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# Determinants of effective fraud risk management practices among medical insurance providers in Kenya.

Mwangi, Alex Wainaina  
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**DETERMINANTS OF EFFECTIVE FRAUD RISK MANAGEMENT  
PRACTICES AMONG MEDICAL INSURANCE PROVIDERS IN KENYA**

**ALEX WAINAINA MWANGI**

**A dissertation submitted in partial fulfilment of the requirements for the Degree  
of Master of Business Administration at Strathmore University**



**Strathmore Business School**

**Strathmore University**

**Nairobi, Kenya**

**September, 2022**

## 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 dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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**Alex Wainaina Mwangi**

### Approval

The dissertation of Alex Wainaina Mwangi was approved by the following:

Dr. David Mathuva (Supervisor)  
Senior Lecturer  
Strathmore Business School

Dr. Angela Ndunge  
Ag. Executive Dean  
Strathmore Business School.

Dr. Bernard Shibwabo  
Director, Office of Graduate Studies  
Strathmore University



## ABSTRACT

According to the Insurance Regulatory Authority, at least 40% of medical insurance claims in Kenya bear an element of fraud. The inability to effectively manage fraud risk has tainted the image of the medical insurance industry, becoming a major contributory factor alongside high premiums for low uptake of insurance in the country. The market penetration rate of insurance in Kenya as at end of 2016 was the 3<sup>rd</sup> lowest in Sub-Saharan Africa at only 2.7%, also significantly lower than the world average of 6.8%. This demonstrates that FRM in the medical insurance industry in Kenya is a major concern hence the motivation behind this study to examine the determinants of effective fraud risk management in medical insurance providers in Kenya. The study focused on top management support, technology adoption, regulatory policies and employee empowerment. The research was grounded on the fraud management lifecycle theory and the institutional theory. The study adopted a positivism research paradigm and applied a descriptive correlational research design. The population for the research was drawn from all the 26 medical insurance providers in Kenya with a claims manager, risk & compliance manager and underwriting manager from each insurance provider taking part in the research. The research utilized structured questionnaires in the collection of data. The final sample comprised of 54 responses from the sample size of 78 management staff which represented a 69.2% response rate. 61% of the respondents were female and 53.7% were claims managers. The collected data was analysed using descriptive, factor, spearman's rank coefficient correlation, and ordered logistic regression analyses. The factor analyses results revealed that effective fraud risk management practices in medical insurance providers in Kenya fall under two main components - preventive and detective FRM practices. In sum, the study established that top management support, technology adoption and employee empowerment have a positive and significant effect on effective FRM practices among MIPs in Kenya. The study further established that regulatory policies have a positive but insignificant effect on effective FRM practices among MIPs in Kenya. The study recommends that there be more consultation and engagement between the insurance regulator and MIPs to increase the likelihood of formulation of regulations and policies which will complement effective FRM. The study further recommends that management in medical insurance firms make a concerted effort to foster an environment of teamwork in problem solving, delegation of duties, as well as facilitate professional development training to enhance employee skills and competencies as these contribute positively towards effective FRM. Finally, the study recommends that MIPs in Kenya should endeavour to abandon manual processes and embrace systemisation and automation, where possible. The adoption of digitalized forensic systems, fraud detection frameworks, machine learning technologies and other emerging technologies play a significant role in detection efforts towards effective FRM in Kenyan MIPs. Further, mobile technologies, blockchain technologies as well as the creation of automated platforms for regular systems audits and risk identification are a fundamental part of effective preventive FRM.

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## LIST OF ABBREVIATIONS

MIPs	Medical Insurance Providers
FRM	Fraud Risk Management
AKI	Association of Kenya Insurers
CBK	Central Bank of Kenya
FRISS	First Responders Integrated Support System
GWP	Gross Written Premium
IFIU	Insurance Fraud Investigation Unit
IRA	Insurance Regulatory Authority
KES	Kenyan Shilling
KPMG	Klynveld Peat Marwick Goerdeler
MFCU	Medicaid Fraud Control Unit
MSI	Market Share Index
NACOSTI	National Commission for Science, Technology and Innovation
ODPP	Office of the Director of Public Prosecutions
OLR	Ordered Logistic Regression
PwC	PriceWaterHouse and Coopers
USD	United States Dollar
VIF	Variance Inflation Factors

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## DEDICATION

I dedicate this project to my parents to whom I am greatly indebted. This would not have been possible without their support and wisdom which remains steadfast in whatever I have chosen to pursue. This is for you!

To my sisters - Ciiru, Bui and Guch, thank you for your never-ending positive vibes. You kept me going with your words of encouragement.

Finally, to my son Alpha, my Champ, my hope is that one day - in one way or the other, this will serve as a source of inspiration to you, as you are to me.



# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

The main objective of this study was to explore the determinants of effective fraud risk management practices in medical insurance providers in Kenya. This chapter comprises of 6 sections which present a background to the study, giving an introduction to effective fraud risk management practices, the determinants thereof, as well as giving an overview of medical insurance providers in Kenya. The chapter further covers a statement of the problem, the general and specific objectives of the study, research questions, the scope of the study and its significance to policy makers, medical insurance firms and researchers.

For purposes of this study, medical insurance providers and fraud risk management were dubbed “MIPs” and “FRM” respectively.

### 1.2 Background to the Study

There is a growing concern within the health insurance industry that cases of fraud have been on the rise. Yange (2019) contends that health insurers today are faced with more direct challenges in the management of fraud. A report by First Responders Integrated Support System (FRISS) (FRISS, 2021) reveals that there has been a rapid change in how insurance companies conduct their operations, presenting more challenges in containing incidences of fraud. The report notes that with the onset of COVID-19, at least 18% of all claims within the industry bore an element of fraud, arising from both internal and external actors. (AFCE, 2020).

Grand View Research (2019) notes fraud in the insurance sector is projected to increase by 13.7% between 2019 and 2025. The report further shows that in recent years insurance fraud is commonplace across the globe due to threats in the industry associated with cyber-attacks. According to Waghade & Karandikar (2018), effective fraud detection is key to reducing the cost of healthcare provision. The Center for Financial Reporting Reform (CFRR, 2018) reports that although having strong internal controls, including maintaining a robust internal control environment are the most effective fraud mitigation strategies, companies have to be supported by

an efficient and effective internal audit function, a robust policy and regulation environment, and the implementation of emerging technologies such as data analytics in preventing and detecting fraud.

Globally, fraud management efforts have been driven by growth in the occurrences of fraud, regulatory requirements; increased dissatisfaction among the citizenry and humanitarian organisations with the scale of fraud and corruption, as well as amplified requirements from external and internal auditors (CFRR, 2018). Governments and organizations attempt to achieve this by establishing appropriate risk assessment processes and plans, and implementing fraud awareness programs, coupled with fraud prevention and detection measures. Al-Hashedi & Magalingam (2021) found that the telecommunications, real estate, energy, healthcare and financial industries are the most vulnerable in this respect. Kratcoski (2018) found that healthcare fraud in the United States, largely relates to irregularities in medical diagnosis (43%) and services billing (34%). Kratcoski further notes that fraud in medical service billing may take the form of double billing, phantom billing, unbundling, upcoding, bogus marketing, identity theft, forgery, doctor shopping and diversion.

Medical insurance fraud is a global phenomenon. In Europe, According to Thaifur et al, (2021), losses as a result of fraud total at least €56 billion annually. In South Africa, Legotlo & Mutezo (2018) note that fraud takes the form of illegitimate claims, fluctuating or erratic invoicing of codes, exaggerated invoicing of services, provision of unnecessary curative services, replicated claims, exempted benefits or payments and claims from illegitimate service providers in South Africa. Daramola et al. (2019) identify impersonation as the dominant form of medical insurance fraud in Nigeria. According to the 2020 ACFE Report to the Nations, managers cause the biggest losses when they are involved in occupational fraud (ACFE, 2020). An & Zhang (2018) agree, noting that fraud perpetrators level of authority, tenure and department all have an impact on the length and access to fraudulent mechanisms.

The report affirms that the most common sources of fraud detection include tips from employees, internal audits and management review, while IT controls, monitoring, external audits and document examination accounted for less than 10% of all fraud detection practices. According to Astriana & Adhariani (2019), organisations that provide their employees with fraud awareness training have established fraud reporting hotlines and detect fraud faster than those without. Telephones, emails and lately, web—based online forms were the most used hotlines. Shonhadji &

Maulidi (2021) remark that firms hoping to mitigate fraud need to have an established department dedicated to fraud management to encourage whistle blowing. They found that direct supervisors, the fraud investigation team and the internal audit teams were the top three parties that whistleblowers reported to. A meta-analysis by Nakitende et al. (2021) revealed that over the last decade, hotlines, the implementation of an anti-fraud policy, and fraud training for employees, managers and executives are the most commonly employed anti-fraud controls.

PriceWaterHouse and Coopers (PwC) (2020) reports that there is a heightened desire within Kenyan institutions and the public to put institute measures to curtail the runaway fraud that has dogged the country. According to IRA (2018), there were at least 143 cases of medical insurance fraud that were reported by end of 2017 accounting for more than KES 250 Million in losses. Further, IRA (2019) indicates that more than 50% of fraudulent claims within the industry were attributed to health insurance business. Further, the IRA report of 2016, noted that increased medical insurance fraud can be attributed to the collapse of several insurance firms such as Access Insurance, United Insurance, and Kenya National Assurance company in the past.

### **1.2.1 Effective FRM Practices**

Murphy & Free (2016) defined fraud as any deliberate action by a single or set of individuals within an organisation's management, employees, or related parties to use deceptive means to illegally gain an advantage. Medical insurers fraud is described as a false or misleading statement provided to a health insurance provider to make them pay unauthorized benefits to a policyholder or another entity (Puteh & Al Salem, 2019). Villegas-Ortega et al. (2021) did a review on health insurance fraud documents published between 2006 and 2020 to identify the definition, manifestations and factors influencing health insurance fraud, defining health insurance fraud as any act of deception or intentional misrepresentation to obtain illegal gains regarding the coverage provided by a health insurance firm. Health insurance fraud manifested itself in the form of document falsification, phantom billing, overutilization of services, misrepresentation of coverage and alteration of documents, falsification of benefits declarations, falsification of reimbursements among others. Factors such as the condition of insurance and regulations, institutional culture and reputation, geography, management policy, characteristics of the provider, professional role of the auditing department, chronic disease and treatment, future likelihood of risk of disease, and associated medication costs, among others also influence the occurrence of health insurance fraud.

Haixiang & Smys (2021) in their paper on digital fraud risk control management affirm that companies need to develop systems that can deter, detect and make timely responses to fraud and other criminal activities. The researchers opined that FRM refers to all the various systems and processes that are implemented by an organisation to expose, control, prevent, detect and respond to critical fraud risks. Gupta et al. (2019), in developing a comprehensive FRM framework noted that a strong fraud prevention system has to incorporate aspects of fraud prevention, fraud detection and reaction with emerging technologies such as machine learning, deep learning, blockchain and distributed computing. This definition is supported by Abdallah et al. (2016), Tarmazakov & Silnov (2018) and Chen et al. (2015), who sought to develop FRM systems.

These studies identify detective, preventive and responsive practices as the key tenets of an effective FRM framework. The Role Based FRM Framework designates different levels of power based on roles to carry out identification or handling of fraud reports (Shah & Okeke, 2011). The Action-Event Identity Theft Management Framework, focuses on the management of identity theft Kumar et al. (2007), while the Identity Fraud Enterprise Management Framework incorporates three phases of FRM; anticipatory, reactionary and remediation reactions (Jamieson et al., 2007). Finally, the Fraud Management Lifecycle Framework, provides an eight stage fraud management life-cycle: deterrence, prevention, detection, mitigation, analysis, policy, investigation and prosecution (Wilhelm, 2004). affirm that this framework has been used extensively to examine FRM in retail financial institutions, mortgage providers, as well as telecommunication and insurance industries (Soomro et al., 2019).

The preventive aspects of FRM comprise of various methods and techniques that the organisation puts in place to reduce the negative impact of fraud in the firm (Hubert et al., 2015). Such aspects include, but are not limited to having elaborate internal controls, a code of conduct, compliance standards, conducting due diligence, cultural orientation and introducing policies and procedures (Dominic & Nicole, 2015). According to Emmy et al. (2016) detective practices include having an elaborate reporting process, implementing data mining processes, adopting data analytical approaches as well as continuous risk assessment.

Hussaini et al. (2018) defined responsive FRM practices as the various actions taken by the firm to remedy the harms that have been occasioned by the fraud. Thus, when fraud is detected, the departmental heads are expected to assess the adequacy of all the preventive and detective FRM

practices to ensure their efficacy can be sustained. Further, responsive action is key to ensuring improvements are conducted on the internal controls and other policies that are vital to strengthening the FRM practices within the insurance firm (Kabuye et al., 2017). Njagi (2015) opines that partnering with internal auditors and other bodies to assist the management in monitoring and evaluating the adequacy of the fraud control practices was key to improving and reducing the occurrence of fraud within the organisation.

Ndolo (2018) reports that FRM policies in insurance companies are driven by the need to meet ethical standards and designed in accordance with compliance to regulatory/supervisory standards, with fraud investigations being the most common FRM measures. Ndichu (2019) identifies fraud prevention, detection and response as drivers of insurance firms financial performance. The current study studied the effectiveness of FRM practices within the medical insurance providers by focusing on the adequacy of their detective, preventive, and responsive fraud practices in Kenya.

### **1.2.2 Determinants of Effective FRM in Insurance Companies**

According to the above definitions of FRM, effective FRM encompasses activities to do with prevention, detection, assessment, mitigation and prosecution (reaction). However, according to Al Rawashdeh & Al Singlawi (2016), most organisations are faced with an FRM system that is either ineffective, misapplied, or entirely ineffective which presents challenges for most management teams to effectively curtail fraud within their entities.

The researchers affirm that ethical managers will determine an organisation's financial reporting transparency and influence how employees relate and empathize with the business, thus promoting a culture of transparency, integrity and honesty. As indicated by FRISS (2021) most of the insurer's challenges to effective FRM are linked to a lack of adequate information technology (IT) resources, poorly developed ethical culture, poor monitoring policies, customer screening, and lack of awareness of emerging digital threats. Grand View Research (2019) notes that firms operating in a traditional environment are more prone to increased fraud cases, while Insure Afrika (2015) argues for increased investment in fraud mitigation systems, digitization processes, customer relationship management and enhance the quality of employee training on fraud to facilitate effective fraud control.

Flynn (2016) provides evidence that the quality of employee training and acquisition influences the likelihood of employee fraud, arguing for the establishment of a robust talent acquisition program

that will clear out possible fraudsters before they get into the organisation; especially staff tied to the claims processing and underwriting departments. Odhiambo (2016) indicated that most FRM practices fail within insurance companies due to complacency of the top management, resistance to change strategies, and limited prosecution of fraud cases. Chudgar & Asthan (2016) argued that the main limiting factors to the firms are lack of awareness and ethical standing among senior management, lack of employee awareness on FRM, and systemic failure within the organisations. Abdinasir (2017) revealed that weak internal control systems, technological changes, and management awareness led to increased failure in fraud detection and prevention. Bakhtigozina et al. (2018) found out that poor regulation, lack of technological awareness, poor internal control systems, policies, and lack of employee empowerment impact an organisation's ability to prevent fraud.

This study adopted the Fraud Management Lifecycle Theory to understand the best practices for organisations to follow to ensure effective FRM. Elements of top management support, employee fraud training and awareness, organisational culture, regulatory directives and technology integration play a key role in FRM.

Management plays a central role in developing a culture of shared values, promoting honesty and integrity, and drive employee training programs (Fernandhytia & Muslichah, 2020). Sujeewa et al. (2018) aver that employees in turn use the acquired skills and available firm technologies to detect and react to fraud. The government, on the other hand, plays a key supporting role by providing organisations with effective policies to encourage reporting of fraud incidences, and steps to follow when taking legal action against offenders (Prenzler, 2019). Amasiatu & Shah (2018) adopted these variables to develop a fraud management framework, and the current study used these variables to determine how to increase the effectiveness of FRM in medical insurance firms.

Alazzabi et al. (2020) argued that top management teams are essential in the endeavour of effective FRM through the enablement of a good communication environment, commitment to instil integrity, implement managerial control systems, develop and promote shared values, and advance better rewards systems for employees. Macailao (2021) avers that organisations with effective leaders have better working conditions, coordination of business operations, and enforcement of rules which have an impact on transparency and financial fraud reporting. Hoke (2021) found that effective management control systems contribute to low tolerance levels for bribery and corruption, and limit fraud. Berhad (2020) supports this notion by affirming that group approaches to zero

tolerance towards all forms of bribery, corruption and fraud have to be complimented by severe consequences for non-adherence such as dismissal and conviction if found guilty of violating anti-fraud and anti-corruption laws.

Nurhidayat & Kusumasari (2018) agree with Berhad (2020). The researchers note that since tips, and in extension whistleblowers, are the most prominent sources of fraud detection, organisations can strengthen the effectiveness of the whistleblowing system by providing fraud training and awareness programs and by instituting an anti-corruption policy. Karpoff (2021) affirms that effective regulatory policies are key to designing compliance guidelines, development of the regulatory framework, supervision protocols, and establishing reporting standards. Akelola (2015) agrees, and notes that regulatory policies are key to fraud avoidance within firms due to mandatory guidelines therein for reporting fraud and ensuring that operations of registered companies are adequately supervised. Spink et al. (2019) argue that the public policy theory is key to providing a policy framework that would establish clear consequences for fraudsters and act as a deterrent for would be criminals.

