

**IMPACT OF INTERNAL CONTROLS ON FRAUD DETECTION
AND PREVENTION IN THE KENYAN PUBLIC SECTOR; A
CASE STUDY OF PUBLIC UNIVERSITIES**

BY

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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DEDICATION

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LIST OF ABBREVIATIONS

AICPA	American institute of Certified Public Accountants
ANOVA	Analysis of Variance
BOD	Board of Directors
COSO	Committee of Sponsoring Organizations
CUE	Commission for University Education
ICS	Internal Control Sytem
MOE	Ministry of Education
OLS	Ordinary Least Square
PWC	Price Waterhouse Coopers
SOD	Segregation of Duties
SPSS	Statistical Package for Social Sciences
UNCTAD	United Nations Conference on Trade and Development
VIF	Variance Inflation Factors

ABSTRACT

The objective of the study was to determine how and the extent to which internal controls impact on fraud detection and prevention among public universities in Kenya. It also aimed at reviewing the increasing body of theoretical and empirical studies that have endeavored to examine the range of magnitude and effects of internal controls on fraud detection and prevention. The study employed a descriptive cross-sectional research design. The target population was all the 31 public universities in Kenya. Primary sources of data were employed, and data was collected on; fraud detection and prevention, strong internal controls, management accounting controls, strong fraud audit functions, policy compliance, and separation of duties. It was a cross-sectional study done across the 31 public universities at the same time period. The study applied correlation analysis and multiple linear regression equation with the technique of estimation being Ordinary Least Squares (OLS) so as to establish the relationship of internal controls on fraud detection and prevention. The study found that a significant positive association exists between policy compliance and fraud detection and prevention. The other predictor variables employed in the study did not have an effect on the response variable. The study concluded that higher levels of policy compliance lead to higher levels of fraud detection and prevention. The study recommended that the governments formulates strong internal controls in public universities and other public institutions in order to curb fraud. The same recommendations can also be made to private firms. Management of public and private organizations alike can strengthen internal controls particularly enforcing policy compliance to mitigate fraud.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The fundamental question as to why do accounting fraud and financial misappropriation occur remains shrouded in many explanations. Many social discipline scholars and auditors believe or have evidence that corporate governance, ethics and internal controls are either weakened or do not work at all. Another major reason could be the reluctance to take up forensic accounting education due to the inherent work-based risks (Nakashima 2017). The rapid increase in incidences of fraud in the third world countries has led to increase in demand for the forensic practices in accounting when it comes to the public sector. It is a great instrument for reduction of fraud in the public sector. Different ways have been developed by the top management as well as the government employees to ensure that the fraudulent activities have been prevented (Wimmer, Chappelet, Janssen & Scholl, 2010).

This study's theoretical foundation is built on fraud triangle theory, internal controls theory and white collar crime theory. Fraud triangle theory points out perceived opportunity, perceived pressure and rationalization of the act of fraud as the three main elements of fraud (Albrecht, Turnbull, Zhang & Skousen, 2010). Organizations ought to address these three if they are to detect and prevent fraud. Internal control theory points out that for every organization's functions to be safe and sound, an effective internal control should be put in place. The goals and objectives of the organization together with their long term objectives will both be achieved only through a strong internal control system which will further enable it to maintain a reliable managerial and financial reporting (Rezaee, 1995). White collar crime theory

as advanced by Sutherland (1949) speculates that judges and prosecutors handle street criminals with less remorse as opposed to white-collars. This theory can help explain the increase in fraud incidences in both the public and private sectors.

In Kenya in the recent years, several public institutions some of which were giants in their respective industries have gone under or have faced serious cash flow problems as a result of weaknesses in their internal control system. Giant Super markets such as Uchumi who were once dominant forces in the market have had serious cash flow issues hence they've been unable to meet both their short and long term obligations as and when they fall due. National bank has also had issues in the recent past. Public universities have also not been left behind when it comes to cash flow problems. In the last few years public universities have raised the issue of not having enough funds to meet their basic operation costs and this is a threat to their mandate of teaching. Although the cash flow issues in the public universities has been blamed on reduced government funding, misappropriation can also be a factor explaining the cash flow issues and this can be addressed by utilizing internal control services.

1.1.1 Internal Controls

According to Hamed (2009) financial internal controls is a systematic way of carrying out organization's activities and procedures, within specified company rules and regulations for the overall success of the enterprise. Hongming and Yanan (2012), adds that financial internal controls acts like the nervous system of human beings that is distributed in the entire enterprise transferring all kinds of information to and from those in managerial positions. This network is directly connected to the structure an organization adopts and the rules and regulations that govern the running of business.

According to Whittington (2001) financial internal controls span beyond issues relating to bookkeeping and production of financial reports. He further notes that internal controls can be regarded as organized procedures that lead to evaluation of the level of how predetermined objectives relation with the actual results of the company. According to Mawanda (2008), it is believed that organizations' commitment to adhering to internal controls results in better performance unlike when organizations lack commitment to internal controls. Internal controls ensure that the organization complies with regulations, keeps accurate records and efficient production of reliable reports. Liu (2005) and Rittenberg et al., (2005), highlights six benefits of having internal controls, they include; detecting error and fraud, minimizing illegal activities, adding entity knowledge ensures quality data, creation of business physical facilities and reducing audit fees.

According to COSO Internal Control Integrated Framework (2012), five elements of internal controls are mentioned. They include controlling of environment, analysis of risk, control of activities, communication of information, and systematic review of these elements. Control environment influences the degree of success of the other four elements. Controlling the environment constitute employees behavior and morals, upholding professionalism, participation, organization structure, style of management, authorization and human personnel policies. Kakucha (2009) agrees that without solid control environment, the other components of internal controls become ineffective. Risk assessment analyses the factors that might hinder the attainment company objectives. It comprise of information for identifying risks of material misstatement, risk analysis and evaluation, analyzing procedures performed on both financial data

and non-financial data, observation and inspection methods and documentation of risks.

COSO report (2012) defines control activities as guidelines and methods that enable appropriate responses are initiated in case the organization is facing risks. The report highlights operational controls, financial information controls and compliance controls. Operational controls may comprise of separation of duties, proper duty specification on handling transactions, documentation and records, control over properties and supervising of performance.

Information and communication ensures that information flows throughout the organization. The flow of information should be adequate, sufficiently detailed and explicit, accurate and up to date in an upward direction, as part of a routine management information system (Woolf, 1982). The exchange of information allows personnel carry out activities in a coordinated fashion. Monitoring, according to Bowrin (2004) can be ensured by periodically independently checking and observing customer complaints discontents and responses, periodical audits carried out by internal auditors. Monitoring is a vital activity in an organization which ensures the effectiveness of all other internal control components.

