

**THE RELATIONSHIP BETWEEN RISK AND CAPITAL: EVIDENCE
FROM KENYA NON-LIFE INSURANCE COMPANIES.**

**PRESENTED BY
ANTONY M. WAHOME
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**SUPERVISOR
MR. JAMES KARANJA**

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DECLARATION

The research project is my original work and has not been submitted for any award in the any other University for examination/academic Purposes.

Signed: **Date:**

ANTONY MWAI WAHOME

REG NO: D61/67696/2013

This project has been submitted for examination with my approval as university supervisor

Signed: **Date:**

Mr. JAMES KARANJA

LECTURER, SCHOOL OF BUSINESS

UNIVERSITY OF NAIROBI

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DEDICATION

This research project is dedicated to God for granting me life and good health and resources all through my course work and while undertaking this project.

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LIST OF ABBREVIATIONS

AKI	Association of Kenya insurers
ANOVA	Analysis of Variance
BOD	Board of Directors
ECDR	European Commission on Delegated Regulation
EU	European Union
IFRS	International Financial Reporting Standards
IRA	Insurance Regulatory Authority
IRM	Institute of Risk Management
RBC	Risk Based Capital
RBS	Risk based supervision
ROE	Return on Equity
SACCO	Savings and Credit Co-operative Society
SFP	Statement of Financial Position
SME	Small and Medium Enterprises

ABSTRACT

Risk management is a process of identifying loss exposures faced by an organization and selecting the most appropriate techniques for treating such exposures (Rejda, 2003). Insurance companies apply various techniques to manage risks. Some of their risks are re-insured by some companies abroad. The financial risk management has gained an important role for financial institutions. Risk management is one of the most important practices to be used especially in insurance companies in order to get higher returns, (Gabriel, 2008). This study endeavored to ascertain the relationship risk and capital of general insurance companies in Kenya. Secondary Data was collected from Insurance Companies financial reports and regulatory returns and multiple regression and correlation analysis were used in the data analysis. From the finding on the adjusted R squared, the study revealed that 68.1% changes in capital employed by general insurance companies in Kenya could be accounted for by changes in insurance risk, market risk, credit risk and operational risk facing the companies. The study established that insurance risk was negatively affecting the capital of general insurance companies in Kenya. The study also found that credit risk negatively affected the capital of general insurance companies in Kenya. The study concluded that operational risk negatively affects the capital of general insurance companies in Kenya. Market risk of general insurance companies in Kenya was found to positively influence capital. From the finding the study recommends that there is need for insurance companies in Kenya to manage the insurance risk. The study also recommends that there is need for the management of insurance companies in Kenya to management credit and operational risk. The study also recommends that there is need for general insurance companies in Kenya to increase their investments portfolio in the market.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Insurance business provides coverage, in the form of compensation resulting from loss, damages, injury, treatment or hardship in exchange for premium payments. The company calculates the risk of occurrence, and then determines the cost to pay for the loss and the expected profit to determine the premium amount. Premium is the consideration for passing risk to an insurance company. Insurance companies collect money from the public with a promise to honor claims lodged by the insured. The state, through regulation, has a role to ensure promises made to insured public are met. One way of achieving this is by requiring prudent management of the insurance companies.

Insurance business can be divided in two; long term business (life business) and short term business (non-life/general business). An insurance company licensed to carry on both business divisions is referred to as a composite insurer. Pure life companies only underwrite long-term business whereas pure general companies only underwrite short term business. Composite companies should account for the business divisions separately as if they were two different companies.

Insurance companies are regulated entities. The regulator sets minimum operation standards for these companies. One of these standards has been minimum capital requirement. Recent developments in capital requirement tend to link minimum capital to risks an insurance company carries. This is a leave from traditional fixed minimum capital. European Commission on Delegated Regulation (2014) has developed a new risk based regulatory framework known as Solvency II. The framework requires quantifying specific risks. These risks then will determine the minimum capital. This establishes the relationship between risk and capital of an insurance company. Insurance Regulatory Authority (IRA) has adopted Solvency II requirement for Kenya insurance companies.

An insurance company publishes periodically a set of financial statements. These statements include the statement of financial position (SFP), statement of financial performance, cash flow statement and statement of changes in equity. Of these statements, SFP summarizes all the other financial statements, (Jones, Hilber & Slack, 2004).

Jones, Hilber & Slack, (2004) noted that SFP reveals unique risks facing insurance companies. On the liability side, SFP reveals underwriting risks, catastrophe risk, and risk on technical claims provisions. On the asset side, risks visible include market risk, credit risk, liquidity risk and operational risk.

1.1.1 Risk

Institute of Risk Management (IRM), (2014) defines risk as; the combination of the probability of an event and its consequence. Consequences can range from positive to negative. All organizations have objectives at strategic, tactical and operational levels. Anything that makes achieving these objectives uncertain is a risk. As our world becomes increasingly volatile and unpredictable, we must cope with greater uncertainty.

Risk management is the systematic process of understanding; evaluating and addressing these risks to maximize the chances of objectives being achieved and ensuring organizations, individuals and communities are sustainable (IRM, 2014). Risk management also exploits the opportunities uncertainty brings, allowing organizations to be aware of new possibilities. Essentially, effective risk management requires an informed understanding of relevant risks, an assessment of their relative priority and a rigorous approach to monitoring and controlling them. According to Obudho (2014), risk taking is core to the insurance company's business, and the risks are an inevitable consequence of being in business.

Risk control seeks to minimize losses by either avoiding or eliminating unacceptable risks, where it is possible to do so. Management of insurance companies may increase claims reserves, diversify investments, or selectively insure only certain classes of insurance or entirely avoiding risky projects.

IRA (February, 2013) guideline on risk management effective June 2013, identified major risks facing the insurance industry and how they should be managed. Risk management guideline places a lot of emphasis on the Board of Directors (BOD) to put in place a risk management

system capable of identifying, assessing, mitigating, and monitoring and reporting foreseeable material risks in a timely manner.

