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Effects of fraud risk management practices on net incurred medical claims in Kenyan insurance industry

Timothy Gitau Gathu
Strathmore Business School
Strathmore University

Effects of Fraud Risk Management Practices on Net Incurred Medical Claims in Kenyan Insurance Industry.

012845 Gathu Timothy Gitau

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DECLARATION

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

Gathu Timothy Gitau (012845)

Signed: .....

Date:

Approval
The thesis of Gathu Timothy Gitau was reviewed and approved by:

Prof. David Wang'ombe,
Dean, School of Management and Commerce,
Strathmore University

LIST OF ABBREVIATIONS

IRA - Insurance Regulatory Authority.

IAIS - International Association of Insurance Supervisors

CIMA- Chartered Institute of Management Accountants

CGMA – Chartered Global Management Accountant.

ACFE - Association of Certified Fraud Examiners.

AKI. - Association of Kenyan Insurers.

IFIU- Insurance Fraud Investigations Unit

PSV- Passenger Service Vehicles

NHIF – National Hospital Insurance Fund.

ICT – Information Communication and Technology.

VIF - Variance Inflation Factor.

Shs – Shillings.

ABC- Anti Bribery and Corruption

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ABSTRACT

The purpose of this research was to establish the effects of fraud risk management practices on insurance fraud levels which are manifested in the insurance claims that are fraudulent. The study employed standard framework of fraud risk management which encompasses corporate governance, fraud prevention practices, fraud detection practices and fraud response & monitoring practices. The study focused on collecting primary data on the fraud risk management practices from medical insurance providers. Further, secondary data on net incurred claims ratios, as well industry benchmarks was sought from Insurance Regulatory Authority (IRA). The data collected aided in the determination of possible correlation between independent variables (Corporate governance, fraud preventive practices, fraud detective practices, fraud response & monitoring and market share) and dependent variable net incurred claim ratio through the Pearson correlation test and regression analysis. The study found that most medical insurance providers engage in various proactive and reactive fraud risk management practices which were perceived to have varying levels of effectiveness. Correlation tests indicated that corporate governance, fraud preventive practices, fraud detective practices and fraud response & monitoring practices were significant in predicting the dependent variable of the study, (Net incurred claim ratio). However, the market share was not a significant determinant of the net incurred claim ratio. Corporate governance and fraud detective practices were found to be moderately negatively correlated to net incurred claim ratio. Fraud preventive practices and fraud monitoring practices were found to have a strong negative correlation with net incurred claim ratio. Results of regression analysis revealed that the fraudulent risk management practices significantly predicted the level of net incurred claim ratio. The implication of these findings is that if organizations employ strong fraud risk management practices, they are likely to reduce the level of fraudulent insurance claims. On the other hand, organisations with weaker fraud risk management practices were likely to have a higher level of net incurred claim ratio which factors the fraudulent claims. Organizations can use this inverse relationship to fix strong controls which will impact positively on reducing the level of fraud.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The study focused on fraud risk management in the medical insurance industry. Insurance companies require appropriate practices to help them prevent, deter and detect the occurrence of fraud. The general objective of this research was to establish the effects of fraud risk management practices on insurance fraud levels which are manifested in insurance claims that are fraudulent. Fraudulent medical insurance claims increase the net incurred claims ratio of insurance companies. The importance of the ratio is underscored by insurance industry players. The net incurred claim ratio is a major determinant of the profitability and liquidity of insurance firms. It's among the financial parameters or key performance ratios that determine the going concern of insurance firms. If the fraudulent claims increase, the net incurred claim ratio rises to unsustainable level, eventually leading to the collapse of the insurance firms (Muthama, 2013).

The subject of risk management practices and the level of fraud has attracted research interest but with contrasting findings. There are two major schools of thought in this respect. On the one hand the finding is that risk management practices are either ineffective or misapplied by management leading to increasing cases and cost of fraud (Odhiambo, 2016; Sharma et al., 2017; De Loach, 2016; Aum, 2011; Zhou and Kapoor, 2011). This implies that there is no correlation between fraud risk management practices and fraud levels. On the other hand, the finding is that if more effective fraud risk management practices are put in place, there will be lower the fraud occurrence. Conversely the lesser effective the controls are, the higher the possibility of occurrence of fraud. The findings in this school of thought depict a negative correlation between fraud risk management and levels of fraud (Chepkoech & Rotich, 2015; Njuguna, 2012; Nganga, 2015; Mutua, 2014).

Researchers who found that fraud risk management practices do not impact on the levels of fraud have posed their various lines of reasoning to support their findings. Odhiambo, (2016) found that there was no relationship between fraud risk management practices and insurance fraud levels. His findings indicated that insurance companies are complacent and unwilling to change their anti-fraud strategies despite strong indications that fraud is having a negative impact on their bottom-line. This argument is supported by reluctance by insurers to

investigate and prosecute fraudsters as a deterrent. His research concludes that most companies shy away from investigating and prosecuting suspected fraudulent claims exposing themselves to fraudsters who exploit it to their advantage.

Similarly, Sharma et al., (2017) asserts that among many reasons why fraud risk management practices are not effective include: fraud risk is not priority of the board's corporate governance agenda. This is compounded by inability of many corporate to quantify fraud losses. Unless the board and senior management become aware of this reality, fraud risk will continue to be at the bottom of the board's agenda. This gap offers a good breeding ground for fraud. Further the research found that there was inordinate reliance on internal audit teams to manage fraud risks. The board and senior management have traditionally believed that internal audit teams would provide assurance for fraud risk assessment and detection. The research concluded that most organizations are unsure about what constitutes an effective fraud risk management program. This is occasioned by inability of those in a position of responsibility to identify fraud risks and put the necessary safeguards in place renders any fraud risk management program ineffective, and this is a major weak point in controlling fraud. De Loach, (2016) concurs with the above finding that fraud risk management practices may not be effective because of systematic failure arises when conducting fraud risk assessment activities. The process often fails in identifying the critical enterprise fraud risks efficiently and promptly. Consequently, fraud risk thrives in organizations eventually breeding fraud occurrences which result to losses. In the same school of thought are findings by Zhou and Kapoor, (2011) who asserted that regardless of availability of much fraud prevention, deterrence and detection techniques, fraud is more difficult to detect and eliminate because involved executives learn how to manipulate the results to conceal fraud and are able to cover the audit trails. The researchers conclude that most of these executives are beneficiaries of fraud and thus they will act rationally by concealing the fraud.

In contrast, other researchers in the alternate school of thought assert that there is an inverse relationship between fraud risk management and levels of fraud. According to Chepkoech & Rotich, (2015) there is a negative linear relationship between risk management process and fraud. The findings opine that an effective fraud risk management framework will enable organizations to have controls that first prevent the fraud from occurring, detect as soon as a fraud happens and respond effectively to fraud incidents when they occur. The research concluded that it is critical for an organization to develop fraud response strategies, which would help in minimizing the impact of fraud that occurs and comes to the attention of the

company, authorities and other interested parties. In concurrence with the above findings Odumegwu, (2016) found that fraud risk management practices have significant negative relationship with fraud prevention and detection. This infers that fraud risk management practices are capable of reducing the incidences of fraud in an organization. The study recommends that more emphasis should be shown to encourage entrenchment of an effective fraud control mechanism. Similarly, study by Oguda, (2015) revealed that there was a statistically significant and positive relationship between the adequacy of internal control systems and fraud prevention and detection. His study findings assert that organizations that had strong internal controls registered lower frequencies of fraud, whilst organizations with weak internal controls had high levels of fraud. Researchers also found further findings which indicate an inverse relationship between elements of fraud risk management and levels of fraud. Nganga, (2015) examined the effect of forensic accounting services on fraud prevention in insurance companies. The research found that there was an inverse relationship between fraud reduction and forensic investigative services & litigation services. The companies that have forensic departments or outsource forensic accounting and investigative services are likely to have lower level of frauds since all loopholes are likely to be mapped out and sealed. Other researchers have outlined effective specific practices that can mitigate fraud which spells an inverse relationship between elements of fraud risk management and levels of fraud. Wanjohi, (2014) found that there were very effective strategies to prevent and control fraud. These controls of fraud include: whistle blowing, ICT tools such as passwords and firewalls, strengthening of internal controls and systems, communication, rewards and recognition of employees, performance management, improvement and hiring systems and policies, use of expected and unexpected audits and use of analytical tools among others. Mirinaviciene, (2014) findings are concurrent that there are specific controls are the most effective. She pointed out that the most effective controls include: job rotation, mandatory vacations, training, fraud hotlines, and surprise audits among others. Further, she opines that these controls need not be expensive and should be employed by all businesses.

The diverse findings published on the studies of fraud risk management are borne by several factors including the different political, economic, social, technological and legal/regulatory frameworks which the previous studies were conducted under. This is compounded by the fact that different industries are faced by diverse range of fraud risks. This study therefore sought to add to the body of knowledge by establishing the effects of the fraud risk

management practices on the level of fraudulent medical insurance claims in Kenya. The study employed standard framework of fraud risk management which encompasses corporate governance, prevention, detection and response practices.

1.2 Research Problem

According to IRA, (2016) the insurance industry continues to suffer negative public perception and image arising from insurance fraud cases. This consequently bears reputational risk. Medical insurance fraud is the leading form of insurance fraud. Medical insurance fraud assumes various forms which are eventually manifested in lodgement of falsified medical claims. According to Health Insurance Fraud Survey Report (2013) fraud and abuse are widespread and very costly to Kenya's health-care system. As a result, premium in medical business has been increasing as the medical insurance provider continues to make lesser margins. Statistics from the Insurance Regulatory Authority showed a total of 143 cases of medical insurance fraud were reported in 2016 and out of the Shs.253.6 million lost, only Shs.5.2 million recovered. The statistics also indicated that medical and motor insurance classes are the only classes that recorded net incurred claims exceeding the global benchmark at 75.0% and 75.8% respectively in 2016. This is a gross indicator that these classes of insurance, (medical and motor) continue to suffer hefty losses as a result of fraud. Insurance fraud is dynamic and it involves wide range of stakeholders including insurers, policyholders, insurance beneficiaries, general public and the business community. Losses from fraud can translate into millions of shillings each year in direct and indirect costs (IRA, 2016).

Kenya has over the recent past experienced a number of collapsing general insurance companies whom services include medical insurance. The collapse is triggered by high net incurred claims ratios, which then degenerate to unpaid claims, illiquidity and losses which eventually threaten the going concern of insurance firms by making them insolvent. There is a significant component of fraudulent claims that drives up the net incurred claims in these companies up to insolvency level. The collapsed insurance companies include, Kenya National Assurance Company Limited, Access Insurance Co. Ltd, Stallion Insurance Co. Ltd, Lake Star Insurance Co. Ltd, Liberty Insurance Co. Ltd, United Insurance Co. Ltd and Standard Assurance co ltd (AKI, 2013).

The collapse of insurance company represents a matrix of effects including: shareholders loss of investment , employees loss of jobs & incomes ,suppliers loss of revenues for goods & services , sector’s (insurance & financial) instability and poor economic performance among

others (Njuguna, 2011).Effects of a collapsed insurer to a policyholder include: exposure to risks, loss of premiums ,loss of assets, loss of savings ,litigations, reduced benefits and negative perception to insurance (Muthama, 2013).

The study made various considerations to narrow the research gap on the research area. Previous studies focused on the fraud risk management practices vis-a-vis overall profitability of the insurance firms or operational efficiency (Chepkoech & Rotich, 2015; Njuguna, 2012; Nganga, 2015; Mutua, 2014). The studies did not focus on the impact of fraud risk management practices on key performance ratios in insurance industry like net premium earned and net incurred claims. This research is premised on this research gap on evaluating the relationship between fraud risk management practices and net incurred claim ratio. The inconsistencies highlighted by the previous studies on the topic of fraud risk management practices create a research gap that justifies this study. On the one hand the researchers find that risk management practices are either ineffective or misapplied by management leading to increasing cases and cost of fraud (Odhiambo, 2016; Sharma et al., 2017; De Loach, 2016; Aum, 2011; Zhou and Kapoor, 2011). On the other hand, other researchers find that if more effective fraud risk management practices are put in place, there will be lower the fraud occurrence, (Chepkoech & Rotich, 2015; Njuguna, 2012; Nganga, 2015; Mutua, 2014). There is need to carry out further research to inform the necessity of fraud risk management.

Medical insurance has low penetration in Kenya and its one of the growing sectors that needs adequate research to support modelling and fixing of risk management frameworks that can positively impact in risk management (Muthama, 2013)

The focus of several other research studies in Kenyan context was on other subsectors of insurance industry, including the motor insurance fraud, general insurance, life assurance. However, few studies focused on the medical insurance. The statistics from IRA indicated that the subsector has the highest incurred claim ratio, thus the highest exposure and the researchers should give special focus on medical insurance sub sector.

Most of the studies were also conducted prior to regulation and governance rules set out by Insurance regulatory authority. Insurance Amendment Act of 2014 and the Finance Act of 2014 introduced raft of changes that makes justification of further research to be done on fraud risk management.

Fraud risk management practices have also evolved over time due to changes in technology, insurance demographics, social economic development and legal environment which brings in different risk exposures that justifies new research to factor in the changes that have occurred overtime.

1.3 Research Objectives

1.3.1 General research Objective

To establish the effects of fraud risk management practices on fraud levels in Kenyan medical insurance sector.

1.4.1 Specific Research Objectives

The study seeks to address the following specific objectives:

1. To identify the various forms and frequency of fraudulent practices in Kenyan medical insurance.
2. To identify the fraud risk management practices adopted by medical insurance providers to address fraud related challenges in the industry.
3. To establish the relationship between fraud risk management practices and net incurred medical insurance claims.

1.4.2 Research Questions

The study seeks to answer the following questions:

1. Which are the various forms of fraudulent practices and how frequently do they occur in Kenyan medical insurance?
2. Which fraud risk management techniques are adopted by medical Insurance providers to address fraud related challenges in Kenya?
3. Is there a statistical relationship between fraud risk management practices and levels of fraud in Kenyan medical insurance sector?

1.4.3 Significance of the Study

The findings of this study will be of significance to the following: -

1.4.4 Regulators and Medical Insurance Providers

The regulators and medical insurance providers will be able to institute proper fraud risk management frameworks. They will be able to make determination of the appropriate premiums to surcharge based on the predictability of net incurred claim ratios. The probable net incurred claims ratio shall be more ascertainable through referencing to the findings of this research which will determine the effects of fraud risk management against the net incurred claims ratio. The medical insurance providers shall also utilise the recommendations of this study to improve on internal controls aimed at mitigating and managing risks associated with fraud.

1.4.5 Academic researchers

The study will make contribution to the existing literally work in the field of fraud risk management in the insurance industry. Further, the study will profoundly project the effects of fraud risk management practices on net incurred claims in medical insurance. The findings about the effects will form basis for further research on fraud mitigation in insurance industry.

1.4.6 Scope of the Study

The study focused on 32 medical insurance providers in the country (appendix 1). Medical insurance policy covers assume 3 forms which includes; personal accident, medical policy, workmen injury & benefits and compensation act, (WIBA). The study focused on collecting primary data on the fraud risk management practices from the medical insurance providers. Secondary data on net incurred claims ratios, as well industry benchmarks was collected from Insurance Regulatory Authority (IRA). The data collected aided in the determination of possible correlation of these two variables through Pearson correlation and regression analysis.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The chapter reviewed the theoretical framework for this research, analysed and critiqued previous studies on fraud risk management practices. The chapter was organised thematically in consistence with the objectives. The discussions of literature review focused on theories underpinning the study and empirical review of various fraud risk management practices. The chapter further discussed the measurement of fraud risks, defined the hypotheses to be tested and operationalized the variables. Finally, the chapter depicted the conceptual framework of the study.