1.1.2 Fraud Detection and Prevention

According to the ACFE (2008), fraud is the use of one's occupation for personal enrichment through deliberate misuse or misapplication of the organization's resources or assets. According to CFRR (2017) the most common frauds perpetrated in government institutions are as follows: Procurement fraud (e.g. false invoicing,

credit card misuse, manipulations in the process of procurement, receiving the kickbacks contract work to related parties); Theft and skimming (e.g. removing and selling inventory, cash, consumables, or information, fraudulent acceptance of goods and services, and receiving compensation without reporting transactions); Fraudulent expenditure claims Payroll fraud (e.g. adding fake employees to the payroll or claiming overtime for hours not worked).

Most fraudulent activities are usually perpetrated through manipulation of records and activities to aid in loss of financial resources for personal gain. Many researchers have found out that fraud identification and prevention should be emphasized, as it is affordable and even more effective to prevent fraud than to detect it after occurrence (Abdullahi et al., 2015). Blessing (2015) in his study found out that the role of forensic accountants under modern day conditions is very important and vital, this is due to the essence of forensic accounting, investigation and documenting frauds.

The major factor to keep in mind when preventing fraud is the opportunity. If opportunities to commit fraud are few, then it will be easy to curb or reduce fraud in institutions. Prevention of fraud is cheaper than its detection since it will be hard to recover losses caused by fraudulent activities. Detection and prevention of fraud can only be possible through adoption of investigative techniques by forensic accountants or auditors (Baird & Zelin, 2009).

1.1.3 Internal Controls and Fraud Detection and Prevention

Theoretically, effective internal control system increases efficiency in fraud detection and prevention because it's part of the management process (planning, organizing,

directing, and controlling). The internal control processes guide organizational processes which drive the attainment of the pre-determined goals and reduce chances of failure. The internal control measures promote effectiveness and efficiency in the execution of activities, ensures that the organization adheres to laws and regulations and reduces asset loss risks. Theoretically therefore, an organization with effective system of internal control is expected to achieve its objective efficiently and effectively (Willis, 2000).

According to Jensen (2003), systems of internal controls and practices comprising of internal audits are aimed at enhancement of reliability of performance in financial perspective by simply increasing accountability among providers of information in a firm. Sanusi et al., (2015) assessed internal control effectiveness, financial management and accountability practices of mosques in Malaysia and revealed that systems of internal control and enhances the accountability and transparency of Malaysian Mosques to achieve their mission and goals.

A study by Muraleetharan (2011) assessed if internal control system can cause an increased performance in financial perspective of organizations. The findings of the study established that internal control and performance in financial perspective are statistically significant and a positive relation between communication and information, environment control and performance in financial perspective. Boritz, Kotchetova and Robinson (2008) in another study, probed forensic accountants and auditors to establish the advantages of involving fraud specialist in the processes of development of audit plans that would effectively help in fraud detection. They found out that this would lead to better results than merely consulting with them.

1.1.4 Public Universities in Kenya

In Kenya, higher learning institutions are established through Acts of Parliament such as universities Act of year 2016 which provides for establishment, accreditation, and improvement of university learning and production of managing policies for these institutions (Onsongo, 2007). There are 31 public universities in Kenya whose existence has either directly or indirectly affected the research outputs and quality of workforce thus generation of new ideas, knowledge and utilization for socio-economic benefit of the societies hence playing a vital role in the creation of employment opportunities and growth of economies (Omollo, 2016). The core functions of public institutions include operating as exploration hubs, training and offering knowledge within a configuration combining research and teaching, responsibility of conducting research in a variety of disciplines and nurturing the social and intellectual progress of the society (Martin & Tairo 2006).

A survey conducted by KPMG on fraud revealed that increasing number of institutions are experiencing an increased number of fraud incidents as compared to some years back (Forensic, 2003). It can be deduced that many of such institutions are in the public sector. It is cumbersome and difficult to detect, uncover and investigate such crimes and senior officials avoid such situations as they would involve exposing organization's weak points and even damaging organizational reputation (Omondi, 2013). This therefore, means that stringent measures should be taken to combat such crimes and launching anti-fraud initiatives could be a way forward and this is where forensic accounting as a tool becomes important (Forensic, 2003).

To achieve their mandate and to operate efficiently and effectively, public universities should develop effective and efficient forensic accounting practices in order to minimize costs and maximize revenue in their operations. Forensic accounting practices play a key role in the overall firm strategy in order to enhance efficiency and improve productivity in the public sector (Siddiquee, Khan, Shaem& Mahmud, 2009). Developing the optimal forensic accounting practices can enable a public institution to gain competitive advantages over its rivals in addition to reducing wastage and losses that negatively affects operational efficiency of firms (Haq & Zaheer, 2011).

1.2 Research Problem

The aspect of misappropriation of funds and corruption had been rampant in many developing countries. This led to governments of these countries been unable to achieve their intended outputs as well as partial delivery of the objectives due to funds misuse, wastage and inefficiency in managing resources. According to a report by PWC (2018) on fraud in public institutions, it was reported that 37% of the total respondents globally drawn from various enterprises that are owned by the government have at least suffered from economic crime in the period of last 12 months. This according to PWC ranks highest in comparison to other organizations and this has raised the threat level of fraud. PWC also confirmed that over 65% of those countries reporting economic crimes have also suffered from misappropriation of assets. This difficulty needs diligent participation of internal auditors in every step of risk assessment and developments of audit plans, and not only commit them as merely consultants (Boritz, Kotchetova & Robinson, 2008).

The government through the Ministry of Education (MOE) has, over time, shown a lot of commitment in developing education and training continuous allocation of resources to the education sector. However, despite the sustained resource allocations and notable success factors, major challenges are still being experienced in the sector. Fraud is dominantly occurring in many universities and especially the public universities (Mahinda, 2012). These violations are hard to discover, examine or reduce and many senior public servants in these universities are unwilling to perform such tasks because of the outcomes the institutions would experience upon such exposure (Omondi, 2013).

From past studies, Efozie (2010) notes that weak internal controls yields theft of funds, decline of sales revenue, deliberate omissions in records, corruption, and loss of business property, collusion and unwillingness to be transparent and accountable for cash management. Oseifuah and Gyekye (2013) investigated internal controls effectiveness in South African SMEs and revealed internal control practices among SMEs in South Africa was very low, with only a few of them having adequate internal controls systems in place. Dineshkumar and Kogulacumar (2013) also studied an extent to which systems of internal control influence a firm's performance and revealed a strong relation between systems of internal control and firm's performance of Sri Lanka Telecom limited.

Locally, Muio (2012) did a study on the influence of internal control systems on the financial performance of Nairobi private hospitals and noted that a significant association exists between internal control system and financial performance. Ngugi (2011) did a survey on the internal control systems among the public sector

companies and listed private companies in Kenya and concluded that public sector have weaker internal control systems as compared to the private sector. Ndungu (2013) studied the impact of internal controls on revenue generation in University Of Nairobi Enterprises and Services limited (UNES) and concluded that systems of internal control should be functioning as per the intended plans to help in enhancing efficiency and accurate data capturing. From the foregoing, although there are related studies done both locally and internationally on internal control services, this studies have not focused on the influence of internal control services on fraud detection and prevention among public universities in Kenya and this is the gap the current study leveraged on. The study attempted to answer the research question; what is the effect of internal control services on fraud detection and prevention among public universities in Kenya?