The management (BOD) always endeavors to maximize the value of the firm by undertaking risky projects with an aim of higher return. Risky decisions in insurance include; low claim reserving, low reinsurance arrangements, underwriting risks with very high sum assured, investing cash in high risk markets or instruments and setting longer credit terms. If the risk appetite is not checked by prudent risk management, the companies' assets and the policyholders' benefits will be at risk. Some of the techniques to manage these risks are employing adequate capital and maintaining adequate liquidity level. BOD sources and employs capital to finance various projects undertaken by firms. The insurance regulators require the BOD of insurance companies to have a risk management system in place to protect policyholders' funds and meet insureds' claims as and when they fall due. Material risks in insurance companies include;

Insurance risk. IRM (November, 2014) defined insurance risk as fluctuations in the timing, frequency and severity of insured events relative to the expectations of the firm at the time of underwriting that risk. This relates more to the types of insurance products the company writes and the valuation of risk covered. Some products have a much lower insurance risk than others. This risk has sub-categories. Technical reserve assessment risk which occurs when there is an incorrect assessment of risks and, therefore, the technical reserves are insufficient to cover the obligations resulting from insurance contracts (Everis, 2009). Insufficient premium risk represents the risk of the premiums collected turning out to be very low to compensate the claims and return profit. Deviation risk which concerns statistical deviations of risks, such as changes in mortality rates, morbidity rates, improvements in life expectancy, crime, increase in prices and salaries, decrease of interest rates among others. Catastrophic risk describes the risk of accumulation of huge losses caused by a single event, for example, earthquake. Growth risk is associated to the technical consequences derived from excessive or uncoordinated growth. One method of mitigating insurance risk is reinsurance arrangements. Insurance risk is computed as the product of net insurance liability and insurance risk charge.

Market risk arises from the level or volatility of market prices of financial instruments. Exposure to market risk is measured by the impact of movements in the level of financial variables such as

stock prices, interest rates, real estate prices, assets prices, and exchange rates. Market risk is calculated as assets value multiplied by market risk charge for the specific asset class.

Credit risk. It occurs when the counterpart of a financial transaction does not fulfill the obligation it has before the insurance company. Insureds do not always pay premium within credit limits. Reinsurance risk is the bankruptcy or insolvency risk of reinsurers or of the bad quality thereof. Credit risk equals to reinsurance recoveries multiplied by credit risk charge (based on Reinsurance Company rating by rating agencies).

Operational risk. Among those risks internal to the organization are the operational risks which result from the day to day running of the organization, (Aum, 2014). Basel Committee (2001) defined operational risk as the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events. It is associated with operating function of an insurance company such as underwriting, claims and investment functions. Operating expenses risk concerns the risk when the amount of operating expenses included in the premium is insufficient to cover them in the future. Inputs to operational risk measurement include premium volumes, gross insurance liabilities and combination of other risk modules (market risk, insurance risk and credit risk).

1.1.2 Capital

Capital has many different definitions, (Sherries, 2007). According to Deelchand and Padgett (2009), the capital of a financial institution comprises mainly retained earnings and funds from issuing stock. It is important to understand that capital is not synonymous with liquidity. A firm can be highly capitalized, that is, can have more assets than liabilities, but may at the same time experience liquidity problems if the assets cannot be sold quickly for cash or any other sources of liquidity to meet other needs. Capital charge is a risk factor of holding a certain asset or liability. This is computed scientifically by actuaries. IRA has adopted different capital charge for different classes of assets or liabilities.

Lelyveld & Iman (2006) defined Risk Based Capital (RBC) as the amount that a transaction or business unit requires in order to support the economic risk it originates as perceived by the

institution itself. Losses that may arise due to uncertainty of project returns are charged against this capital. RBC revolves around the comparison of available capital against required capital. Available capital equals to net assets value less inadmissible assets less assets in excess of concentration limit. Solvency margin will be determined by the difference between required capital and the available capital. For the purpose of this study, we adopted RBC as our dependent variable.

Sherries (2007) explained further that RBC is the additional capital held to provide financial solvency and to manage volatility in business outcomes. RBC will be determined by the cost drivers, revenue drivers, or profit drivers management put in place in order to maximize organization's returns. These drivers have their inherent risks that will factor in capital determination.

Mutenga and Staikouras (2007) noted that Insurance companies like any other organizations require funding, with primary sources being equity and premium on policies issued. The industry regulators intervene in ensuring adequate equity to manage increased risk associated with increase in insurance premium (risk financing). An insurance company should maintain a minimum capital which represent final threshold that trigger supervisory measures in event that it is breached. According to Finance Bill (2015), in Kenya a general insurer capital should be higher of: Kshs. 600 million or RBC determined by IRA, or 20% of net earned premium of the preceding year.

1.1.3 Relationship between Risk and Capital.

IRA has adopted a risk based approach to supervision. In line with risk based methodology, IRA has developed a RBC model, which is aimed at introducing capital requirements that are commensurate to the levels of risk being undertaken, and provide appropriate incentives for good risk management. The RBC model is a factor based model that computes the capital requirement based on four risk segments: insurance, market, credit and operational risk, (IRA, February 2013). Capital will be used as a means to finance risk. Risk financing is determination of how an organization will pay for loss events in the most effective and least costly way possible. Risk

financing involves the identification of risks, determining how to finance the risk, and monitoring the effectiveness of the financing technique that is chosen. Thus capital will be a dependent variable determined by weighted risk of the organizations projects.

1.1.4 The Insurance Industry in Kenya.

There were 49 insurance companies operating in Kenya as at the end of 2014. 25 companies wrote non-life insurance business, 13 wrote life insurance business while 11 were composite (both life and non-life). Insurance penetration rate in year 2014 was estimates at 2.92% (Association of Kenya Insurers, 2015).