2.1 Theoretical framework of understanding Insurance Fraud Risk Management.

2.1.1 Collective Risk Theory

Collective risk theory was first discussed by the Swedish actuary, Fillip Lundberg, and was further developed by Cram et al., According to the theory, the business of insurance is subject to two essentially different types of risk, commercial risks and insurance risks. Common to most business enterprises, commercial risks include such risks as those attendant upon general economic fluctuations and poor investments, but insurance risks are *sui generis* and are related to risk fluctuations as measured by the difference between claim amounts and expected claim amounts. Professor Cram classified these insurance risks into two kinds, external risks such as heavy excess mortality resulting from wars and epidemics, and the risk of random fluctuations not attributable to any definite cause and resulting from a large number of claims or from particularly high claim amounts or both. To analyze the random fluctuations and to investigate the related mathematical risk, European actuaries developed a considerable body of mathematics known as the theory of risk, which ultimately seeks to prescribe how an insurance business may be protected from the unfavorable effects of these fluctuations.

There are two points of view from which risk theory may be considered, the collective and the individual or classical. To investigate the gain or loss on a whole portfolio, individual risk theory proceeds first by considering the gain or loss on each individual policy; then by

summing these individual gains or losses it furnishes information about the total gain or loss on all the policies in the portfolio.

On the other hand, in collective risk theory perspective one seeks to investigate directly the risk enterprise as a whole. Primary interest is focused not upon the gains, losses, or claims from individual policies but upon the amount of total claims or the total gain arising from all the policies in the portfolio considered.

Collective risk theory considers two principal problems: finding the distribution functions of the total gain or the total amount of claims in a portfolio or risk enterprise, and finding the probability that the risk reserve of a risk enterprise will become exhausted, which is the main problem.

In actuarial science and applied probability, collective risk theory is applied by use mathematical models to describe an insurer's vulnerability to insolvency. In such models key quantities of interest are the probability of insolvency distribution of surplus immediately prior to insolvency and deficit at time of insolvency. This research study made references to the collective risk theory in bid to understand how the net incurred claim ratio at different levels present the insolvency risks to medical insurance provider's risk.

2.1.2 The Fraud Management Lifecycle Theory.

The fraud management lifecycle theory is dynamic framework of fraud risk management. It evolves around eight stages which include: deterrence, prevention, detection, mitigation, analysis, policy, investigation, and prosecution of fraudulent activities. Effective fraud management requires a balance in the competing and complementary actions within the fraud management lifecycle.

Deterrence, the first stage, is characterized by actions and activities intended to stop or prevent fraud before it is attempted; that is, to turn aside or discourage even the attempt at fraud through, for example, card activation programs. The second stage of the fraud management lifecycle, prevention, involves actions and activities to prevent fraud from occurring. In detection, the third stage, actions and activities, such as statistical monitoring programs are used to identify and locate fraud prior to, during, and subsequent to the completion of the fraudulent activity. The intent of detection is to uncover or reveal the presence of fraud or a fraud attempt. The goal of mitigation, stage four, is to stop losses from occurring or continuing to occur and/or to hinder a fraudster from continuing or completing the fraudulent activity, by blocking an account, for example. In the next stage, analysis, losses that occurred despite deterrence, detection, and prevention activities are identified and

studied to determine the factors of the loss situation, using methods such as root cause analysis. The sixth stage of the fraud management lifecycle, policy, is characterized by activities to create, evaluate, communicate, and assist in the deployment of policies to reduce the incidence of fraud. Balancing prudent fraud reduction policies with resource constraints and effective management of legitimate customer activity is also part of this stage.

Investigation, the seventh stage, involves obtaining enough evidence and information to stop fraudulent activity, recover assets or obtain restitution, and to provide evidence and support for the successful prosecution and conviction of the fraudster(s). Covert electronic surveillance is a method used in this stage.

The final stage, prosecution, is the culmination of all the successes and failures in the fraud management lifecycle. There are failures because the fraud was successful and successes because the fraud was detected, a suspect was identified, apprehended, and charges filed. The prosecution stage includes asset recovery, criminal restitution, and conviction with its attendant deterrent value.

The interrelationships among each of the stages or nodes in the fraud management network are the building blocks of the fraud management lifecycle theory. For example, professionally run and successful investigations result in both specific and general deterrence. Similarly, increases in the difficulty component of deterrence will yield fewer cases to investigate, allowing for a more proactive prioritization of cases and more detailed and thorough investigations.

In this study each of the interrelationships supporting the fraud management lifecycle were assessed and evaluated. The primary hypothesis of this theory is that there is an eight stage fraud management lifecycle that drives success or failure in fraud management. A secondary hypothesis of the theory is establishing the premise that the successful balancing of activity within and among the fraud management lifecycle stages results in improved fraud management performance. An exclusive focus on prosecution can lead to insufficient detection activities. Similarly, a lack of attention to prosecution stage activities be they civil or criminal, can result in a reduction of the various types of deterrence. The activities in the various stages need to be balanced for effective fraud management. Balanced activity levels do not imply balanced or equal resource allocation, but rather the correct allocation of resources to ensure a coordinated and effective fraud mitigation effort. This study utilized the theory in deducing the various variables of fraud risk management practices at various levels.

2.2 Empirical Review

2.2.1. Fraudulent practices.

The definition of fraud varies, but most are based around these general themes. Similarly, the laws relating to fraud may vary from one country to another (CGMA, 2012). The term fraud carries the connotation that the activity is illegal with prosecution and sanctions as the threatened outcomes. According to (Muthama, 2006) Insurance fraud refers to any duplicitous act performed with the intent to obtain an improper payment from an insurer.

In similar terms Scwab, (2014) defines Insurance fraud is basically an attempt to exploit an insurance contract. Insurance contract is meant to protect against risks. It is not meant to be a tool to enrich the insured. Although insurance fraud by the policy issuer still occurs, the majority of cases have to do with the policyholder attempting to receive more money by exaggerating a claims. The fundamental problem for insurers coping with both fraud and systemic abuse is to devise a mechanism that efficiently sorts claims into categories that require the acquisition of additional information at a cost (Arekai, 2014).

Insurance fraud is committed by individuals from diverse fields and occupations in the insurance value chain. These includes: insurance staff, policyholders, doctors, lawyers, salesmen, insurance agents and people in positions of trust. Researchers have found dynamic findings on the subject who perpetrates insurance fraud (Dean, 2004; Dionne and Wang, 2011; Lesch and Baker, 2013; Miyazaki, 2008; Tennyson 1997, 2002) focused on fraud perpetrators characteristics that include gender, age, education, income and religion. They concluded that gender and dishonesty are connected and men are more likely to be dishonest than women. Age also represents the most researched demographic factor in the insurance fraud acceptability. In general, age is considered as a significant factor in all financial decisions, the relation between age and insurance fraud tolerance is, therefore, inverse (Lesch and Baker, 2013). The role of income level in motivating fraud is mixed and unclear (Davos, 2008). According to Dionne and Wang, (2011) insurance fraud may vary with income level. In addition, as insurance claims may increase individuals' income, there are assumptions that respondents with lower income could be more tolerant to handle or play part in insurance fraud (Tennyson, 2002). Similarly, the role of education level is motivating fraud is also unclear. In economic theory, relation between educational attainment and criminal behaviour is negative (Lochner, 2007). Tennyson (1997, 2002) had observed that highly educated individuals demonstrate less tolerance to insurance fraud. Generally, researchers opine that

religion influences fraudulent behaviour negatively. The stronger is the level of individual's religious believes, the lower is the risk of his/her fraudulent behaviour. Stack and Kaposowa, (2006) found an inverse relationship between religion and insurance fraud, even though it has not been scientifically proven yet. Indeed, the role of religion does not depend on the religious affiliation but more on whether the individuals are actively practicing their religion. After all, almost every religion advocates "good behaviour", which insurance fraud does not include. Some other perspectives profile perpetrators of insurance fraud based on their placement on the insurance value chain. AKI, (2013) came up with matrix of fraud perpetrators indicating that the staff of the health providers and policyholders were the leading perpetrators thus the highest risk factors in the insurance fraud.

2.2.2 The Fraud risk management practices

The universal principles of an effective fraud risk management are corporate governance, prevention, detection, response and monitoring (CGMA, 2012). An effective fraud risk management framework enables organizations to have controls that first prevent the fraud from occurring, detect as soon as a fraud happens and respond effectively to fraud incidents when they occur (ACFE, 2010). The principle of governance encompasses board/audit committee oversight, executive/line management functions, internal audit and compliance functions (Davis and Peschi, 2010). Singleton and Atkinson, (2011) opines that the principle of fraud prevention involves fraud and misconduct risk assessment, establishment of code of conduct & related standards that envisage corporate values, employee/third-party due diligence, communication and training and process-specific fraud risk controls. Fraud detection involves establishing hotlines and whistle-blower mechanisms, auditing and monitoring and proactive forensic data analysis (Powell, 2011). Fraud response and monitoring entails the organizational reaction to already committed fraud through internal investigation protocols, enforcement & accountability protocols, disclosure protocols and remedial action protocols (Powell, 2011).

Several studies have discussed corporate governance as integral part fraud risk management. Sawsan et al., (2015) found that corporate governance has a moderate role in preventing and detecting fraud. The findings imply that the senior management and boards of directors should adequately understand the importance of their oversight function. The chief executive officers and boards of directors must make more efforts to set the "tone at the top" to improve the corporate environment in terms of integrity and ethics, among other factors. Further the

board of directors must be alive to the importance of developing systematic approaches to fraud investigation that involve greater reliance on technological approaches .Findings by Cohen, Krishnamoorthi and Wright, (2002) concurs with above findings that boards of directors and auditing committees are primarily responsible for independently supervising managerial identification of fraud risks, implementing anti-fraud measures and creating an appropriate 'tone the top', whereby management has a strong influence setting the overall governance character within a firm. The importance of corporate governance as part of fraud risk management is underscored by other research findings. According to ACFE, (2010), lack of effective corporate governance seriously undermines any fraud risk management program.

Studies on fraud prevention have elicited various diverse findings. Powell, (2015) opines that prevention of fraud is far more preferable to detecting. This is so because the losses occasioned by fraud can be avoided, more so the economic and social costs associated with detective investigations are not incurred. His research further states that preventive practices should be premised on organizational culture of fraud awareness, understanding common policies and procedures, protection of whistle-blowers, and continuous communication about the importance of fraud prevention from the top on down. Robinson et al., (2012) asserts that the basic tenet for the prevention and detection of fraud is a structured risk assessment that addresses the actual risks faced by the organization as determined by its purpose, industry (products or services), complexity, scale, and exposure to network risks. The objective of fraud risk assessment is to make determination of the type, likelihood, and potential cost of risks in a traditional expected value framework. Consequently, the organizations come up with customized programs which bear cost effective risk mitigation and risk tolerance. Assessing fraud risks is an evaluation of how the management and employees interact with the resources of the organization. Interaction between incentives and opportunities compose one of the angles the fraud triangle that is mostly determined by the organization itself. As such, the risk assessment efforts have to be very focused on how controls, policies, and procedures interact with specific roles. Sources of these risks may be external as well as internal, especially in highly networked and data dependent operations (Robinson, 2012). Davis and Peschi, (2010) found that fraud prevention techniques introduced in various organizations should depend on the characteristic of the organization. Some uniform methods can be effective in most of the organizations, but may still not prevent fraud outbreaks. Davis and Peschi, (2012) examined the dynamics of fraud risk assessment and fraud prevention practices. The study concluded that there was inadequacy of research about fraud prevention,

mostly due to the nature of fraud as a concealed crime, making it difficult to put in place proactive fraud prevention controls. The study further opined that fraud research should focus on individual and organizational environments in combination.

Researchers found various finding in relation to fraud detection. According to Robinson, (2012) fraud detection controls are designed to enhance monitoring and reporting promote faster detection of fraud. Key detection measures include a whistle-blower policy, reports designed to highlight potential and common indicators of non-standard outcomes over time, and other controls that alert people to potential fraud. Installing these indicators will have no effect if they are not monitored. Some other researchers have alternative views on what are the most effective practices to detect fraud. According to Kummer et al., (2012) most fraud detection measures may not lead to more fraud detection, however he quips that, two highly effective instruments emerge, namely, fraud control policies, and fraud risk registers. The results of the study also reveal that commonly used fraud detection instruments are not necessarily the most effective. The study concluded that implementation of more effective fraud detection measures will reduce the damage or loss from fraud. Zhou and Kapoor, (2011) views are however contrary to the above findings, the researchers assert that regardless of availability of many fraud detection techniques, fraud is more difficult to detect because involved executives learn how to manipulate the results. Fraud response and monitoring involves formulating and implementing effective and consistent communications protocols between the investigations group and stakeholders (ACFE, 2010). Investigative and corrective action should be used to help ensure potential fraud is addressed appropriately and timely (Kuno, 2011). Gopinathan and Achamkulangare, (2016) opines that strength of the investigation processes depends on adequacy of resources allocated to the investigation function. Their study further asserts that reporting of fraud and fraud monitoring activities should be well structured and elaborate, objective and measurable. With these mechanisms in place, there should positive results in the mitigation of fraud.

2.2.3 Establishing the relationship between the Fraud Risk management and levels of fraudulent claims.

In bid to establish the relationships between elements of fraud risk management practices and their effectiveness in mitigating fraud, various researchers applied various methodologies which bore diverse findings.

Bazel, Jones, and Zimmerman, (2009) applied fraud detection methodology that analysed use of nonfinancial measures of fraud. The study indicated several factors applicable for detecting fraud using nonfinancial indicators. The study concluded that firms with fraudulent financial reporting have greater differences between their percentage change in revenue growth and percentage change in nonfinancial measures than non-fraudulent firms i.e.; difference between financial and non-financial performance is much greater for firms with greater fraud risk.

Davis and Peschi, (2010) used an agent-based methodology to develop an efficient model for occupational fraud prevention premised on fraud triangle theory. The study concluded that fraud prevention techniques practiced in various organizations should be dependent on the unique characteristic of the organization. Some uniform methods can be effective in most of the organizations, but may still not prevent fraud outbreaks.

Cecchini, et al., (2010) study applied statistical learning theory and support vector machines using data collected from organizations that had reported fraud and those which hadn't reported fraud. The financial kernel formula was also applied to analyse variables. The findings and conclusion provided a methodology for detecting management fraud using selected financial data

Ngai, et al., (2011) study created a classification framework for the data mining to detect financial fraud The study eventually identified six data mining techniques to detect financial fraud which includes classification, clustering, outlier detection, prediction, regression and visualization and as applied to various types of financial fraud detection, can be a useful tool for academics and practitioners.

Powell, (2011) applied situational analysis methodology to study fraud risk management. The study systematized various types of the fraud risk subjects, fraud types, mechanisms, and facts. These findings highlighted the differences between fraud and fraud risk and analysed the necessity of fraud risk management.

Singleton and Atkinson, (2011) used Spearman's rank correlation coefficient, and Kendall's Tau coefficient to determine the most effective techniques of fraud risk management. The study found that fraud hotlines and employee support programs were most effective techniques. Nevertheless, these techniques were seldom applied. The most frequent

techniques applied were the external audit of financial statements and adherence to the code of conduct

Different authors recommend different fraud management practices as most effective against insurance fraud. The effectiveness can be achieved through implementation of a robust fraud risk management framework.