1.3 Objectives of the Study

The objective of this study was to determine the effect of internal control services on fraud detection and prevention among public universities in Kenya.

1.4 Value of the Study

The study will assist in formulation of guidelines that will increase the level of effectiveness of service delivery by use of internal control services hence leading to reduction of the rate of financial fraud happening in public universities. It will lead to the lobbying for the forensic experts in Kenya to be highly involved in the activities that will cause generation and modification of many accounting practices hence making them much more practical and useful in public institutions and universities.

Findings from the study may also form a foundation for implementing an effective internal control service. The study would help the Government of Kenya in formulation and implementation of policies for detecting and preventing fraud. Through the results of this study, public universities would find the benefits realized and how more benefits can be realized for optimal fraud detection and prevention.

The study's findings will be used by future researchers, students and scholars who may want to undertake studies in the similar or correlated field as reference. The study will also be beneficial to researchers and scholars in the identification of further research areas on other subject matters by highlighting related topics that need further studies and undertaking a review of the empirical literature to establish the study gaps.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviews theories that form the foundation of this study. In addition, previous empirical studies that have been carried before on this research topic and related areas are also discussed. The other sections of this chapter include determinants of fraud detection and prevention, conceptual framework showing the relationship between study variables and a literature review summary.

2.2 Theoretical Framework

The theoretical review focuses on the theories that explain fraud detection and prevention. These theories include fraud triangle theory, internal controls theory and white collar crime theory which are discussed below:

2.2.1 Fraud Triangle Theory

Albrecht, Turnbull, Zhang, and Skousen (2010) point out perceived opportunity, perceived pressure and rationalization of the act of fraud as the three main elements of fraud. These elements are commonly termed to as fraud triangle. The three elements are intertwined within each act of fraud regardless of whether it is done on behalf of an entity or against the entity (Albrecht et al., 2009). Albrecht et al.(2009) further describes these elements as interactive in the sense that the more intense the pressure or, the greater the perceived opportunity, the lesser the rationalization required for an individual to engage in fraud. According to Rae & Subramaniam (2008), fraud is a complex subject which constitutes several components. Unlawful gain is taken as

challenging because it's difficult to determine the time of its happening even with the available measures. For example, it could not happen when there are no sufficient internal control measures whereas it may happen where there are internal control measures (Rae & Subramaniam, 2008). The management can easily articulate the actual areas of susceptibility of fraud within the organization through a better understanding of how pressures, rationalizations and opportunities contribute to fraud in organizations and thus put in place the appropriate measures (Albrecht et al., 2010).

Albrecht et al., (2009), those who practice unlawful gains should reevaluate their principles of behavior and work as required. People are fraud due to lacking integrity, as well as ethical (Rae & Subramaniam, 2008). The fraud mostly emplor rationalization in case they feel unfulfilled with their salaries.(Mutua, 2011). The character, ethical values or attitudes of some individuals cannot keep them away from crime thus they intentionally engage in the dishonest act (Cohen et al., 2011). Hillison et al., (1999) states that the use of rationalizations to justify illicit behavior can only be prevented through having a strong moral code of conduct. Cohesen further advises the internal auditors to scrutinize every individual as anyone is capable of committing fraud.

2.2.2 Internal Controls Theory

For every organization's functions to be safe and sound, an effective internal control should be put in place. The goals and objectives of the organization together with their long term objectives will both be achieved only through a strong internal control system which will further enable it to maintain a reliable managerial and financial reporting. An appropriate internal control system helps to ensure adequate compliance

by the organization with the stipulated laws and regulations, policies, internal rules, procedures, and internal regulations which will help in the reduction of risk related to damage of the organization's reputation and unexpected losses (Rezaee, 1995).

The following studies drew similar conclusions on several factors regarding internal control. An integrated framework issued in 1992 by COSO, USA, defines internal control as a process influenced by the management, board of directors, and other relevant personnel tailored to provide the necessary assurance regarding the attainment of the relevant firm objectives in the following respective fields: compliance with the applicable laws and regulations; Reliability of financial reporting and operation's effectiveness and efficiency. According to Rezaee (1995), internal control is the entire system of controls ranging from the financial controls to others, put in place so as to provide the required assurance of internal financial control, effective and efficient operations and full compliance with laws and regulations. This theory is applicable in the study since it states the internal control procedures, rules and policies to be adopted by the public sector.

2.2.3 White Collar Crime Theory

The expression white collar crime was developed by Edwin Sutherland (1939). According to Sutherland (1949), a white collar crime is the one done by a high profile individual in the course of executing his/her duties. This also constitutes the organizational crimes. This theory was proposed by Sutherland in the American Sociological Society in order to examine crime and high society since the previous studies pointed no associations among the two factors. The typical street criminals exhibited less attributes and motives as compared to the white collar criminals. The

author adopted this concept to oppose the conventional theories and stereotypes (Sutherland, 1949).

This theory speculates that judges and prosecutors handle street criminals with less remorse as opposed to white-collars. This legal case was advanced in strict observation on the number of the upper class criminals annually committed to prison which only amounted to less than two percent. He mainly wanted to establish the link between social status, money, and the possibilities of being jailed for committing a white collar crime as compared to other forms of crime (Sutherland, 1949).

2.3 Determinants of Fraud Detection and Prevention

The need for fraud detection and prevention cannot be ignored and firms need to partake strong measures to detect and prevent fraud at all levels. Successful fraud detection can be a challenge and thus several factors should be put into consideration if indeed successful fraud detection needs to be achieved. Both management and audit have roles to play in detection and prevention of fraud. A few of fraud detection determinants are discussed in this research and they include: Strong internal controls, regular fraud audits, compliance with company and accounting policies, management controls, and clear separation of duties.

2.3.1 Strong Internal Controls

According to COSO, internal controls are defined as processes affected by a firm's management and Board of Directors (BOD), whose main purpose is to provide strong assurance in the efficiency of operations, reliability of financial reporting and lastly, the firm's compliance with relevant laws. Internal Controls has five components of

which they include; the control environment, control activities, monitoring, risk management and lastly information & technology (Klann & Watson, 2009). The control environment, which is the main foundation of Internal Control Systems (ICS) include; integrity and ethical values of an organization's staff, the philosophy and operating styles of management, and the BOD's commitment.

Internal controls have to be checked and reviewed regularly since infrequent reviews may increase fraud risk, since the fraudster can check and identify weaknesses in internal control and exploit them (Mohd-Sanusi 2015). According to Fardon (2013), various skills and techniques are needed in order to have an effective ICS which is suitable for the detection and prevention of fraud by the management which includes: clear supervision of accounting activities, having experienced workers/staff among others.

2.3.2 Management Accounting Controls

For the fraud to be prevented, audit and management has a great role to play. For example, when internal and external auditors, employees as well as management come together to fight against fraud, they have a very great potential to win. This alone is not enough as all stakeholders must act in such a manner that clearly depicts the ability of the company to be fraud resistant. The AICPA (2005) identified that fraud detection can be done by the audit committee of an organization by partaking actions such as; maintaining an appropriate level of scepticism, using the correct code of conduct in accessing financial reporting culture and finally ensuring that the entity encourages a thorough whistle blowing program. Confidential fraud and hiring

managers of high ethical values and skills, together with good character highly contributes to creation of a strong and positive control environment (Di Napoli, 2010).