It is a worrying fact to note that eight insurance firms have either collapsed or have been placed under statutory management in the last 20 years. These are; Kenya National Assurance Company, United Insurance Company, Lake Star Assurance Company, Standard Assurance, Access Insurance Company, Stallion Insurance, Invesco Assurance and Blue Shield Insurance Company (Obudho, 2014). Kenya government responded to this by establishing IRA as an autonomous body to regulate the insurance industry. IRA is responsible for supervising and developing the insurance industry in collaboration with other stakeholders. Kenya's insurance industry leads within the East Africa Community and is a key player in the COMESA region. Kenya insurance companies wrote a total of Kshs. 157.21 billion in 2014 (AKI, 2014). The average growth in written premium from year 2009 to 2013 has been 21% and according to IRA this growth will accelerate in the coming years.

1.2 Research problem.

Risk is part of life. Avoiding all risk would result in no achievement, no progress and no reward (IRM, 2014). Finance discipline is tasked to manage risks and returns, that is, minimizing risks for every return and maximizing returns for every risk. Insurance industry is part of financial sector. Other players in financial sector are banks, investment funds, and real estate.

European Commission on Delegated Regulation (ECCR) 2014 after eight years of research (between 2005 and 2013) adopted a new regulatory framework for insurance companies in its jurisdiction. This framework is known as Solvency II, which is an upgrade from Solvency I. The effective date to fully adopt solvency II framework is 1st January 2016. Solvency II requires insurance companies to adopt risk based capital, as a method of mitigating risks. This framework has been adopted by other regulators outside European Union.

IRA has adopted solvency II method of supervision, that is, RBS. The Kenya government in conjunction with IRA has drafted a bill, Insurance Bill 2014 ready to be tabled in parliament which has incorporated the requirements of solvency II. Finance Bill (2015) proposes new capital requirements for insurance companies. The insurance companies will be required to maintain capital equivalent to higher of shareholders' funds and the RBC. This is to align Kenya to other international practices. Little research has been done to establish whether Kenya companies are ready for this shift.

Following the financial crisis of the 2007-2009, stringent regulatory measures, such as higher capital requirements have become more prominent as a move towards having stable and more competitive banking sector (Financial Service Authority, 2009). According to Kenya Bankers Association (2013), banks in Kenya adopted Basel II requirement in the year 2012 as a Central Bank of Kenya regulation requirement. Insurance industry as part of financial sector that is prone to risks that resorted to financial crisis, the government has a role to ensure stability. With this in mind, RBC and RBS outlined in Insurance Bill (2014) and Finance Bill (2015) are more likely to be legalized in the near future. So are the insurance companies in Kenya ready to adopt this? This could be answered by establishing whether insurance companies' managers considered risk when determining capital to finance operations.

Obudho (2014) did an empirical research to determine relationship between financial risk and financial performance of insurance companies in Kenya. Ndeda (2014) conducted a study to analyze underwriting risk management strategies on motor vehicle insurance at Kenyan Alliance Company Limited. Many studies have been conducted on risk management in banking industries

in Kenya but the same has not been replicated in insurance industry. This necessitates the study to determine the relationship between risk and capital held by insurance companies in Kenya.

1.3 Objective of the study

The objective of this study is to determine whether there exist a relationship between risk and capital held by general insurance companies in Kenya.

1.4 Value of the study

The study will provide useful information to insurance industry regulator. IRA has solicited for a consultant services to undertake a review of the Risk Based Capital Model it has developed and advice appropriately considering the best practices. Therefore this study will add to the knowledge they seek. Other policy makers such as The Treasury and Parliament will also benefit.

The findings will benefit management of insurance companies by informing them on the current industry position on Risk and capital employed. This will enable directors and shareholders to strategic plan of future capital requirements. Guideline on risk management issued by IRA makes it mandatory for insurance companies to have a risk management function. The staff of this function will benefit from this study.

The study is expected to add to add to existing academic research on risks and capital relationship in insurance companies in Kenya. Just like the in European Union where development of Solvency II has been supported by extensive research, it is hoped that the findings will provide grounds for continuous research in learning institutions. The study will be useful to potential investors eying insurance industry. They will be able to approximate the minimum capital requirements based on level of risk they intend to take.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

Insurance works by pooling risk. A large group of people who want to insure against a particular loss pay their premiums into what we will call the insurance pool. Because the number of insured individuals is so large, insurance companies can use statistical analysis to project what their actual losses will be within the given class. Not all insured individuals will suffer losses at the same time or at all. This allows the insurance companies to operate profitably and at the same time pay for claims that may arise.

Capital is one method of risk management in insurance companies. In order to provide evidence of safety, firms have to maintain a minimum amount of capital as a buffer against potential losses from their business activities, or potential market losses. The literature distinguishes Economic Capital from regulatory capital. Economic capital is based on calculations that are specific to the company's risk, while regulatory formulas are based on industry averages that may or may not be suitable to any particular company, (Fedor, 2007). Moreover, Economic Capital can be used for internal corporate risk management goals as well as for regulatory purposes. This chapter reviews literature relating to risks associated with insurance companies and the capital employed therein.

2.2 Theoretical review

Sarkis, (1998) noted that the concept of risk management theory involves studying the various ways by which businesses and individuals raise money, as well as how money is allocated to demanding projects while considering the risk factors associated with them.

2.2.1 Collective risk theory (ruin theory)

Lundberg (1934) argued collective risk theory. This theory tried to expound insurance risk. Collective risk theory is concerned with random fluctuations of the total assets and the risk reserve of an insurance company. The author was interested to find the probability that the reserves of an insurance company will be adequate to pay claims as they are lodged. The

company has an initial capital and policyholders pay a gross risk premium at fixed periods. Claims are made against the company for random amounts at random times. The model describes an insurance company who experiences two opposing cash flows: incoming cash premiums and outgoing claims. Premiums arrive a constant rate from customers and claims arrive according to a Poisson process (number of claims at given interval) which is independent. Due to this mismatch between time and amount of both claims and premium, optimal reserving is necessary. The theory concludes that basic-probabilities are constant and that the deviations occurring may be interpreted as random fluctuations. Thus, the theory of risk appears as an application of the ordinary probability-theory, which starts from the binomial distribution and leads to the distributions of Poisson.