The literature on corporate governance as a fraud risk management tool identified three components as monitoring mechanisms to good corporate governance. These are directorship, internal auditing and external auditing (Anderson, 1993). The institute of internal auditors (IIA) added the forth component – the audit committee (IIA, 2003). This study evaluated effectiveness of corporate governance based on these components. Previous studies had diverse findings on corporate governance as integral part fraud risk management. Sawsan et al., (2015) concluded that corporate governance has a moderate role in preventing and detecting fraud, implying that governance offers a framework of fraud risk management but it is not by itself the solution to eliminate fraud. In concurrence to these findings, In'airat, (2015) in concludes that mere existence and implementation of corporate governance are not enough to reduce the perceived level of fraud. It is only when there is an effective set up of the components of corporate governance the fraud levels can be reduced. Tuek and klikovac, (2012) asserted that development of corporate governance system is based on the establishment of code of ethics, internal control systems, independent and responsible work of auditors and audit committee. This is crucial for fraud prevention and detection. Despite these diverse findings, there was general concurrence that corporate governance cannot eliminate fraud occurrences. Nevertheless, ACFE, (2010) underscores the need to have corporate governance framework in fraud risk management. Their findings assert that lack of effective corporate governance seriously undermines any fraud risk management program. Only meticulous and on-going effort by an organization envisaged under corporate governance can proactively mitigate the effects of fraud within an organization. Dibra, (2016) however concludes that there is need to have a system of checks and balances to monitor corporate governance. In absence of these checks and balances, corporate governance mechanisms cannot prevent fraudulent activities by top management. This study therefore explored the role of corporate governance in reducing the level of fraudulent medical insurance claims by testing the below hypothesis.

$H1_1$: A significant negative relationship exists between corporate governance risk management and net incurred medical claims.

The basis for the prevention of fraud is a structured risk assessment that addresses the actual risks faced by the organization as determined by its purpose, industry (products or services), complexity, scale, and exposure to network risks. The objective of fraud risk assessment is to make determination of the type, likelihood, and potential cost of risks in a traditional expected value framework (Robinson, 2012). Consequently, the organizations come up with customized a program which bears cost effective risk mitigation and risk tolerance.

Previous studies had various findings on fraud prevention as integral part fraud risk management. Davis and Peschi, (2010) found that fraud prevention techniques introduced in various organizations should depend on the characteristic of the organization. Some uniform methods can be effective in most of the organizations, but may still not prevent fraud outbreaks. Powell, (2011) concurs with the previous findings by asserting that preventive practices should be premised on organizational culture of fraud awareness, understanding common policies and procedures, and continuous communication about the importance of fraud prevention from the top on down. Mirinaviciene, (2014) found that Implementation of fraud prevention measures are the most efficient as deterrent to fraud. On the other hand, some researchers (Odhiambo 2015, Aum 2011) have contrasting findings on preventive controls/ practices. They opine that despite the use of normal preventive controls, they are ineffective leading to increasing cases and cost of fraud. Other dynamic findings suggested that fraud prevention is an area that had not received adequate research focus. Davis and. Peschi, (2012) concluded that there was inadequacy of research about fraud prevention, mostly due to the nature of fraud as a concealed crime, making it difficult to put in place proactive fraud prevention controls. The study further opined that fraud research should focus on individual and organizational environments in combination. Based on these diverse findings and need to carry out further research on this area, this study tested the relationship of fraud preventive practices and fraud levels manifested in net incurred claims using the below hypothesis.

$H2_1$: A significant negative relationship exists between Fraud prevention practices and net incurred claims.

Fraud detection controls are designed to enhance monitoring and reporting promote faster detection of fraud. Key detection measures include whistle-blower policy, software aided detections, forensic investigations, reports templates designed to highlight potential and common indicators of non-standard outcomes over time amongst other controls that alert people to potential fraud. These measures are highly effective in mitigation of fraud. (Robinson, 2012). On the other hand, some other researchers had alternative views downplaying the role of detective controls in mitigating fraud. According to Kummer et al., (2012) most fraud detection measures may not lead to more fraud detection, however he quips that, two highly effective instruments emerge, namely, fraud control policies, and fraud risk registers. Similarly, study conducted by Zhou and Kapoor, (2011) quips that regardless of availability of many fraud detection techniques, fraud is more difficult to detect because involved executives learn how to manipulate the results. This study therefore furthered this area of research by testing the below hypothesis.

$H3_1$: A significant negative relationship exists between fraud detection practices and net incurred claims.

According to ACFE, (2010) fraud response and monitoring involves formulating and implementing effective and consistent communications protocols between the investigations group and stakeholders. Investigative and corrective action should be used to help ensure potential fraud is addressed appropriately and timely. Gopinathan & Achamkulangare, (2016) opines that response and monitoring mechanisms should be objective and measurable to bear positive results in the mitigation of fraud. The study further suggested that there is always a lacuna in information and reporting on fraud because basic information on fraud is usually absent or fragmented in many organizations and organizations should seal these gaps for the fraud response and monitoring to be effective. According to Rick, (2013), Fraud response is only effective if proper policies and procedures underpin the response actions. In absence of proper policies and procedures in response to fraud, responding to fraud would look like witch-hunting in corporate set up. Other findings underscore that proper monitoring of fraud controls should be put in place. Emphasis should also be focused on lessons learnt from previous incidents so as to cultivate culture of continuous improvement in enhancing monitoring systems (Odenwegu, 2010). Delloite, (2009) quips that a comprehensive performance assessment of organization's fraud response management program can significantly assists the organization's effort to improve the efficiency and effectiveness of its

response to fraud allegations. This study therefore further explored the relationship between fraud Response and monitoring and fraudulent net incurred claims by testing the below hypothesis.

$H4_1$: A significant negative relationship exists between fraud response and monitoring practices and net incurred claims.

There are diverse findings relating to relationship between size of operations and fraud levels. Size of operations can be defined by various parameters including, the turnover, market share, the revenues, profits, number of employees, and number of transactions among others. Jackson, (2011) found that organizations with a higher levels of operations and business transactions were likely to experience higher level of fraud activities since the opportunity to commit fraud, motivation and rationalization could be much higher than in smaller organizations .Similarly Rick,(2013) concurs that there is higher possibility of committing fraud in high volume transactions companies since the fraudulent activities can go undetected or else it takes long time before they are detected when full reconciliations are done. Alternatively, some researchers have contrasting findings, Tysiac, (2015) assert that the organizations with smaller size of operations are significantly more likely to experience fraud than their larger counterparts. Neglect in instituting fraud management practices that could prevent costly losses is prevalent in smaller organizations; therefore, they are more highly susceptible to fraud compared to larger counterparts. ACFE, (2012) concurs that smaller organizations are outpaced by larger organization in fraud control measures thus a higher exposure to fraud. This study further tested the significance of level of operations against the level of fraudulent claims in medical insurance industry using the below hypothesis.

$H5_1$: A significant positive relationship exists between market share and net incurred claims.

2.2.4 Measurement of fraud risk management

Fraud risk can be measured using various methodologies. The measurement aids in identification and assessment of risk which makes determination of the appropriateness of risk mitigation techniques and resources to be deployed in the fraud risk management life cycle. Some of commonly used techniques are discussed below.

Fraud Risk Scores cards**;** - European commission, (2015) came up with methodological approach of fraud risk self-assessment based on five main steps: (Similar methodology has been developed by other institutes, professional and research bodies including COSO, ACFE, CIMA). Quantification of the risk of given fraud type is done by assessing impact and likelihood (gross risk) this is followed by assessment of the effectiveness of the current controls in place to mitigate the gross fraud risk. Subsequently assessment of the fraud risk after taking into account the effect of any current controls and their effectiveness is done. The risk after evaluation of control effectiveness is referred to as net risk or residual risk. Focus is then turned on net (residual) risk leading to an eventual risk profiling which defines the target risk. This is the risk level which the managing authority considers tolerable after all controls are in place and effective. The response plan is based on risk scores, the higher the rank, the more attention and resources should be deployed to deal with high fraud risk score areas. The response plan put in place should be optimal, however these plans also have limitations, and this defines control effectiveness. The higher the effectiveness the lower the residual risk and conversely, the lower the control effectiveness, the higher the residual fraud risk.

Fraud Risk Heat Maps: - A heat map is a graphical representation of data where the individual values contained in a matrix are represented as colours. According to Mc Kay, (2011) a risk heat map is a tool used to depict the visual results of a risk assessment process in a meaningful and concise way. Whether conducted as part of a broad-based enterprise risk management process or more narrowly focused internal control process, risk assessment and identification is a critical step in fraud risk management. It involves evaluating the likelihood and potential impact of identified risks. Fraud heat maps are a way of representing the resulting qualitative and quantitative evaluations of the probability of fraud risk occurrence and the impact on the organization in the event that a particular risk is experienced. To come up with an effective heat map, several considerations have to be made. These include common understanding of the fraud risk appetite of the company, the level of impact materiality to the enterprise, and a common parameter for assigning probabilities and potential impacts.

The organizations can map probability ranges to common qualitative characterizations of risk event likelihood, and a ranking scheme for potential impacts. They can also rank impacts on the basis of what is material in financial terms, or in relation to the achievement of strategic objectives. In this example, risks are prioritized using a simple multiplication formula. The

higher the factor, the more serious attention is needed in addressing a specific risk, this is depicted by movement of colors from bottom left corner (green) to top right corner with red marked areas. Organizations generally map risks on a fraud heat map using a 'fraud residual risk' basis that considers the extent to which risks are mitigated or reduced by internal controls or other fraud risk response practices. Various scholars applied heat maps in their studies (Bishop and Hydoski, 2009; EN. Argyriou, 2015; A. Symvonis, 2015; V. Vassiliou, 2015). EN Argyriou et al., (2015) developed fraud detection visualization system utilizing radial drawings and heat-maps. Marks, (2017) however critique the use of heat maps in that they are point-in-time reports which may not reflect the timelines dynamics. Further he opines that the fraud risk maps may not offer complete picture of all risks involved as well as identifying the risks that need utmost attention.

Fraud Risk Scoring;- Risk scoring reflects the level of risk in the presence of some fraud risk factors .Risk scores are designed to be simple to calculate easily interpreted and actionable. Scores are designed around a set of possible actions that should be taken as a result of the calculated score. Effective score-based policies can be designed and executed by setting thresholds on the value of the score and associating them with escalating actions (retrieved from www.wikipedia.com).

A typical scoring method is composed of three components which includes; a set of consistent rules (or measures) that assign a numerical value ("points") to each risk factor that reflect our estimation of underlying risk, a formula (typically a simple sum of all accumulated points) that calculates the score and a set of thresholds that helps to translate the calculated score into a level of risk, or an equivalent formula or set of rules to translate the calculated score back into probabilities (leaving the nominal evaluation of severity to the practitioner. This will usually involve an expert opinion Risk score are designed to represent an underlying probability of an adverse event denoted given a vector of explaining variables containing measurements of the relevant risk factors. In order to establish the connection between the risk factors and the probability we estimate a set of weights is estimated using a model: Previous researchers (Mandeep Singh et al., 2015; Lyn C. Thomas, 2000) used the methodology to score the intensity of the risks and device responsive strategies in their study findings and recommendations respectively. However, the methodology has its inherent weaknesses in that with more sophisticated methods it becomes

difficult to attribute simple weights for each risk factor and to provide a simple formula for the calculation of the score.

Likert scale fraud risk survey-; this is a psychometric survey scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in survey. Likert scale can be used to measure the presence /absence of fraud risk management practices or intensity to which these practices are employed in organizations. When responding to a Likert item, respondents specify their level of agreement or disagreement on a symmetric agrees-disagrees scale for a series of statements. Thus, the range captures the intensity of their feelings for a given item. A scale can be created as the simple sum of questionnaire responses over the full range of the scale. In so doing, Likert scaling assumes distances between each item are equal. Importantly, "All items are assumed to be replications of each other or in other words items are considered to be parallel instruments. A Likert item is simply a statement that the respondent is asked to evaluate by giving it a quantitative value on any kind of subjective or objective dimension, with level of agreement/disagreement being the dimension most commonly used. Well-designed Likert items exhibit both "symmetry" and "balance". Symmetry means that they contain equal numbers of positive and negative positions whose respective distances apart are bilaterally symmetric about the "neutral"/zero value (whether or not that value is presented as a candidate). A good Likert scale, as above, will present symmetry of categories about a midpoint with clearly defined linguistic qualifiers. In such symmetric scaling, equidistant attributes will typically be more clearly observed or, at least, inferred. It is when a Likert scale is symmetric and equidistant that it will behave more like an interval-level measurement. So while a Likert scale is indeed ordinal, if well presented it may nevertheless approximate an interval-level measurement. This can be beneficial since, if it was treated just as an ordinal scale, then some valuable information could be lost if the ‘distance’ between Likert items were not available for consideration. The important idea here is that the appropriate type of analysis is dependent on how the Likert scale has been presented. Likert scale has been employed by various researchers (Oguda et al., 2015; Byaruhanga, 2015; AKI 2014; IRA, 2016; Othman ,2015; Mock ,2017, Ohando 2014) in bid to determine the presence or absence, intensity and effectiveness of internal controls as well as fraud risk management practices. However, critics of Likert Scale argue that that respondent either lean towards choosing the most extreme option or express no opinion at all. This can lead to results being clustered around the middle or at each end of the scale, making it hard to

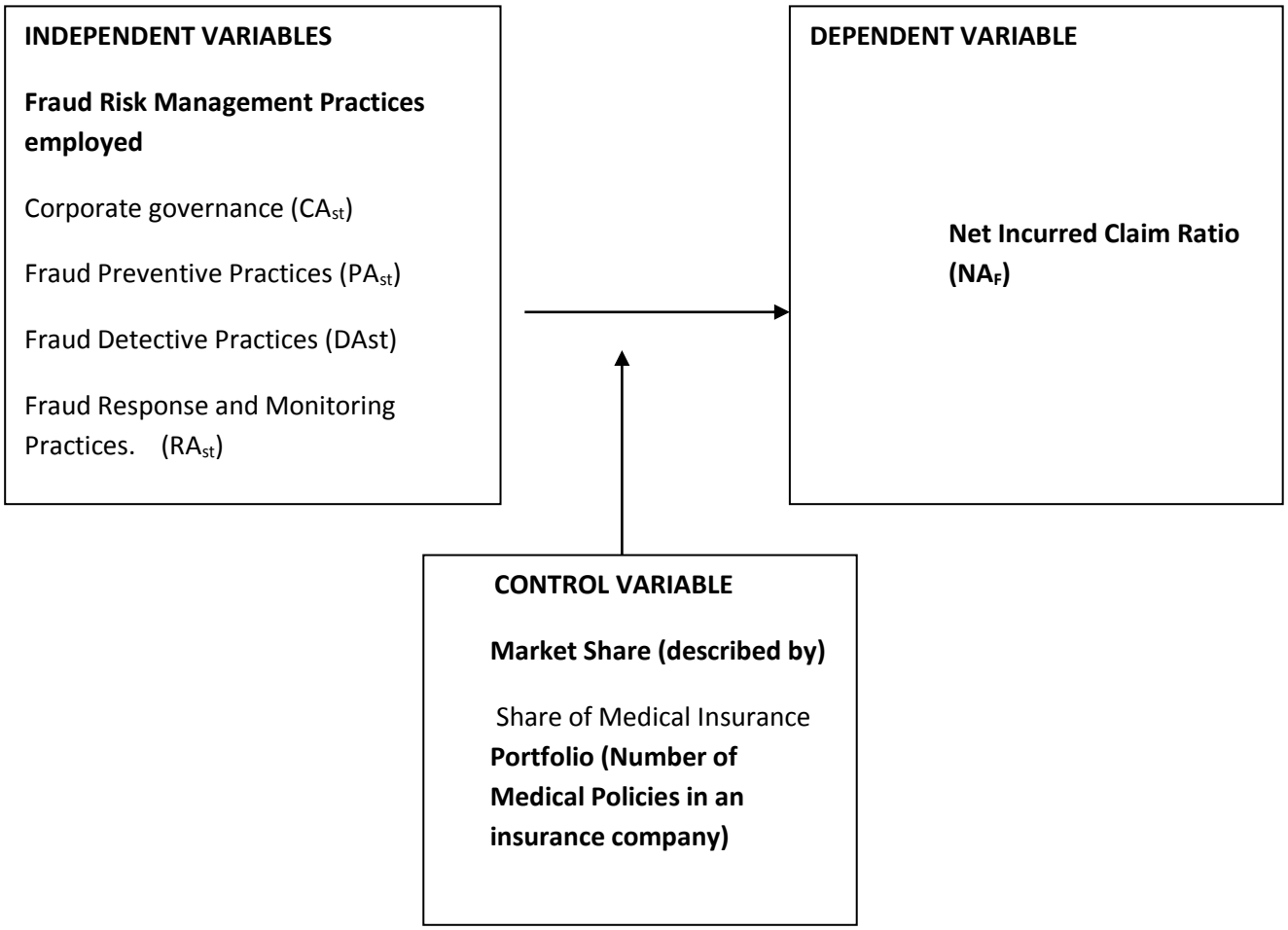
distinguish between strong and weakly held opinions, implying the space between each possibility is equidistant, which is not true in real life.