According to Di Napoli (2010), confidential fraud / internal auditors or abuse hotlines, promoting and hiring managers with high ethical values and good character greatly contribute to the creation of a positive control environment and mitigation of risks attributed to management override. AICPA (2003), lays down the guidelines for auditors to use in assessing the management override risks and they include: making inquiries of management, conducting an engagement team discussion regarding fraud risks; obtaining views about the risks of fraud and how the risks are addressed by the audit committee, considering fraud risk factors such as incentives and pressures for management to override controls, and rationalizations or attitudes that enable easy justification by the management on override of controls.

2.3.3 Regular Fraud Audits

The main role of auditors in fraud detection can't be underestimated despite the 'reliance on the auditors for fraud detection being misplaced'. Financial statements frauds are intentionally created by management to achieve their own financial goals. Auditing procedures can rarely detect fraud (Albrecht, Albrecht, & Dunn, 2001). The goal of fraud detection can only be achieved through a severe scrutiny of daily transactions that are undertaken in a particular financial period. This practice of regular audits can help to expose fraudulent activities except in areas or situations where no enough evidence has been presented (Norman et al., 2010)

Though frequent fraud audits are attributed to prohibitive costs, this approach can make fraud detection and prevention easier despite the fact that it's largely expensive, these forces auditors to adopt different mechanisms which rely mostly on Internal Controls of an organization (Gadziala, 2005). Regular fraud audits seeks to analyze the effectiveness of controls put into place and their reliability in preparation of financial reports which are done annually.

2.3.4 Policy Compliance

Audit encourages the top management to be in a position to develop training aiming at providing awareness for combating fraud. It is used for reviewing and commenting on the goals of the organisation hence leading to reduction of the unrealistic performance. Development of corporate fraud policy will set out what individual employees are supposed to do in case there is a suspicion of fraud. It will define a clear course of action, and set the tone of how fraud will be dealt with in the company. In particular, it must give the message that no one has the permission or authority to commit fraudulent acts, even if it is to the company's benefit. Fraud awareness trainings is an important step in detecting fraud. It strongly emphasizes on the roles that each employee has in the detection and prevention of fraud- not only auditors. It's often tied to corporate governance that is, laying its foundation for all aspects of employee behaviour (Nila & Viriyanti, 2008).

The effectiveness of the firm's internal control structure elements are measured by the auditor through compliance testing. The compliance to accounting procedures is the main aspect of internal auditing. An appropriate and efficient accounting system that functions as per its stipulations yields consistent and reliable accounting data. The

duly awarded forms have to be used effectively and efficiently (Pratolo, 2007). Examples of fields that should be subjected to compliance testing are controller's procedures, standards for data processing, procurement, security policies, data retention requirements of the company and governmental agencies, planning, personnel administration, payroll, expense accounts and budgeting.

2.3.5 Separation of Duties

This is the fundamental building block that enhances proper management of risk as well as internal controls of the business process. The separation of duties is usually based on the sharing of the company responsibilities that enhance dispersion of important roles to more than one department or person hence making it easier to manage. Without Separation of Duties (SOD), there can be great distraction level hence leading to poor performance. Consequently, the risk management goal of SOD control is to be able to prevent the occurrence of unilateral actions. A clear example of separation of duties is not allowing the same person who is in cheque writing to perform bank reconciliations, since he/she can pay him/herself and not mention it (Farrel & Franco, 1999).

However, even with segregation of duties, employees sometimes manage to circumvent the segregation through collusion in order to defraud. Seetharaman et al., (2014) found collusion to be a key motive for the commitment of white collar crime mostly between managers and employees, and is a pervasive problem as it is very difficult to prevent and detect. Collusion is a secret cooperation or agreement between two or more employees to undertake a dishonest or illegal act and thus the

management should be well conversant that collusion between employees could overturn the controls (Di Napoli, 2010).

2.4 Empirical Review

Various empirical studies have been conducted both locally and internationally to support the relationship between internal control services and fraud detection and prevention, but these studies have addressed different aspects and contexts.

2.4.1 Global Studies

Abbott (2000) in his study on the control environment explored whether the audit independence and activities is related to frauds related to financial statements. A total of 156 firms were subjected to the Accounting and Auditing Enforcements Releases (AAERs) between the year 1980 and 1986. Abbott (2000) examined the presence of the variable audit committee presence used in previous studies with activities of audit committee and independence, as the previous studies indicated different results with regard to the relationship between the audit committee and chances of fraud occurrence. The outcome of the study indicates that the firms run by independent directors and with minimum level of activities have little frauds in their financial statements.

Barra (2010) used the analytical approach in his focus on the monitoring and control activities to examine the effects of penalties and other forms of internal controls on likelihood of the employees to engage in fraudulent activities. The managerial and non-managerial employees were used in data collection. The study's outcome was that separation of duties and the presence of the control activities increases the fraud

commitment cost. This means that the benefits derived from fraud commitment need to overcome the environmental cost of diverse duties which lead to commitment of fraud by an employee. It was also found that the segregation of duties is a deterrent of least-cost fraud for employees who are not involved in the management process but rather the managerial employees this means that least-cost fraud disincentives increases the penalty levels. These findings propose the need for coming up with effective preventive control measures (control activities) which relies on proper controls (monitoring).

Udoayang and Ewa (2012) studied on influence of internal control designs on the ability of the banks to examine the level of life style and staff fraud of staff and the detection of fraud in Nigeria. 13 Nigerian banks were used in data collection using a Four Point Likert Scale questionnaire and the data analysis done using ratios and percentages. The staff attitude towards fraud was found to be influenced by the Internal control design in that mechanism of strong internal control reduces staff fraud whereas weak ones create opportunity for staff commitment of fraud and expose the system to fraud. Majority of banks were however found not to consider their employees' lifestyle which could be helpful in the detection of any possible fraud schemes. Thus it can be concluded from the study that effective internal control system is ideal in streamlining the performance of the banking sector. Thus the recommendations of the study assert that Nigerian banks to be attentive to the life style of their staff members and upgrade their internal control systems which lead to possible identification of frauds.

Ezeagba (2014) carried out a study on the contribution of quality assurance and forensic auditing on financial reporting in selected Nigerian commercial banks. The research designs adopted in the study were the descriptive and survey designs. The annual reports sourced from the chosen commercial banks were utilized as the secondary data for the study. Two hundred questionnaires structured using the Likert scale were administered to the respondents who were chosen using simple stratification to collect primary data. The study reveals that the major qualitative traits (relevance & faithful representation) of accounting, financial reporting and the enhancement of qualitative traits could be enhanced greatly by use of forensic accounting.