2.2.2 Stakeholders Theory

The theory was first developed by Freeman (1984) as a managerial instrument. It since evolved into a theory of the firm with high explanatory potential. Freeman (1984) describes the term stakeholder as any group or individual who can affect or is affected by the achievements of the organization's objectives. Stakeholder theory focuses explicitly on equilibrium of stakeholder interests as the main determinant of corporate policy. The most promising contribution to risk management is the extension of implicit contracts theory from employment to other contracts, including sales and financing (Cornell and Shapiro, 1987). In certain industries, particularly high-tech and services, consumer trust in the company being able to continue offering its services in the future can substantially contribute to company value. However, the value of these implicit claims is highly sensitive to expected costs of financial distress and bankruptcy.

Insurance company's operational risk is substantially dependent on stakeholders' integrity and ethics. This is because Stakeholder theory is an organizational management and ethic theory, which highlights values and morality as the basic characteristics of organizational management (Phillips *et al.*, 2003). Shareholders, directors, top management and functional heads must be vetted by IRA before they are confirmed by the insurance companies.

2.2.3 Theory of Optimal Capital Structure

Perroti and Laeven (2010) advanced that key element of insurance capital analysis will be the trade-off between the costs of holding and raising solvency capital on the one hand, and the willingness to pay for insurance provided by a financially healthy insurance institution on the other. In imperfect capital markets with taxes and agency concerns, holding surplus capital on the balance sheet is costly for the shareholders of an insurance company. As a result the shareholders experience natural incentives to limit the amount of surplus capital on the balance sheet. On the other hand, insurance regulator will demand a regulatory capital that results to adequate solvency margins for insurance companies. At the same time, there is considerable empirical evidence that consumer demand for insurance is sensitive to the financial position of the insurer. Grace et al. (2003) noted changes in demand due to changes in the financial standing of the insurer may appear both as a change in the premium an insurer can charge and as a change in the quantity that the insurer can sell. This provides incentives for insurance companies to maintain a sufficiently high level of surplus capital on their balance sheets. The theory concludes that risk-averse policyholders are, in principle, willing to pay higher premiums to more solvent insurance companies, which trades off the high costs associated with holding surplus capital, and that this willingness increases with the degree of policyholder risk aversion

2.3 Determinant of capital in insurance companies

2.3.1 Law and regulation

Laws and regulations are set by the governments or regulatory authorities. The Kenya Insurance Act (2013) requires life insurance Companies to hold a minimum paid up capital of Kshs. 150 million and Kshs.300 million for a non-life company. Coming in to effect the provisions of solvency II in EU jurisdiction, insurance companies will be required to hold a capital equal to or higher than the RBC. Mutega and Staikouras (2007) noted that in United Kingdom, financial services Authority enforces principles to protect policyholders, one of the principles being ensuring insurance employ adequate capital for the business they underwrite.

2.3.2 Performance of the company

Getahun (2014) noted that a well performing company with ability to accumulate retained earnings is likely to maintain adequate capital. The pecking order theory (Myers and Majluf, 1984) claims that internal funds are used first and only when all internal finances have been depleted, firms will optimum for debt. When it is not sensible to issue any more debt, they will eventually turn to equity as a last financing resource. Minton and Wruck (2001) examined domestic financial conservative firms and their capital structure over the period of 1974 to 1998 and they concluded that firms with ability to accumulate retained earning capital were able to acquire cheap debts when financing projects.

2.3.3 Risk

Adequate capital is required for risk financing. Mutega and Staikouras (2007) did an empirical study on catastrophe risk financing in insurance companies in U.K and found that the higher the catastrophe risk the insurance companies were faced with, the higher level of paid up capital they maintained. This was found to be in agreement with E.U commission solvency II preposition.

2.3.4 Viable projects available

The cost of holding risk is a crucial concept for any corporation to understand. Most financial policy decisions, whether they concern capital structure, dividends, capital allocation, capital budgeting, or investment and hedging policies, revolve around the corporate costs of holding risk, (Froot, 1993). The end of process of evaluating viable projects leads to the next question; what will be source of financing? A firm will source optimal capital to finance project in consideration to risk and goals of the firm.

2.4 Empirical review

A brief history of risk management was given in Georges (2013), which highlighted the emergence of pure risk management as an alternative to market insurance in mid 1950s. 1970s and 1980s saw the development and use of derivative instruments which were further discredited due to their risky and ambiguous nature. He also noted that despite the development of financial

risk models and capital calculation formulas by the financial institutions, financial crises are inevitable. He pre-empted that this could be as a result of lack of implementation of risk management strategies.

A survey conducted by Everis (2009) on the risk management in the insurance industry in Europe and South America drew various conclusions. In Spain, 73% of the companies under consideration had a reserve allocated to risk management, 18% did not have such a reserve and the remaining 9% were not even intending to put up such a reserve. The risks that had been identified include deviation risks, insufficient premium risk, technical reserve risk, reinsurance risk, major losses risk, liquidity risk, general business risk and operational risk among others.

According to Jason Thacker (2011), the European insurance industry adopted the Solvency II risk management model, which was developed from the Basel II and Basel III framework of the Banking Industry. The risk based requirements of the Solvency II model include technical provisions in the balance sheet and minimum capital requirements, among others. Kenya insurance sector is headed in this direction, evidenced by tabling of Finance Bill (2015) in National Assembly.

Omasete (2014) did a study on effect of risk management on the financial performance of insurance companies in Kenya. Data of 44 insurance companies in Kenya was collected. She found risk identification to be the most significant in influencing the financial performance of Kenyan insurance companies. The study further established that adoption of risk management practices had a significant influence on the financial performance of Kenyan insurance companies. This could be interpreted to mean that the firms that had a more comprehensive risk management program were more likely to remain financially stable for long and could be the firms that had been in operation for a long period of time. This finding is consistent with findings of a previous study by Ernst & Young (2012), whose results revealed that companies with more mature risk management practices tend to generate a higher growth in revenue.