The study determined that regulatory guidelines is as an essential indicator of a society's ability to alleviate fraud.

Suryanto et al. (2018) affirm that human resources empowerment is another essential element of fraud prevention, arguing for increased scrutiny to ensure acquisition of reliable, qualified and ethical employees. Hendri et al. (2020) determined that organisational culture, internal control systems and standard operating procedures have to be complimented by capable human resources to ensure effective fraud monitoring and evaluation. In the telecommunications industry, Nawawi & Salin (2018) noted that fraud education and training would promote fraud awareness, and companies with company policies and procedures for fraud detection and reporting are better placed to control internal fraud. Abdullahi & Mansor (2018) note that many employees in developing countries are unaware of the various forms of fraud and thus lack the requisite skills to deter the vice. Further, a study by Rustiarini et al. (2019) indicated that lack of effective fraud training, weak government capacity such as ineffective audit function, lack of effective ongoing evaluations, poor data management and managerial communication were contributing to increasing fraud within the financial industry. Margaret & Miricho (2020) showed that involving employees in training

programs, enhancing teamwork, and fostering their technical competencies is key to controlling sales loss, conducting assessments and reporting, which can improve firm performance.

Emerging technologies are instrumental in all aspect of business operations, and they can be used for harm or good, and Amasiatu & Shah (2018) affirm that most of the fraud occurs through online systems. ACFE (2020) reports that fraudsters are using technology to navigate past traditional protection systems, and therefore assert that incorporation of advanced technologies is necessary in the fight against corruption and fraud. Katamba et al. (2017) are adamant that insurance firms can mitigate fraud through the introduction of new systems and processes that can detect, monitor, and prevent fraud, arguing for the prevention is better than cure approach towards FRM. Trierweiler (2021) found that internal control mechanisms have to be supplemented by IT technologies to detect fraud at an early stage. The researcher also argues that IT systems are also key to improving defences against emerging crimes such as cybercrimes. Mwangi et al. (2018) affirm that organisations have been implementing different technologies and strategies to fight fraud such as planned and targeted system audits, randomized systems review, computerized systems, data mining, and biometric systems. Altuk (2021) observes that the utilization of forensic technologies, analytical tools, firewalls, and digitalized control systems as the technological fraud aversion methods within financial institutions.

The diverse arguments from the above studies have shown that effective FRM practices are a function diverse factors within the organisational environment. There is, however, no consistency in the identification of factors that influence the FRM practices within the organisation. Thus, this study sought to improve on the available evidence and examine how top management support, technology adoption, regulatory policies, and employee empowerment affect effective FRM among medical insurance providers in Kenya.

### **1.2.3 Medical Insurance Providers in Kenya (MIPs)**

There are 26 registered MIPs in Kenya. Medical insurance shields individuals from costs of medical services provided that they are covered on a health policy. Medical insurance broadly falls into two categories; in-patient cover and out-patient cover through which an individual may enjoy a wide array of divergent medical services and products (Insure Afrika, 2015). In Kenya, medical insurance is the fastest growing line of insurance business in terms of premium revenue and net claims, and ranks second only to motor insurance (IRA, 2019).

According to Association of Kenya Insurers (AKI) (2019), the total Gross Written Premium (GWP) for non-life insurance was KES 133.45 Billion mainly driven by the three largest classes; medical at 31.8%, motor commercial and motor private at 18.2%, and 17.7% respectively. The report further showed that the medical insurance class in Kenya accounted for an underwriting loss of KES 1.078 Billion in 2018, an underwriting profit of KES 204.17 Million in 2019 and that medical insurance business faced the highest net claims incurred of KES 20.35 Billion in the industry.

### **1.3 Statement of the Problem**

The inability to effectively manage fraud risk in the medical insurance industry has led to an all-round detrimental effect, not just to the industry itself, but also to Kenyans. Due to rising claims costs incurred as a result of fraud, insurers charge high premiums which has made private health cover unaffordable for the vast majority of Kenyans (Angima & Omondi, 2016). Further, rampant fraud has tainted the image of the insurance industry, becoming a major contributory factor alongside high premiums for low uptake of insurance in the country. The market penetration rate of insurance in Kenya as at end of 2016 was the 3<sup>rd</sup> lowest in Sub-Saharan Africa at only 2.7% and also significantly lower than the world average of 6.8% (Ayishashe, 2015).

The increased incidence of fraud within the insurance industry has resulted in high claims settlement costs, poor customer satisfaction, increase in fraud prevention costs which have ultimately contributed to poor performance within insurance firms (Otiso, 2021). A report by the Insurance Fraud Investigation Unit (IFIU) (2016) revealed that insurance fraud has been on the rise, leading to a KES 33 billion loss in the medical segment alone.

IRA (2019) indicated that 54.2% of all the industry claims reported in 2018 were medical claims, and of these, 40% bore an element of fraud. Furthermore, more than 19 medical insurance providers are currently under investigation due to lack of adequate FRM and reporting frameworks (IRA, 2020). Mutua & Gachunga (2014) contend that continued fraud and misrepresentation of claims had led to poor performance within the Kenyan insurance industry.

In a study in Australia, Flynn (2016) indicated that automation efforts and contributory efforts of employees were essential for effective management of fraud risks. It was further noted that the Privacy Act within the country was the biggest limiting factor to controlling fraud in the health insurance sector. Angima & Omondi (2016) in their study found that low IT usage and automation contributed to increased fraud within MIPs in Kenya. This study however did not examine how

regulatory developments and employee empowerment may influence effective FRM. Soomro (2018) highlighted the importance of management practices on e-FRM, albeit using a qualitative study.

Finally, Odhiambo (2016) noted that poor prosecution rates, failure to publicise of fraud, and failure to have adequate monitoring policies hindered FRM in insurance companies. The above studies have discussed the increased presence of fraud within the insurance industry which points to the lack of effective FRM. However, it is evident that these studies present gaps in knowledge which this study seeks to fill. Some studies have been conducted in other countries, and other industries, not incorporating the context of the medical insurance industry in Kenya. Furthermore, according to Soomro et al. (2019), most organisations have focused on internal control systems against fraud, reducing focus on how to mitigate against external threats.

It is from this background, that this study sought to establish the effect of top management support, technology adoption, regulatory policies and employee empowerment on effective FRM practices among MIPs in Kenya.

## **1.4 Objectives of the Study**

### **1.4.1 General Objective**

The main purpose of the study was to study the determinants of effective FRM practices in MIPs in Kenya.

### **1.4.2 Specific Objectives**

The research sought to examine the following specific objectives;

- i. To establish the effect of top management support on effective FRM among MIPs in Kenya.
- ii. To establish the effect of technology adoption on effective FRM among MIPs in Kenya.
- iii. To establish the effect of regulatory policies on effective FRM among MIPs in Kenya.
- iv. To establish the effect of employee empowerment on effective FRM among MIPs in Kenya.

## **1.5 Research Questions**

The study sought to answer the following questions;

- i. What is the effect of top management support on effective FRM among MIPs in Kenya?
- ii. What is the effect of technology adoption on effective FRM among MIPs in Kenya?
- iii. What is the effect of regulatory policies on effective FRM among MIPs in Kenya?

iv. What is the effect of employee empowerment on effective FRM among MIPs in Kenya?

## **1.6 Scope of the Study**

The contextual scope of the research was to establish the effect of top management support, technology adoption, regulatory policies, and employee empowerment on effective FRM among MIPs in Kenya. The theoretical scope was the fraud management lifecycle theory and the institutional theory. The sample scope for the study was the 26 registered medical insurance providers in Kenya. The study was conducted between February 2022 and July 2022.

## **1.7 Significance of the Study**

### **1.7.1 To policy makers**

The study provides insights which may aid the IRA in the development of regulatory frameworks which complement effective FRM practices in the medical insurance industry in Kenya. The study further supports AKI - another key stakeholder in insurance law and policy development, to have a better appreciation of some of the factors which influence effective FRM in the medical insurance industry.

### **1.7.2 To health insurance managers**

The study seeks to enhance awareness and to dispel misconceptions among management teams in the medical insurance industry about effective FRM. The study reveals several findings which take into account various institutional elements, and these may prove useful in the adoption of sound practices which will effectively manage the vice into the future.

### **1.7.3 To researchers**

The study seeks to bridge the knowledge gap on effective FRM practices amongst medical insurance providers in Kenya, and to be a source of reference material to support future studies in this and other areas.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.1 Introduction

This section is comprised of the theoretical review and the empirical review which review theories that guide this study and previous literature findings on the relationships between the study variables.

### 2.2 Theoretical Review

This section analysed the theoretical underpinnings of the current study. The section analysed the fraud management lifecycle theory and the institutional theory. The dependent variables for the study were anchored on the fraud management lifecycle theory by Wesley (2004) which underpins the need to develop and promote fraud mitigation practices within an organisation. The second theory for the study was the institutional theory which was formulated from the works of Weber and advanced by DiMaggio in 1983. The theory advances the actions of the organisations was dependent on institutional norms and regulatory requirements.

#### 2.2.1 Fraud Management Lifecycle Theory

The Fraud Management Lifecycle Theory is a dynamic framework which attempts to enhance FRM in firms and was formulated from the works of Wilhelm (2004). The theory defines the lifecycle stages as a set of activities that complement each other in the drive to promote fraud management. The theory notes that these lifecycle stages are linked in a network that work together, albeit not necessarily linked sequentially. In order to effectively manage fraud, managers have to balance competing and complementary activities within the fraud management lifecycle (Wilhelm, 2004). The eight stages making up the lifecycle are; deterrence, prevention, detection, mitigation, analysis, policy, investigation and policy.

Deterrence encompasses activities designed to discourage engagement in fraudulent activities; Prevention involving activities that prevent fraud occurrence; Detection which involves activities designed to identify and locate fraud activities before they occur, as they occur and after they already occur, thus revealing fraud existence; Mitigation involves all activities aimed at stopping the fraudulent process from causing further damage to the firm; Analysis which involves carrying

out an assessment of the damage incurred and to identify how the security systems were breached; Policy involves activities in place to create, evaluate, communicate, and assist in the deployment of policies to reduce fraud incidences; Investigation, involves activities to obtain evidence to locate and recover stolen assets and to seek restitution; and Prosecution involves conviction of individuals found guilty of engaging in fraudulent practices (Wilhelm, 2004).

The interrelationships that exist within each node in the network form the basis for this theory. The hypothesis directing this study is that the eight-stage fraud management lifecycle can be a key driver in effective FRM. The theory places emphasis on the importance of balancing the activities in each lifecycle for effective FRM, noting that exclusively focusing on prosecution can reduce detection efforts, while lack of prosecution can lead to inefficiency in deterrence activities. The theory calls for appropriate resource allocation to ensure a coordinated and effective FRM effort. This theory has been applied in studies exploring FRM in the retail industry, mortgage, banking, insurance and telecommunications industry among others. This theory was essential in this study since it enabled the researcher to deduce the various risk management practices at different levels on the fraud management lifecycle.

### **2.2.2 Institutional Theory**

This theory is founded on the basis that organisational behaviour is modelled by its environment. According to DiMaggio (1988), organisations will improve their chances of success by adopting certain behaviours and actions that they perceive to be most common or appropriate. Its key concepts are institutional isomorphism, and rational myths and this has since been applied in the field of politics, economics and communication in assessing how firms influence and are influenced by social constructs in their operating environment. Institutional isomorphism occurs through coercive, mimetic and normative isomorphism. Coercive isomorphism is a result of pressures on the organisation by other actors and organisations, mimetic isomorphism occurs when an organisation copies the actions, behaviours or practices of others they view as more legitimate or successful, and normative isomorphism is a result of pressure for professionalism (DiMaggio, 1988).

This theory posits that an organisation possesses most, if not all the information about how it is performing and that the management of the organisation has a social contract to manage the styles that the organisation adopts to realize organisational goals, and that forces from the external

environment will influence the type of culture and processes that organisations use. Scott (2004) asserts that the guidelines governing institutions is a function of social norms and routines. This theory assumes that firms will strive to engage with partners who adhere to institutional norms and regulatory requirements. It affirms that leadership styles adopted by firms reflect corporate awareness and indicate the extent to which managers are willing to conform to prevailing societal values.

Institutions within society play a significant role in determining the survival and success in the organisation (DiMaggio, 1988). This theory argues that there is a correlation between social actors and organisational success which suggests that organisations will strive to meet the demands made by these players, thus forming a recognizable culture when applied across an industry. Njugi & Kiiru (2020) note that the theory attributes the adoption of uniform rules and norms and requirements to normative pressures emerging from the societies within which an organisation exists. Otieno (2018) in his study applied institutional theory to assess the relationship between corporate governance practices and employee fraud frequency in NGOs. Mutangili (2019) also applied institutional theory to examine the role of e-procurement practices in fighting fraud and corruption in public procurement.

Institutional theory focuses on good management decisions and policies such as strategic vision formulation, communication and implementation, social and board management (Meyer & Rowan, 1991). It also focuses on financial returns as the main measure of success of a firm and yet there are various other measures of success because of varying stakeholder expectations. The main contribution of institutional theory to this study was in its ability to explain how firms develop processes and practices through organisational cultures formed over time. This theory explains how voices from inside the organisation, regulatory bodies, non-governmental organisations, the public and interest groups all impact managerial decisions. This theory informed the importance of effective leadership in making strategic management choices which can improve performance outcomes in MIPs. The theory also informs the best practices that have been adopted across different insurance firms to detect, prevent, and respond to fraudulent activities. The theory thus anchored the technology adoption, regulatory policies and employee empowerment variables and explains how organisations will approach effective FRM. It helped explain strategic choices and

how they impact firm performance and change within an organisation and, eventually, the whole industry.

### **2.3 Empirical Review**

This section discusses previous researchers' studies on the variables in this study. It discussed literature related to the effect of top management support, technology adoption, regulatory policies, and employee empowerment and effective FRM.

#### **2.3.1 Top Management Support and Effective FRM**

A study by Dimitrijevic et. al, (2015) on the role of management in internal control systems establishment and fraud prevention, found that internal controls were the main tools for protection against fraud and that the management team was responsible for establishing, maintaining and monitoring an organisation's internal control structure. The authors recognized that management plays a central role in the set up of an adequate control environment and control activities to manage business risks through the organisation's culture, estimating the reliability of an internal control system, designing and implementing internal controls, and supervising performance of the implemented internal control measures. The study further noted that managers have to be ethical and partner with external auditors and forensic accountants to enhance the effectiveness of internal control systems.

Gamayuni (2018) studied the effect of top management support and internal auditor competence on the effectiveness of the internal audit function and how this affects the quality of financial reporting. A survey research method with description verification approach was utilized and SEM partial least square (PLS) analysis was employed. The analysis found that support from top management and the level of competence of the internal auditor have a significant impact on how companies report and manage the internal audit function in Indonesia. This study did not look into other factors that influence internal audit such as regulations and technology adoption.

Burkhardt et al. (2020) analyzed the influence of gender diversity in top management on the environmental performance of French firms. The study was guided by the gender socialization theory. The study found that having women in top management significantly improves how firms approach environmental performance. Further, gender diversity at board level was associated with development of eco-friendly products and increased organisational commitment to resource

efficiency. Firms with less women were associated with lower environmental performance. This study focused on how top management affects effective FRM practices in MIPs.

Okumu (2017) investigated the impacts of risk mitigation strategies on performance outcomes of Kenyan motor insurance firms in Kenya. The study adopted a descriptive survey research design to investigate how risk avoidance, risk control, risk transfer and product mix strategies affect insurance firms' goal realization. The study found that managers played an instrumental role in instituting frameworks to identify, react to and circumvent possible technological risks, political risks, geographical risks, socio-cultural risks and personnel risk. The study recommended that insurance companies should ensure that risk managers in their firms are empowered and receive regular training, that their managers have adequate employee acquisition and management skills, and that adequate financial provisions are made towards risk management efforts. The research focused on general risk mitigation efforts in the motor insurance industry, whereas the current study focused on effective FRM in medical insurance firms.

Munga (2018) in his study sought to determine the effect of corporate governance practices on risk mitigation and financial outcomes of Kenyan insurance firms. The study specifically investigated the relationship between board ownership structure, independence of board committees, and the size of the board on eventual financial outcomes. The study was guided by the Agency Theory and adopted a descriptive research design with a positivist research philosophy. Correlations and hierarchical multiple regression analyses were applied to data reported by the firm's financial statements reported between 2012 and 2015. The study reported a positive and significant relationship between corporate governance and effective risk management and the firm's financial results, indicating that larger boards contributed to firm inefficiency, but a positive effect of board committee independence, and board ownership on corporate governance. An increase in corporate governance was associated with better financial management, fraud detection and control. This study did not address the impact of regulatory policies on medical insurance firms' FRM efforts.