2.2.5 Net incurred claims

Previous research studies on insurance also explored subject of the net incurred claims and had convergent findings. Khatiri, (2017) underscores significance on net incurred claims ratio. The net incurred claim is a core key performance ratio in the insurance industry. The ratio is an indicator or a major driver of profitability of insurance firms. The ratio is further significant in making determination of the future premiums payable which will be able to underwrite and absorb the risks insured against. Insurers, underwriting agents and brokers alike to assess the profitability of their businesses, an insurance policy or even a relationship with a partner company using the net incurred claim ratio. The ratio is a single number or driver that can be used to identify performance, the lower the number, the better the performance. Muthama, (2013) concurs that net incurred claims ratios is major determinant of profitability and liquidity of insurance firms. It is among the financial parameters or key performance ratio that determines the going concern of the insurance firms. If the fraudulent claims increase the net incurred claims rises to unsustainable levels, eventually it leads collapse of the insurance firms**.** Hifza, (2011) concludes that insurance is based on the principle of financial compensation for the effects of misfortune which can however be undermined by fraudulent net incurred claims. Further, fraudulent net incurred claims deplete the funds paid by the many honest customers to cover genuine losses. Tajudeen et al., (2011) concluded that there was significant inverse relationship between fraud detection and net incurred claims ratio percentage. The study stated that fraudulent insurance claims pre – exposes the medical insurance providers to a higher net incurred claims ratio. The study concluded that there is a negative relationship between net incurred claims and profitability /liquidity of an insurance firm. Similarly, Ngwiri, (2013) found that there was significant inverse relationship between an insurance firm profitability and net incurred claims. This study shall seek to establish whether employment of various fraud risk management practices can lower fraudulent claims and consequently lowering the net incurred claim ratio that can guarantee financial health and going concern of insurance firms.

2.3 Conceptual Framework

The conceptual framework for this research is derived from the literature review. The dependent variable is the net incurred claims of which the model conceptualizes can be explained by the fraud risk management practices put in place. The control variable size of medical insurance portfolio defined by number of medical insurance policies held.



2.3.1 Operationalization of Variables

Operationalization involves measuring concepts into tangible components which can be easily quantified and computed for statistical analysis (Saunders et. al., 2015). Operationalization is essential because it demonstrably measures the objectives of the study (Mwangi, 2017). The study assessed four independent variables and the dependent variable as illustrated in the conceptual framework in subchapter 2.3. The study had a control variable. They were operationalized and measured as follows:

Score.

Attribute	Scoring	Definition
Absent	0	No Control or Fraud management Practice of that nature
Ineffective	1	The control or fraud management Practice exist but it does not prevent, detect or deter fraud.
Somehow ineffective	2	The control or fraud management Practice exist, however it minimally prevents, detect or deter fraud.
Somehow effective	3	The control or fraud management Practice exist, it averagely prevents, detect and deter fraud
Effective	4	The control or fraud management Practice exist , it significantly prevents, detect and deter fraud
very effective	5	The control or fraud management Practice is exist, its, highly effective in preventing, detecting and deterring fraud.

Rating.

Means of reducing Fraud	Control Absent	Ineffective	Somehow ineffective	Somehow Effective	Effective	very effective
Rating	0	1	2	3	4	5
Corporate Governance.						
Fraud Preventive Controls						
Fraud Detective Controls						
Fraud Response & Monitoring						
Maintaining a fraud policy.						

The supporting literature of these variables based on previous studies include; Powell, (2011) Ngai, et al., (2011) Cecchini, et al., (2010), Davis & Peschi, (2010), Bazel, Jones, & Zimmerman, (2009) and J. S. Davis and L. Peschi, (2012) The variables are supported by the fraud risk management lifecycle theory as illustrated in subchapter 2.1.2.

The secondary data relating to net incurred claims was obtained from insurance regulatory authority, (IRA) for average period of last 12 months of year 2017. The computation of net incurred claim is as indicated below.

Net incurred claims % = Total claims +Adjustment expenses x 100
Total Premiums earned

Where
Net incurred claims = the loss ratio
Total claims= Total lodged and paid out insurance claims
Total premiums= Gross earnings from Insurance premiums
Adjustment expenses= Administrative overheads related to successful payment of claim.

The variable is supported by the collective risk theory as illustrated in subchapter 2.1.1.

The secondary data relating to market share was obtained from Insurance Regulatory Authority, (IRA). The computation of market share is as indicated below.

Market share of policyholders = Number of medical policies per company X 100
Total number of medical policyholders

2.4 Chapter Summary

Based on literature review, the research area of fraud risk management offers concurrent, divergent and inconsistent findings. There are wide ranges of theories that underpin this area of study including Collective risk theory, fraud risk management lifecycle theory, fraud triangle theory, fraud diamond theory and white Collar crime theory among others. However, this research settled on the collective risk theory and fraud risk management lifecycle theory due to their suitability and applicability to the study. The study further in the empirical review examines, analyzes and critiques works of previous researchers in similar field pointing out their strengths as well as gaps. Measurement of fraud risk is also discussed in the chapter with merits and demerits of each form of measurement being analyzed. Eventually, the chapter has designed and discussed the hypothesis to be tested by the study, the conceptual framework and operationalization of the variables. The chapter therefore sets the stage for developing research methodology which shall seek to establish the effects of fraud risk management practices on the net incurred medical claims. The overarching purpose of the study shall be making a determination whether the level of fraudulent claims can be minimized upon employment of effective fraud risk management practices.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction.

Chapter three presents the methodology used by the study to achieve the objectives guiding the research. The study first identified various forms of fraudulent activities in medical insurance industry. The study then established and analysed the various fraud risk management practices carried out by the medical insurance providers in Kenya. Finally, the study determined the relationship between the variables.

3.1 Research design and Philosophy.

The study adopted sequential procedures of the mixed methods approach to research by inducing and deducing the findings of one method with another (Creswell, 2003). The research began by identifying the techniques of fraud risk management employed by medical insurance providers in Kenya.

The study assumed a reductionist nature by identifying variables that can be measure levels of fraud against the risk management practices that are respectively employed. To achieve this, the research took a postpositive ontological (knowledge) claim reflecting a deterministic philosophy in which causes probably determine effects and outcomes (Creswell, 2003). A qualitative analysis of the determined variables was done to determine the attributes of the fraud risk management practices in context of presence/absence and intensity. These attributes were assigned numerical; values that were correlated and regressed against net incurred claims percentage rates. Through quantitative analysis of the results, the effects of the fraud risk management practices on the net incurred claims were established.

Post positivism was applied in this research since the study satisfies the following key assumptions highlighted by Phillips and Burbles, (2000) of this knowledge claim as quoted in (Creswell, 2003): Relativism philosophy was applied through the use of hypotheses leading to rejection or failure to reject and not proving; the research is a process of making claims then refining or abandoning through test of a theory; data, evidence and rational considerations shape knowledge; the research explained the contextual relations and described causal relationships; the study was objective and examined methods and conclusions for bias (Creswell, 2003).

3.2 Population and sampling

There are 55 Insurance firms in Kenya. The study focused on 32 medical insurance providers in the country in a census survey. The medical insurance providers consist of the personal accident cover, medical cover and workmen injury benefits compensation act, (WIBA) which substantially covers medical expenses paid by these providers on behalf of the insured clients.

3.3 Data collection methods

3.3.1 Primary data Collection

The research collected primary data on independent variables (Corporate governance, fraud preventive controls, fraud detective controls and fraud response and monitoring controls) from the 30 medical providers operating in Kenya through use of a questionnaire filled by the insurance risk enterprise managers (and equivalent managers). Interviews were conducted for further clarification. The method offered the flexibility of interviews and the efficiency of questionnaires (Sekaran & Boogie, 2009). The questionnaire was prepared based on the literature review of the specific variables to be tested. The methodology adopted for questionnaire included open ended questions, closed ended questions. Most questions were posed in form of Likert scale measuring from 0 to 5. Reach out was through physical delivery and e-mailing of questionnaires after initial contact through a visit or a phone call. Follow up was done by e mail contacts, telephone contacts and visits to respondent offices.

3.3.2 Secondary data collection

The secondary data pertaining net incurred claims (dependent variable) and market share (control variable) was obtained from the insurance regulatory authority (IRA).

3.4 Data Analysis

Descriptive data analysis was applied to satisfy the first objective which was to establish various forms of fraudulent practices in Kenyan medical insurance. Frequencies, percentages of frequencies, mean and standard deviation were applied to identify most common types of fraud in Kenyan medical insurance industry and their frequencies. The second objective was to identify the risk management practices adopted by medical insurance providers to address fraud related challenges in the industry. Descriptive data analysis for various fraud risk management practices categorized under corporate governance, fraud preventive practices,

fraud detective practices and fraud response and monitoring was applied through establishing frequencies, frequencies percentages, mean and standard deviation.

The third objective was to establish the relationship between fraud risk management practices and net incurred medical insurance claims. To establish this relationship, inferential statistical tests were carried out. Pearson correlation tests applied to determine significance, strength and direction of independent variables against dependent variable. In the preliminary, the various tests were carried out to determine if the assumptions of regression models were satisfied. These tests included, test of normality, homogeneity of variance and multicollinearity. Eventually backward multivariate regression tests were done to determine, goodness of fit, significance and beta coefficients of the regression model.

Dependent Variable

The dependent variable of the study was the net incurred medical claims.

Independent Variables

The independent variables of the study were the fraud risk management practices. They were categorized into the four clusters.ie; corporate governance (CA_{st}) fraud preventive practices (PA_{st}) fraud detective practices (DA_{st}) and fraud response and monitoring practices. (RA_{st})

Control Variable

The control variable was market share of medical insurance portfolio (number of medical policies in an insurance company). The higher the medical insurance portfolio, the higher the likelihood of fraudulent claims highlighting the positive relationship between organizational size and prevalence of fraud (Ndungu, 2013).

The relationship between the variables was expressed in the form of a function as follows:

$$\mathbf{NA_F} = f(CAst, PAst, DAst, RAst, MAst)$$

Where:

NA_F = Net Incurred Claims Ratio. (Secondary data)

CA_{st} = Corporate governance practices. (Primary data)

PA_{st} = Fraud Preventive Practices (Primary data)

DA_{st} = Fraud Detective Practices (Primary data)

RA_{st} = Fraud Response and Monitoring Practices. (Primary data)

MAst = Market share. (Secondary data)

ε =Error term.

The resultant equation which is a modification of Hamad, et al., (2015) research is as follows:

$$\mathbf{NA_F = \beta_0 + \beta_1 CA_{st} + \beta_2 PA_{st} + \beta_3 DA_{st} + \beta_4 RA_{st+} \beta_5 MA_{st} + e}$$

Measurement of the dependent variables.

The secondary data relating to net incurred claims was obtained from Insurance Regulatory Authority, (IRA) for average period of last 12 months. The computation of net incurred claim is as indicated below.

$$\textbf{Net incurred claims \%} = \frac{\text{Total claims + Adjustment expenses}}{\text{Total Premiums earned}} \times 100$$

Where

Net incurred claims = the loss ratio

Total claims= Total lodged and paid out insurance claims

Total premiums= Gross earnings from Insurance premiums

Adjustment expenses= Administrative overheads related to successful payment of claim.

Measurement of independent variables

A qualitative analysis of independent variables was done premised on the presence /absence and perceived effectiveness of the fraud risk management practices. These qualitative attributes were well defined to guide the respondents. Likert scale measuring from 0 to 5 was developed and matched to the qualitative attributes in measuring either absence or effectiveness of the fraud risk management practices. Various fraud management practices were crystallized into four categories which included: corporate governance, fraud preventive controls, fraud detective controls, and fraud response & monitoring controls. These variables and constructs were matched with the standard framework of fraud risk management. The variables were scored and a composite average for every variable was computed resulting to a single figure score for every of the four variables. 0 represented absence or lack of fraud management risk practices while the scaling of 1- 5 represented effectiveness level of fraud risk management practices.

Measurement of Control Variable

The secondary data relating to market share was obtained from Insurance Regulatory Authority, (IRA). The computation of market share is as indicated below.

$$\textbf{Market share of policyholders} = \frac{\text{Number of medical policies per company}}{\text{Total number of medical policyholders}} \times 100$$

3.5 Research quality

Objectivity

The research data analysis findings/conclusions were objective and free from bias. The research strived to be free from any ethical-moral values held by the researcher (Ackoff, 1979).

Generalizability

The research findings were generally applicable to medical insurance providers in context of fraud risk management practices. To achieve this, the research obtained data from 93.75% the medical insurance providers in Kenya as opposed to sampling and meticulously adhering to the data-collection methods (Sekaran & Bougie, 2009).

Validity

Through literature review, the research identified the most appropriate instruments and processes used to capture and measure the variables for the study. Further, the research identified appropriate techniques that gave empirical evidence and theoretical rationale supporting the adequacy and appropriateness of inferences based on test scores and other modes of assessment (Messick, 1989) as quoted in Rogelberg, (2002). Validity of the data was established through Cronbach's Alpha Test.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

This chapter sought to present data analysis, presentation and interpretation. This study was divided into various sections namely respondent's response rate, reliability analysis general information of the respondents, various forms of fraudulent activities and their frequencies in Kenyan medical insurance, various fraud risk management practices in Kenyan medical insurance and finally the relationship between fraud risk management practices and net incurred claims. Mean, frequencies and standard deviations were performed under descriptive analysis while under inferential analysis; person's correlation and regression analysis were performed. This sought to establish a linear relationship between the dependent and independent variables.

4.2 Response rate

This study focused on the 32 medical insurance providers in Kenya. Each was administered a questionnaire and a total of 30 questionnaires were returned duly filled. This represented a 93.75% response rate. This was excellent and sufficient for analysis according to Mugenda and Mugenda (2003) who stated that a response rate of 50% is acceptable for analysis, 60% is good, and 70% is very good while beyond 80% is excellent. The study excluded Takaful insurance Company ltd on basis of uniqueness of its insurance concept.

