
Sasini	03	04	05	06	07	08	09	10	11	12
Scan group	X	X	X	06	07	08	09	10	11	X
Standard Group	03	04	X	06	07	08	09	10	11	12
Standard Chartered	03	04	05	06	07	08	09	10	11	12
Total	03	04	05	06	07	08	09	10	11	12
TPS Serena	03	04	05	06	07	08	09	10	11	12
Unga Group	03	04	05	06	07	08	x	10	11	12
Uchumi	x	04	05	x	x	x	x	10	11	12
Uniliver	03	04	05	06	07	x	x	x	X	12
Williamson Tea	03	04	05	06	x	08	09	x	11	12

Source: Capital Markets Authority, 2014

APPENDIX XII: Operation Definition of Terms

S/N	Variable	Definition	Value
1.	Firm's Characteristics	Capital structure	Ordinal scale ranking; Share capital and debt capital
		Ownership structure	Ordinal scale ranking; institutional ownership, country of origin, ordinary shareholders, trustees
		Stakeholders	Ordinal scale ranking; Shareholders, top management, middle level management, board of directors
2.	Information Technology	use of IT in ERM	2= use of IT in ERM, 1= otherwise
		Use of technology	Business requirements, processing, identification of risk, control, infrastructure capacity
		Type of technology	Performance and evaluation
3.	Staff Capacity	Frequency of training	Ordinal scale ranking; None, Once, more than once
		Training assessment	Trainees, trainers, training program, skills,
		Training methodology	Delivery, job performance, stress testing, social interaction, industry involvement, brochures ICT
4.	Regulatory Framework	Documented Regulations	ERM Ordinal scale ranking; 2= Documented ERM regulations, 1= otherwise

S/N	Variable	Definition	Value
		Contribution of risk policy	Resource allocation, risk responsibilities, risk management teams, compliance to policies
		Regulatory Agencies	Government, industry, credit rating agencies, Capital market regulators, country of origin
5.	Financial Performance	Average earnings per share reflected in share price and Net asset value	Ratio values on share price, earnings per share, dividend per share, net profit, price earnings ratio, net asset value