In a study by Gathu (2018) to determine the effect of fraud management on costs associated with fraudulent medical claims in Kenya, primary data was sourced from medical insurance providers and secondary data was gathered from reports published by the Insurance Regulatory Authority. The study specifically sought to determine how corporate governance, fraud prevention strategies,

fraud detection strategies, fraud monitoring and response affect net claims ratio. The study found that corporate governance and fraud detection strategies had the most significant impact on net claims ratio. The study further found that top management plays a key role in the formulation and implementation of robust strategies that would reduce the volume of fraudulent insurance claims. The study however did not examine the role of technology on FRM among MIPs in Kenya.

Gachanja (2018) defined strategic drift as the misalignment between a firm's strategies and variations in its environment. The study aimed to determine whether leadership competency, strategic planning, organisational culture, and innovation adoption impact strategic drift and thus, strategy execution in an insurance firm. Both descriptive and explanatory research models were adopted to answer the research questions. The study results indicated that mission and vision communication, centralized decision making, and effective technologies adoption is key to limiting strategic drift. The study also noted that cultural rigidity was the highest contributor to poor strategy realization. The study recommended that insurance firm managers develop an organisational culture that is centered towards satisfying customer needs and meeting key goals such as fraud mitigation. This study investigated overall management efficiency but did not discuss effective FRM.

### **2.3.2 Technology Adoption and Effective FRM**

Gupta et al. (2019) sought to develop a framework for FRM using actuarial techniques. The study noted that a comprehensive FRM framework is key to improving insurance firms' capacity to manage fraud, with the framework being designed to enhance fraud detection (analysing police reports, distance of theft from home/work proximity, association between claim and policy renewal requirement) and prevention (clustering, classification trees, machine learning). The study found that applied statistical models & statistical tests, diagnostics & analysis of emerging experience, behavioural finance and extreme value theory were needed from an actuarial perspective. Further, the study found that machine learning capability, deep learning and blockchain technologies can be integrated to form a comprehensive framework for effective fraud prevention and detection. The study focused on fraud management in motor insurance firms, while the current sought to determine how MIPs can effectively manage fraud risk.

Mambo (2019) in his study noted that claims fraud has been on the rise in recent years, arguing that current fraud detection systems lack the capacity to adequately detect fraud caused by collusion

between employees and claimants. The study analysed the effectiveness of data mining techniques to detect claims fraud and aimed to develop a prototype for fraud detection based on Naïve Bayes model rules. The study found that emerging computerized technologies such as artificial intelligence and machine learning, biometric systems, blockchain technologies, GPS functionality, among other technologies have been effective in the detection and prevention of fraud within internal information systems, making it harder to falsify claims. The study reported that the Naïve Bayes model can be used to develop systems that can detect fraudulent claims with a 91% classification accuracy and a 75% testing hit rate. This study did not explore how other factors such as top management support and employee empowerment impact effective FRM.

Dharani & Shoba (2015) also studied the impact of data mining but in the context of fraudulent prescriptions in the pharmaceutical industry. The study developed a system that detects fraudulent prescriptions by grouping prescription-medication uniformity, prescription-age-sex uniformity, and diagnosis-cost uniformity to identify fraudulent medical providers with a 77% positivity rate. The study found that MIPs can benefit from such systems by limiting fraud risk exposure from healthcare providers. Shin et al. (2012) found that computerized decision trees can be used by insurance firms to rank healthcare providers internal medicine outpatient claims. The study found that these technologies were key to reducing corruption and healthcare givers' misconduct. These studies however were not conducted in the context of MIPs in Kenya, and do not factor other aspects such as top management support.

Owusu et al. (2018) investigated the use of biometric technologies in curbing fraud in Ghana's health insurance industry to determine the effectiveness of their use in developing countries. The study was grounded on the socio-materiality theory and adopted an interpretive case study methodology. Fraud issues addressed by biometric technology identified were reduction in multiple identities, fake IDs, impersonation, ghost patients and fraudulent billing. However, while biometric systems are key to reducing fraud claims cases, high investment in ICT infrastructure is necessary to enable online registration of members through integrated social and technical systems, to carry out instant biometric verification upon delivery of services, and adoption of associated technologies such as e-payment and e-claims. Further, the study recommended introduction of operational policies aimed to improve clinicians' ability to vet service provider claims. However, the research was not centred on the medical insurance industry in Kenya.

Barnabas (2016) also investigated the effectiveness of biometric technologies as tools for fraud mitigation in medical insurance firms in Kenya. The study collected data from 18 MIPs between 2013 and 2015. The study adopted descriptive survey while secondary data was sourced from the IFIU. The study determined that biometric technologies had an insignificant impact on reduction of fraud cases due to the evolution of tactics employed by fraudsters in areas such as cyber fraud, internal fraud and money laundering which biometric technologies cannot have a direct impact on. The study recommended adoption of a variety of technologies to increase the ability to effectively manage fraud risk.

### **2.3.3 Regulatory Policies and Effective FRM**

Ghimire (2020) conducted a desk review of the Nepalese insurance industry. The study sought to establish the opportunities and challenges that firms in the insurance sector encounter. The review also sought determine the impact of regulations on the performance of the sector. The study found that there was insufficient regulatory provision on areas involving cyber security insurance, insurance fraud, microinsurance and index insurance, the independence of insurance boards, the number of insurance experts in management, the comprehensive policy framework for integrated regulation, supervision and monitoring. The failure of the Insurance Act to provide for the registration of auxiliary institutions such as insurance academies, resource centres and broker firms has also left the insurance market functioning ineffectively leading to slow growth and rise in fraud. The study focused on various factors as pertains to the insurance industry in Nepal, while the current study investigated the role of regulatory policies on FRM in MIPs in Kenya.

Neniyaba et al. (2015) sought to establish whether adoption of international accounting and reporting standards could serve as an effective strategy for combating fraud and white-collar crime in Nigerian banks. Primary data was sourced from bank employees. The study concluded that international reporting standards can form a basis for policy formulation that if well implemented can reduce incidences of fraud but that this had no impact on reduction of white-collar crimes. The study recommended that forensic accounting to be incorporated into professional exams to increase competency of accounting managers. Further, accounting standards should be enforced both in the public and private sector. The study focused on policy implication on combating fraud and white-collar crime in Nigerian banks, whereas the current study studied the effectiveness of regulatory policies in FRM in the context of MIPs in Kenya.

Ndonga (2018) conducted a study on factors contributing to delayed payments of insurance claims in Kenya's health insurance industry. Specifically, the study investigated the association between internal industry practices, systems availability, laws and regulations and insurance firms' claims payment. The study determined that poor internal industry practices, lack of sufficient applicable legislation, poor hospital-to-insurance firm integration and lack of investment in auxiliary infrastructure were the most significant barriers to claims settlement in Kenya. The study did not explore how the factors relate to effective FRM.

Ehioghiren & Atu (2016) studied the effect of forensic accounting on fraud management in Nigeria. The study adopted a survey research design on a population consisting of internal and external auditors, top management staff and public and private accountants. The analysis determined that forensic accounting has a significant impact on detection and control of fraud, noting that there was a stark difference between the roles performed by forensic accountants and traditional external auditors. The study recommended that fraud investigations be overseen by professional forensic accountants and policies be implemented to ensure appropriate disciplinary action is taken on perpetrators of fraud. The study further established that for effective fraud management and service delivery, the harmonisation of conflicting regulatory codes is paramount.

Kiragu et al. (2015) sought to determine the relationship between management control systems and occupational fraud risk reduction within Kenyan commercial banks. The study was based on the Fraud Triangle Theory which asserts that when opportunity to engage in fraud is minimized, then the occurrence of fraud becomes minimized. The study collected data from commercial bank heads, section heads and clerks, the Central Bank and the Market Share Index (MSI). The study results showed that effective implementation of antifraud control, fraud detection and fraud reporting measures resulted in significant reduction in occupational fraud. This study suggests that the institution and enforcement of appropriate standards of operations and regulations is key to reducing occupational fraud within finance firms. The study focused specifically on occupational fraud, and in the context of Kenyan commercial banks, while the current study analysed fraud from a general perspective and in the context of MIPs in Kenya.

Ndolo (2018 ) investigated the impact of FRM practices on financial return within the insurance industry the study specifically focused on policy holder and claims fraud. The study collected data

reported by Association of Kenya Insurers between 2014 and 2018, and sourced primary data from insurance supervisors of the biggest insurance firms in the country by category. The study showed that fraud detection and management was driven by the need to meet compliance requirements and regulatory standards. Further, risk response was identified as the most common fraud management policy leading to the conclusion that efficient procedures and processes are necessary to guide firms toward responding to occurrences of fraud.

Flasher & Lamboy-Ruiz (2018) investigated the impact of fraud crimes enforcement on healthcare billing fraud in the United States. The study collected data reported from each state's Medicaid Fraud Control Unit (MFCU), and specifically sought to determine whether enforcing the rule that excludes fraudulent healthcare providers from billing government healthcare programs was a sufficient deterrent to would-be fraudulent billers. The study found that the number of excluded billers was highest in the MFCUs that had adequate experienced staff, budgeting and operated under key enforcement proxies. However, the study also found that exclusion from government billing did not serve as a deterrent to would-be fraudsters. The study however focused on the USA, a developed economy with an integrated health insurance system through which data on fraudulent healthcare providers can be obtained.

Njuguna (2019) sought to examine whether the most recent regulatory policies instituted in the Insurance Regulatory Act 2019 were adequate to sufficiently regulate Kenya's insurance sector. The study explored the role played by key institutions associated with monitoring, evaluation and enforcement of insurance fraud which include the IFIU, the Judiciary and the Office of the Director of Public Prosecution (ODPP). The study reported that while the first legal framework was mildly successful in curbing insurance fraud, the latest update was more progressive and had significantly improved the legal framework and institutional capacity. However, the study noted that lack of independence of the IRA and insufficient investment in auxiliary institutions has impacted insurance monitoring and detection, resulting in lack of insurance prosecutors and investigators. The study investigated the adequacy of the new insurance provisions of the IRA Act, whereas the current study sought to determine the effect of regulatory policies on effective FRM practices among MIPs in Kenya.

### **2.3.4 Employee Empowerment and Effective FRM**

Blackburn & Schrag (2017) investigated the impact of internal control and employee empowerment on FRM. The study notes that internal control is comprised of the control environment, risk assessment, control activities, monitoring and information and communication systems control. The study asserts that creating an environment of employee involvement and empowerment is key for employees to develop an appreciation for the importance of controls, ensure management expectations are communicated to all employees and the right people are consulted for the appropriate procedures. The study also notes that control activities should be consistently and carried out in a timely manner. The study holds that employees should be held accountable, and rewarded appropriately for their actions. The study further notes that effective internal controls improved fraud prevention, improved efficiency and reliability of financial/statistical reports, employee morale, and better compliance with laws and regulations.

Drogalasa et al. (2017) explored the relationship between auditor responsibility, training in fraud detection and internal audit effectiveness among firms listed in the Athens Stock Exchange. Regression analyses revealed that the effectiveness of the internal audit process, auditor responsibility and training on fraud detection significantly reduce fraudulent incidences. The study recommended that the firms invest in reinforcing the audit process and training to increase auditors and accountants ability to detect fraudulent practices. This study did not assess how factors such as regulatory policies and technology adoption impact effective fraud management in the insurance industry.

Yusuf et al. (2017) carried out a critical review of insurance claims management in Nigeria. The study employed a descriptive survey research design and adopted a random sampling technique to collect data from claims managers. Data sourced from 31 insurance firms comprising of 22 general insurance firms and 9 life insurance firms showed that claims management and claims handling strategies are key in determining performance in insurance firms. The study held that claims managers should formulate strategic plans to ensure proper claims recording, processing and storage of data, and that training improved the operational efficiency of claims officers. This study focused exclusively on claims management and did not consider other drivers of FRM.

Nanjala (2020) adopted a multi-theoretical approach in examining the relationship between firm characteristics and revenue efficiency among selected insurance firms in Kenya. The study collected panel secondary data reported by 27 insurance firms operating between 2008 and 2017. The study showed that experience of claims management teams had an insignificant impact on revenue generation efficiency, while the size of the firm and quality of assets had a negative association with revenue efficiency. The study recommended that insurance firms have to pay close attention the technologies adopted in risk management and asset quality. This suggests that it is necessary to ensure effective training and development of employees by equipping them with up-to-date technologies to increase their impact on revenue generation. The study focused on firm characteristics on efficiency, whereas this study focused on how employee empowerment impacts effective FRM in MIPs.

Kogo & Kimencu (2018) carried out an investigation to determine the relationship between organisational capabilities and performance in insurance companies in Nairobi county. The study was based on the capability based theory, resource based theory and market based view theory and adopted both stratified and simple random sampling. Descriptive and thematic analysis techniques were applied to the collected data. The study determined that marketing capabilities, product capabilities and technological capabilities are essential for development of human resource capabilities which in turn can predict goal realization measured in terms of financial and operational efficiency. The study affirmed that investment in diligent employee recruitment, selection and development is vital to ensure that they can efficiently carry out their strategic roles. The study was based on organisation capabilities and performance. The current study focused on this by assessing how management support impact FRM.

## 2.4 Research Gaps

Although the above studies established a relationship between several of the research variables, the researcher was able to identify certain gaps that exist in literature. They are discussed below.

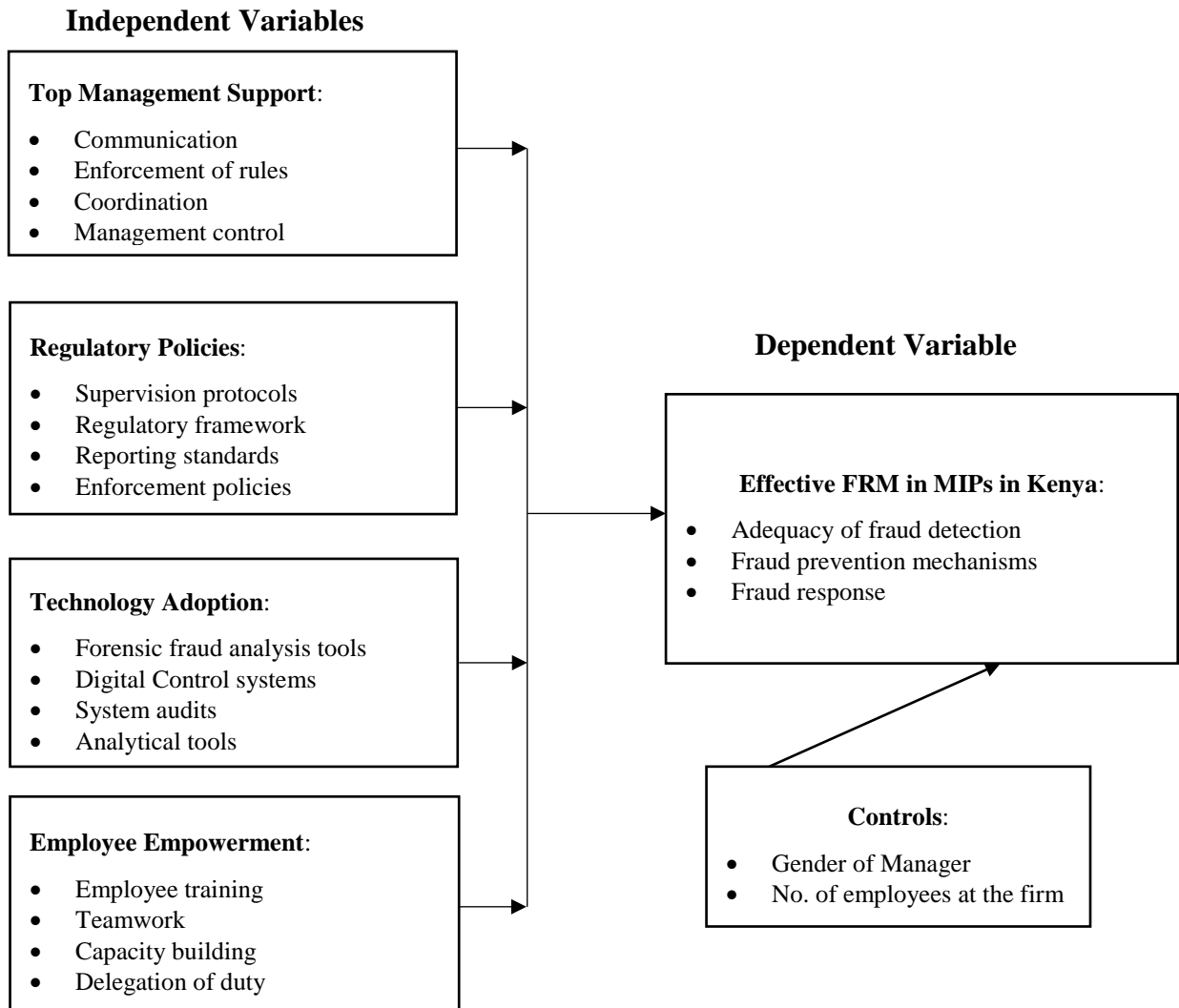
**Table 2.1: Summary of Research Gaps**

Author	Title	Research Findings	Focus of Study and Research Gap
Dimitrijevic et al. (2015)	The role of a company's internal control system in fraud prevention, e-Finance	Internal controls were the main tools for protection against fraud and the management team was responsible for establishing, maintaining and monitoring an organisation's internal control structure.	The study focused on the role of internal controls in fraud prevention. This study reviewed the impact of regulatory policies, technology, environment in fraud risk management in medical insurance firms in Kenya.
Owusu-Oware et al. (2018)	Biometric Technology for Fighting Fraud in National Health Insurance: Ghana's Experience	Biometric technologies alone were inefficient in reducing fraud in the national health insurance	The study focused on technology adoption and public health management; the current study studied medical insurance providers in the Kenyan context.
Ndolo (2018)	Effects of FRM practices on the profitability in the Insurance Industry	The research determined that compliance and regulatory requirements push firms to adopt FRM practices	This research failed to indicate how regulatory environment impacts FRM among medical insurance firms which was the focus of the current study
Blackburn & Schrag (2017)	Good Internal Control Practices and Fraud Prevention Tips	Involving employees and management in formulation and implementation is key to effective internal control	The study focused specifically on employee empowerment and did not show a relationship between regulatory policies and FRM in medical insurance firms
Kogo & Kimencu (2018)	Organisational capabilities and performance of insurance companies in Nairobi city county, Kenya	Diligent recruitment, selection and development of employees is vital to ensure that they can efficiently carry out their roles in order to have a positive impact on the performance of an organisation.	The study explored the link between organisational capabilities and organisational performance. The current study focused on how management support and employee empowerment impacts FRM.
Barnabas (2016)	Effectiveness of use of Biometric Technology to Curb Fraud in Medical Insurance Firms in Kenya	Biometric technologies had an insignificant impact on fraud management due to the evolving nature of forms of fraud including cyber fraud which biometric technologies cannot have a direct impact on.	The study focused specifically on biometric technologies. It did not delve into other forms of Preventive FRM & detective FRM from a technological perspective as was the case in this study.
Ehioghiren & Atu (2016)	Forensic Accounting and Fraud Management: evidence from Nigeria	Forensic accounting has a significant impact on detection and control of fraud.	The study explored fraud management from a forensic accounting perspective in Nigeria. The study focused on Nigerian firms, and it did not address medical insurance firms in Kenya