4.3 Reliability analysis

Reliability is the extent in which an assessment tool produces consistent results. This section sought to measure the reliability of the various constructs. Cronbach's Alpha test was used and the results were presented in Table 4.1.

Table 4.1: Reliability Tests of the factors

Factors	Cronbach's Alpha	Comments
Corporate Governance	0.889	Accepted
Fraud Preventive controls	0.882	Accepted
Fraud Detective controls	0.856	Accepted
Fraud Response and Monitoring	0.928	Accepted

The results in Table 4.1 revealed that corporate governance, fraud preventive controls, fraud detective controls and fraud response and monitoring had Cronbach's alpha coefficients of 0.889, 0.882, 0.856 and 0.928 respectively. According to Mugenda and Mugenda (2003) a coefficient of 0.70 and above implies high degree of reliability. Therefore, the constructs measuring the factors were reliable.

4.4 General information

This section sought to descriptively analyse the general information of the medical insurance providers in Kenya. This has been discussed in the subsequent subsections.

4.4.1 Existence of a risk management department

The medical insurance providers were asked whether in their organizations there existed a risk management department. The results were presented in Figure 4.1.

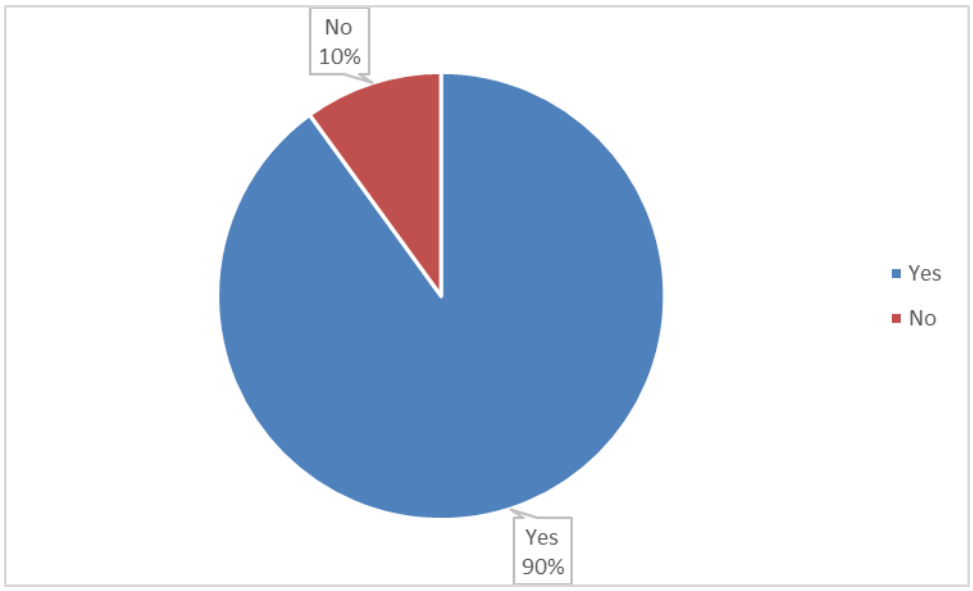


Figure 4.1: Existence of a risk management department

The results showed that majority of the medical insurance providers, 90%, had an operational risk management department while 10% did not.

4.4.2 Frequency of risk management reviews held by the management

The respondents were asked the frequency at which the management holds risk management reviews. The results were presented in Figure 4.2.

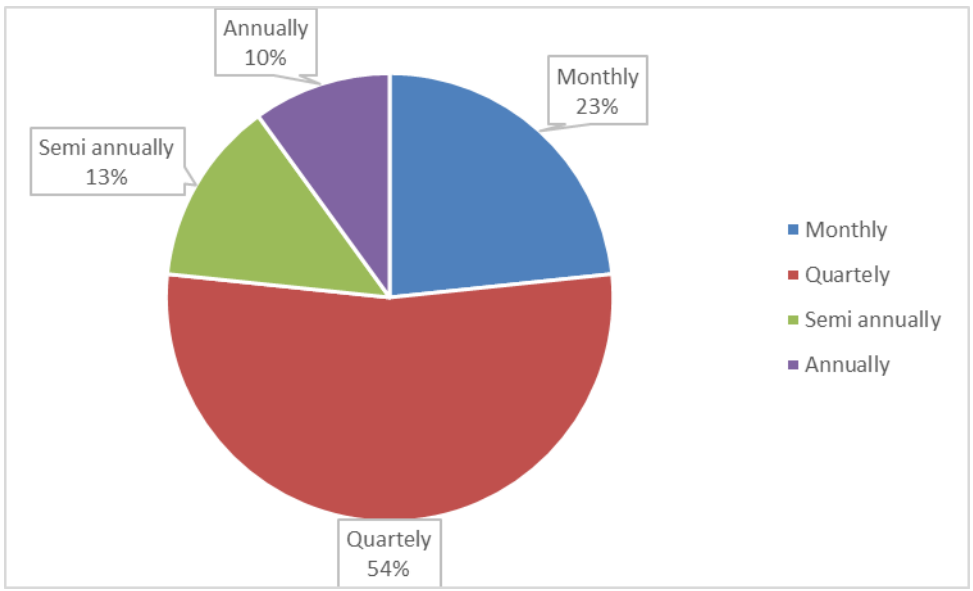


Figure 4.2: Frequency of risk management reviews held by the management

The results in Figure 4.2 revealed that majority of the organizations' board and management team, 54%, held their risk management reviews on quarterly basis, followed by 23% who held theirs on monthly basis, 13% held theirs semi-annually while the least, 10%, held theirs annually.

4.4.3 Placement of the person in charge of fraud risk management in organizational structure

On the general information about the medical insurance providers, the respondents were asked about the placement of the person in charge of the fraud risk management within the organization structure. The results were presented in Figure 4.3.

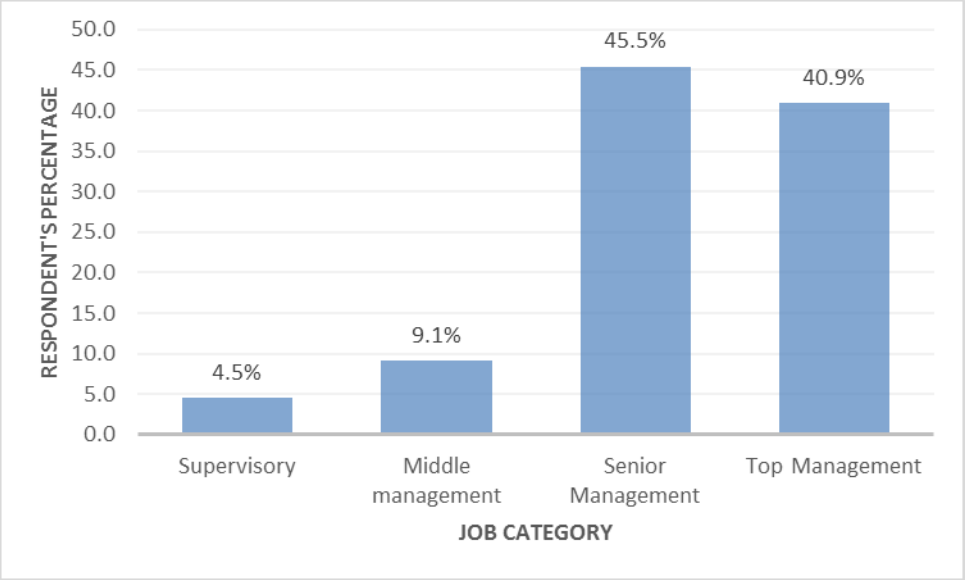


Figure 4.3: Placement of the person in charge of fraud risk management

The results in Figure 4.3 revealed that majority of the organizations, 45%, were placed under senior manager title while 40.9% called were top managers, and 9.1% were middle managers while 4.5% were at supervisory levels.

4. Establishing various forms of fraudulent practices and their frequencies in Kenyan medical insurance industry

This section sought to descriptively analyse factors contributing to fraud and various forms of frauds.

4.5.1 Descriptive analysis on Factors contributing to fraud

This section sought to analyse the significance of factors contributing to fraud in medical insurance providers in Kenya. The results were presented in Table 4.4.

Table 4.4: Descriptive analysis on Factors contributing to fraud

Factors	Mean	SD	Implication
Complicity between beneficiary and health service provider	3.93	1.112	This is the leading factor contributing to fraud in medical insurance.
Lack of sophistication interrogation/ detection software	3.11	1.1	This is a significant factor that contributes to fraud.
Poor internal controls	3.45	1.298	This is a significant factor that contributes to fraud.
Poorly trained claims-processing staff	3.1	1.373	This is a significant factor that contributes to fraud.
Beneficiary Ignorance	2.77	1.251	This is a relatively lower contributor to fraud.
Complicity between service providers	3.87	1.167	This is one the leading factor contributing to fraud in medical insurance.
Lenient approach by Regulatory bodies	2.73	1.258	This is a relatively lower contributor to fraud.
Collusion between service provider and administrator.	3.47	1.592	This is one the leading factor contributing to fraud in medical insurance.
Benefit structure	2.33	1.184	This is a relatively lower contributor to fraud.
Electronic Data Interchange (EDI)	2.57	1.382	This is a relatively lower contributor to fraud.
Complicity between beneficiary and administrator staff	3.63	1.586	This is one the leading factor contributing to fraud in medical insurance.
Complicity amongst administrator staff	3.54	1.527	This is one the leading factor contributing to fraud in medical insurance.

The respondents were also asked to state extra factors contributing to medical insurance fund. They responded that these factors were: Moral hazard, corruption in claims valuation, performance of unnecessary services, inadequate review of internal audit, failure to vet claim documents during processing, reliance on manual systems which could be easily manipulated, water tight systems and third party fraudulent claims through forgery details

4.5.2 Descriptive analysis on the Prevalence of the forms of fraud

This section sought to analyse the prevalence of fraud in Kenyan medical insurance providers. The results were presented in Table 4.5.

Form of fraud	Mean	SD	Implication
Over servicing	2.7	1.171	Moderately prevalent form of fraud
Generic pharmaceuticals instead of branded	3.03	1.322	Relatively common form of fraud within the industry with higher prevalence.
Pharmacy Related	3.07	1.223	Relatively common form of fraud within the industry with higher prevalence.
Non-disclosure of prior ailments	3.68	1.02	Relatively common form of fraud within the industry with higher prevalence.
Diagnosis Manipulation	2.9	1.047	Moderately prevalent form of fraud
Falsifying claims or Altered Invoices	3.41	1.15	Relatively common form of fraud within the industry with higher prevalence
Servicing non-members	2.25	1.143	Moderately prevalent form of fraud
Merchandise substitution	2.36	1.224	Moderately prevalent form of fraud
Claim for non-covered benefits	2.1	1.205	Moderately prevalent form of fraud
Membership substitution	2.15	1.134	Moderately prevalent form of fraud
Up coding	2.5	1.364	Moderately prevalent form of fraud
Unauthorized billing	2.45	1.27	Moderately prevalent form of fraud
Fee splitting	2.7	1.564	Moderately prevalent form of fraud
Script alterations	2.45	1.92	Moderately prevalent form of fraud
Waving Co-payments and Deductibles	2.07	1.585	Moderately prevalent form of fraud
Dual membership	1.85	1.461	Less common type of fraud
Staff- Provider Collusion.	4.1	1.663	Most common form of fraud

Table 4.5: Descriptive analysis on various forms of fraud

The respondents also gave other forms of fraud that were prevalent in their organizations. These factors were: overcharging services, misrepresentation of service dates and Billing for services not offered.

4.6. Fraud risk management practices adopted by Medical Insurance Providers to address fraud related challenges in the industry

This section sought to analyse the various risk management techniques adopted by medical insurance providers to address fraud related challenges in the industry.

4.6.1 Descriptive analysis on Corporate Governance

This section sought to descriptively analyse the corporate Governance fraud management practice in medical insurance providers in Kenya. The results were presented in Table 4.6.

CORPORATE GOVERNANCE	Mean	SD	Implications
Audit Committee	3.03	1.322	The corporate governance control is moderately effective
Internal Audits	3.47	1.224	The corporate governance control is moderately effective
External Audits	3.27	1.484	The corporate governance control is moderately effective
Maintaining a fraud policy	3.43	1.006	The corporate governance control is moderately effective
Dedicated Fraud Risk Management department	3.47	0.971	The corporate governance control is moderately effective
Top management and Board Reviews of Fraud Incidences	3.47	0.819	The corporate governance control is moderately effective
Maintaining a code of conduct against fraudulent engagements	3.43	1.135	The corporate governance control is moderately effective

Table 4.6 Descriptive analysis on Corporate Governance

4.6.2 Descriptive analysis on Fraud preventive controls

This section sought to descriptively analyse the fraud preventive controls as fraud management practices in medical insurance providers in Kenya. The results were presented in Table 4.7.

Table 4.7 Descriptive analysis on Fraud preventive controls

FRAUD PREVENTIVE CONTROLS	Mean	SD	Implications
Comprehensive ethics program	3.03	1.129	The fraud preventive practice is moderately effective
Screening staff members	3.47	0.973	The fraud preventive practice is moderately effective
Screening of service providers	3.72	1.131	The fraud preventive practice is moderately effective
Electronic alert to members on claims	3.34	1.446	The fraud preventive practice is moderately effective
Reviewing and improving controls	3.63	0.765	The fraud preventive practice is moderately effective
Training courses on Fraud	3.23	1.04	The Fraud preventive practice is moderately effective
Screening of new members	3.07	1.1	The Fraud preventive practice is moderately effective

4.6.3 Descriptive analysis on Fraud detective controls

This section sought to descriptively analyse the fraud detective controls as fraud management practice in medical insurance providers in Kenya. The results were presented in Table 4.8.

Table 4.8: Descriptive analysis on Fraud detective controls

FRAUD DETECTIVE CONTROLS	Mean	SD	Implication
Detection software	3.07	1.741	The detective practice is moderately effective
Forensic Investigative Review	3.07	1.461	The detective practice is moderately effective
Fraud Awareness Programs	2.9	0.923	The detective practice is minimally effective
Increasing budget of Investigative function	2.63	1.351	The detective practice is minimally effective
Quality control or claims vetting of paper claims	3.57	1.194	The detective practice is moderately effective
Shared Databases of Fraud Cases	1.97	2.009	The detective control is not effective and is absent in most of the organizations.

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4.6.4 Descriptive analysis on Fraud response and monitoring

This section sought to descriptively analyse the fraud response and monitoring as fraud management practice in medical insurance providers in Kenya. The results were presented in Table 4.9.

Table 4.9: Descriptive analysis on Fraud response and monitoring

FRAUD RESPONSE AND MONITORING	Mean	SD	Implication
Introduction of hotline	2.55	1.617	The practice is minimally effective
Incentives for whistle-blowing	2.57	1.906	The practice is minimally effective
Reporting to Insurance Fraud Unit	2.83	1.464	The practice is minimally effective
Defined Fraud Investigation and reporting procedures	2.93	1.484	The practice is minimally effective
Prosecution of Fraud Perpetrators	3.32	1.634	The practice is moderately effective

4.6.5 Other fraud risk management practices

The respondents were also asked to state other fraud risk management practices that existed in their respective organizations. These practices indicated by the respondents were: involvement of clients in processing claims, vetting of claim documents during processing, proactive fraud auditing, corrective actions, hospital visits by staff and segregation of duties

4.7 Summary of Descriptive analysis for the dependent and independent variables

This section summarized the overall descriptive analysis of the dependent variable namely Net incurred claims ratio and the independent variables namely corporate governance, fraud preventive controls, fraud detective controls, fraud response & monitoring and market share (Number of policy holders). The results were presented in Table 4.10.