Mwangi (2014) did a study to examine the relationship between risk management techniques and financial performance of the top 100 Kenyan SMEs. The population for this study was the top

100 SMEs for year 2013. A descriptive research design was adopted for the study. A sample size of 50 SMEs was selected using Judgmental sampling method. The variables used in the regression model were; financial performance of SMEs measured by return on asset (dependent variable) and risk management constructs, which included risk avoidance, risk acceptance, risk transfer, risk diversification and loss prevention techniques as the independent variables. The study found out that risk management constructs have a strong positive correlation with financial performance (ROA) of SMEs.

Alrashidi & Baakeel (2012) undertook a study to measure the operational risk management effects on the financial development and growth in the Saudi Arabia SME companies. Online survey was distributed among 15 users from different SME companies in Saudi Arabia. The result showed that operational risk management has Positive effects of the financial development and growth in the Saudi SME companies.

Kinyua (2010) conducted a study on the assessment of risks as a component of corporate strategy in selected life insurance firms in Kenya. The research employed a descriptive survey design. The population of the study consisted of only 23 insurance firms involved in life insurance. The findings of the study indicated that the top three risks faced by insurance firms were competitor risk, regulation and de-regulation risk and industry economics risk respectively. Competitor risk was characterized by companies competing for the restricted market and against worsening economic situation. Given the reality of risks to company strategy, this study recommended that insurance firms further enhance the deployment of strategic planning tools that give the firms an environmental perspective of the strategic planning process.

Muli (2003) conducted an investigative study on the management of property risks in Kenya using a case study of the insurance sector. Questionnaires were distributed to a sample of 18 insurance companies out of a total of 36. Qualitative analysis of the available data was adopted. In summary, the study found that although risk management is consciously present in Kenyan insurance business, there lacked a clear understanding of the discipline in the industry. Where they were available, the involvement of risk managers by insurers was found not comprehensive enough. They were not involved in risk control and evaluation even after they had recommended

appropriate risk control measures. It was found that although insurers have adequate information for any risk management activity, there lacks an efficient means of storage and retrieval of the same. The study recommended computerization and general improvement of their information systems.

2.5 Summary of Literature Review

Ndeda (2014) noted that the impact of risk on capital for insurance companies is a dynamic issue, both locally and internationally. As years go by, the risk management strategies are enhanced. The industry regulators are demanding better protection of policyholders. There are ongoing researches on the best practices in risk management. This study sought to bridge the existing research gap between the developed countries and developing countries like Kenya. From the literature, it is discovered that the desire to improve financial performance should be balanced with the risks associated with the operations of the firm. This then leads to the development of a risk management program to meet the strategies of an organization.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the framework in which data collection and analysis will be carried out. It points out the research design, variables and their measurements, the target population, sampling methods and instruments used in data collection. It also addresses data processing and analysis.

3.2 Research design

Research design refers to the way the study is designed, that is, the method used to carry out a research (Mwangi, 2014). This study adopted a descriptive research design, Kothari, (2004) describes descriptive research as including survey and facts finding enquiries adding that the major purpose of descriptive research is description of affairs as it exists at present. A descriptive research determines and reports the way things are and attempts to describe such things as possible behavior, attitudes, values and characteristics, (Mugenda & Mugenda, 2003). A causal study approach was employed in this research. Casual approach suggests causal linkages between variables by observing existing phenomena and then searching back through available data in order to try to identify plausible causal relationships.

It is concerned with determining cause and effect relationship and to understand which variable is dependent and which is independent. This research design is the most appropriate in explaining if two variables are related and if they vary together with the help of enough information or data for testing cause and effect relationship. It aimed to explore the relationship between risk and capital employed by insurance companies in Kenya, evidences that help address the research objective.

3.3 Target population

The population for the study was 36 non-life insurance companies in Kenya in operation as at 31st December 2014. The study covered 5 years period starting from year 2010 to year 2014. The study period was selected since it is recent and it showed the existing relationship between risk and capital employed by the insurance companies in Kenya. Mugenda and Mugenda, (2003),

explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. The study used secondary data selected from published financials and regulatory returns filings.

3.4 Data collection

Secondary data from Insurance Companies published annual report, AKI and IRA annual reports. Data for 5 years for 2010 to 2014 was collected for this study. This data was used to compute each risk component as per IRA guideline.

Insurance risk = net insurance liabilities * insurance risk capital charge

Market risk = asset value * market risk capital charge for each category of asset

Credit risk = reinsurance recoveries * credit risk capital charge

Operational risk = higher of: (operational risk charge* above risks) and 30% of solvency capital and (net premium growth * capital risk charge) and 30% of basic capital

3.5 Data analysis

Data analysis was done using SPSS Version 20. A multiple regression model was employed. Multiple regression analysis is a statistical method utilized to determine the relationship between one dependent variable and one or more independent variables (Hair et al., 2010). This study employed a multiple linear regression analysis using capital as dependent variables and independent variables comprising of insurance risk, market risk, credit risk and operational risk. .

3.5.1 Analytical model

The following Multiple Regression Equation Model was applied in this study,

$$K = X + Y_1 IR + Y_2 MR + Y_3 CR + Y_4 OR$$

Where:

X: the intercept of the equation. (Minimum capital required)

Y_1, Y_2, Y_3, Y_4 : Coefficients for independent variables.

K: Capital held by insurance company j in year t.

IR: Insurance risk

MR: Market risk

CR: Credit risk

OR: Operational risk.

3.5.2 Test of Significance

Analysis of Variance (ANOVA) was used to test the regression model level of significance at 95% confidence level and 5 % level of significance. F-test and T-test was used to test for any significant difference between risk and capital of general insurance companies Adjusted R squared was used to determine the variation in the dependent variable due to changes in the independent variables.