### 2.5 Conceptual Framework

Figure 2.1 below illustrates the conceptual framework for the study. In this study, FRM is the dependent variable. The FRM aspects are represented by preventive, detective and responsive mechanisms adopted by organisations. Depending on the strength of the FRM approach, various factors might determine the success with which an organisation achieves its FRM objectives. These factors, which make up the independent variables for the study include top management support, regulatory practices, technology adoption, and employee empowerment. Since FRM does not happen in isolation, two control variables are also included, which include the gender of the managers and the number of employees an organisation has. A depiction of the interrelation among the identified variables is illustrated in Figure 2.1 below.

**Figure 2.1: Conceptual Framework**



Operationalization of the study variables is shown in Table 2.2 below.

**Table 2.2: Operationalization of Variables**

Variable	Parameter	Measurement	Literature	Supporting Theory
Top management support	<ul style="list-style-type: none"> <li>• Communication</li> <li>• Enforcement of rules</li> <li>• Coordination</li> <li>• Management control</li> </ul>	Ordinal scale Structured research instrument Descriptive and inferential tests	Anca et al. (2013); Abiola & Oyewole (2013); Letting, et.al. (2012)	Institutional Theory
Regulatory policies	<ul style="list-style-type: none"> <li>• Supervision protocols</li> <li>• Regulatory framework</li> <li>• Reporting standards</li> <li>• Enforcement policies</li> </ul>	Ordinal scale Structured research instrument Descriptive and inferential tests	Mwanyale (2014); Akelola (2015); Andersson & Zbirenko (2014)	Institutional Theory
Technology adoption	<ul style="list-style-type: none"> <li>• Forensic fraud analysis tools</li> <li>• Digital Control systems</li> <li>• System audits</li> <li>• Analytical tools</li> </ul>	Ordinal scale Structured research instrument Descriptive and inferential tests	Katamba et al. (2017); Mhamane & Lobo (2012); Mwangi et al. (2018)	Institutional Theory
Employee empowerment	<ul style="list-style-type: none"> <li>• Employee training</li> <li>• Teamwork</li> <li>• Capacity building</li> <li>• Delegation of duty</li> </ul>	Ordinal scale Structured research instrument Descriptive and inferential tests	Akindele (2012); Margaret and Miricho (2020)	Institutional Theory
Controls	<ul style="list-style-type: none"> <li>• No. of employees at the firm</li> <li>• Gender of Manager</li> </ul>	Interval Descriptive and inferential tests Ordinal scale, Descriptive and inferential tests	Alazzabi et al., (2020) and Burkhardt et al. (2020)	Institutional Theory
FRM	<ul style="list-style-type: none"> <li>• Adequacy of fraud detection</li> <li>• Fraud prevention</li> <li>• Responsive fraud practices</li> </ul>	Ordinal scale Structured research instrument Descriptive and inferential tests	Dominic & Nicole (2015); Njagi (2015); Hubert et al. (2015)	FRM lifecycle theory

# CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter provides an explanation of the methodology adopted to answer the research questions in this study. It includes sections on the research philosophy, research design, the target population and sampling, the procedures and instruments used in data collection, as well as the techniques applied in analysis of the data. Further, the chapter has sections on research quality, and the ethical considerations which were taken into account in the course of the study.

### 3.2 Research Philosophy

Research philosophy, according to Saunders et al. (2019), is a method of comprehending and writing the knowledge gathered via research. Kirongo & Odoyo (2020) define research philosophy as the underlying set of beliefs concerning the nature of the reality being investigated in a study. Underlying assumptions about the effect of four variables on FRM practices in MIPs in Kenya formed the basis for the study. The study was thus grounded on positivism research philosophy which seeks to objectively identify associations or causal relationships through the application of quantitative techniques, and drawing inferences from empirical literature (Park et al., 2020).

### 3.3 Research Design

A research design is the strategy that a researcher wishes to utilize when conducting a study, and be able to handle the research problem conclusively (Burns & Grove, 2003). The study was quantitative adopting a descriptive and correlational research design, with a cross-sectional approach as it sought to establish relationships among the four (4) independent variables and the dependent variable within a specified timeframe.

Quantitative research examines relationships between variables, which are measured numerically and analysed using a range of statistical and graphical techniques (Saunders et al., 2019) The research design adopted for this study supported the application of quantitative techniques to analyse, interpret and make inferences about the effect of top management support, technology

adoption, regulatory policies and employee empowerment on FRM practices among MIPs in Kenya.

**3.4 Population and Sampling**

**3.4.1 Target Population**

The study population consists of a well-defined group of individuals, things, or items that contain information that may be of importance to a researcher (Igwenagu, 2016). The unit of observation for this research was the compliance/claims/underwriting managers within MIPs in Kenya. There are 26 registered MIPs in Kenya that formed the unit of analysis for the current research. Hence, the target population for the study was 78 officials.

**Table 3.1: Target Population**

<b>Position</b>	<b>No of Firms</b>	<b>Population</b>
Risk and Compliance managers	26	26
Claims Managers	26	26
Underwriting managers	26	26
<b>Target Population</b>		<b>78</b>

**3.4.2 Sampling**

The sampling frames as a conglomeration of events and happenings from which a sample be drawn. It contains a list of individuals, items, or events, which the research can sample for the study (Ragab & Arisha, 2018). The sample frame for the study was drawn from the 26 registered medical insurance providers in Kenya. The research used convenience sampling in the selection of the risk & compliance managers, the claims managers as well as underwriting managers in the medical insurance companies. The study utilized census sampling, which ensures that all the sample respondents had an equal chance of being involved in the research. The sample size for the study was 78 managers.

**3.5 Data Collection**

**3.5.1 Procedures**

The study utilized a drop and pick approach in data collection. This was complemented with Google forms due to social distancing guidelines in place within the country. The application of both methods helped in improving the response rate from the participants.

### 3.5.2 Instruments

The study collected primary data using a structured research questionnaire. A Likert scale format was adopted to ensure that the responses received were structured. The questionnaire comprised of three main sections. Part A sought a few general responses on the background of the respondent and the organisation, Part B of the questionnaire comprised of four sections which sought responses to statements as pertains to the four (4) specific research objectives of the study, and Part C sought responses to statements on the dependent variable of the study.

### 3.6 Research Quality

#### 3.6.1 Validity

Validity refers to the extent to which the measures used in the questionnaire are truthfully measuring the intended concept and not something else and include internal validity and external validity (Engwa & Ozofor, 2015). The validity of the research instrument was measured using content and construct validity. For content validity the research sought the expert opinion of the supervisor. Construct validity was adopted by ensuring that all the study constructs were utilized in developing the research questionnaire.

#### 3.6.2 Reliability

According Igwenagu (2016) a pilot test is necessary for testing the reliability of instruments where the feedback of the pilot study is used to refine the questionnaire to make it reliable during the study. The study adopted Cronbach rule of thumb where alpha scores above 0.7 are suitable for research variables.

**Table 3.2: Reliability Results**

Reliability statistics	Average covariance:	Number of items in the scale:	Scale reliability coefficient:	Decision
Top management support	0.589	7	0.904	Accepted for main survey
Technology adoption	0.423	7	0.898	Accepted for main survey
Regulatory policies	0.635	6	0.865	Accepted for main survey
Employee empowerment	0.496	6	0.812	Accepted for main survey
Effective FRM	0.394	6	0.758	Accepted for main survey

### 3.6.3 Pilot Testing

To test the validity, reliability and internal consistency of the data collection the researcher conducted a pilot test for the study. A pilot study is carried out to detect possible flaws in the measurement procedures that may include among others, aspects such as ambiguous instructions or inadequate time limits; to identify unclear or ambiguously formulated items; to assess non-verbal behaviour on the part of respondents (Engwa & Ozofor, 2015).

### 3.7 Data Analyses

Quantitative data analysis was applied in this study. Descriptive analysis included percentages, frequencies, means and standard deviations on the research variables. Secondly, the study applied factor analysis to reduce on number of variables. Inferential statistics involved the application of Spearman's rank correlation coefficient and Ordered Logistic Regression (OLR) to estimate the level of association between the research variables.

The OLR approach was deemed appropriate for the study since the dependent variable (Effective FRM), had five (5) categories as depicted using a Likert scale in the questionnaires; Strongly Disagree =1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5. According to Menard (2000), the OLR is appropriate for drawing inferences from ordered data in a Likert-scale. Based on this, the following two (2) OLR models were employed to establish the determinants of effective FRM practices among MIPs in Kenya. The first model, which entailed modelling preventive FRM practices is as follows:

$$\begin{aligned} \text{Preventive\_FRM}_i &= \beta_1 \text{TMS}_i + \beta_2 \text{Tech\_Adopt. 1}_i + \beta_3 \text{Tech\_Adopt. 2}_i + \beta_4 \text{Empower. 1}_i \\ &+ \beta_5 \text{Empower. 2}_i + \beta_6 \text{Reg\_Policy. 1}_i + \beta_7 \text{Reg\_Policy. 2}_i + \beta_8 \text{Gender}_i \\ &+ \beta_9 \text{Employees}_i + \varepsilon_i \end{aligned}$$

The second model, which entailed modelling detective FRM practices is as follows:

$$\begin{aligned} \text{Detective\_FRM}_i &= \beta_1 \text{TMS}_i + \beta_2 \text{Tech\_Adopt. 1}_i + \beta_3 \text{Tech\_Adopt. 2}_i + \beta_4 \text{Empower. 1}_i \\ &+ \beta_5 \text{Empower. 2}_i + \beta_6 \text{Reg\_Policy. 1}_i + \beta_7 \text{Reg\_Policy. 2}_i + \beta_8 \text{Gender}_i \\ &+ \beta_9 \text{Employees}_i + \varepsilon_i \end{aligned}$$

Where:

- $\beta_x$  = coefficient of regression
- Prevent\_FRM = effective preventive FRM practices
- Detect\_FRM = effective detective FRM practices
- TMS = overall top management support
- Tech\_Adopt.1 = the adoption of modern technologies in dealing with fraud
- Tech\_Adopt.2 = the adoption of technologies to reduce fraud occurrence
- Empower.1 = empowerment of employees to deal effectively with fraud
- Empower.2 = empowerment of employees to deal with fraud in terms of capacity building
- Reg\_Policy1\_Compliance = regulatory policies aimed at enhancing compliance with FRM requirements
- Reg\_Policy2\_Enforcement = regulatory policies aimed at enforcing FRM requirements
- Gender = Gender of manager (respondent)
- Employees = number of employees in the medical insurance firm
- $\epsilon_i$  = error term associated with the regression model.

### 3.7.1 Diagnostic tests

A test for multicollinearity was performed on the independent variables using variance inflation factors (VIF) and tolerance to ascertain that the level of collinearity among the independent variables was acceptable for purposes of the study.

### 3.8 Ethical Considerations

The researcher observed all the required protocols in the course of this study. Approval to undertake the study was sought and received from both the Strathmore University Institutional Scientific and Ethical Review Committee (SU-ISERC) and the National Commission for Science, Technology and Innovation (NACOSTI). Prior to data collection, each respondent was informed about the objectives of the study, and was given the opportunity to ask questions before signing a Participant Information Sheet and Consent Form, and subsequently availing the data sought for the study. Each respondent was assured that their contribution to the study would remain anonymous, confidential and would be stored securely beyond the reach of unauthorised persons.

# CHAPTER FOUR

## PRESENTATION OF RESEARCH FINDINGS

### 4.1 Introduction

This chapter presents the findings of the study based on quantitative analysis that was conducted on the data that was collected. Herein, are the demographic results, the descriptive analysis, factor analysis, correlation analysis and regression analysis.

### 4.2 Demographic Information

#### 4.2.1 Response Rate

The study obtained 54 responses from the target sample size of 78-management staff drawn from MIPs in Kenya. This represented a 69.2% response rate with 30.8% of the respondents opting out of taking part in the survey. According to Kothari (2014), a response rate of 50% is satisfactory for data analysis and reporting; 60% rate is good and 70% response rate and over is excellent. With this background, analysis of the data collected was able to proceed.

#### 4.2.2 Summary demographic information

The analysis indicated that the majority of the respondents 53.7% (n=29) were claims managers, 24.1% (n=13) risk & compliance managers and 22.3% (n=12) were underwriting managers. The findings further showed that the majority 61.1% (n=33) of the respondents were female managers and 38.9% (n=21) were male managers. The responses were provided by managers in charge of claims management, underwriting, and risk & compliance in medical insurance firms. The respondents were therefore ideally placed to respond to queries as pertains to effective FRM practices in medical insurance firms in Kenya.

The analysis further showed that the smallest company had 7 employees working at the firm, and the largest had 178 employees, and the average number of employees in medical insurance firms in Kenya is approximately 41 employees.

The summaries are represented in Table 4.1 below.

**Table 4.1: Demographic Information**

	<b>Job Role</b>	<b>Frequency</b>	<b>Percentage</b>
Job title	Risk & Compliance Manager	13	24.07%
	Claims Manager	29	53.70%
	Underwriting Manager	12	22.3%
	<b>Total</b>	<b>54</b>	<b>100%</b>
Gender	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
	Female	33	61.1%
	Male	21	38.9%
	<b>Total</b>	<b>54</b>	<b>100%</b>
Number of employees in medical division	<b>Descriptive statistics</b>	<b>Value</b>	
	Mean	41.13	
	Minimum	7	
	Maximum	178	
	Skewness	1.976	
	Std. Error of Skewness	.357	
	Kurtosis	1.430	
	Std. Error of Kurtosis	.702	

**Source: Research Data (2022)**

**4.3 Descriptive Analysis**

The researcher analysed the level of agreement of the respondents on a set of statements on the study variables using means, medians and standard deviation as descriptive measures. The level of agreement was ranked based on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). The interpretation of the mean values was based on the following scale; 4.21 and above = strongly agree, 3.51-4.20 = agree, 2.51-3.50 = neutral, 1.51-2.50 = disagree and less than 1.50 = strongly disagree.

### 4.3.1 Top Management Support

The descriptive analysis conducted on top management support indicated agreement amongst the respondents that: the firm management had played a key role in the development of an effective control environment (mean = 4.0926), the insurance firm management regularly reviews the control activities to enhance the monitoring of risks to the firm (mean = 3.9444), the insurance firm had decentralised decision making across the departments (mean = 3.7778), the insurance firm management plays a key role in ensuring rules are enforced within the organisation (mean = 3.5926), the insurance firm management had developed robust control mechanism that enhances efficiency within the team (mean = 3.7037), and that the insurance firm management had code of conduct that governs the ethical behaviour of employees (mean = 3.6481). The respondents however neither agreed nor disagreed that the insurance firm management clearly communicates the mission and vision of the organisation (mean = 3.389). The summary is presented in Table 4.2 below.