Eyesi and Ezuwore (2014) executed a research on the effect of forensic accounting on corporate Governances. This was a theoretical research conducted on secondary data. The conclusion of the research was that, financial auditor is not obliged to detect fraud during their financial audits, the responsibility of internal controls rest with management and hence management has sought the skills of forensic accountant to safe guard the internal control system. The forensic accountants have done this by incorporation of computer software in data processing and in the computer information system to detect frauds and errors. This has help management improve accountability to the all stake holders.

2.4.2 Local Studies

Kakucha (2009) examined the effectiveness of the internal controls levels for small businesses operating in Nairobi. The research adopted quantitative design and a sample of 30 small businesses at the NSSF listing between September 2007 and June 2009 was used for the study. The interview technique was used in the collection of

Primary data from managers of the small enterprises using examination of documents and interviews. Several limitations were found in internal control systems with varying degrees of deficiencies. The missing internal control components in the majority of the surveyed businesses were: risk analysis and poor information flow. The study also established the ignorance of the sample population regarding the components of an internal control effective system. It was also noted from the study that a negative link exists between the enterprise size and the effectiveness of the internal control systems while negative association exists between enterprises owned resources and the weaknesses in the internal control system. Recommendation for the need to enlighten small business operations to attain effective and efficient internal control systems was drawn from the study.

Wainaina (2011) in his study on internal control function evaluation at the Kenya Polytechnic University College indicates that substituting its presence on the operational scene forces the management to depend on the techniques of internal control in the implementation of its decisions and regulation of all business activities. This argument makes the use of effective internal control systems a vital aspect in managing the resources of a business. Thus, each organization designs its procedures to allocate, control and ensure resource utilization so as to achieve its goals. It was therefore concluded that ICS's perform a crucial task in the prevention and detection of fraud and protection of both physical and tangible resources of an organization.

Wanyama (2012) investigated the fraud response strategies effectiveness employed by co-operative bank of Kenya limited. The case study was mainly aimed at obtaining detailed facts regarding the effectiveness of fraud detection strategies at the Co-

operative bank of Kenya. An interview guide was employed to collect primary data which consisted of the open-ended questions which were utilized by the researcher to gather detailed qualitative data. The six proposed managers were interviewed by the researcher and a 100% response rate was obtained. From the study, ineffective strategies were found to be inappropriate measures of fraud detection. The study was narrow in scope as it only concentrated on one bank.

According to Mwachiro (2013), the role internal controls played are critical in ensuring effective revenue collection process. Questionnaires were administered to 38 respondents in the collection of the primary data. The findings after data analysis indicated the five components of risk assessment, control activities, control environment, communication and information and monitoring are critical for proper functioning of the internal controls. It was also found that weak internal controls encourage fraud, collusion, and embezzlement of the revenue collected and loss of revenue. Thus, it was concluded from the study that significant effect exists between internal controls and revenue collection in KRA. Recommendations on the areas identified to have deficiencies should however be provided by the auditors.

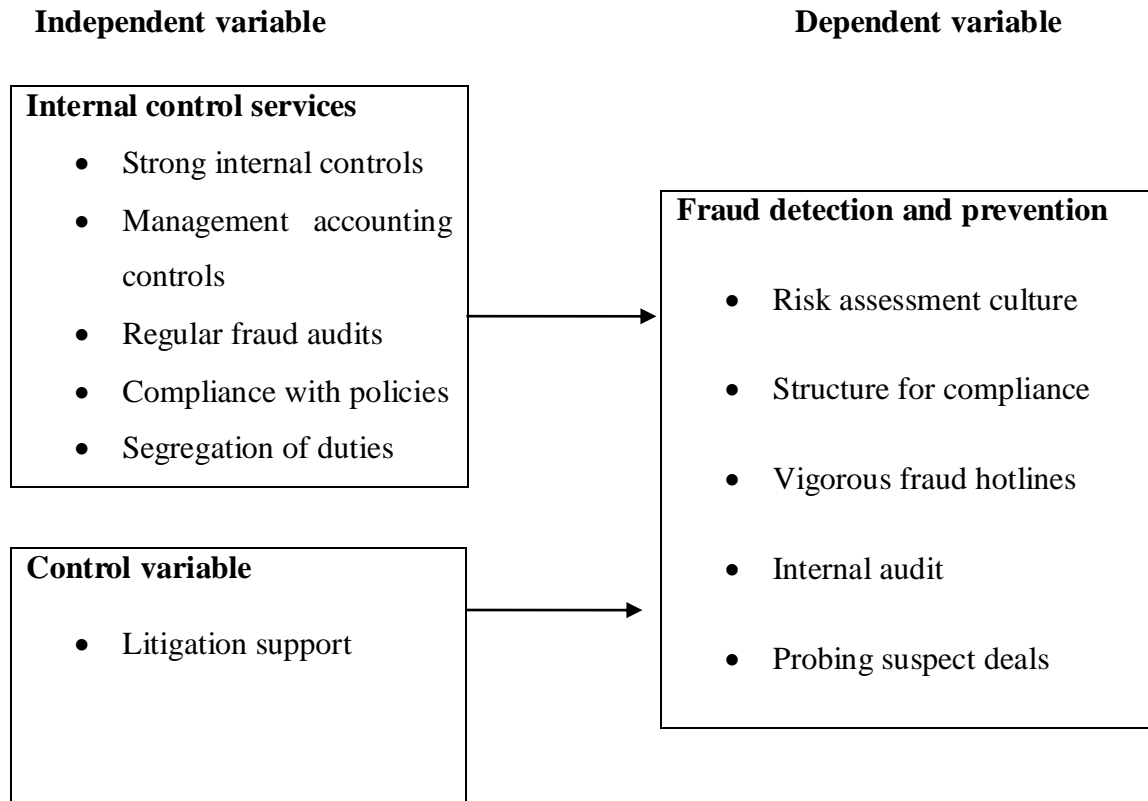
Opiyo (2017) sought to establish the role of forensic accounting in reducing fraud among Kenyan Parastatals. The study concludes that parastatals in Kenya have compliance policies, management override of controls and Ssegregation of duties which assist in fraud reduction greatly. Dispute resolution influences fraud reduction merely to a moderate extent. The study further concluded that there is a strong connection between forensic accounting and fraud mitigation among parastatals in Kenya.

2.5 Conceptual Framework

A conceptual framework is a model in which descriptive categories are systematically placed in a broad structure of explicit propositions, to be accepted or rejected (Chave at al., 2005). A number of studies have identified the factors that affect fraud detection and prevention in public institutions. The conceptual framework was formulated to disclose the relationship between fraud detection and prevention and its explanatory variables.

The conceptual framework is a diagrammatic representation of how the factors established interrelate. The elements given consideration here are internal control services and fraud detection and prevention. The independent variable is internal controls as measured by strong internal controls, management accounting controls, regular fraud audits, compliance with policies and segregation of duties. Fraud detection and prevention is the dependent variable and it will be determined by risk assessment culture, structure for regulatory compliance, vigorous fraud hotlines, effective internal audit and probing suspect deals.