3.5.3 Correlation Analysis

Correlation analysis is the statistical tool that can be used to determine the level of association of two variables (Levin & Rubin, 1998). This analysis can be seen as the initial step in statistical modeling to determine the relationship between the dependent and independent variables. Prior to carrying out a multiple regression analysis, a correlation matrix will be developed to analyze the relationships between the independent variables as this would assist in developing a prediction multiple models. Correlation analysis helped to detect any chance of multicollinearity. Correlation value of 0 shows that there is no relationship between the dependent and the independent variables. On the other hand, a correlation of ± 1.0 means there is a perfect positive or negative relationship (Hair et al., 2010). The values was interpreted between 0 (no relationship) and 1.0 (perfect relationship).

CHAPTER FOUR

4.0 DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data findings to establish the relationship between risk and capital held by general insurance companies in Kenya. The data were collected from the company's financial reports and regulatory returns filed with IRA. Multiple linear regressions and correlation analysis were used to establish the relationship between risk and capital held by general insurance companies in Kenya. The study covered a period of 5 years from years 2010 to 2014.

4.2 Analysis and Interpretation

4.2.1 Regression Analysis

Table 4.1: Model summary

Model	R	R Square	Adjusted R	Std. Error of estimate
1	.847	.717	.681	.7959

Source: Research Findings

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.681 an indication that there was variation of 68.1% on capital of general insurance companies in Kenya due to changes in insurance risk, market risk, credit risk, and operational risk at 95% confidence interval. This shows that 68.1% changes in capital of general insurance companies in Kenya could be accounted for by changes in insurance risk, market risk, credit risk and operational risk of the company. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.847.

Table 4.2: ANOVA

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	4.988	4	1.247	19.682	0.000
	Residual	1.964	31	0.063		
	Total	6.952	35			

Source: Research Findings

From the ANOVA statics, the study established the regression model had a significance level of 0.000 which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The calculated value was greater than the critical value ($19.682 > 1.684$) an indication that insurance risk, market risk, credit risk and operational risk significantly influence the capital held by general insurance companies in Kenya. The significance value was less than 0.05 indicating that the model was significant.

Table 4.3: Coefficients

model		Unstandardized coefficients		Standardized coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	352,203.35	293,064.02		1.202	0.239
	Market Risk	0.735	0.134	0.804	5.490	0.000
	Insurance Risk	-0.130	-.	-0.150	-0.142	0.888
	Credit Risk	-147.706	219.856	-150.601	-0.672	0.507
	Operational Risk	-0.0360	2.009	-0.331	-0.0179	0.986

Source: Research Findings

The established regression equation was;

$$K = 352,203.35 + 0.735MR - 0.130IR - 147.706CR - 0.036OR$$

From the above regression equation it was revealed that holding market risk, insurance risk, credit risk and operational risk to a constant zero, capital employed by general insurance companies in Kenya would stand at would stand at Shs. 352,203. A unit increase in market risk

would lead to an increase in capital of general insurance companies in Kenya by a factors of 0.735, a unit decrease in insurance risk would lead to decrease in capital of general insurance companies in Kenya by factors of 0.130, a unit decrease in credit risk would lead to decrease in capital of general insurance companies in Kenya by a factor of 147.706, and a unit increase in operational risk would lead to decrease in capital of general insurance companies in Kenya by a factors of 0.036. At 5% level of significance and 95% level of confidence, market risk had a 0.000 level of significance; insurance risk showed a 0.888 level of significance, credit risk had a 0.507 level of significance and operational risk showed 0.986 level of significance hence the most significant factor is market risk. Overall market risk had the greatest effect on capital of general insurance companies, followed by credit risk, insurance risk while operational risk had the least effect to the capital of general insurance companies in Kenya. All the variables were significant ($p < 0.05$).

4.2.2 Correlations Analysis

Table 4.4: Correlations

	capital	Market risk	Insurance risk	Credit risk	Operational risk
capital	1				
Market risk	0.844	1			
Insurance risk	0.631	0.764	1		
Credit risk	0.530	0.685	0.580	1	
Operational risk	0.175	0.209	0.165	0.135	1

Source: Research Findings

The study conducted a Pearson moment correlation, to determine the strength of the relationship between the study variable. From the findings on the correlation analysis between financial performance of insurance companies and various independent variable, the study found that there was positive significant correlation between capital of general insurance companies in Kenya

and operational risk as shown by correlation factor of 0.175, the study also found a positive correlation between capital of general insurance companies and credit risk as shown by correlation coefficient of 0.530, association between capital of insurance companies and insurance risk was found to have positive relationship as shown by correlation coefficient of 0.631, and the study also found that there was a positive correlation between capital of general insurance companies and market risk as shown by correlation coefficient of 0.844.

4.3 Interpretation of the Findings

From the finding on the adjusted R squared, the study revealed that there was a variation of 68.1% on capital held by general insurance companies in Kenya due to changes in insurance risk, market risk, credit risk and operational risk, this clearly shows that 68.1% changes in capital levels of general insurance companies in Kenya could be accounted for by changes in insurance risk, market risk, credit risk and operational risk. From the finding on the correlation analysis the study found that there was positive relationship between capital of general insurance companies in Kenya and insurance risk, credit risk, market risk and operational risk.

From the finding of the ANOVA statistics, the study established insurance risk, market risk, credit risk and operational risk significantly influence the capital held by general insurance companies in Kenya. The established regression equation was;

$$K = 352,203.35 + 0.735MR - 0.130IR - 147.706CR - 0.036OR$$

From the above regression equation it was revealed that holding insurance risk, market risk, credit risk and operational risk to a constant zero, capital of general insurance companies in Kenya would stand at would stand at 352,203.35, a unit decrease in insurance risk, credit risk and operational risk would lead to an increase in capital of general insurance companies. The study also revealed that a unit increase in market risk of the insurance company would lead to increase in capital of insurance companies in Kenya.