**Table 4.2: Descriptive Analysis of Top Management Support**

Statement	N	Mean	Median	Std. Dev.
1. The insurance firm management has played a key role in the development of an effective control environment	54	4.093	4.000	0.875
2. The insurance firm management regularly reviews the control activities to enhance the monitoring of risks to the firm	54	3.944	4.000	1.017
3. The insurance firm management has decentralized decision making across the departments	54	3.778	4.000	1.003
4. The insurance firm management clearly communicates the mission and vision of the organisation	54	3.389	4.000	1.188
5. The insurance firm management plays a key role in ensuring rules are enforced within the organisation	54	3.593	4.000	1.037
6. The insurance firm management has developed robust control mechanism that enhances efficiency within the team	54	3.704	4.000	0.838
7. The insurance firm management has code of conduct that govern the ethical behaviour of employees	54	3.648	4.000	1.084

**Source: Research Data (2022)**

### 4.3.2 Technology Adoption

The descriptive analysis conducted on technology adoption indicated agreement among the respondents that: the insurance firm had implemented digitalized forensic systems in auditing the internal activities (mean = 3.7222), the insurance firm had deployed machine learning technologies in conduct risk-based audits (mean = 3.7963), the insurance firms rely on emerging technologies in the development of fraud detection frameworks (mean = 3.5370), the insurance firm deploys machine learning to reduce insurance fraud as insurance companies will program their computers to monitor exaggerated claims (mean = 3.7407), the insurance firm had invested in blockchain technology in the digital control of FRM practices (mean = 3.7593), and that the insurance firm utilizes mobile technologies to ensure that misrepresented information is significantly reduced in claims (mean = 3.5926). The analysis reveals neutrality among the respondents that the insurance firm deploys automated core platforms to conduct regular systems audits and identify fraud risks (mean = 3.4259) The summary is presented in Table 4.3 below.

**Table 4.3: Descriptive Analysis of Technology Adoption**

Statement	N	Mean	Median	Std. Dev.
1. The insurance firm has implemented digitalized forensic systems in auditing the internal activities	54	3.722	4.000	0.940
2. The insurance firm has deployed machine learning technologies in conduct risk-based audits	54	3.796	4.000	0.683
3. The insurance firms rely on emerging technologies in the development of fraud detection frameworks	54	3.537	4.000	0.905
4. The insurance firm deploys machine learning to reduce insurance fraud as insurance companies will program their computers to monitor exaggerated claims	54	3.741	4.000	0.732
5. The insurance firm has invested in blockchain technology in the digital control of FRM practices	54	3.759	4.000	0.845
6. The insurance firm deploys automated core platforms to conduct regular systems audits and identify fraud risks	54	3.426	4.000	1.057

Statement	N	Mean	Median	Std. Dev.
7. The insurance firm utilizes mobile technologies to ensure that misrepresented information is significantly reduced in claims	54	3.593	4.000	0.880

**Source: Research Data (2022)**

### 4.3.3 Employee Empowerment

The descriptive analysis conducted on employee empowerment indicated that the respondents neither agreed nor disagreed that: employees in the insurance firm are aware of forensic accounting methods used on fraud control and mitigation (mean = 3.4815), the insurance firm conducts frequent seminars and workshops on issues and methods of FRM (mean = 3.463), the insurance firm had created an environment to stimulate and maintain teamwork in solving problems among employees (mean = 3.2407), the insurance firm continuously involves the employees in routine professional development training (mean = 3.3148), the top management within the insurance firm ensures there is routine delegation of duty to foster employee engagement in their duties (mean = 2.7778), and finally that the insurance firm frequently conducts training and workshops to foster the competencies and skills of employees (mean = 3.0556). The summary is presented in Table 4.4 below.

**Table 4.4: Descriptive Analysis of Employee Empowerment**

Statement	N	Mean	Median	Std. Dev.
1. Employees in the insurance firm are aware of forensic accounting methods used on fraud control and mitigation	54	3.482	4.000	0.885
2. The insurance firm conducts frequent seminars and workshops on issues and methods of FRM	54	3.463	4.000	0.840
3. The insurance firm has created an environment to stimulate and maintain team work in solving problems among employees	54	3.241	2.000	0.950
4. The insurance firm continuously involves the employees in routine professional development training	54	3.315	3.000	1.025

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>
5. The top management within the insurance firms ensures there is routine delegation of duty to foster employee engagement in their duties	54	2.778	3.000	1.313
6. The insurance firm frequently conducts training and workshops to foster the competencies and skills of employees	54	3.056	2.000	0.998

**Source: Research Data (2022)**

#### **4.3.4 Regulatory Policies**

The descriptive analysis conducted on regulatory policies indicated agreement among the respondents that the insurance firm ensures adherence to the laid down code of conduct in the provision of services (mean = 4.0741), and that the insurance firm ensures there is prompt settlement and investigation of claims in line with regulatory standards (mean = 4.1296). The respondents neither agreed nor disagreed that the insurance firm complies with all reporting standards advanced by the regulator in fraud reporting (mean = 3.3889). The analysis further indicates disagreement among the respondents that: the insurance firm ensures that employees comply to the code of conduct advanced by the regulator (mean = 2.0556), the insurance firm ensures there is adherence to the laid down claim's procedures (mean = 2.0741) and that the insurance firm routinely reviews the internal enforcement of regulatory requirements in FRM (mean = 2.4259). The summary is presented in Table 4.5 below.

**Table 4.5: Descriptive Analysis of Regulatory Policies**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>
1. The insurance firm ensures adherence to the laid down code of conduct in the provision of services	54	4.074	2.000	0.929
2. The insurance firm ensures that employees comply to the code of conducts advanced by the regulator	54	2.056	2.000	0.856
3. The insurance firms comply with all reporting standards advanced by the regulator in fraud reporting	54	3.389	2.000	1.265

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>
4. The insurance firm ensures there is adherence to the laid down claim's procedures	54	2.074	2.000	1.007
5. The insurance firm routinely reviews the internal enforcement of regulatory requirements in FRM	54	2.426	2.000	1.175
6. The insurance firm ensures there is prompt settlement and investigation of claims in line with regulatory standards	54	4.130	2.000	1.229

**Source: Research Data (2022)**

### 4.3.5 Effective FRM

The descriptive analysis conducted on effective FRM indicated agreement among the respondents that: the insurance firm conducts due diligence in all fraud claims (mean = 3.7963), and that the insurance firm management had tasked departmental heads with the mandate to routinely review the adequacy of fraud preventive activities (mean = 3.663). The respondents neither agreed nor disagreed that: the insurance firm had maintained a robust compliance standard to limit fraud occurrence (mean = 3.3148), the insurance firm had put in place and adequate internal control to strengthen effective FRM practices (mean = 3.1481), and that the insurance firm continuously undertakes routine risk assessment to identify any potential fraud (mean = 2.9630). The analysis also showed disagreement among the respondents that the insurance firm had developed clear policies and procedures to manage fraud (mean = 2.3889). The summary is presented in Table 4.6 below.

**Table 4.6: Descriptive Analysis of Effective FRM**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>
1. The insurance firm conducts due diligence in all fraud claims	54	3.796	4.000	1.250
2. The insurance firm has developed clear policies and procedures to manage fraud	54	2.389	2.000	1.071
3. The insurance firm has maintained a robust compliance standard to limit fraud occurrence	54	3.315	3.000	0.928

Statement	N	Mean	Median	Std. Dev.
4. The insurance firm has put in place and adequate internal control to strengthen FRM practices	54	3.148	3.000	1.172
5. The insurance firm management has tasked departmental heads with the mandate to routinely review the adequacy of fraud preventive activities	54	3.663	4.000	0.926
6. The insurance firm continuously undertakes routine risk assessment to identify any potential fraud	54	2.963	3.000	1.045

**Source: Research Data (2022)**

#### 4.4 Factor Analysis

Factor analysis is necessary in research to test for construct validity by assessing levels of variability among study variables. The study applied factor analysis to reduce the number of factors on the variables to be used for inferential analysis.

##### 4.4.1 Checks on Suitability of Factor Analysis

The study applied the Kaiser-Meyer-Olkin (KMO) & Bartlett sphericity test to examine whether the variables met the threshold for factor analysis. The results are shown in Table 4.7 below.

**Table 4.7: KMO and Bartlett Sphericity Test**

Variable	KMO and Bartlett's Test		
1. Management Support	KMO		.813
	Bartlett's Test of Sphericity	Approx. Chi-Square	261.123
		df	21
		Sig.	.000
2. Technology adoption	KMO		.858
	Bartlett's Test of Sphericity	Approx. Chi-Square	239.295
		df	21
		Sig.	.000
3. Employee empowerment	KMO		.677
	Bartlett's Test of Sphericity	Approx. Chi-Square	254.414
		df	15
		Sig.	.000
	KMO		.761

Variable		KMO and Bartlett's Test	
4. Regulatory policies	Bartlett's Test of Sphericity	Approx. Chi-Square	115.075
		df	15
		Sig.	.000
5. Effective FRM	KMO		.742
	Bartlett's Test of Sphericity	Approx. Chi-Square	167.515
		df	15
		Sig.	.000

**Source: Research Data (2022)**

The KMO and Bartlett's Test of the dependent variable and the four independent variables showed KMO values ranging between .677 and 0.858; all > .05; and similarly, the variables yielded a Bartlett's significance value of 0.000; all < 0.05. This confirmed that all the variables met the threshold for factor analysis.

**4.4.2 Factor Analysis of the Dependent Variable**

The analysis showed that the six (6) factors of Effective FRM (dependent variable) were reduced to 2 components which cumulatively explained 71.28% of the variance in Effective FRM. The minimum threshold of 0.4 was applied to determine which factors fit in either of the 2 components. In this study, the components were denoted as **Prevent\_FRM** (Factors: Development of Clear Policies & Procedures, Robust Compliance Standards, Adequate Internal Controls & Routine Review of Adequacy of Preventive Activities by HODs) and **Detect\_FRM** (Factors: Due Diligence in Management of Fraudulent Claims & Routine Risk Assessment to Identify Fraudulent Claims). This is illustrated in Table 4.8 below.

**Table 4.8: Factor Analysis of Effective FRM**

Abbr.	Statement	Components	
		Prevent_FRM	Detect_FRM
EFRM1	The insurance firm conducts due diligence in all fraud claims	-0.004	<b>0.842</b>
EFRM2	The insurance firm has developed clear policies and procedures to manage fraud	<b>0.715</b>	0.166
EFRM3	The insurance firm has maintained a robust compliance standard to limit fraud occurrence	<b>0.917</b>	0.105

Abbr.	Statement	Components	
		Prevent_FRM	Detect_FRM
EFRM4	The insurance firm has put in place and adequate internal control to strengthen effective FRM practices	<b>0.900</b>	0.133
EFRM5	The insurance firm management has tasked departmental heads with the mandate to routinely review the adequacy of fraud preventive activities	<b>0.939</b>	0.017
EFRM6	The insurance firm continuously undertakes routine risk assessment to identify any potential fraud	0.185	<b>0.659</b>
	Total	3.076	1.200
	% of Variance	51.27	20.01
	Cumulative %	51.27	71.28
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.742	
	Bartlett's Test of Sphericity	167.515*	

\*Denotes significance at the 1 percent level. **Source: Research Data (2022)**

#### 4.4.3 Factor Analysis of the Independent Variables

All the seven (7) factors of Top Management Support (independent variable) presented factor values greater than 0.4; ranging between 0.631 and 0.910 and were thus reduced to 1 component that explained 65.095% of the variance in top management support. In this study, the component was denoted as **TMS** (Factors: An Effective Control Environment, Regular Controls Review and Risk Monitoring, Delegation of Duties, Communication on Company Mission & Vision, Enforcement of Rules, Robust Control Mechanisms for Enhanced Efficiency Within Teams & Code of Conduct Governing Employee Ethical Behaviour).

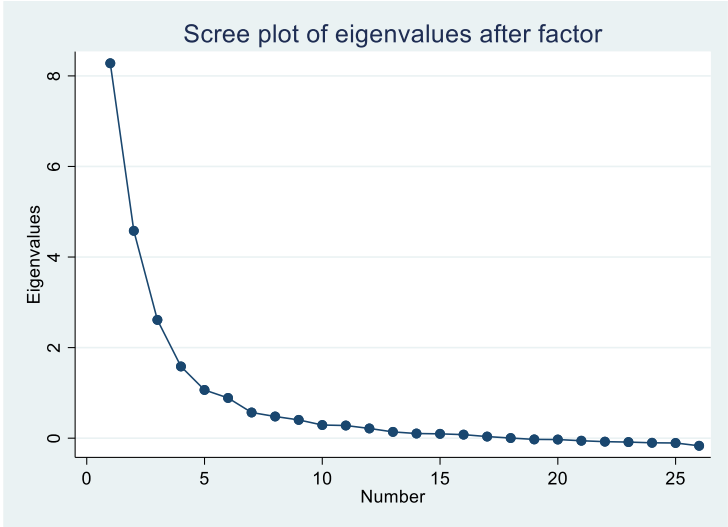
The seven (7) factors of Technology Adoption (independent variable) were reduced to 2 components which cumulatively explained 78.242% of the variance in technology adoption. The minimum threshold of 0.4 was applied to determine which factors fit in either of the 2 components. In this study, the components were denoted as **Tech\_Ad.1** (Factors: Digitalized Forensic Systems in Internal Audits, Machine Learning Technologies in Risk-Based Audits, Emerging Technologies in Fraud Detection Frameworks & Machine Learning to Monitor Exaggerated Claims) and **Tech\_Ad.2** (Factors: Blockchain Technology in FRM Practices, Automated Platforms for Regular

Systems Audits and Risk identification & Mobile Technologies to Reduction Misrepresented Information)

The six (6) factors of Employee Empowerment (independent variable) were reduced to 2 components which cumulatively explained 82.585% of the variance in employee empowerment. The minimum threshold of 0.4 was applied to determine which factors fit in either of the 2 components. In this study, the components were denoted as **Empower.1** (Factors: An Environment of Teamwork in Problem Solving, Facilitation of Professional Development Training, Delegation of Duties to Foster Employee Engagement & Training to Enhance Employee Skills and Competencies) and **Empower.2** (Factors: Awareness of Forensic Accounting Methods in FRM & Seminars and Workshops on FRM)

The six (6) factors of regulatory policies (independent variable) were reduced to 2 components that cumulatively explained 70.940% of the variance in regulatory policies. The minimum threshold of 0.4 was applied to determine which factors fit in either of the 2 components. In this study, the components were denoted as **Reg\_Policy.1** (Factors: Enforcement of Code of Conduct in Firm Service Provision, Employee Compliance to Regulator Policies, Org. Compliance on Fraud Reporting Regulations & Org. Adherence to Regulator Claims Procedures) and **Reg\_Policy.2** (Factors: Routine Internal Reviews of Enforcement of FRM Regulatory Requirements & Prompt Settlement & Investigation of Claims as per Regulatory Standards). Table 4.9 presents a summary of the principal component-factor analyses performed on the four main independent variables of the study. The resultant scree plot is depicted in Figure 4.1 below.

**Figure 4.1: Scree Plot of Eigenvalues after Factor Analysis**



**Table 4.9: Factor Analysis of the Independent Variables**

Abbr.	Statement	Components					
		TMS	Tech_Ad. 1	Tech_Ad. 2	Empower .1	Empower .2	Reg_Policy. 1
MS1	The insurance firm management has played a key role in the development of an effective control environment	<b>0.786</b>					
MS2	The insurance firm management regularly reviews the control activities to enhance the monitoring of risks to the firm	<b>0.631</b>					
MS3	The insurance firm management has decentralized decision making across the departments	<b>0.891</b>					
MS4	The insurance firm management clearly communicates the mission and vision of the organisation	<b>0.874</b>					
MS5	The insurance firm management plays a key role in ensuring rules are enforced within the organisation	<b>0.910</b>					
MS6	The insurance firm management has developed robust control mechanism that enhances efficiency within the team	<b>0.836</b>					
MS7	The insurance firm management has code of conduct that govern the ethical behaviour of employees	<b>0.676</b>					
TA1	The insurance firm has implemented digitalized forensic systems in auditing the internal activities		<b>0.823</b>	0.340			
TA2	The insurance firm has deployed machine learning technologies in conduct risk-based audits		<b>0.825</b>	0.257			
TA3	The insurance firms rely on emerging technologies in the development of fraud detection frameworks		<b>0.824</b>	0.230			
TA4	The insurance firm deploys machine learning to reduce insurance fraud as insurance companies will program their computers to monitor exaggerated claims		<b>0.757</b>	0.243			
TA5	The insurance firm has invested in blockchain technology in the digital control of FRM practices		0.288	<b>0.901</b>			
TA6	The insurance firm deploys automated core platforms to conduct regular systems audits and identify fraud risks		0.400	<b>0.829</b>			
TA7	The insurance firm utilizes mobile technologies to ensure that misrepresented information is significantly reduced in claims		0.212	<b>0.887</b>			
EE1	Employees in the insurance firm are aware of forensic accounting methods used on fraud control and mitigation				0.220	<b>0.950</b>	
EE2	The insurance firm conducts frequent seminars and workshops on issues and methods of FRM				0.198	<b>0.951</b>	

Abbr.	Statement	Components						
		TMS	Tech_Ad. 1	Tech_Ad. 2	Empower .1	Empower .2	Reg_Policy. 1	Reg_Policy. 2
EE3	The insurance firm has created an environment to stimulate and maintain team work in solving problems among employees				<b>0.846</b>	0.284		
EE4	The insurance firm continuously involves the employees in routine professional development training				<b>0.934</b>	0.141		
EE5	The top management within the insurance firms ensures there is routine delegation of duty to foster employee engagement in their duties				<b>0.897</b>	0.211		
EE6	The insurance firm frequently conducts training and workshops to foster the competencies and skills of employees				<b>0.709</b>	0.139		
RP1	The insurance firm ensures adherence to the laid down code of conduct in the provision of services						<b>0.825</b>	0.089
RP2	The insurance firm ensures that employees comply to the code of conducts advanced by the regulator						<b>0.818</b>	0.205
RP3	The insurance firms comply with all reporting standards advanced by the regulator in fraud reporting						<b>0.760</b>	0.179
RP4	The insurance firm ensures there is adherence to the laid down claim's procedures						<b>0.694</b>	0.406
RP5	The insurance firm routinely reviews the internal enforcement of regulatory requirements in FRM						0.132	<b>0.905</b>
RP6	The insurance firm ensures there is prompt settlement and investigation of claims in line with regulatory standards						0.267	<b>0.832</b>
<b>Extraction Sums of Squared Loadings</b>								
	Total	4.557	2.898	2.579	2.984	1.971	2.499	1.757
	% of Variance	65.10	41.40	36.84	49.73	32.86	41.65	29.29
	Cumulative %	65.10	41.40	78.24	49.73	82.59	41.65	70.94
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.813	0.858		0.677		0.761	
	Bartlett's Test of Sphericity	261.123*	239.295*		254.414*		115.075*	

\*Denotes significance at the 1 percent level.