Figure 2.1: The Conceptual Model



Source: Researcher (2018)

2.6 Summary of the Literature Review

Different theoretical models have attempted to explain the concept of internal control services. The study has utilized three theoretical frameworks which are: the fraud triangle theory, internal controls theory and white collar crime theory. The major determinants of fraud detection and prevention have also been elaborated in this section. Various empirical reviews have been undertaken both globally locally on internal control services and fraud detection and prevention. These studies' results have also been explored in this chapter.

The above literature review indicates that little research has been done in the determination of interrelationship between internal control services and fraud detection and prevention thus more studies need to be done. This study is seeking to clearly demonstrate the association between internal control services and fraud detection and stopping in Kenyan public universities after which the conclusions will be dispelled after obtaining empirical evidence.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In order to determine the influence of internal control services on fraud detection and prevention, a research methodology is necessary to outline how the research will be carried out. This chapter has four sections namely; research design, data collection, diagnostic tests and data analysis.

3.2 Research Design

A descriptive cross-sectional research design was employed in this study to investigate the relationship between internal control services and fraud detection and prevention among public universities. Descriptive design was utilized as the researcher is interested in finding out the state of affairs as they exist (Khan, 2008). This research design was suitable for the study as the researcher is familiar with the phenomenon under investigation but want to know more in terms of the nature of relationships between the study variables. In addition, a descriptive research aims at providing a valid and accurate representation of the study variables and this helps in responding to the research question (Cooper & Schindler, 2008).

3.3 Population

According to Burns and Burns (2008), population refers to the characters of interest upon which the study seeks to draw deductions. The population of the study comprised of the 31 public universities operating in Kenya as at 31st December 2017. The research was a census study since the population is relatively small. The list of

the public universities is as shown in Appendix II.

3.4 Data Collection

The study relied exclusively on primary data. The primary data was obtained by use of structured questionnaires using the Likert Scale. The targeted respondents in this study were the head of finance in the public universities or their representatives. This is because they are involved in the management of the organization forensic accounting practices and have a broad understanding of the affairs of their organizations.

The researcher administered the questionnaire to two respondents in each university giving a total of 62 respondents. The questionnaire consisted of open-ended and close-ended questions. Close-ended questions were used in the collection of structured responses to allow for the recommendations that are more tangible. The rating of various attributes were tested using the close ended questions which aided in the reduction of similar responses thus more varied responses will be obtained. Additional information not captured in the close-ended questions was obtained by the use of open- ended questions. The research instrument were personally administered by the researcher so as to ensure that all the questionnaires are received by the respective respondents and keep a register to ensure that all will be returned.

3.5 Data Analysis

The SPSS software version 22 computer software was used in the analysis since it's more user-friendly. The data was inputted into the SPSS and examined using descriptive, correlation and regression analyses. In descriptive statistics, the study

used mean, standard deviation and scatter plot. In inferential statistics, the study used multivariate regression analysis to determine the relationship between the study variables.

3.5.1 Diagnostic Tests

Linearity uses the mathematical equation $Y=bX$ where b is a constant to show the association between variable X and Y . The linearity test was obtained through ascertaining the conditions of normality and scedacity were met. Homoscedacity was obtained through the scatterplot testing. Normality is a test for the assumption that the residual of the response variable are normally distributed around the mean. It was determined by Shapiro-walk test or Kolmogorov-Smirnov test. Autocorrelation is the measurement of the similarity between a certain time series and a lagged value of the same time series over successive time intervals. It was tested using Durbin-Watson statistic (Khan, 2008).

Multicollinearity is said to occur when there is a nearly exact or exact linear correlation among two or more of the independent variables. This was tested by the determinant of the correlation matrices, which varies from zero to one. Orthogonal independent variable is an indication that the determinant is one while it is zero if there is absolute linear dependence between them and as it approaches to zero then the multicollinearity becomes more intense. Variance Inflation Factors (VIF) and tolerance levels were also carried out to show the degree of multicollinearity (Burns & Burns, 2008).

3.5.2 Analytical Model

The study will applied the following regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon.$$

In which;

Y= Fraud detection and prevention in the public universities as measured by risk assessment culture, structure for regulatory compliance, vigorous fraud hotlines, effective internal audit and probing suspect deals

β_0 = Constant Term

β_i = Beta Coefficient of variable i which measures the change Y to change in i

X_1 = Strong internal controls as measured using a likert scale

X_2 = Management accounting controls as measured using a likert scale

X_3 = Regular fraud audits as measured using a likert scale

X_4 = Compliance with policies as measured using a likert scale

X_5 = Segregation of duties as measured using a likert scale

ε =Error term

3.5.3 Tests of Significance

The researcher carried out parametric tests to establish the statistical significance of both the overall model and individual parameters. The F-test was used to determine the significance of the overall model and it will be obtained from ANOVA while a t-test was adopted to establish statistical significance of individual variables.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

In this section, a presentation, interpretation and discussion of the findings are done. The chapter will be divided into five sections. It will include; background and personnel characteristics, descriptive statistics, correlation analysis, regression analysis, and the interpretation and discussion of findings. In summary, the chapter showcases data analysis, presentation, and interpretations of the study. The presentation, interpretation and discussion of the findings was done based on the study objective, which was to determine the effect of internal control services on fraud detection and prevention among public universities in Kenya. The chapter therefore presents an analysis and presentation of the findings based on the objective of the study.

4.2 Background and Personnel Characteristics

All the thirty one (31) public universities in Kenya were picked for the study. Then two respondents who worked in the finance department were then picked from each university. Enumerated below is the summary of the response rate and their characteristics derived from the Part A of this study's questionnaire.

4.2.1 Response Rate

For the study, 62 questionnaires were issued to the target respondents who were the personnel who worked in the finance department in 31 public universities in Kenya.

Two respondents were picked from each university. The overall response rate for the study was as shown in Table 4.1 below.

Table 4.1: Response Rate

Response	Frequency	Percentage
Returned	61	98.39
Unreturned	01	01.61
Total	62	100

The findings above show successful response rate of 98.39%. Therefore, the response rate documented for the analysis was found fit for analysis since it is supported by Mugenda and Mugenda (2010) that any response rate of 70% and above is considered excellent for analysis and making conclusions.

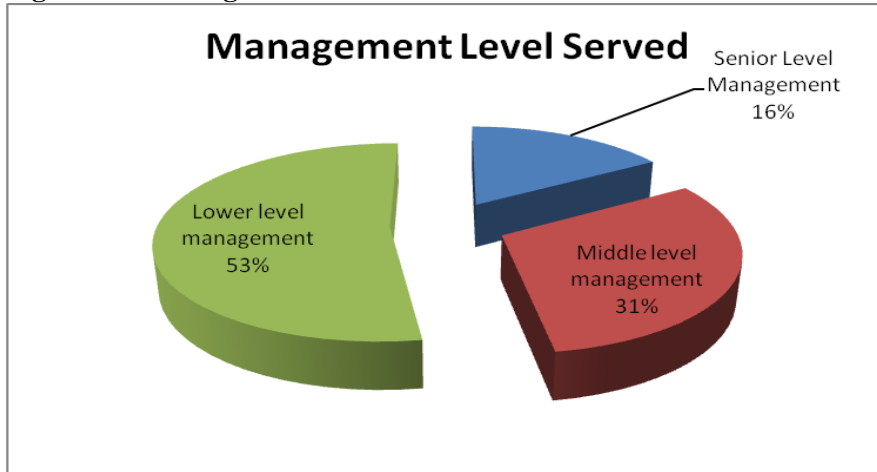
4.2.2 Personnel Characteristics

From the questionnaires, the respondents were requested to indicate the type of management level they serve in their respective universities. It was necessary to indicate the management level served because it indicated the knowledge of the personnel on the universities' systems and their decision making experience.