Table 4.10: Summary of Descriptive analysis of various variables

	N	Minimum	Maximum	Mean	Std. Deviation
Corporate Governance	29	1.57	5.00	3.3448	.89011
Fraud Preventive controls	27	1.00	4.86	3.3175	.85745
Fraud Detective controls	29	.20	4.83	2.8632	1.12498
Fraud Response and Monitoring	27	.00	5.00	2.7556	1.46585
Market Share (Number Of policy Holders)	30	.28	9.20	3.2113	2.39575
Net Incurred Claims Ratio	30	33.79	79.82	52.9289	13.04389

Table 4.10 shows that corporate governance (M=3.448, SD=0.89011), fraud preventive controls (M=3.3175, SD=0.85745), fraud detective controls (M=2.8563, SD=1.14237) and fraud response & monitoring (M=2.7556, SD=1.46585), were somewhat effective in managing fraud risk. The Net incurred claims ratio was found to be 52.9289 on average and a standard deviation of 13.04389. Finally, on the market share which was the moderating variable, the average number of market shares was found to be 3.2113 and a standard deviation of 2.39575.

4.8 Establishing the relationship between fraud risk management practices and net incurred medical insurance claims

4.8.1 Inferential Analysis

This section performs the inferential analysis. Pearson's correlation and regression analysis were performed. Each has been discussed in the subsequent subsections.

4.8.2 Correlation analysis

This section of the study sought to establish the significance, direction and strength of the linear relationship between net incurred claims ratio which is the dependent variable, the explanatory variables namely: corporate governance, fraud preventive controls, fraud detective controls and fraud response & monitoring and market share which was the moderating variable. A Pearson's correlation analysis was conducted to achieve this. Kothari (2011) stated that an absolute Pearson's correlation value of 0.5 indicates a strong linear relationship between variables, 0.29 – 0.49 indicates a moderate linear relationship while a value below 0.2 indicates a weak linear relationship. The sign of the correlation coefficient indicates the direction of the relationship. Finally, a p-value less than 0.05 at 95% confidence level indicates that the linear relationship between variables of interest is statistically significant. The results were presented in Table 4.11.

Table 4.11: Pearson's Correlation analysis

		Net Incurred Claims Ratio	Corporate Governance	Fraud Preventive controls	Fraud Detective controls	Fraud Response &Monitoring	Market Share
Net Incurred Claims Ratio	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	30					
Corporate Governance	Pearson Correlation	-.418*	1				
	Sig. (2-tailed)	.024					
	N	29	29				
Fraud Preventive controls	Pearson Correlation	-.550**	.527**	1			
	Sig. (2-tailed)	.003	.006				
	N	27	26	27			
Fraud Detective controls	Pearson Correlation	-.369*	.468*	.698**	1		
	Sig. (2-tailed)	.049	.012	.000			
	N	29	28	27	29		
Fraud Response and Monitoring	Pearson Correlation	-.596**	.358	.680**	.828**	1	
	Sig. (2-tailed)	.001	.073	.000	.000		
	N	27	26	25	26	27	
Market Share	Pearson Correlation	.045	.095	.200	.304	.056	1
	Sig. (2-tailed)	.812	.625	.316	.108	.782	
	N	30	29	27	29	27	30

*. Correlation is significant at the 0.05 level (2-tailed).

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

The results in Table 4.11 revealed that there was a negative statistically significant linear relationship between; net incurred claims ratio and corporate governance, r=-0.418; p=0.024, net incurred claims ratio and fraud preventive controls, r=-0.550; p=0.003, net incurred claims ratio and fraud detective controls, r=-0.369; p=0.049 and finally between net incurred claims ratio and fraud response & monitoring, r=-0.596; p=0.001. However, there was no statistically significant linear relationship between net Incurred claims ratio and the market share which was the moderating variable, r=-0.045; p=0.812.

4.8.3 Regression analysis

4.8.3.1 Test for Assumptions of Regression test

This section sought to test for the assumptions made by regression test. These assumptions include normality, linearity, homogeneity of variance and no multicollinearity assumptions. Each has been discussed below

4.8.3.2 Normality assumption

Linear regression test assumes that the residuals should follow a normal distribution. To test for this Kolmogorov smirnov and Shapiro wilk's tests of normality together with a normal Q-Q plot were used. The null hypothesis of the tests states that the data follows a normal distribution. P-value of the respective test will be used to make some decisions. If the p-value is less than 0.05 at 5% significance level, then the null hypothesis is rejected and vice versa. For the Q-Q plot, if all the values tend to lie on the straight line cutting across the diagonal, then the variable is said to assume normality. The results were presented in Table 4.15 and Figure 4.4.

Table 4.15: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Unstandardized Residual	.144	24	.200*	.956	24	.365

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

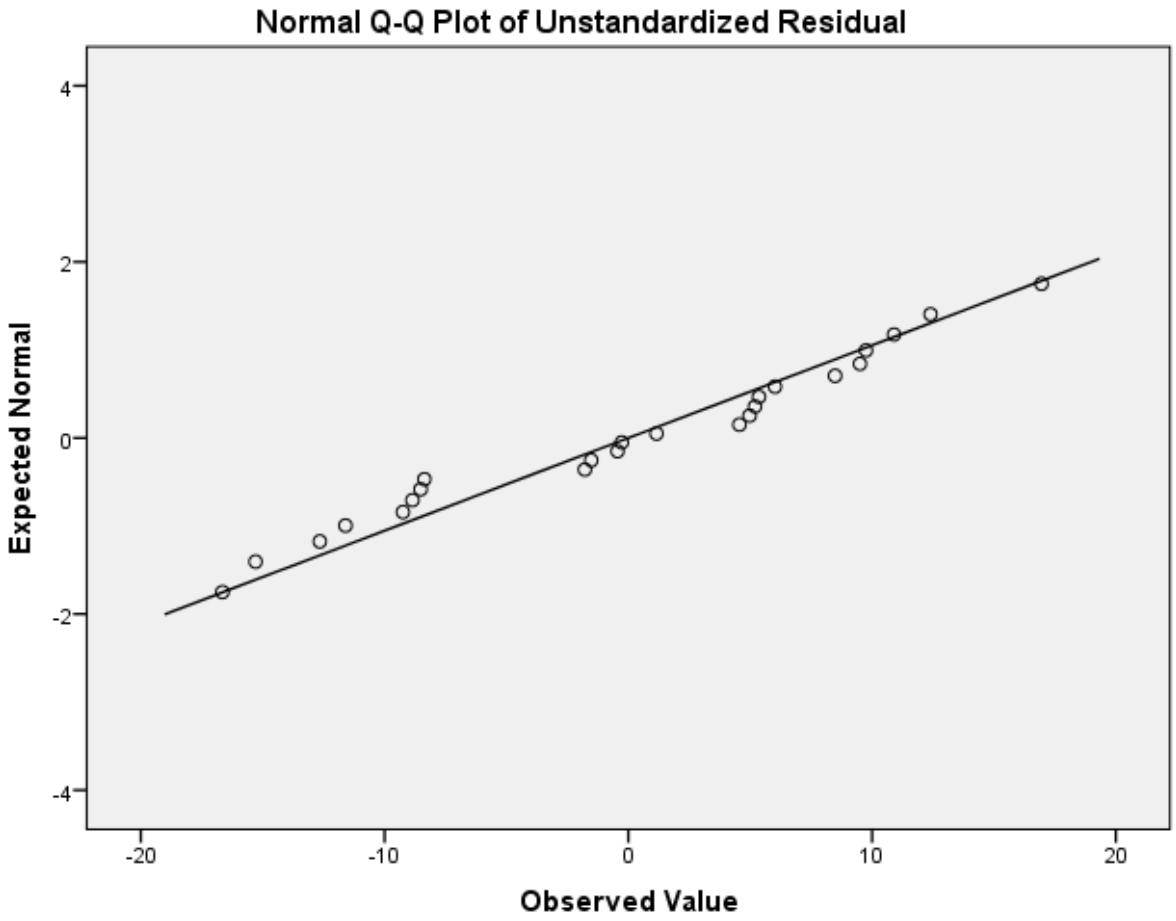

Figure 4.4: Normal Q-Q plot of the residuals

The results in Table 4.15 and Figure 4.4 show that the normality assumption for the residuals was not violated as the residuals were found to follow a normal distribution.

4.8.3.3 Homogeneity of variance

Homogeneity of variance is the constancy of variance. In regression analysis, the residuals are assumed to be the same across all values of the explanatory variables. A residual scatter plot for predicted scores and standardized residual values also known as error values of prediction was used to test for the homogeneity of variance. This assumption is met if the scores are randomly scattered about a horizontal line. The results were presented in Figure 4.5.

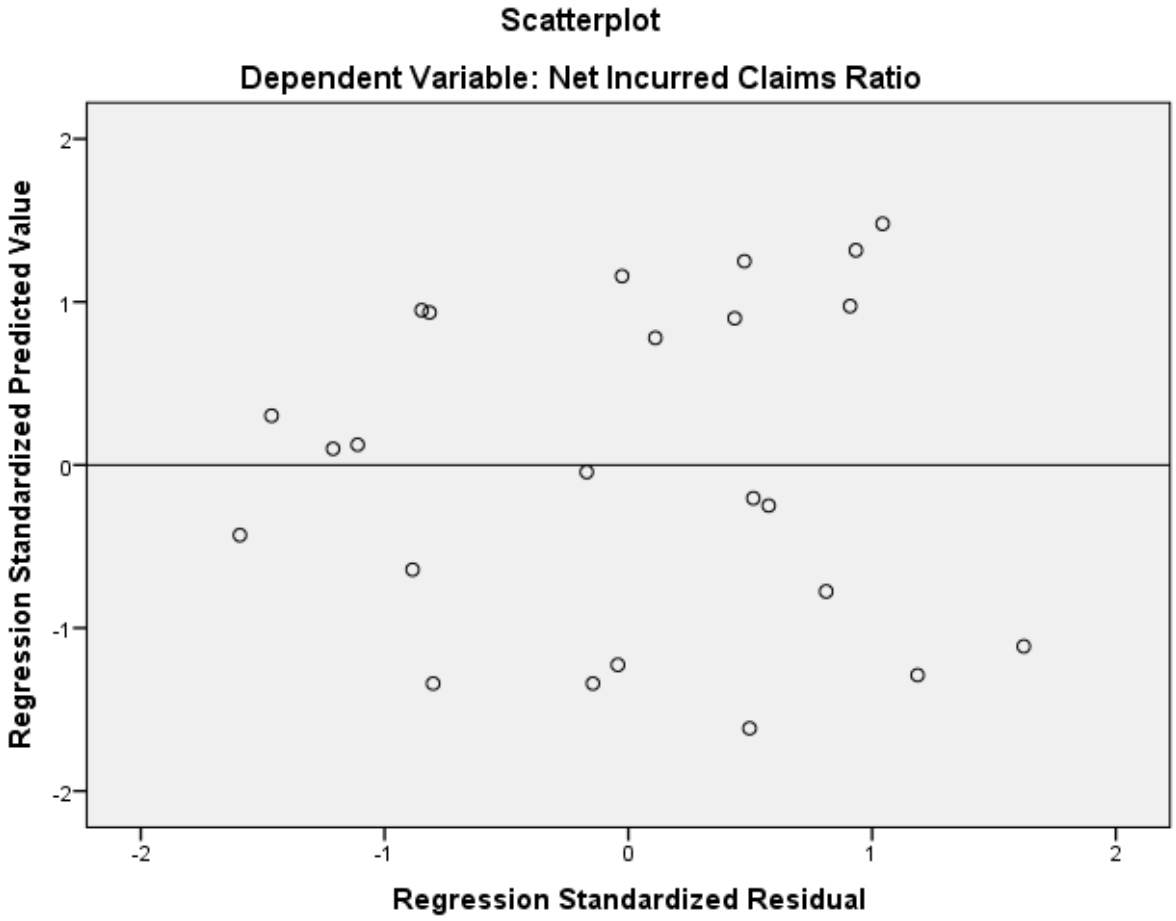

Figure 4.5: A scatter plot of the predicted values and residual values of Net incurred claims ratio

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According to the results in Figure 4.5, the scores appeared to be randomly scattered. This indicated that the homogeneity of variance assumption was not violated.

4.8.3.4 Multicollinearity

Multicollinearity is the high correlation among the explanatory/independent variables. In linear regression, Explanatory/independent variables are assumed not to be highly correlated with each other. In this study, Variance Inflation Factor (VIF) and Tolerance tests were used. The results were presented in Table 4.16.

Table 4.16: Multicollinearity test

Factors	Tolerance	VIF
Corporate Governance	.703	1.423
Fraud Preventive controls	.482	2.076
Fraud Detective controls	.304	3.285
Fraud Response and Monitoring	.329	3.044

The results in Table 4.16 revealed that multicollinearity did not exist among the variables. According to Belsley, *et al.*, (2004), a tolerance value below 0.2 indicates multicollinearity, whereas a value above 0.2 suggests no multicollinearity. On the other hand, Gujarati (2007) suggested that a VIF greater than 5 indicates multicollinearity while a VIF less than 0.5 indicates non-existence of multicollinearity. Therefore, this affirms that there was no violation of the no-multicollinearity assumption.

4.8.3.5 Multivariate Regression analysis

A multiple linear regression was performed with net incurred claims ratio which is the dependent variable and the explanatory variables namely: corporate governance, fraud preventive controls, fraud detective controls, fraud response & monitoring and the market share. A backward regression analysis was performed to establish an optimal model with significant variables. This aimed at establishing a statistically significant linear relationship between the dependent variable and the explanatory variables. The results were presented in Tables 4.12, 4.13 and 4.14.

Table 4.12 shows a model summary Table which is used to test for the goodness of fit of the model.

Table 4.12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.714[a]	.511	.375	10.61778
2	.707[b]	.500	.394	10.44847
3	.672[c]	.452	.370	10.65801

a. Predictors: (Constant), Market Share (Number Of policy Holders), Corporate Governance, Fraud Response and Monitoring, Fraud Preventive controls, Fraud Detective controls

b. Predictors: (Constant), Corporate Governance, Fraud Response and Monitoring, Fraud Preventive controls, Fraud Detective controls

c. Predictors: (Constant), Fraud Response and Monitoring, Fraud Preventive controls, Fraud Detective controls

The results in Table 4.12 shows that the explanatory/independent variables in the optimal model explained 37% of the variation in net incurred claims ratio as indicated by a coefficient of determination (R^2) value of 0.37

An analysis of variance (ANOVA) was also performed to test for the significance of the whole model. The results were presented in Table 4.13

Table 4.13: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2116.343	5	423.269	3.754	.017[b]
	Residual	2029.269	18	112.737		
	Total	4145.612	23			
2	Regression	2071.371	4	517.843	4.743	.008[c]
	Residual	2074.241	19	109.171		
	Total	4145.612	23			
3	Regression	1873.750	3	624.583	5.498	.006[d]
	Residual	2271.862	20	113.593		
	Total	4145.612	23			

a. Dependent Variable: Net Incurred Claims Ratio

b. Predictors: (Constant), Market Share (Number Of policy Holders), Corporate Governance, Fraud Response and Monitoring, Fraud Preventive controls, Fraud Detective controls

c. Predictors: (Constant), Corporate Governance, Fraud Response and Monitoring, Fraud Preventive controls, Fraud Detective controls

d. Predictors: (Constant), Fraud Response and Monitoring, Fraud Preventive controls, Fraud Detective controls

The results in Table 4.13 revealed that the optimal model significantly predicted net incurred claims Ratio, F=5.498; p= <0.006.