Source: Research Data (2022)

## 4.5 Diagnostic Tests

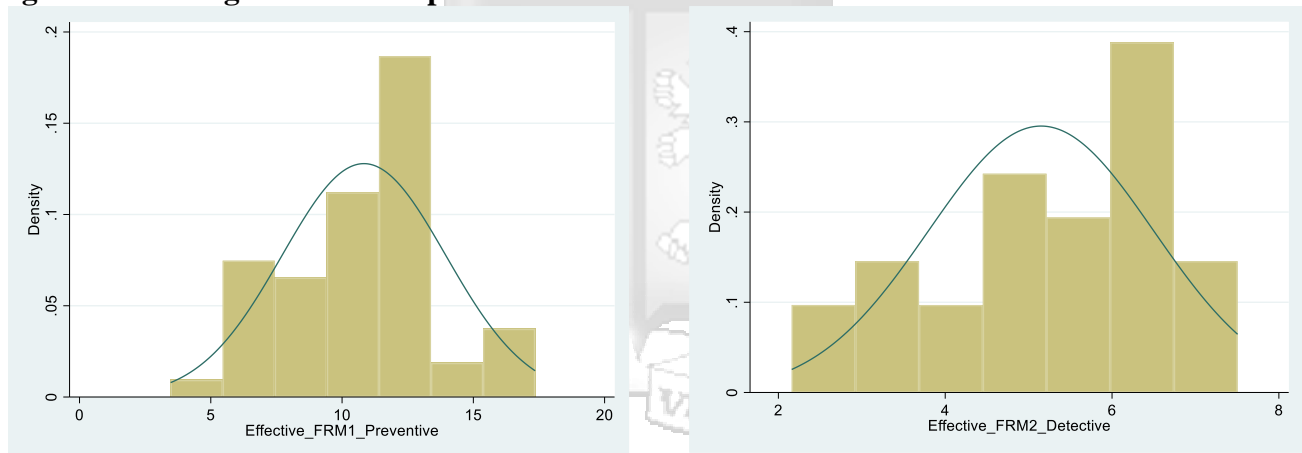
### 4.5.1 Normality of the Dependent Variables

Normality test was performed on the dependent variables as well as the independent variables. The results are depicted in Table 4.10 below, and Figures 4.2 and Figure 4.3 respectively. According to the findings, the variables are relatively normal and could be analysed using the ordered logistic regression.

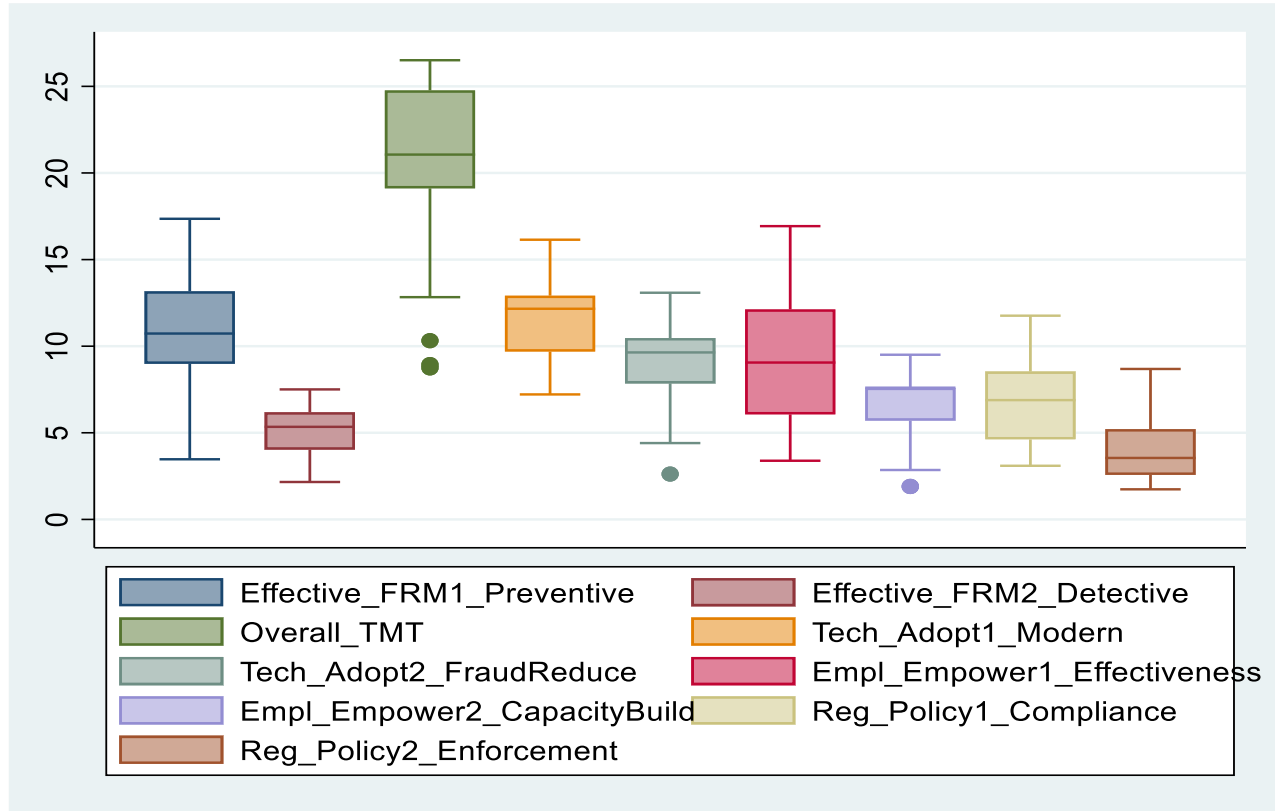
**Table 4.10: Skewness and Kurtosis of the Dependent Variable**

Variable	Obs	Pr(skewness)	Pr(kurtosis)	Joint test	
				chi2(2)	Prob>chi2
Effective_FRM1_Preventive	54	0.779	0.917	0.090	0.956
Effective_FRM2_Detective	54	0.126	0.211	4.080	0.130

**Figure 4.2: Histogram of the Dependent Variable**



**Figure 4.3: Boxplots of All Variables**



#### 4.5.2 Multicollinearity Test

To check whether there was extreme collinearity among the independent variables in the study, a multicollinearity test was performed on the components of the variables. As shown in Table 4.10 below, the highest variance inflation factor (VIF) was  $6.39 < 10$  (tolerance = 0.156); hence the independent variables of the study were found not to be highly collinear and correlation analysis could proceed.

**Table 4.11: Multicollinearity Test**

Component	VIF	Tolerance (1/VIF)
TMS	6.39	0.156
Tech_Ad.1	5.45	0.183
Tech_Ad.2	2.14	0.468
Empower.1	1.52	0.659
Empower.2	1.51	0.662
Reg_Policy.1	1.46	0.684
Reg_Policy.2	1.4	0.714
Gender	1.16	0.866
Employees	1.12	0.894

Component	VIF	Tolerance (1/VIF)
Mean VIF	2.46	

Source: Research Data (2022)

#### 4.6 Spearman's Rank Correlation Coefficient Analysis

In this study, Spearman's rank correlation coefficient was used to establish associations between the study variables. The factors derived from the component analysis done previously as per Table 4.9 were applied to conduct the correlation tests. The correlation summary is indicated in Table 4.11 below.



**Table 4.12: Spearman's Rank Correlation Coefficient Analysis**

Spearman's correlations	Prevent_FRM	Detect_FRM	TMS	Tech_Ad.1	Tech_Ad.2	Empower.1	Empower.2	Reg_Policy.1	Reg_Policy.2	Gender	Employees
<b>Prevent_FRM</b>	1										
<b>Detect_FRM</b>	0.184	1									
P-value	0.18										
<b>TMS</b>	0.584**	0.236	1								
P-value	0.00	0.09									
<b>Tech_Ad.1</b>	0.704**	0.207	0.743**	1							
P-value	0.00	0.13	0.00								
<b>Tech_Ad.2</b>	0.664**	0.071	0.808**	0.680*	1						
P-value	0.00	0.61	0.00	0.00							
<b>Empower.1</b>	-0.134	0.162	0.010	-0.150	-0.046	1					
P-value	0.34	0.24	0.94	0.28	0.74						
<b>Empower.2</b>	-0.285*	-0.135	-0.019	-0.166	-0.193	0.361**	1				
P-value	0.04	0.33	0.89	0.23	0.16	0.01					
<b>Reg_Policy.1</b>	-0.021	0.085	-0.055	-0.028	-0.021	-0.334**	-0.149	1			
P-value	0.88	0.54	0.70	0.84	0.88	0.01	0.28				
<b>Reg_Policy.2</b>	0.020	0.013	0.111	0.007	0.213	-0.288*	-0.014	0.406**	1		
P-value	0.89	0.92	0.42	0.96	0.12	0.03	0.92	0.00			
<b>Gender</b>	-0.084	0.081	0.183	-0.026	-0.058	0.111	0.178	0.025	0.096	1	
P-value	0.54	0.56	0.19	0.85	0.68	0.42	0.20	0.86	0.49		
<b>Employees</b>	-0.129	0.273*	-0.077	-0.013	-0.138	-0.094	-0.196	-0.009	0.087	-0.129	1
P-value	0.35	0.05	0.58	0.93	0.32	0.50	0.15	0.95	0.53	0.35	

\*\*\_ Correlation is significant at the 0.01 level (1-tailed)., \*\_ Correlation is significant at the 0.05 level (1-tailed).

**Source: Research Data (2022)**

#### **4.6.1 Top Management Support**

The tests established that top management support; TMS had a positive significant effect on Preventive FRM practices in Kenyan MIPs ( $\rho = 0.584^{**}$ ,  $\text{sig} = 0.00 < 0.01$ ), but had a positive but statistically insignificant effect on Detective FRM practices in Kenyan MIPs ( $\rho = 0.236$ ,  $\text{sig} = 0.09 > 0.05$ ).

#### **4.6.2 Technology Adoption**

The tests on both Tech\_Ad.1 (digitalized forensic systems, machine learning technologies, and fraud detection platforms) & Tech\_Ad.2 (blockchain technologies, automated core platforms, and mobile technologies) revealed that both components had a positive significant effect on Preventive FRM practices in Kenyan MIPs, with correlation coefficients of  $0.704^{**}$  ( $\text{sig} = 0.00 < 0.01$ ) and  $0.664^{**}$  ( $\text{sig} = 0.00 < 0.01$ ) respectively. The results also established that both Tech\_Ad.1 & Tech\_Ad.2 factors had a positive significant effect on TMS factors with coefficients of  $0.743^{**}$  ( $\text{sig} = 0.00 < 0.01$ ) and  $0.808^{**}$  ( $\text{sig} = 0.00 < 0.01$ ), respectively. The analysis further established that Tech\_Ad.2 had a positive significant effect on the factors under Tech\_Ad.1 with a coefficient of  $0.680^{**}$  ( $\text{sig} = 0.00 < 0.01$ )

#### **4.6.3 Employee Empowerment**

Tests on Empower.1 (better work environment, delegation of duty, professional development) established a negative insignificant effect on Preventive FRM practices ( $-0.134$ ,  $\text{sig} = 0.34 > 0.05$ ) and a positive insignificant effect on Detective FRM practices  $0.162$  ( $\text{sig} = 0.24 > 0.05$ ). It was also established that Empower.2 (awareness of forensic accounting competences and regular training and seminars) had a negative significant effect on Preventive FRM practices ( $-0.285^*$ ,  $\text{sig} = 0.04 < 0.05$ ), but had a positive significant effect on Empower.1 factors ( $0.361^{**}$ ,  $\text{sig} = 0.01 = 0.01$ )

#### **4.6.4 Regulatory Policies**

The tests established that Reg\_Policy.1 (code of conduct, reporting standards and claim procedures) had a negative insignificant effect on Preventive FRM practices ( $-0.021$ ,  $\text{sig} = 0.88 > 0.05$ ) and a positive but insignificant effect on Detective FRM ( $0.085$ ,  $\text{sig} = 0.54 > 0.05$ ). Reg\_Policy.2 factors had a positive but insignificant effect on both Preventive and Detective FRM practices with coefficients of ( $0.020$ ,  $\text{sig} = 0.89 > 0.05$ ) and  $0.013$  ( $\text{sig} = 0.92 > 0.05$ ) respectively.

#### 4.6.5 Number of employees and Gender of Respondent- Control variables

Number of employees was found to have a negative but insignificant effect on Preventive FRM practices (-0.129, sig = 0.35 > 0.05), but had a positive significant effect on Detective FRM 0.273, sig = 0.05 = 0.05). Gender was found to be statistically insignificant in its effect on the variables in the study.

#### 4.7 Ordered Logistic Regression Analyses

An Ordered Logistic Regression analysis (OLR) was conducted to estimate the influence of the variables on effective FRM in MIPs in Kenya. Since the factor analyses of the Dependent variable produced two components; Prevent\_FRM and Detect\_FRM, two levels of OLR regression analyses were performed. The first level entailed a regression incorporating Prevent\_FRM as the dependent variable among the set of the independent variables and two control variables, gender and number of employees. The results of the OLR analysis are presented in Table 4.12 below.

**Table 4.13: OLR Results of Preventive FRM**

Dependent Variable (Component 1)	Prevent_FRM				
	[1]	[2]	[3]	[4]	[5]
TMS	0.427*** (5.16)				0.043 (0.28)
Tech_Ad.1		0.784*** (3.34)			0.764*** (2.78)
Tech_Ad.2		0.355 (1.56)			0.288 (1.06)
Empower.1			-0.017 (-0.22)		-0.062 (-0.67)
Empower.2			-0.259* (-1.70)		-0.066 (-0.39)
Reg_Policy.1				-0.051 (-0.47)	-0.019 (-0.16)
Reg_Policy.2				0.146 (0.95)	0.072 (0.47)
Gender of Manager	-1.207** (-2.21)	-0.534 (-1.00)	-0.385 (-0.74)	-0.617 (-1.20)	-0.494 (-0.84)
No. of Employees in Firm	-0.007 (-1.07)	-0.009 (-1.49)	-0.009 (-1.34)	-0.010 (-1.59)	-0.010 (-1.53)
Cross-section IDs included?	Yes	Yes	Yes	Yes	Yes
LR chi2(4)	35.98***	51.41	7.54	4.09	52.68
Prob > chi <sup>2</sup>	0.00		0.18	0.54	
Pseudo R <sup>2</sup>	0.112	0.159	0.023	0.013	0.163

Dependent Variable (Component 1) Model	Prevent_FRM				
	[1]	[2]	[3]	[4]	[5]
Log likelihood	-143.43	-135.72	-157.66	-159.38	-135.09
Number of obs	54	54	54	54	54

Note: \*, \*\* and \*\*\* denote significance at the 10, 5 and 1 percent, respectively. Z-values are in brackets.

**Source: Research Data (2022)**

The above model is denoted by the equation is summarised as per the model in Figure 4.1 below

**Figure 4.4: OLR Model - Preventive FRM Equation**

$$\begin{aligned}
 \text{Preventive\_FRM}_i &= 0.043\text{TMS}_i + 0.764 \text{Tech\_Adopt. } 1_i + 0.288\text{Tech\_Adopt. } 2_i \\
 &- 0.062\text{Empower. } 1_i - 0.066\text{Empower. } 2_i - 0.019\text{Reg. Policy. } 1 \\
 &+ 0.072\text{Reg. Policy. } 2 - 0.494\text{Gender}_i - 0.010\text{Employees}_i + \varepsilon_i
 \end{aligned}$$

The results determined that Top Management Support (independent variable) had a positive significant influence on the factors of Preventive FRM (Dependent variable.1) in MIPs in Kenya (0.427\*\*\*, z-value = 5.16). This would result specifically through the creation of an effective control environment, regular controls review and risk monitoring, delegation of duties, emphasis on company mission and vision, enforcement of rules, robust control mechanisms for efficiency within teams and code of conduct governing employee ethical behaviour.