Figure 4.1 in the subsequent page shows the management level served by the respondents in the various public universities in Kenya. The highest percentage, which is 53% serve in the lower management level. The least proportion of the respondents, which constitutes 16% serve in the senior management cadre. This implies that majority of the respondents may not have sufficient knowledge of the

universities' internal control systems and they have limited decision making experience because they serve in the lower management level.

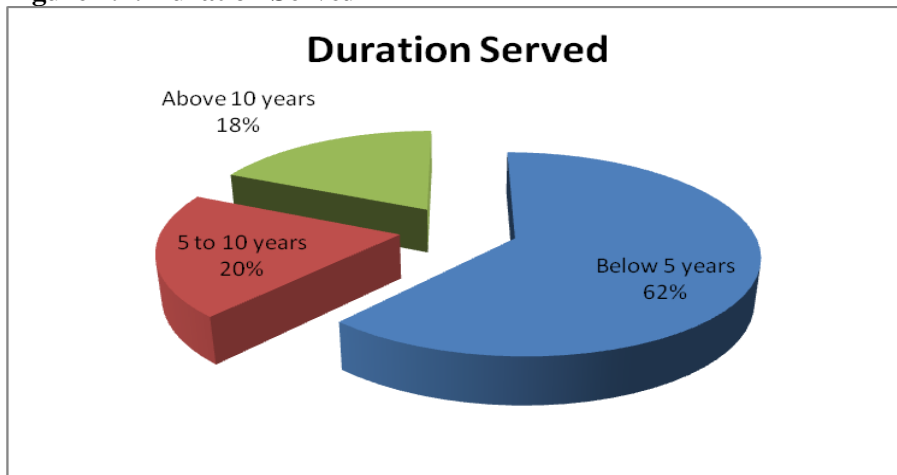
Figure 4.1: Management Level Served



4.2.3 Years of Service to the University

The respondents in the survey were required to indicate the duration in which they had worked for their respective institutions so as to establish whether they have sufficient knowledge of the institution's internal control systems. The results are exhibited in Figure 4.2 below.

Figure 4.2: Duration Served



From the study findings, it is apparent the highest proportion of years worked by the respondents in the public universities is below 5 years, which constitutes 62%. The lowest proportion, which constitutes 18%, have worked for more than 10 years. This indicates that majority of the respondents may not have sufficient knowledge of the universities' internal control systems.

4.3 Descriptive Statistics

A descriptive study tries to explain or describe a subject frequently by establishing an outline of a collection of problems, individuals, or events, by collecting data and the tabulation of the frequencies of research variables or their relationship. It provides a range of research objectives such as; explanation of an event or characteristics linked with a subject population, approximation of extent of the population that possesses these features, and unearthing of linkages among varying variables (Ngechu, 2004). Descriptive research design was selected since it will enable the generalization of the findings of the population; it will allow analysis and relation of variables. Descriptive statistics in this study were employed to describe analyze the various factors that influence strategic management practices.

4.3.1 Fraud Detection and Prevention

Descriptive statistics were derived for the attributes under the component fraud detection and prevention. The results are presented in Table 4.2 below.

Table 4.2: Fraud Detection and Prevention Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The university has effective internal audit	59	1.00	5.00	2.2881	1.08359
The university has vigorous fraud hotlines	59	1.00	5.00	2.4068	.98469
The university has a structure for regulatory compliance strategies	59	1.00	5.00	2.2881	.98350
The university Probe suspect financial performance	59	1.00	5.00	2.1525	.94346
The university has a risk assessment culture	59	1.00	5.00	2.2712	.99707
Valid N (listwise)	59				

From the study findings, we can see that the highest mean is 2.4068 of the attribute presence of vigorous fraud hotlines. It has a standard deviation of 0.98469. The attribute with the lowest mean is probing of suspect financial performance which has a mean of 2.1525, and a standard deviation of 0.4346. All the attributes had a mean of between 2 and 3 which implies that most of the universities fraud and detection measures are to a moderate extent.

The attributes constituting fraud detection and prevention were summarized to create the variable fraud detection and prevention. This was achieved by estimating the median value of all the attributes. The results are given in Table 4.3 below.

Table 4.3: Fraud Prevention and Detection Variable Descriptive Statistics

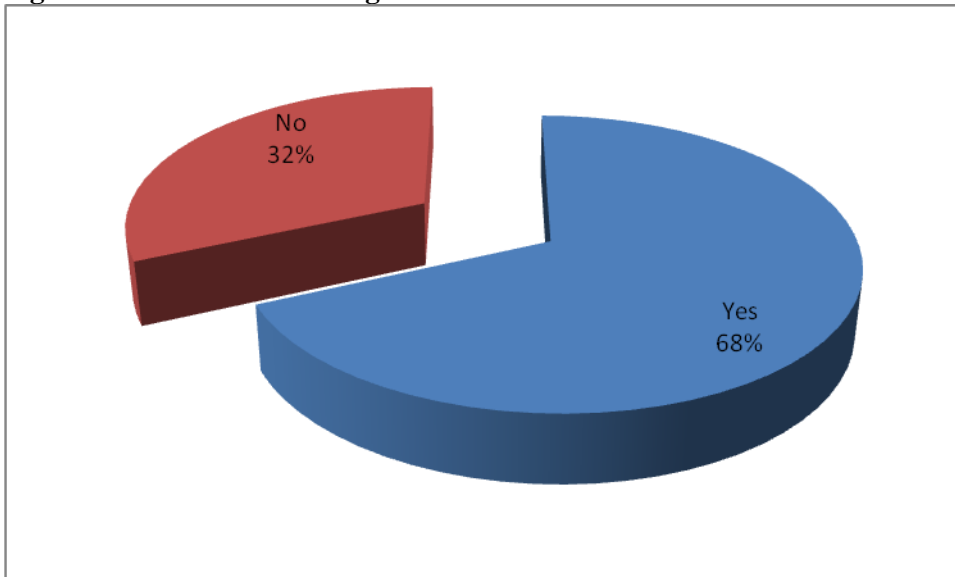
	N	Minimum	Maximum	Mean	Std. Deviation
Fraud_Detection_and_Prevention	59	1.00	5.00	2.2881	.87199
Valid N (listwise)	59				

The results exhibit that the variable has a mean of 2.2881 and a standard deviation of 0.87199 meaning that the universities' fraud and detection measures are to a moderate extent.