The issue of risk and management accounting was also examined in manufacturing and not-for-profit organizations (Collier and Berry, 2002). Despite managerial perceptions of risk, in which each organization faced some sort of risk, there was no explicit regard to risk in the budgeting process or the content of the budget document. Budgeting did not appear to be a tool used in

managing risk (Collier and Berry, 2002). Ali (2006) found that identifying counterparty (credit) default risk is the single most-important purpose served by the credit risk models utilized. Sania (2012) found that the Islamic banks are somewhat reasonably efficient in managing risk where URM, RM and CRM are the most influencing variables in RMPs. Hameeda (2012) , the study found that banks have a clear understanding of risk and risk management, and have efficient risk identification, risk assessment analysis, risk monitoring, credit risk analysis and risk management practices.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collected, the following discussions, conclusion and recommendations were made. The responses were based on the objectives of the study. The researcher had intended to establish the relationship between capital and risk facing general insurance companies in Kenya

5.2 Summary

The objective of the study was to establish the relationship between capital and risk facing general insurance companies in Kenya. Secondary Data was collected from Insurance Companies financial reports and multiple regression and correlation analysis were used in the data analysis. From the finding on the adjusted R squared, the study revealed that there was a variation of 68.1% on capital of general insurance companies in Kenya due to changes in insurance risk, market risk, credit risk and operational risk. This clearly shown that 68.1% changes in capital held by general insurance companies in Kenya could be accounted for by changes in insurance risk, market risk, credit risk, and operational risk. From the finding on the correlation analysis the study found that there was positive relationship between capital of general insurance companies in Kenya and insurance risk, market risk, credit risk and operational risk. From the finding of the ANOVA statics, the study established insurance risk, credit risk, market risk and operational risk significantly influence the financial performance of insurance companies in Kenya. The established regression equation was $K = 352,203 + 0.735R - 0.130IR - 147.706CR - 0.036OR$. From the above regression equation it was revealed that holding insurance risk, market risk, credit risk and operational risk to a constant zero, capital of general insurance companies in Kenya would stand at would stand at 352,203, a unit decrease in capital insurance risk, credit risk and operational risk would lead to decrease in capital held by general insurance companies. The study also revealed that a unit increase in market risk of general insurance company would lead to increase in capital held by general insurance companies in Kenya.

5.3 Conclusion

From the finding the study revealed that a unit increase in market risk lead to increase in capital held by general insurance companies in Kenya, thus the study concludes that market risk positively affects the capital held by general insurance companies in Kenya. The study established that insurance risk was negatively affecting the capital held by general insurance companies in Kenya. The study also found that credit risk significantly affected the capital held by general insurance companies in Kenya, thus the study concludes that credit risk negatively affect the capital held by general insurance companies in Kenya. The study also found that operational risk negatively affected the capital held by general insurance companies in Kenya, thus the study concludes that operational risk negatively affect the capital held by insurance companies in Kenya.

5.4 Policy Recommendations

From the finding the study recommends that there is need for insurance companies in Kenya to manage the insurance risk as it was found that insurance risk negatively affects their financial performance. The study also recommends that there is need for the management of insurance companies in Kenya to management their credit risk and operational risk as it was revealed that an increase in credit risk and operational risk lead to decrease in capital of general insurance companies.

The study also recommends that there is need for insurance companies in Kenya to increase their market risk through increase in the assets base as it was found that an increase in market assets would lead to increase in the capital held.

5.5 Limitations of the Study

This study was limited to the precision of data obtained from companies' financial reports; secondary data was extracted shareholders equity, investments in various assets, receivables from counterparties and underwriting provisions as presented in SFP. The presentation of financial statement over this time differs due to changes in International Financial Reporting Standards (IFRS) and the regulatory requirements thus impairing comparison. A more detailed and precise data would be required to reinstate these statements over time. The study was limited

to establish the relationship between capital and risk facing general insurance companies in Kenya, in attaining its objective the study was limited to 5 years period starting from year 2010 to year 2014. The study was also limited to 36 general insurance companies in Kenya. A longer duration of the study would have captured periods of various economic significances such as market booms and recessions. This may have probably given a longer time focus hence given a broader dimension to the problem.

5.6 Areas for Further Research

The study sought to establish the relationship between risk and capital held by general insurance companies in Kenya, the study recommends a study to be done on the relationship between capital and life insurance companies in Kenya. Due to changes in IFRS and regulatory reporting standards over the years, the study recommends same research to be conducted having standardized all financial statements for all the years.

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APPENDICES

Appendix I: Introductory Letter

From: **ANTONY M. WAHOME**

To: Respondent

Dear Respondent,

RE: QUESTIONNAIRE

I am a student at University of Nairobi pursuing Masters of Business Administration. I am carrying out a study on **THE RELATIONSHIP BETWEEN RISK AND CAPITAL: EVIDENCE FROM KENYA NON-LIFE INSURANCE COMPANIES.**

You are kindly requested you to assist in the collection of secondary data, from your organization so as to enable me accomplish the study. Please, note that all the information given shall be treated purely and used for academic purposes and shall be treated as confidential.

Thank you for taking your time to complete the questionnaire and for your time and cooperation.