The results determined that Tech\_Ad.1 (Component 1 of the Technological Adoption independent variable) had a positive significant effect on Preventive FRM (0.784\*\*\*, z-value = 3.34) through implementation of digitalized forensic systems, and incorporation of machine learning technologies and other emerging technologies in audits and fraud detection frameworks. Taking all determinants into account, it also emerged that these factors have a positive significant effect on Preventive FRM (0.764\*\*\*, z-value = 2.78) indicating that these factors play a fundamental role in effective FRM practices in MIPs in Kenya. However, the results revealed that Tech\_Ad.2 (Component 2 of the Technological Adoption independent variable) had a positive but insignificant effect on Preventive FRM (0.355, z-value = 1.56), and the same applies for this component after taking all determinants into account (0.288, z-value = 1.06).

The results determined that Empower.2 (Component 2 factors of the Employee Empowerment independent variable); creating awareness on forensic accounting methods in FRM & Seminars and workshops on FRM had a negative significant effect on Preventive FRM practices at the 90% confidence level (-0.259\*, z-value = 1.70). It was determined that the factors of Empower.1 (Component 1 of the Employee Empowerment independent variable) have a negative insignificant effect on Preventive FRM (-0.017, z-value = -0.22), and after taking all determinants of Preventive FRM into account this does not change (0.062, z-value = -0.67)

The results determined that the factors under Reg\_Policy.1 (component 1 of the Regulatory Policies independent variable) had a negative insignificant effect on Preventive FRM practices, and that Reg\_Policy.2 (component 2 of the Regulatory Policies independent variable) had a positive but insignificant effect on Preventive FRM practices in MIPs in Kenya with respective coefficients of -0.051 (z-value = -0.47), and 0.146 (z-score = 0.95). The same conclusion was determined after taking all determinants of Preventive FRM practices into consideration with coefficients outcomes of -0.019 (z-score = -0.16) and 0.072 (z-score = 0.47) for Reg\_Policy.1 and Reg\_Policy.2 respectively.

The results indicate at the 95% level of confidence, Gender of the manager had a negative significant effect on Preventive FRM practices (-1.207\*\*, z-score = -2.21), but when other determinants of Preventive FRM are incorporated, it had a negative but insignificant effect (-0.494, z-score = -0.84).

Finally, the results indicate that No. of employees in a Kenyan MIP had a negative insignificant effect on Preventive FRM practices (-0.007, z-score = -1.07), and this also applies after incorporation of all determinants of Preventive FRM practices (-0.010, z-score = -1.53)

Next, the OLR analysis incorporated the second component Detect\_FRM which captured detective FRM factors employed by MIPs in Kenya's insurance sector. The results are presented in Table 4.13 below.

**Table 4.14: OLR Results of Detective FRM**

Dependent Variable (Component 2) Model	Detect_FRM				
	[1]	[2]	[3]	[4]	[5]
TMS	0.079 (1.39)				0.275** (1.93)
Tech_Ad.1		0.328** (2.34)			0.315* (1.84)
Tech_Ad.2		-0.186 (-1.36)			-0.794*** (-2.81)
Empower.1			0.154* (1.80)		0.245*** (2.51)
Empower.2			-0.204 (-1.52)		-0.358** (-2.37)
Reg_Policy.1				0.081 (0.72)	0.104 (0.89)
Reg_Policy.2				0.009 (0.06)	0.229 (1.35)
Gender of Manager	0.381 (0.74)	0.679 (1.26)	0.383 (0.71)	0.424 (0.81)	0.246 (0.43)
Employees	0.006 (0.84)	0.005 (0.80)	0.004 (0.66)	0.005 (0.76)	0.007 (1.06)
Cross-section IDs included?	Yes				
LR chi2(4)	3.00	6.24	5.12	1.77	19.13
Prob > chi <sup>2</sup>	0.56	0.28	0.40	0.88	0.04
Pseudo R <sup>2</sup>	0.010	0.022	0.018	0.006	0.066
Log likelihood	-143.58	-141.96	-142.52	-144.20	-135.51
Number of obs.	54	54	54	54	54

Note: \*, \*\* and \*\*\* denote significance at the 10, 5 and 1 percent, respectively. Z-values are in brackets.

Source: Research Data (2022)

The above model is summarised and denoted by the equation in Figure 4.2 below

**Figure 4.5: OLR Model - Detective FRM Equation**

$$\begin{aligned}
 \text{Detective\_FRM}_i &= 0.275\text{TMS}_i + 0.315 \text{Tech\_Adopt. } 1_i - 0.794\text{Tech\_Adopt. } 2_i \\
 &+ 0.245\text{Empower. } 1_i - 0.358\text{Empower. } 2_i + 0.104\text{Reg. Policy. } 1 \\
 &+ 0.229\text{Reg. Policy. } 2 - 0.246\text{Gender}_i + 0.007\text{Employees}_i + \varepsilon_i
 \end{aligned}$$

The results indicated that Top Management Support (independent variable) had a positive but insignificant effect on Detective FRM practices (Dependent variable.2) in MIPs in Kenya (0.079, z-score = 1.39).

However, when taken together with other determinants, it was determined that TMS had a positive significant effect on Detective FRM practices (0.275\*\*, z-score = 1.93), this is in contrast with Preventive FRM as per Table 4.12 where when all determinants are incorporated, Top Management Support loses significance.

The results determined that Tech\_Ad.1 (Component 1 of the Technological Adoption independent variable) had a positive significant effect on Detective FRM practices (0.328\*\*, z-value = 2.34). The same held when other determinants were considered (0.315\*, z-value = 1.84). This affirms that the factors in Tech\_Ad.1 are fundamental in the context of both Preventive FRM and Detective FRM practices. The results revealed that the Tech\_Ad.2 factors had an insignificant negative effect on Detective FRM practices (-0.186, z-score = -1.36), and when incorporated with other determinants the factors had a negative significant effect on Detective FRM practices (-0.794\*\*\*, z-value = -2.81).

The results determined that Empower.1 factors (Component 2 of the Employee Empowerment independent variable); creating awareness on forensic accounting methods in FRM & Seminars and workshops on FRM had a positive significant effect on Detective FRM practices (0.154\*, z-value = 1.80). Taking all determinants into account, it emerged that these factors maintained a positive significant effect on Detective FRM practices (0.245\*\*\*, z-value = 2.51).

It was further determined that the factors of Empower.2 (Component 2 of the Employee Empowerment independent variable) had a negative insignificant effect on Detective FRM (-0.204, z-value = -1.52), however when taken together with other determinants, Empower.2 factors had a negative significant effect on Detective FRM (-0.358\*\*, z-score = -2.37).

The results determined that the factors under both components of Regulatory Policies (independent variable); Reg\_Policy.1 and Reg\_Policy.2 had a positive but insignificant effect on Detective FRM practices with respective coefficients of 0.081 (z-value = 0.72), and 0.009 (z-score = 0.06). The same conclusion was reached when either component was taken together with other determinants

with coefficients outcomes of 0.104 (z-score = 0.89) and 0.229 (z-score = 1.35) for Reg\_Policy.1 and Reg\_Policy.2 respectively.

Finally, the results determined that both control variables - No. of employees in a Kenyan MIP, and Gender of Manager had a positive but insignificant effect on Detective FRM practices with respective coefficients of (0.007, z-score = 1.06) and (0.246, z-score = 0.43).



## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter comprises of 6 sections which present a summary of the findings, a discussion of the findings guided by the four specific objectives of the study, conclusions reached, recommendations and limitations of the study,

#### **5.2 Summary**

This main purpose of this study was to examine the determinants of effective fraud risk management among medical insurance providers in Kenya. The study specifically aimed to determine the effect of top management support, technology adoption, employee empowerment and regulatory policies on effective fraud risk management among MIPs in Kenya. In this endeavour, the required data from a target sample of 78 - comprising of 26 claims managers, 26 risk & compliance managers and 26 underwriting managers in all 26 medical insurance providers in Kenya was sought and 54 responses were received, thereby achieving a response rate of 69.2% which is adequate for data analysis and reporting. The study was quantitative adopting a descriptive and correlational research design and collected primary data using a structured research questionnaire. A Likert scale format was adopted to ensure that the responses received were structured. The data collected revealed that 33 of the respondents were female managers and 21 were male. The data further revealed that the average number of employees in a medical insurance provider in Kenya is 41 employees.

It was established from the findings that Effective FRM practices among MIPs in Kenya could be categorised as either preventive or detective FRM practices, and thus the research questions on establishing the effect of top management support, technology adoption, employee empowerment and regulatory policies on effective FRM among MIPs in Kenya were answered from the perspective of preventive FRM practices and Detective FRM practices. Preventive FRM practices revolve around development of policies & procedures, robust compliance standards, adequate internal controls & routine review of the adequacy of preventive initiatives undertaken by Heads of Department in MIPs in Kenya.

Detective FRM practices primarily revolve around ensuring that there is due diligence in management of fraudulent claims & routine risk assessment to identify fraudulent claims.

With exception to top management support, factor analysis of technology adoption, employee empowerment and regulatory policies yielded two components of factors from each determinant which led to comprehensive findings about the effect that each determinant had on effective FRM from a preventive and detective perspective.

A multicollinearity test was conducted to ensure that the data collected was fit for purpose for correlational and regression analyses. Descriptive analysis, Spearman's rank correlation coefficient analysis and Ordered Logistic Regression were adopted in analysis of the data which resulted in findings that provided answers to the questions which the study sought to answer.

In sum, the study established that top management support, technology adoption and employee empowerment have a positive and significant effect on effective FRM practices among MIPs in Kenya. It was also established that regulatory policies have a positive but insignificant effect on effective FRM practices among MIPs in Kenya.

### **5.3 Discussion of Findings**

This section brings into perspective a discussion of the findings.

#### **5.3.1 Top Management Support and Effective FRM among MIPs in Kenya**

The study established that top management support had a positive and significant effect on effective FRM among MIPs in Kenya. More specifically, the study found that facilitation of an effective control environment, regular controls review and risk monitoring were key aspects in enhancing effective FRM. In addition, the study established that delegation of duties, clear communication on company mission & vision, enforcement of rules, robust control mechanisms for enhanced efficiency within teams and code of conduct governing employee ethical behaviour by top management all promote effective FRM in Kenyan MIPs.

Findings from this study are consistent with Dimitrijevic et al. (2015) who examined the role of management in internal control systems establishment and fraud prevention. The authors found that management plays a central role in the setting up of an adequate control environment and control activities to manage business risks. Gamayuni (2018) in his study on the effect of top management support and internal auditor competence on the effectiveness of internal audit function and how this affects the quality of financial reporting, revealed that top management support, and the level of

competence of the internal auditor have a significant impact on how companies report and manage the internal audit function.

The findings of this study are in line with Okumu (2017) who found that managers play an important role in instituting frameworks to identify, react to and circumvent possible technological risks, political risks, geographical risks, socio-cultural risks and personnel risk in his study on the impact of risk mitigation strategies on performance outcomes of Kenyan motor insurance firms in Kenya. Munga (2018) studied the effect of corporate governance practices on risk mitigation and financial outcomes of Kenyan insurance firms and found that there was a significant positive relationship between corporate governance, effective risk management and the firm's financial results. Gathu (2018) in his study to determine the effect of fraud management on costs associated with fraudulent medical claims in Kenya, found that top management in insurance firms play a key role in the formulation and implementation of robust risk management strategies that reduce the volume of fraudulent insurance claims.

### **5.3.2 Technology Adoption and Effective FRM among MIPs in Kenya**

The study established that technology adoption had a positive and significant effect on effective FRM among MIPs in Kenya. It was established that digitalized forensic systems and fraud detection frameworks play a significant role in detection efforts towards effective FRM among MIPs in Kenya. This is further complimented by the adoption of machine learning technologies and other emerging technologies. It was further established in this study that mobile technologies, blockchain technologies as well as the creation of automated platforms for regular systems audits and risk identification are a fundamental part of effective preventive FRM practices among MIPs in Kenya.

The study results are in concurrence with findings by Gupta et al. (2019) who established that applied statistical models & statistical tests, machine learning capability, deep learning and blockchain technologies can be integrated to form a comprehensive framework for effective fraud prevention and detection. Mambo (2019) agreed by noting that emerging computerized technologies such as artificial intelligence and machine learning, biometric systems, block chain technologies, GPS functionality, among other technologies have been effective in the detection and prevention of fraud within internal information systems, making it harder for fraudsters to falsify claims. Shin et al. (2012) also noted that technologies were key to reducing corruption and healthcare givers' misconduct. Owusu-Oware et al. (2018) investigated the use of biometric

technologies in curbing fraud in Ghana's health insurance industry to determine the effectiveness of their use in developing countries and noted that biometric systems, as part of recent technology, are key in reducing fraud claims cases.

However, Barnabas (2016) in his study on the effectiveness of biometric technologies as tools for fraud mitigation in medical insurance firms in Kenya, differed with the findings of this study noting that biometric technologies had an insignificant impact on the volume of fraud cases due to the prevalence of complicated fraudster tactics and an increase in different forms of fraud such as cyber fraud, internal fraud, and money laundering, which biometric technologies cannot have a direct impact on.

### **5.3.3 Regulatory Policies and Effective FRM among MIPs in Kenya**

The study established that regulation policies do not influence effective FRM practices among MIPs in Kenya. It was established that enforcement of code of conduct in service provision, compliance on fraud reporting regulation and adherence to regulator claims procedures do not further efforts towards effective FRM among MIPs in Kenya. It was further established in this study that reviews on enforcement of FRM regulatory requirement and prompt settlement and investigation of claims as per the set regulatory standards do not have a significant impact on enhancing effective FRM among MIPs in Kenya.

The findings of this study were corroborated by Ghimire (2020), who carried out a desk review on the situation of the Nepalese insurance industry in a bid to determine the impact of regulations on the performance of the sector. The study noted that there were insufficient regulatory frameworks which led to a loophole on areas involving cyber security insurance and insurance fraud, among others. Ndonga (2018) assessed factors contributing to delayed payments of insurance claims in Kenya's health insurance industry and determined that the lack of sufficient applicable legislation was one of the most significant barriers to claims settlement in Kenya. This study in addition has established that prompt settlement and investigation of claims as per the set regulatory standards does not complement effective FRM in Kenyan MIPs.

Kiragu et. al, (2015) sought to determine the relationship between management control systems and occupational fraud risk reduction within Kenyan commercial banks and noted that effective implementation of antifraud control, fraud detection, and fraud reporting measures resulted in a significant reduction in occupational fraud. The study findings are not consistent with Ndolo (2018)

who investigated the impact of FRM practices on financial return within the insurance industry and the results showed that fraud detection and management were driven by the need to meet compliance requirements and regulatory supervisory standards.

#### **5.3.4 Employee Empowerment and Effective FRM among MIPs in Kenya**

The study established that Employee Empowerment had a positive significant effect on effective FRM practices among MIPs in Kenya. The study further established that fostering an environment of teamwork in problem solving, delegation of duties, professional development training, and enhancing employee skills and competencies contributes positively toward effective FRM practices. This is further enhanced by creating awareness on forensic accounting methods in FRM and having seminars and workshops on FRM.

These findings are supported by Ehioghiren & Atu (2016) who focused on the effect of forensic accounting on FRM, adopting a survey research design on a population consisting of internal and external auditors, top management staff, and public and private accountants, and determined that forensic accounting has a significant impact on detection and control of fraud.

Further, Blackburn & Schrag (2017) who investigated the impact of internal control and employee empowerment on FRM and noted that effective internal control improved fraud prevention, improved efficiency and reliability of financial/statistical reports, employee morale, and better compliance with laws and regulations. Drogalasa et al. (2017) also explored the relationship between auditor responsibility, training in fraud detection and internal audit effectiveness among firms listed in the Athens Stock Exchange and revealed that the effectiveness of the internal audit process, auditor responsibility, and training on fraud detection significantly reduce fraudulent incidences.

The study findings are in line with Kogo & Kimencu (2018) who carried out an investigation into the relationship between marketing capabilities, technological capabilities, product capabilities, human resource capabilities, and goal realization of Kenyan insurance firms and determined the importance of insurance firms investing in employee recruitment, selection, and development to ensure that they can efficiently carry out their strategic roles.

## **5.4 Conclusions**

The study established that top management support has a positive and significant effect on effective FRM among MIPs in Kenya. The study concludes that facilitation of an effective control environment, regular controls review and risk monitoring are key aspects in enhancing effective FRM. In addition, the study has established that delegation of duties, clear communication on company mission & vision, enforcement of rules, robust control mechanisms for enhanced efficiency within teams and code of conduct governing employee ethical behaviour by top management all promote effective FRM in Kenyan MIPs.

The study established that technology adoption has a positive and significant effect on effective FRM among MIPs in Kenya. The study concludes that digitalized forensic systems and fraud detection frameworks play a significant role in detection efforts towards effective FRM among MIPs in Kenya. This is further complimented by the adoption of machine learning technologies and other emerging technologies. It was further established in this study that mobile technologies, blockchain technologies as well as the creation of automated platforms for regular systems audits and risk identification are a fundamental part of effective preventive FRM practices among MIPs in Kenya.