Table 4.14 shows the model coefficient Table.

Table 4.14: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	82.435	9.844		8.374	.000
	Corporate Governance	-3.252	2.805	-.233	-1.160	.261
	Fraud Preventive controls	-6.250	3.783	-.397	-1.652	.116
	Fraud Detective controls	-6.112	-3.916	-.526	-1.561	.136
	Fraud Response and Monitoring	-6.187	2.981	-.629	-2.075	.053
	Market Share (Number Of policy Holders)	.751	1.189	.123	.632	.536
2	(Constant)	83.261	9.601		8.672	.000
	Corporate Governance	-3.628	2.697	-.260	-1.345	.194
	Fraud Preventive controls	-5.915	3.685	-.375	-1.605	.125
	Fraud Detective controls	-7.255	-3.417	-.624	-2.123	.047
	Fraud Response and Monitoring	-6.781	2.784	-.690	-2.436	.025
3	(Constant)	77.902	8.912		8.742	.000
	Fraud Preventive controls	-7.401	3.587	-.470	-2.064	.042
	Fraud Detective controls	-6.651	-3.455	-.572	-1.925	.049
	Fraud Response and Monitoring	-6.875	2.839	-.699	-2.422	.025

a. Dependent Variable: Net Incurred Claims Ratio

The results in Table 4.14 revealed that fraud preventive controls (p-value = 0.042), fraud detective controls (p-value = 0.049) and fraud response & Monitoring (p-value = 0.025) significantly predicted net incurred claims at 5% level of significance. This was because their resultant p-values were less than 0.05 significance level. However, corporate governance and

market share were not significant predictors of net incurred claims and therefore were excluded in the optimal model. This showed that market share which was the moderating variable did not significantly have an effect on the net incurred claims.

CHAPTER 5

SUMMARY, DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Chapter 5 presents a summary of the research. The chapter highlights the objectives of the study and methodologies used to achieve the objectives. The chapter also elaborately discusses the findings, inferences and conclusions drawn and how they impact and relate to the study. The chapter further highlights the recommendations that can be explored to strengthen fraud risk management practices by Kenya medical insurance providers. Finally, the chapter highlights limitations to the study, and offers suggestions for further research.

5.2 Summary of study objectives and methodologies used to achieve the objectives.

The study sought to determine the general fraud risk attitude of the organizations within the scope of the study. This was achieved by posing specific questions in the questionnaire that were designed to measure the risk attitude of the respondents.

The first objective of the study sought to establish various forms of fraud and their frequencies in Kenyan medical insurance. To achieve this objective, the study, through a questionnaire, established various forms of fraudulent practices and their frequencies. The study further explored which factors contributed to the identified forms of fraud. Descriptive statistics (mean and standard deviation) were used to establish most common forms of frauds in Kenyan medical insurance industry.

The second objective was to make determination of the risk management techniques adopted by medical insurance providers to address fraud related challenges in the industry. To achieve this objective, the study through a questionnaire established various fraud risk management practices classified under corporate governance, fraud preventive controls, fraud detective controls and fraud response and monitoring. These were analysed through descriptive statistics (mean and standard deviation).

Finally, third objective of the study was to establish the effects of fraud risk management practices on net incurred claims in Kenyan medical insurance industry. The Pearson correlation was used to determine significance, direction and strength of the linear relationship between net incurred claims Ratio which was the dependent variable and the explanatory variables namely: corporate governance, fraud preventive controls, fraud detective controls and fraud response & monitoring. Further multivariate regression was performed with net incurred claims ratio which is the dependent variable and the independent variables namely: corporate governance, fraud preventive controls, fraud detective controls

and fraud response & monitoring. This was useful in making determination whether a statistically significant linear relationship existed between the dependent and independent variables.

5.3. Discussion of findings

5.3.1 The corporate fraud risk attitude

The study, through questionnaires, sought general information in regard to corporate practices towards fraud. Specific questions were posed to respondents to aid in determining the corporate risk attitude. The study established that most corporates (90%) had dedicated risk management departments which dealt with fraud as one of the risks. That was an indicator that most insurance medical providers had a high regard of risks posed by fraud hence a risk averse attitude. The majority of respondents revealed that their organizations held the risk management reviews on quarterly basis. This indicated of averse risk attitude. The study also sought to know placement of the persons in charge of fraud risk management within the organizational structure. The majority indicated that the fraud risk managers were either in top management or senior management. This was an indicator that of averse risk attitude. Hilson, (2004) stated these corporate governance practices (dedicated departments, placement of managers in organisational structures and management reviews) as good indicators and measures of corporate risk attitude.

5.3.2 Various forms of fraudulent practices and their frequencies in Kenyan Medical Insurance

The results of this study revealed that most of the organizations said identified and perceived that major factors that provided opportunity for fraud included ; complicity between beneficiary and health service provider, complicity between service providers, collusion between service provider and administrators, complicity between beneficiary and administrator staff ,complicity amongst administrator staff and poor internal controls as among critical factors with utmost significance and concern in medical insurance industry. AKI, (2013) findings concurs with above findings that complicity between various internal parties was the leading factor contributing to fraud. The results also showed that the medical insurance providers perceived that lack of sophistication interrogation/ detection software, poor internal controls, poorly trained claims-processing staff and lenient approaches by regulatory bodies were factors that caused considerable concern in contributing to opportunity for fraud. AKI, (2013) finding concurs with above findings that these factors moderately contributing to fraud.

Beneficiary ignorance, benefit structure and electronic data interchange (EDI) was not deemed significant factors contributing to fraud. The respondents also stated extra factors contributing to medical insurance fraud. These factors included, moral hazard, corruption in claims valuation, performance of unnecessary service, inadequate review during internal audit, failure to vet claim documents during processing, reliance on manual systems which could be easily manipulated, lack water tight system and third party fraudulent claims through forgery details among others. AKI, (2013) finding concurs with above findings that these factors minimally contributing to fraud. The study further sought to establish various forms of fraud and their prevalence in Kenyan medical insurance providers. The results revealed that the prevalence of non-disclosure of prior ailments, staff-provider collusion and script alteration was very high (over 40 incidences per year). The study revealed that there was a high (31-40 incidences per year) prevalence of over servicing, generic pharmaceuticals instead of branded, pharmacy related, diagnosis manipulation, falsifying claims or altered invoices, up coding and fee splitting.

Finally, the study results revealed that servicing non-members, merchandise substitution, claim for non-covered benefits, membership substitution, unauthorized billing, script alterations, waving co-payments and deductibles and dual membership, were found to have a low prevalence of fewer than 20 incidences per year.

The respondents indicated other forms of fraud that were prevalent in their organizations. These included, overcharging for services, misrepresentation of service dates and billing for services not offered.

5.3.3 Fraud risk management techniques adopted by Medical Insurance providers to address fraud related challenges in the industry

The study results revealed that the majority of the respondent employed corporate governance practices to aid in mitigating fraudulent insurance claims. The respondents identified audit committee, internal audits, external audits, maintaining a fraud policy, top management and board reviews of fraud incidences and maintaining a code of conduct against fraudulent engagements, as a forms of corporate governance practices that existed in their organizations. However, the respondents acknowledged that on average, governance practices have minimal direct effect on preventing, detecting, or deterring fraud but rather offers a framework of mitigating fraud.

The results of the study revealed that corporate governance practices which included audit committees, internal audits, external audits, fraud policies, dedicated fraud risk management departments, top management reviews of fraud incidences and maintaining a maintaining a

code of conduct had a moderate effect in containing the fraudulent claims. Fraud preventive controls which included; comprehensive ethics programs, screening of staff members, screening of service providers, electronic alerts to members, reviewing controls, training courses on fraud and screening new members had a moderate effect in mitigating levels of fraud claims. Davis & Peschi, (2010) found that fraud prevention techniques introduced in various organizations should depend on the characteristic of the organization. Some uniform methods can be effective in most of the organizations, but may still not prevent fraud outbreaks. Most Fraud detective controls which included; detective software's, fraud awareness programs and increasing the budget investigative function had minimal effect in control of fraudulent claims. However forensic investigative reviews and quality control in vetting paper claims was moderately effective in detecting the fraudulent claims. Shared databases was absent in most of respondent organizations.

The study further revealed that fraud response and monitoring techniques employed by respondent organizations included hotlines, incentives to whistleblowing, reporting to insurance fraud unit and policies and procedures of reporting fraud. These practices were found to be minimally effective in responding and monitoring of fraud. Exceptionally prosecution of fraud perpetrators was found to be moderately effective. The study found other fraud risk management practices which included; involvement of clients in processing claims, vetting of claim documents during processing, proactive fraud auditing, corrective actions, hospital visits by staff and segregation of duties

5.3.4 Effects of fraud risk management practices on net incurred claim ratio in Kenyan medical insurance industry

The study was able to meet the third objective of determining the effects of fraud risk management practices on net incurred claims in Kenyan medical insurance industry. The results of the study revealed that was a negative statistically significant linear relationship between the fraud risk management practices whose respective outcomes are summarised as follows; net incurred claims ratio and corporate governance, r=-0.418 (moderate negative correlation); p=0.024, net incurred claims ratio and fraud preventive controls, r=-0.550 (strong negative correlation); p=0.003, net incurred claims ratio and fraud detective controls,

r=-0.369 (Moderate negative correlation); p=0.049 and net incurred claims ratio and fraud response & monitoring, r=-0.596 (strong negative correlation); p=0.001.

In carrying out multivariate regression analysis , test for the goodness of fit of the model showed that the explanatory/independent variables in the optimal model explained 37% of the variation in net incurred claims ratio as indicated by a coefficient of determination (r^2) value of 37% .Analysis of variance (ANOVA) was also performed to test for the significance of the whole model The results revealed that the optimal model significantly predicted Net incurred claims ratio, F=5.498; p= <0.006.The beta co-efficient revealed the significance of the fraud risk management practices in predicting the net incurred claims .Respective results indicated that 3 variables, fraud preventive controls (p-value = 0.042), fraud detective controls (p-value = 0.049) and fraud response & monitoring (p-value = 0.025) significantly predicted net incurred claims at 5% level of significance. This was because their resultant p-values were less than the 0.05 significance level. However, corporate governance and market share were not significant predictors of net incurred claims and therefore were excluded in the final optimal model. The results showed that market share which was the moderating variable did not significantly have an effect on the net incurred claims.

5.4 Conclusions

5.4.1 Organization attitude towards fraud risk

The study sought to determine the general fraud risk attitude as a precursor to study the dynamics of fraud risk management. The study concluded that most medical insurance providers underscore the fraud risk management. This is evidenced by most organizations having dedicated departments in charge of fraud risk management or risk management department that has mapped and flagged fraud as high risk. Further the study found that there were regular management and board reviews of fraud risks by most of the organizations in the scope of the study. Fraud issues were headed by the persons in either senior management cadre or top management cadre. The organizations have proactively and reactively employed fraud risk management practices which mitigate are meant to mitigate fraudulent outcomes. However, despite these measures being put in place it’s difficult to eliminate fraud owing to its evasive nature and multiplicity of ways in which fraud can be carried out.

5.4.2. Various forms of fraudulent practices and their frequencies in medical insurance industry

Various forms of fraud are prevalent in medical insurance providers. The most common form of fraud was complicity between beneficiaries, medical care providers and medical insurance

staff. Moral hazards remained the biggest motivation of complicity within the medical insurance providers.

Poor internal controls and lack of proper review in internal audits offered good opportunities for fraud to occur in many forms including diagnosis manipulation, alteration of invoices, fee splitting, up coding, falsified claims, lack of segregation of duties among other many forms. Inadequate and disintegrated systems and ICT infrastructure offered opportunity to various forms of fraud including, alteration of invoices, duplication of bills, up coding, payment of services not billed for among other forms of fraud. Further lack of common data repository amongst insurers limited the nature vetting that could be done on new entrant policyholders to curb some forms of fraud like, dual membership or co- insurance thus offering opportunity to these forms of fraud to be perpetuated.

5.4.3. Fraud risk management technique's adopted by medical insurance providers to address fraud related challenges in the industry

Organizations had put in place fraud risk management practices to mitigate fraudulent medical claims. Most corporates in the scope had put up corporate governance practices including audit committee, external audits, fraud policy, dedicated fraud departments, management and board reviews and code of conducts against fraud as the overarching structural controls to mitigate fraud. These controls were perceived be moderately effective by the industry in offering framework of preventing, detecting and deterring fraud. The organizations in scope had also put up proactive fraud preventive and deterrence practices that were perceived by the industry to be moderately effective in reducing fraudulent claims. These fraud preventive practices included, comprehensive ethics program, screening staff members, screening of service providers, electronic alert on claims, improvement of internal controls, trainings, screening new members, claims vetting and client's involvement in processing claims. The medical providers also had reactive fraud detective practices which kept fraudulent activities on check. These activities included fraud detection software's, forensic investigative reviews, vetting paper claims and hospital visits which were deemed to moderately mitigate fraud. The industry response however acknowledged that shared databases were limited making it difficult to share information that can aid in fighting fraud. The medical providers had also put in place fraud response and monitoring mechanisms to mitigate against fraudulent claims. These mechanisms were both proactive and reactive and they included, hotlines, whistleblowing incentives, reporting to insurance fraud unit, and prosecution of fraud perpetrators. The industry perceived these response and monitoring strategies as moderately effective.

5.4.4 Relationship between fraud risk management practices and net incurred medical insurance claims

The correlation tests indicated that corporate governance and fraud detective control were moderately negatively correlated to net incurred claims. The study also revealed that fraud preventive controls, fraud monitoring controls had a strong negative correlation with net incurred claims. The size of the corporate portfolio of policyholders was not significant influence on the pattern of fraudulent activities. The results of regression analysis further revealed that the fraudulent risk management practices to a good extent influence the level of net incurred claims. This implied that if organizations under scope employ strong fraud risk management practices, they were likely to reduce the level of fraudulent insurance claims; conversely weaker fraud risk management practices were likely to drive up the net incurred claims which shall factor in fraudulent claims. Organizations can use this inverse relationship to fix strong controls which will impact positively on reducing the level of fraud.

5.5 Research Recommendations

The medical insurance providers will be able to institute proper fraud risk management frameworks which incorporate corporate governance, fraud preventive controls, fraud detective controls and fraud response & monitoring. These practices significantly impact on the level of net incurred claims as revealed by the study results. The implication is that if tighter controls were employed, there was high likelihood of reducing fraudulent claims that would see realization of lower net incurred claims ratios.

The study results have demonstrated the significance, strength and detection of fraud management practices and net incurred claims ratio. Based on these, medical insurance providers will be able to make determination of the appropriate premiums to surcharge based on the predictability of net incurred claim ratios. The probable net incurred claims ratio shall be more ascertainable through referencing to the findings of this research which will determine the effects of fraud risk management against the ratio.

Further practices that can be enhanced by medical insurance providers include;

5.5.1 Elaborate third party due diligence – Third parties' due diligence includes prequalification and vetting of the medical care providers based on their capability to provide quality services and ethical practices. The process should target to eliminate medical care providers that do not meet accountability and ethical standards. Insurance medical providers should develop standardized checklists for vetting.

Insurance brokerage firms should also be thoroughly vetted by medical insurance providers since they act as intermediaries between beneficiaries of medical insurance and the medical insurance.