Yours sincerely,

ANTONY M. WAHOME

Student UoN Kenya

Appendix II: Data Collection Sheet

Name of insurance company:

	SHAREHOLDERS FUND	CR	IR	MR	OR	TOTAL ASSETS
2010						
2011						
2012						
2013						
2014						

Appendix iii: List Of Non-Life Insurance Companies in Kenya

1. AAR INSURANCE KENYA
2. AFRICAN MERCHANASSURANCE
3. AIG INSURANCE COMPANY
4. APA INSURANCE COMPANY
5. BRITISH AMERICAN INSURANCE
6. CANNON ASSURANCE COMPANY
7. CIC GENERAL INSURANCE COMPANY
8. CORPORATE INSURANCE COMPANY
9. DIRECTLINE ASSURANCE COMPANY
10. FIDELITY SHIELD INSURANCE
11. FIRST ASSURANCE COMPANY
12. GA INSURANCE COMPANY
13. GATEWAY INSURANCE COMPANY
14. GEMINIA INSURANCE COMPANY
15. HERITAGE INSURANCE COMPANY
16. ICEA LION GENERAL INSURANCE
17. INTRA-AFRICA ASSURANCE
18. INVESCO ASSURANCE COMPANY
19. JUBILEE INSURANCE COMPANY
20. KENINDIA ASSURANCE COMPANY
21. KENYA ORIENT INSURANCE
22. MADISON INSURANCE COMPANY
23. MAYFAIR INSURANCE COMPANY
24. MERCANTILE INSURANCE COMPANY
25. OCCIDENTAL INSURANCE COMPANY
26. PACIS INSURANCE COMPANY
27. PHOENIX OF EAST AFRICA
28. REAL INSURANCE COMPANY
29. RESOLUTION HEALTH INSURANCE
30. TAKAFUL INSURANCE OF AFRICA

31. TAUSI ASSURANCE COMPANY
32. THE KENYAN ALLIANCE INSURANCE
33. THE MONARCH INSURANCE
34. TRIDENT INSURANCE COMPANY
35. UAP INSURANCE COMPANY
36. XPLICO INSURANCE COMPANY

Source: Insurance Regulatory Authority 15th May 2015

Appendix iv: Data Analysed

INSURANCE COMPANY	EQUITY	MR CHARGE	IR CHARGE	CR CHARGE	OR CHARGE	TOTAL RISK CHARGE	SURPLUS/ (DEFICIT)
AAR INSURANCE KENYA	345,501	540,184	100,062	-	90,000	730,246	384,745
AFRICAN MERCHAN ASSURANCE	859,734	960,017	132,248	113	90,000	1,182,377	322,643
AIG INSURANCE COMPANY	1,357,702	762,762	149,732	-	170,295	1,082,788	(274,914)
APA INSURANCE COMPANY	3,806,911	2,656,005	678,335	475	171,536	3,506,351	(300,560)
BRITISH AMERICAN INSURANCE	2,282,596	1,404,437	233,854	1,977	90,000	1,730,268	(552,328)
CANNON ASSURANCE COMPANY	1,384,652	1,235,689	134,489	593	233,499	1,604,269	219,617
CIC GENERAL INSURANCE COMPANY	2,775,311	5,446,399	750,959	3,475	90,000	6,290,833	3,515,522
CORPORATE INSURANCE COMPANY	685,905	614,711	34,593	-	90,000	739,304	53,399
DIRECTLINE ASSURANCE COMPANY	672,018	701,180	346,356	313	90,000	1,137,849	465,831
FIDELITY SHIELD INSURANCE	934,093	1,205,609	104,786	42	108,445	1,418,882	484,789
FIRST ASSURANCE COMPANY	1,390,810	1,683,925	259,751	26	127,566	2,071,268	680,458
GA INSURANCE COMPANY	1,625,605	2,404,513	347,593	16	90,000	2,842,122	1,216,517
GATEWAY INSURANCE COMPANY	867,552	1,055,445	109,937	23	90,000	1,255,405	387,853
GEMINIA INSURANCE COMPANY	1,168,468	943,709	140,124	59	100,281	1,184,173	15,705
HERITAGE INSURANCE COMPANY	1,785,450	965,445	192,777	1,026	290,218	1,449,467	(335,983)
ICEA LION GENERAL	2,992,396	3,332,252	409,749	420	90,000	3,832,421	840,025

INSURANCE							
INTRA-AFRICA ASSURANCE	708,897	782,821	73,774	369	90,000	946,964	238,067
INVESCO ASSURANCE COMPANY	343,348	1,468,685	230,476	611	282,866	1,982,638	1,639,290
JUBILEE INSURANCE COMPANY	4,772,243	8,514,712	919,403	2,449	241,363	9,677,927	4,905,684
KENINDIA ASSURANCE COMPANY	1,798,373	3,170,583	215,901	-	90,000	3,476,483	1,678,110
KENYA ORIENT INSURANCE	670,743	877,082	768,394	217	90,000	1,735,693	1,064,950
MADISON INSURANCE COMPANY	681,408	810,549	55,791	247	90,000	956,587	275,179
MAYFAIR INSURANCE COMPANY	910,217	863,571	144,014	-	90,000	1,097,585	187,368
MERCANTILE INSURANCE COMPANY	446,962	128,049	29,679	181	90,000	247,909	(199,053)
OCCIDENTAL INSURANCE COMPANY	739,475	915,190	117,151	164	90,000	1,122,505	383,030
PACIS INSURANCE COMPANY	679,395	1,185,440	73,414	-	90,000	1,348,853	669,458
PHOENIX OF EAST AFRICA	1,800,886	670,855	21,592	7	97,549	790,004	(1,010,882)
REAL INSURANCE COMPANY	714,767	1,789,624	141,218	2,488	90,000	2,023,331	1,308,564
RESOLUTION HEALTH INSURANCE	340,307	433,048	65,059	127	90,000	588,234	247,927
TAKAFUL INSURANCE OF AFRICA	427,279	282,204	36,572	-	90,000	408,776	(18,503)
TAUSI ASSURANCE COMPANY	797,187	386,676	75,733	158	90,000	552,567	(244,620)
THE KENYAN ALLIANCE INSURANCE	1,331,919	1,551,949	148,106	125	90,000	1,790,180	458,261
THE MONARCH INSURANCE	326,879	497,740	37,291	17	142,912	677,960	351,081
TRIDENT							708,162

INSURANCE COMPANY	1,980,472	2,189,542	147,950	221	350,921	2,688,634	
UAP INSURANCE COMPANY	7,248,144	6,159,963	453,883	1,682	90,000	6,705,528	(542,616)
XPLICO INSURANCE COMPANY	768,955	622,105	50,309	-	90,000	762,415	(6,540)