The study established that regulatory policies have a positive but insignificant effect on FRM practices among MIPs in Kenya. The study concludes that enforcement of code of conduct in service provision, compliance on fraud reporting regulation and adherence to regulator claims procedures do not further efforts towards effective FRM among MIPs in Kenya. Further, conducting reviews on enforcement of FRM regulatory requirements and prompt settlement and investigation of claims as per the set regulatory standards do not have a significant impact on enhancing effective FRM among MIPs in Kenya.

Finally, the study established that employee empowerment has a positive and significant effect on effective FRM among MIPs in Kenya.

The study concludes that fostering an environment of teamwork in problem solving, delegation of duties, professional development training, and enhancing employee skills and competencies contributes positively toward effective FRM practices. This is further complimented by creating awareness on forensic accounting methods in FRM and having seminars and workshops on FRM.

## **5.5 Recommendations**

### **5.5.1 Policy Recommendations**

The study established that regulatory policies as currently constituted by the Insurance Regulatory Authority and other relevant stakeholders do not sufficiently compliment effective FRM efforts in MIPs. It has been sighted in previous studies that because of rampant fraud in the medical insurance industry, insurance providers charge high premiums which in turn has led to low uptake of health insurance in Kenya. Further, fraud has tainted the image of insurance - generally as a service in Kenya. The study recommends that the IRA engage MIPs, AKI and all other stakeholders in their policy formulation process so that the intentions that policies seek to address - more so those associated with fraud risk are effective. Failure to engage MIPs in the process can lead to apathy and non-adherence - more so if the set standards do not complement the interests of MIPs, or aren't in tandem with the reality on the ground. More consultation and engagement increases the likelihood of the formulation of regulations and policies which will compliment effective FRM, and this will be a major step forward towards the common goal of fraud eradication in the industry.

### **5.5.2 Recommendations for Practice**

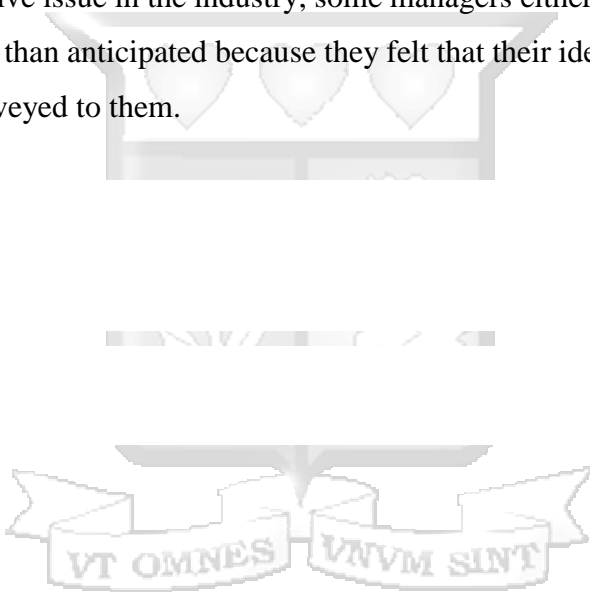
The study established that management support, employee empowerment and technology adoption have a positive impact on effective FRM among MIPs in Kenya. The study therefore recommends that management in medical insurance firms make a concerted effort to embrace a work environment that encourages teamwork in problem solving, decentralised decision making in operations and encourages open communication and sharing of ideas and solutions in the workplace. The study further recommends that management in MIPs institute regular training on FRM practices from experts in the field and also create opportunities for professional development to bolster the skills and competencies of their employees. The study further recommends that MIPs should endeavour to abandon manual processes where possible and embrace systemisation and automation of processes. The adoption of digitalized forensic systems, fraud detection frameworks, machine learning technologies and other emerging technologies play a significant role in detection efforts towards effective FRM in Kenyan MIPs. Further, mobile technologies, blockchain technologies as well as the creation of automated platforms for regular systems audits and risk identification are a fundamental part of effective preventive FRM.

**5.5.3 Area for Further Studies**

This study focused on the determinants of effective fraud risk management but only in the context of medical insurance business in Kenya. A need therefore arises to study these determinants in the context of general insurance business, life insurance business, as well as other major sectors of the economy and geographical jurisdictions. The study limited its focus to employee empowerment, technology adoption, top management support, and regulation policies, the need arises to study effective fraud risk management from the perspective of other determinants such as financial capacity and corporate governance.

**5.6 Limitations of the Research**

Given that fraud is a sensitive issue in the industry, some managers either declined to participate in the research or took longer than anticipated because they felt that their identities would be revealed despite the assurances conveyed to them.



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# APPENDICES

## Appendix I: Letter of Introduction

Ole Sangale Rd, Madaraka Estate,  
P.O. Box 59857 00200, Nairobi, Kenya.  
Cell: +254 703 414/6/7, Twitter: @SBSKenya  
Email: [info@sbs.ac.ke](mailto:info@sbs.ac.ke) or visit [www.sbs.strathmore.edu](http://www.sbs.strathmore.edu)



Tuesday, October 12, 2021

To whom it may concern.

**RE: FACILITATION OF RESEARCH – ALEX WAINAINA MWANGI**

This is to introduce Alex Wainaina Mwangi who is an MBA student at Strathmore University Business School, admission number MBA/134950/20. As part of our MBA Program, Alex is expected to do applied research and to undertake a project. This is in partial fulfilment of the requirements of the MBA course. To this effect, he would like to request for appropriate data from your organization.

Alex is undertaking a research paper on "*Determinants of Effective Fraud Management in Medical Insurance Providers in Kenya*." The information obtained from your organization shall be treated confidentially and shall be used for academic purposes only.

Our MBA seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share the findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support, and we shall be willing to provide any further information if required.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Caroline Tiara".

Caroline Tiara,  
Manager – MBA Programs.

Association of African  
Business Schools



Strathmore Business School is a Proud member of



AACSB

## **Appendix II: Participant Information Sheet & Consent Form**

**Title of the study:** DETERMINANTS OF EFFECTIVE FRAUD RISK MANAGEMENT PRACTICES AMONG MEDICAL INSURANCE PROVIDERS IN KENYA

### **SECTION 1: INFORMATION SHEET**

**Investigator:** Alex Wainaina Mwangi

**Institutional affiliation:** MBA Student, Strathmore Business School (SBS)

### **SECTION 2: INFORMATION SHEET–THE STUDY**

#### **2.1: Why is this study being carried out?**

The main objective of the study is to assess the determinants of effective fraud risk management among medical insurance providers in Kenya. More specifically, the study seeks to analyze the impact of Top Management Support, Technology Adoption, Regulatory Policies and Employee Empowerment on effective fraud risk management practices in medical insurance firms in Kenya.

#### **2.2: Do I have to take part?**

No. Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you will be asked to complete a questionnaire to get information which will support the aforementioned study. If you are not able to answer all the questions successfully the first time, you may be asked to sit through another informational session after which you may be asked to answer the questions a second time. You are free to decline to take part in the study at any time without giving any reasons.

#### **2.3: Who is eligible to take part in this study?**

- Claims Managers in medical insurance providers in Kenya.
- Underwriting Managers in medical insurance providers in Kenya.
- Risk & Compliance Managers in medical insurance providers in Kenya

#### **2.4: Who is not eligible to take part in this study?**

Anyone other than the above.

**2.5: What will be taking part in this study involve for me?**

You will be approached and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you will be asked to sign the informed consent form (this form) and then taken through a questionnaire to complete.

**2.6: Are there any risks or dangers in taking part in this study?**

There are no risks in taking part in this study. All the information you provide will be treated as confidential and will not be used in any way without your express permission.

**2.7: Are there any benefits of taking part in this study?**

Fraud is a major challenge in insurance business, but most affected is the medical insurance side of the business. The information provided by you will play a key role in providing insights which may improve the existing FRM practices in Kenyan medical insurance firms.

**2.8: What will happen to me if I refuse to take part in this study?**

Nothing. Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

**2.9: Who will have access to my information during this research?**

All research records will be stored in securely locked cabinets. That information may be transcribed into our database but this will be sufficiently encrypted and password protected. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

**2.10: Who can I contact in case I have further questions?**

You can contact me, ALEX WAINAINA MWANGI via e-mail [alex.mwangi@strathmore.edu](mailto:alex.mwangi@strathmore.edu) or by phone 0707 968999. You can also contact my supervisor, Dr. David Mathuva, at the Strathmore Business School, Nairobi via e-mail [dmathuva@strathmore.edu](mailto:dmathuva@strathmore.edu) or by phone 0710 403501.

**If you want to ask someone independent anything about this research, please contact:**

The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email [ethicsreview@strathmore.edu](mailto:ethicsreview@strathmore.edu) Tel number: +254 703 034 375

I, ....., have understood all that I have read. I have had the study explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

**Please tick the boxes that apply to you;**

**Participation in the research study**

I AGREE to take part in this research

I DO NOT AGREE to take part in this research

**Storage of information on the completed questionnaire**

I AGREE to have my completed questionnaire stored for future data analysis

I DO NOT AGREE to have my completed questionnaire stored for future data analysis

**Participant's Name** ..... **Participant's Signature** \_\_\_\_\_

**Date** DD / MM / YYYY

**Time:** H: MM AM/PM

I, Alex Wainaina Mwangi, certify that I have followed the SOP for this study and have explained the study information to the study participant named above, and that she/he has understood the nature and the purpose of the study and consents to the participation in the study. She/he has been given the opportunity to ask questions which have been answered satisfactorily.

**Investigator's Name** Alex Wainaina Mwangi **Investigator's Signature**  \_\_\_\_\_

**Date** 18 / 06 / 2022

**Time:** 8: 35 AM/PM



### Appendix III: Research Questionnaire

This questionnaire seeks to collect information which will aid in the study to explore the determinants of effective FRM practices among medical insurance providers in Kenya with a focus on top management support, technology adoption, employee empowerment and regulatory policies.

Your contribution towards this research is valuable and will be highly appreciated. Please note that the information provided will be treated with strict confidentiality.

#### PART A: GENERAL INFORMATION

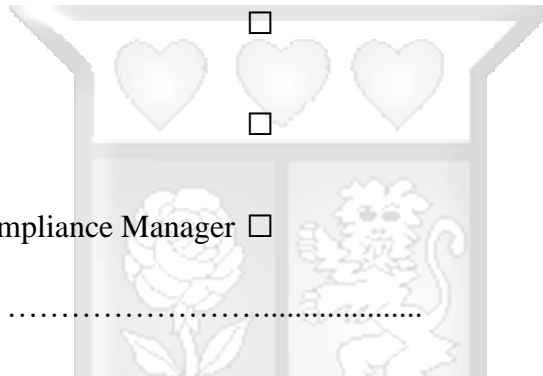
##### 1. Please indicate your role ()

Underwriting Manager

Claims Manager

Internal Audit/Risk & Compliance Manager

Other role. Please specify .....



##### 2. Kindly indicate your gender

Male

Female

##### 3. How many employees are based in the medical insurance division of your company?

.....

**PART B: DETERMINANTS OF EFFECTIVE FRM PRACTICES AMONG MEDICAL INSURANCE PROVIDERS IN KENYA**

**I. Determining the effect of top management support on effective FRM practices among medical insurance providers in Kenya**

Please use a tick (☐) to indicate your level of agreement with each of the statements below by using the following scale:

**Strongly Disagree =1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5**

<b>Statement on Top Management Support</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The insurance firm management has played a key role in the development of an effective fraud control environment					
The insurance firm management regularly reviews the existing controls to enhance the monitoring of fraud risks					
The insurance firm management has decentralized decision making across the departments					
The insurance firm management clearly communicates the mission and vision of the organisation					
The insurance firm management plays a key role in ensuring rules are enforced within the organisation					
The insurance firm management has developed robust control mechanisms which enhance efficiency within the team.					
The insurance firm management has a code of conduct which governs the ethical behaviour of employees					

**II. Determining the effect of technology adoption on effective FRM practices among medical insurance providers in Kenya**

Please use a tick (☐) to indicate your level of agreement with each of the statements below by using the following scale:

**Strongly Disagree =1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5**

<b>Statement on Technology Support</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The insurance firm has implemented digitalized forensic systems to conduct internal audits					
The insurance firm has deployed machine learning technologies in conduct risk-based audits					
The insurance firm relies on emerging technologies in the development of fraud detection frameworks					
The insurance firm deploys machine learning to monitor exaggerated claims as a way of reducing fraudulent claims					
The insurance firm has invested in blockchain technology in the digital control of FRM practices					
The insurance firm deploys automated core platforms to conduct regular systems audits and identify fraud risks.					
The insurance firm utilizes mobile technologies to ensure that misrepresented information is significantly reduced in claims.					

**III. Determining the effect of regulatory policies on effective FRM practices among medical insurance providers in Kenya**

Please use a tick (☐) to indicate your level of agreement with each of the statements below by using the following scale:

**Strongly Disagree =1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5**

<b>Statement on Regulatory Policies</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Employees in the insurance firm are aware of forensic accounting methods used in fraud control and mitigation					
The insurance firm conducts frequent seminars and workshops on FRM					
The insurance firm has created an environment to stimulate and maintain team work in solving problems among employees					
The insurance firm continuously involves the employees in routine professional development training					
The top management within the insurance firm ensures there is routine delegation of duty to foster employee engagement					
The insurance firm frequently conducts training and workshops to foster the competencies and skills of employees					

**IV. Determining the effect of employee empowerment on effective FRM practices among medical insurance providers in Kenya**

Please use a tick (☐) to indicate your level of agreement with each of the statements below by using the following scale:

**Strongly Disagree =1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5**

<b>Statement on Employee Empowerment</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The insurance firm ensures adherence to the laid down code of conduct in the provision of services					
The insurance firm ensures that employees comply to the code of conduct as set by the regulator					
The insurance firm complies with all fraud reporting protocols as set by the regulator					
The insurance firm ensures there is adherence to the laid down claims procedures					
The insurance firm routinely reviews the internal enforcement of regulatory requirements in FRM					
The insurance firm ensures there is prompt settlement and investigation of claims in line with regulatory standards					



**PART C: EFFECTIVE FRM PRACTICES AMONG MEDICAL INSURANCE PROVIDERS IN KENYA**

Please use a tick (☐) to indicate your level of agreement with each of the statements below by using the following scale:

**Strongly Disagree =1 Disagree = 2 Neutral = 3 Agree = 4 Strongly Agree = 5**

<b>Statement on Effective FRM</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The insurance firm conducts due diligence in all fraud claims					
The insurance firm has developed clear policies and procedures to manage fraud					
The insurance firm has maintained a robust compliance standard to limit fraud occurrence					
The insurance firm has put in place adequate internal control to strengthen FRM practices					
The insurance firm management has tasked departmental heads with the mandate to routinely review the adequacy of fraud preventive activities					
The insurance firm continuously undertakes routine risk assessment to identify any potential fraud					

**Your contribution to this research is greatly appreciated.**

**Thank you!**

#### **Appendix IV: List of Medical Insurance Providers in Kenya (MIPs)**

1. AAR Insurance Company Limited
2. Allianz Insurance Company of Kenya Limited
3. APA Insurance Limited
4. Britam General Insurance Company (K) Limited
5. CIC General Insurance Limited
6. Directline Assurance Company Limited
7. Fidelity Shield Insurance Company Limited
8. First Assurance Company Limited
9. GA Insurance Limited
10. ICEA LION General Insurance Company Limited
11. Jubilee Health Insurance Limited
12. Kenindia Assurance Company Limited
13. Kenya Orient Insurance Limited
14. Madison General Insurance Kenya Limited
15. Metropolitan Cannon General Insurance
16. MUA Insurance (Kenya) Limited
17. Pacis Insurance Company Limited
18. Resolution Insurance Company Limited
19. Sanlam General Insurance Company Limited
20. Takaful Insurance of Africa Limited
21. Tausi Assurance Company Limited
22. The Heritage Insurance Company Limited
23. The Kenyan Alliance Insurance Company Limited
24. The Monarch Insurance Company Limited
25. Trident Insurance Company Limited
26. UAP Insurance Company Limited



## Appendix V: SU- ISERC Approval



16<sup>th</sup> June 2022

Mr Mwangi, Alex  
alex.mwangi@strathmore.edu

Dear Mr Mwangi,

**RE: Effective Fraud Management Practices in Medical Insurance Providers in Kenya**

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU Masters'** research proposal. Your application reference number is **SU-IERC1374/22**. The approval period is **16<sup>th</sup> June 2022 to 15<sup>th</sup> June 2023**.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 48 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 48 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to SU-ISERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke/> and obtain other clearances needed.

Yours sincerely,

for: **Dr Ben Ngoye,**  
**Secretary; SU-ISERC**

**Cc: Prof Fred Were,**  
**Chairperson; SU-ISERC**



## Appendix VI: NACOSTI Research Licence

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: <b>795200</b>	Date of Issue: <b>10/February/2022</b>
<b>RESEARCH LICENSE</b>	
	
<b>This is to Certify that Mr.. Alex Wainaina of Strathmore University, has been licensed to conduct research in Nairobi on the topic: DETERMINANTS OF EFFECTIVE FRAUD MANAGEMENT IN MEDICAL INSURANCE PROVIDERS IN KENYA for the period ending : 10/February/2023.</b>	
License No: <b>NACOSTI/P/22/15574</b>	
<b>795200</b> Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
<b>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</b>	