5.5.2 Implementation of ABC Frameworks

Insurance companies should consider conforming and signing up Anti-bribery and Corruption programs as prescribed in Kenyan Bribery Act 2016 Laws of Kenya. This will enable this organisation to have fraud policies, proportionate procedures, third party due diligence codes, ethical code of conducts, fraud response mechanisms among other measures. This will complement the comprehensive ethics programs already rolled out by the medical insurance providers. The ABC Frameworks will instil culture of honesty and integrity that will go long way reducing the fraudulent claims.

5.5.3 Shared databases/ repositories

The study revealed that there was no shared database or repository of medical insurance providers which holds the policyholder's data. Further, the research discovered that the Association of Kenyan Insurers was conducting feasibility of a shared data base repository with. This kind of repository will go a long way in eliminating some forms of fraud like, membership substitution, waiving co-payments and deductibles and dual membership. However, medical issues are critically confidential and private information and medical insurance providers, regulator IRA and association of Kenya Insurers have to evaluate how to overcome, confidentiality, privacy and legal hurdles in establishing the shared database.

5.5.4 Thorough vetting on new policyholders

Thorough vetting of new policy holders should be done. This includes careful evaluation of medical history and proper disclosures by the beneficiaries. This will aid in reducing one of most common forms of fraud 'non-disclosure of prior ailments' as revealed by the results of this study.

5.6.5 Thorough and professional vetting of medical claims

The medical claims should be thoroughly vetted by qualified professionals in the claims departments. Medical insurance providers should involve their own medical professionals in the vetting the medical bills. This way medical professional shall be able to pick out unnecessary billings and medical processes that may be included in the bills.

5.6 Limitations

The research explored the effects of fraud risk management practices vis-a-vis net incurred claims within the medical insurance providers only. This did not include in the scope other participants like regulators, insurance brokers, medical care provider and beneficiaries. This seclusion was occasioned by lack of common dependent and independent variables among participants. Rather its only medical insurance providers whom could fit within the conceptual framework and constructs of this study.

5.7 Suggestions for further research

Further research should be done risk management practices on Takaful medical insurance. The principles and guidelines of Takaful Insurance are grounded in Islamic 'Muamalat '(commercial and civil acts or dealings branch of Islamic law). Thus a case study research would be appropriate to deal with the uniqueness of Takaful products. Based on these Islamic Principles Takaful Insurance does not apply standard fraud risk management framework (Corporate governance, Prevention, Detection, Response and Monitoring). Rather, Takaful' applies Ethical dimension in risk management which features shared responsibility, shared guarantee, collective assurance, mutuality in insurance and protection (Onimbo, 2014). Othman, (2015) asserts that despite Islamic financial services being grounded on Islamic laws, fraud is still prevalent and cannot be eliminated, as such fraud risk management should be a priority to all corporates offering Islamic financial services.

Elaborate study should also be done to determine effectiveness of fraud risk management practices employed the national social insurance provider NHIF, whose scope was not included in this study because this could not fit within the model of this study. The NHIF operates statutory deductions and voluntary remittances model to fund operations rather than medical insurance provider's premium model which is the premise of this study. This is despite the fact that NHIF is the largest single medical insurance provider to public and faced by fraudulent medical claims thus posing fraud risks similar to the medical insurance providers. Mwangi, (2017) found that there were significant levels of fraudulent medical claims at NHIF which required both proactive and reactive strategies to counter.

Also further research can be done to evaluate effectiveness of re- insurance (transfer or risk to re-insurer) as a practice of fraud risk management that can be used to mitigate medical insurance providers from monetary losses occasioned by fraud.

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Appendix 1

QUESTIONNAIRE

ACADEMIC SURVEY MARCH 2018

This questionnaire seeks primary data for study undertaken to fulfil the award of Master of Commerce Degree at Strathmore University

The Research undertaken is seeking to establish the '**Effects of Fraud Risk Management Practices on Net Incurred Medical Claims in Kenyan Insurance Industry'.**

The data collected shall be treated with utmost confidentiality and will be solely used for purpose of academic study.

INTRODUCTION

The purpose of this survey is to collect primary data that will be applied to the aforementioned study. The study will seek to make a determination whether the level of fraudulent claims can be minimized upon employment of effective fraud risk management practices. Kindly provide the data sought .In case of any query or clarification, please write an e mail to tgitauh@gmail.com and you will receive a reply in due time.

The Questionnaire is divided into three parts; Part A, B and C.

PART A

This part seeks to establish the organizational structure and corporate practice towards fraud risk management

Name of Organization (Optional)

……
……..

1(a). Does your organization have a fraud risk management department or equivalent department in charge of fraud incidences?

Yes ☐ ☐

1 (b) How regularly are the fraud risk management reviews held by the Board or management in your organization?

☐ ☐ ☐ ☐

Monthly Quarterly Semi Annually Annually

1.(C) What is the placement of the officer in charge of Fraud risk management in your organizational structure? Please see the below key.

Supervisory level	Is a functional Staff reporting to section head.
Middle management	Heads a section within a department
Senior Management	Heads a department but reports to a top level Manager.
Top Level Management	Reports to the Board and CEO

☐ ☐ ☐ ☐

Supervisory level Middle management Senior Management Top Management

PART B

This part seeks to establish the organization fraud risk management environment by understanding the significance of factors contributing to fraud in your organization.

2(a). How would you rate the following factors that contribute to medical Insurance Fraud? in your organization? Refer to definitions of the attributes and their scoring. (Then tick on the appropriate box.)

Attribute	Scoring	Definition
Not Significant	0	It does not concern or deemed significant.
Somehow Not Significant	1	It creates minimal concern to organisation.
Significant	2	It is an area with considerable concern.
Somehow Significant	4	It is an area of much attention and concern.
Very Significant	5	It is a critical area with utmost significance.

Factors	**Not Significant**	**Somehow Not Significant**	**Significant**	**Somehow Significant**	**Very Significant**
Rating	1	2	3	4	5
Complicity between beneficiary and health service provider.					
Lack of sophistication interrogation/ detection software.					
Poor internal controls.					
Poorly trained claims-processing staff.					
Beneficiary Ignorance.					
Complicity between medical service providers.					
Lenient approach by Regulatory bodies.					
Complicity between medical service provider and administrators.					
Benefit structure.					
Electronic Data Interchange (EDI) .					
Complicity between beneficiary and administrator staff.					
Complicity amongst administrator staff.					
Reliance on manual systems that can be manipulated.					
Third Party fraudulent claims through forged details					
Weak Information Systems with poor filters.					
Inadequate Periodic visits to facilities.					
Medical case for chronic /pre-existing condition that was not declared at inception of the cover.					

2(b) List and rate any other factors contributing to fraud (not listed above) in your organization. (Please tick where appropriate)

Factors	**Not Important**	**Somehow Not**	**Important**	**Somehow Important**	**Very Important**
Rating	1	2	3	4	5

PART C

The purpose of this part is to estimate the prevalence of fraud in your organization as well as determine the fraud risk management practices employed to curb the fraud.

3(a). For each listed forms of fraud, how would you rate the prevalence in your organization? (Please tick on the appropriate box.)

Attribute	Scoring	Definition
Absent	0	No single incidence reported in one year
Very Low	1	Equal to or Less than 10 incidences per year
Low	2	11- 20 incidences per year
Moderate	3	21- 30 incidences per year
High	4	31 - 40 incidences per year
Very High	5	Over 41 Incidences per year.

Form of fraud	**Absent**	**Very low**	**Low**	**Moderate**	**High**	**Very High**
Rating.	**0**	**1**	**2**	**3**	**4**	**5**
Over servicing.						
Generic pharmaceuticals instead of branded.						
Pharmacy Related.						
Non-disclosure of prior ailments.						
Diagnosis Manipulation.						
Falsifying claims or Altered Invoices.						
Servicing non-members .						
Merchandise substitution .						
Claim for non-covered benefits.						
Membership substitution.						
Up coding .						
Unauthorized billing .						
Fee splitting .						
Script alterations .						
Waving Co-payments and Deductibles.						
Dual membership .						
Staff- Provider Collusion.						
Any Other (Please List Below and rate)						

4(a). How would you rate the below fraud risk management practices in relation to your organization? (Please tick where appropriate)

Attribute	Scoring	Definition
Absent	0	No Control or Fraud management Practice of that nature
Ineffective	1	The control or fraud management Practice exist but it does not prevent, detect or deter fraud.
Somehow ineffective	2	The control or fraud management Practice exist, however it minimally prevents, detect or deter fraud.
Somehow effective	3	The control or fraud management Practice exist, it averagely prevents, detect and deter fraud
Effective	4	The control or fraud management Practice exist , it significantly prevents, detect and deter fraud
very effective	5	The control or fraud management Practice is exist, its, highly effective in preventing, detecting and deterring fraud.

Means of reducing Fraud	Control Absent	Ineffective	Somehow ineffective	Somehow Effective	Effective	very effective
Rating	0	1	2	3	4	5
CORPORATE GOVERNANCE						
Audit Committee.						
Internal Audits.						
External Audits.						
Maintaining a fraud policy.						
Dedicated Fraud Risk Management department.						
Top management and Board Reviews of Fraud Incidences.						
Maintaining a code of conduct against fraudulent engagements.						
FRAUD PREVENTIVE CONTROLS						
Comprehensive ethics program.						
Screening staff members.						
Screening of service providers.						
Electronic alert to members on claims.						
Reviewing and improving controls.						
Training courses on Fraud.						
Screening of new members.						
Involvement of Clients in processing Claims.						
Claims (Bill s) thorough vetting.						
FRAUD DETECTIVE CONTROLS						
Detection software.						
Forensic Investigative Review.						
Fraud Awareness Programmes**.**						
Increasing budget of Investigative function.						
Quality control or claims vetting of paper claims.						
Shared Databases of Fraud Cases.						
Hospital Visits by Staff.						
FRAUD RESPONSE AND MONITORING						
Introduction of hotline.						
Incentives for whistle-blowing.						
Reporting to Insurance Fraud Unit.						
Defined Fraud Investigation and reporting procedures.						
Prosecution of Fraud Perpetrators.						

4(b) List and rate any other internal control or risk management practice exercised by your organization. (Please tick where appropriate)

Means of reducing Fraud/ Internal Control	**Absent**	**Ineffective**	**Somehow ineffective**	**Effective**	**Somehow effective**	**very effective**
	0	1	2	3	4	5

Thank you for taking time to answer the above question

APPENDIX 2: SUMMARY OF INCURRED CLAIMS RATIOS UNDER GENERAL INSURANCE BUSINESS FOR THE PERIOD ENDED 31.12.2017				
Company	**Personal Accident**	**Workmen's' Compensation**	**Medical**	**WEIGHTED AVERAGE NET INCURRED CLAIM RATIO %**
INSURERS				
AAR INSURANCE KENYA	70.0	21.5	73.6	55.0
AFRICAN MERCHANT ASSURANCE	30.7	79.4	0.00	55.0
AIG INSURANCE COMPANY	56.0	0.0	0.00	56.0
ALLIANZ INSURANCE COMPANY	58.0	31.5	0.00	44.7
APA INSURANCE COMPANY	74.6	62.4	78.2	71.7
BRITAM GENERAL INSURANCE	10.1	35.5	76.4	40.6
CANNON ASSURANCE COMPANY	8.1	146.2	0.00	77.1
CIC GENERAL INSURANCE COMPANY	33.4	57.8	71.4	54.2
FIDELITY SHIELD INSURANCE	95.1	16.1	0.00	55.6
FIRST ASSURANCE COMPANY	32.6	139.4	67.5	79.8
GA INSURANCE COMPANY	33.5	89.9	66.9	63.4
GEMINIA INSURANCE COMPANY	26.5	59.1	0.00	42.8
HERITAGE INSURANCE COMPANY	34.1	32.2	67.1	44.5
ICEA LION GENERAL INSURANCE	48.1	49.4	68.2	55.2
INTRA-AFRICA ASSURANCE	106.4	29.5	0.00	68.0
JUBILEE INSURANCE COMPANY	60.8	58.0	65.0	61.3
KENINDIA ASSURANCE COMPANY	28.5	95.0	97.4	73.6
KENYA ORIENT INSURANCE	68.3	18.3	0.00	43.3
MADISON INSURANCE COMPANY	50.9	75.6	70.3	65.6
MAYFAIR INSURANCE COMPANY	20.5	47.1	0.00	33.8
OCCIDENTAL INSURANCE COMPANY	23.6	93.5	0.00	58.5
PACIS INSURANCE COMPANY	30.8	8.6	63.0	34.2
PIONEER INSURANCE COMPANY	68.2	10.9	0.00	39.5
RESOLUTION INSURANCE COMPANY	48.2	6.0	73.2	42.5
SAHAM INSURANCE COMPANY	70.8	38.2	65.9	58.3
SANLAM INSURANE COMPANY	19.1	17.7	81.8	39.5
TAKAFUL INSURANCE OF AFRICA	9.7	56.2	25.0	30.3
TAUSI ASSURANCE COMPANY	0.0	53.1	43.8	32.3
THE KENYAN ALLIANCE INSURANCE	48.3	57.1	0.00	52.7
THE MONARCH INSURANCE	66.5	18.9	0.00	42.7
TRIDENT INSURANCE COMPANY	0.5	14.4	114.6	43.2
UAP INSURANCE COMPANY	16.8	19.1	70.0	35.3

APPENDIX 3:MARKET SHARE - MEDICAL COVER, GPA AND WIBA FOR THE PERIOD ENDED 31.12.2017		
Company	**Number of Policyholders**	**Market Share (%)- Number Of policy Holders**
INSURERS		
JUBILEE INSURANCE COMPANY	379,828	**9.2**
CIC GENERAL INSURANCE COMPANY	335,652	**8.13**
UAP INSURANCE COMPANY	324,505	**7.86**
APA INSURANCE COMPANY	274,962	**6.66**
BRITAM GENERAL INSURANCE	266,292	**6.45**
ICEA LION GENERAL INSURANCE	201,887	**4.89**
HERITAGE INSURANCE COMPANY	196,932	**4.77**
AAR INSURANCE KENYA	191,978	**4.65**
GA INSURANCE COMPANY	185,785	**4.5**
RESOLUTION INSURANCE COMPANY	163,904	**3.97**
MADISON INSURANCE COMPANY	130,050	**3.15**
AIG INSURANCE COMPANY	123,444	**2.99**
GEMINIA INSURANCE COMPANY	113,123	**2.74**
KENINDIA ASSURANCE COMPANY	99,911	**2.42**
FIRST ASSURANCE COMPANY	98,673	**2.39**
OCCIDENTAL INSURANCE COMPANY	85,874	**2.08**
AFRICAN MERCHANT ASSURANCE	84,223	**2.04**
THE MONARCH INSURANCE	80,920	**1.96**
MAYFAIR INSURANCE COMPANY	80,507	**1.95**
FIDELITY SHIELD INSURANCE	79,268	**1.92**
TAUSI ASSURANCE COMPANY	76,378	**1.85**
TAKAFUL INSURANCE OF AFRICA	74,727	**1.81**
SANLAM INSURANE COMPANY	71,424	**1.73**
SAHAM INSURANCE COMPANY	71,011	**1.72**
KENYA ORIENT INSURANCE	62,341	**1.51**
PIONEER INSURANCE COMPANY	52,020	**1.26**
THE KENYAN ALLIANCE INSURANCE	49,130	**1.19**
TRIDENT INSURANCE COMPANY	45,001	**1.09**
CANNON ASSURANCE COMPANY	42,524	**1.03**
PACIS INSURANCE COMPANY	40,460	**0.98**
INTRA-AFRICA ASSURANCE	34,267	**0.83**
ALLIANZ INSURANCE COMPANY	11,560	**0.28**
	4,128,562	**100**