4.3.2 Strong Internal Controls

The respondents in the survey were required to indicate whether the organization which they work for has working robust internal controls so as to establish whether the universities have working and robust internal control systems and mechanisms. The results are exhibited in Figure 4.3 below.

Figure 4.3: Presence of Strong Internal Controls



The results exhibit that the highest proportion of respondents, constituting 68%, indicated that there was working and robust internal controls in the public universities which they worked for. This implies that a majority of the public universities have implemented strong internal control systems and mechanisms.

Descriptive statistics were derived for the attributes under the component strong internal controls. The results are presented in Table 4.4 below.

Table 4.4: Strong Internal Controls Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Code of conduct in the organization	60	1.00	5.00	2.1000	1.11538
Regula fraud audits	60	1.00	5.00	2.3667	1.02456
Regular conduct of fraud risk assessment	60	1.00	5.00	2.5667	.90884
A functional whistle blower programme	60	1.00	5.00	2.4500	.96419
Looking at alleged fraud	60	1.00	5.00	2.2833	.95831
Other (please specify)	60	1.00	5.00	2.3833	1.00998
Valid N (listwise)	60				

From the study findings, we can see that the highest mean is 2.5667 of the attribute regular conduct of fraud risk assessment. It has a standard deviation of 0.90884. The attribute with the lowest mean is presence of code of conduct in the organisation which has a mean of 2.1000, and a standard deviation of 1.11538. All the attributes had a mean of between 2 and 3 which implies that most of the universities strong internal controls moderately impact on fraud detection and prevention.

The attributes denoting strong internal controls were merged to create the variable strong internal controls. This was achieved by estimating the median value of all the attributes. Table 4.5 reveals the findings

Table 4.5: Strong Internal Controls Variable Descriptive Statistics

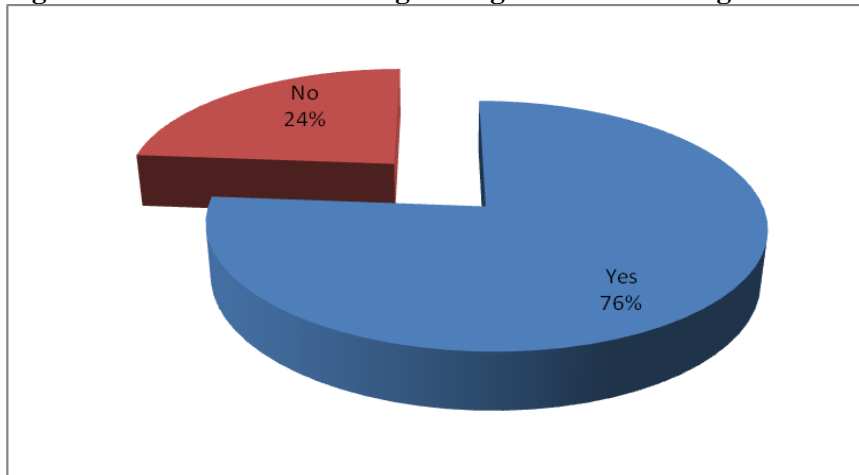
	N	Minimum	Maximum	Mean	Std. Deviation
Strong_Int_Ctrls	60	1.00	4.50	2.3750	.88598
Valid N (listwise)	60				

The results exhibit that the variable has a mean of 2.3750 and a standard deviation of 0.88598. This implies that the universities' strong internal control systems moderately impact on fraud detection and prevention.

4.3.3 Management Accounting Controls

The respondents in the survey were required to indicate whether the organization which they work for has working management accounting controls so as to establish whether the universities have adequate management accounting control systems and mechanisms. The outcomes are exhibited in Figure 4.4 below.

Figure 4.4: Presence of Working Management Accounting Controls



The results exhibit that the highest proportion of respondents, constituting 76%, indicated that there was working management accounting controls in the public universities which they worked for. This implies that a majority of the public universities have implemented strong management accounting control systems and mechanisms.

Descriptive statistics were derived for the attributes under the component management accounting controls. The outcomes are presented in Table 4.6 below.

Table 4.6: Management Accounting Controls Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The management maintains an appropriate level of scepticism	59	1.00	5.00	2.0508	.99001
The university strengthen committee understanding of the business	59	1.00	5.00	2.5593	1.00466
The management brainstorm about fraud risks	59	1.00	5.00	2.4576	1.00554
The university ensures that the entity cultivates a vigorous whistle-blower program.	59	1.00	5.00	2.3559	1.01306
Other (please specify)	59	1.00	5.00	2.3559	1.04655
Valid N (listwise)	59				

The study findings showcase that the highest mean is 2.5593 of the attribute strengthening committee understanding of the business. It has a standard deviation of 1.00466. The attribute with the lowest mean is maintenance of an appropriate level of skepticism, which has a mean of 2.0508, and a standard deviation of 0.99001. All the attributes had a mean of between 2 and 3 which implies that most of the universities management accounting controls moderately impact on fraud detection and prevention.

The attributes denoting management accounting controls were summarized to create the variable management accounting controls. This was achieved by estimating the median value of all the attributes. The results are displayed in Table 4.7 in the subsequent page.

Table 4.7: Management Accounting Controls Variable Descriptive Statistics

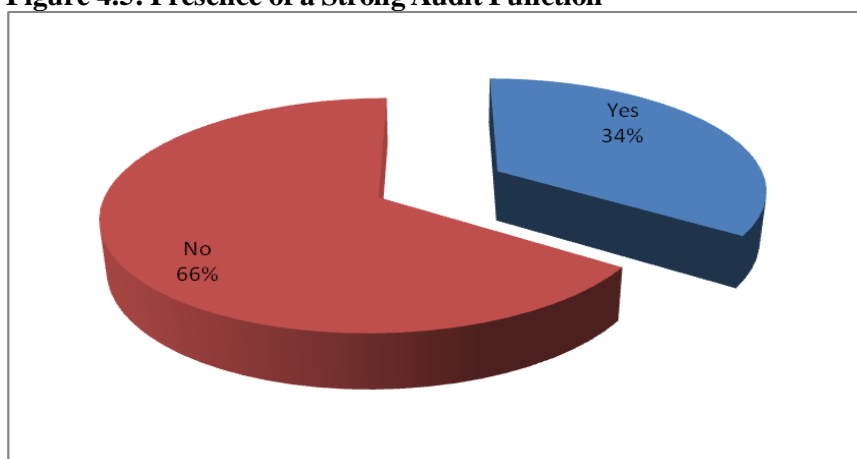
	N	Minimum	Maximum	Mean	Std. Deviation
Mgt_ACC_Ctrls	59	1.00	5.00	2.3559	.86628
Valid N (listwise)	59				

The results exhibit that the variable has a mean of 2.3559 and a standard deviation of 0.86628. This implies that the universities' management accounting control systems moderately impact on fraud detection and prevention.

4.3.4 Regular Fraud Audits

The respondents in the survey were required to indicate whether the organization which they work for has a strong fraud audit function so as to establish whether the universities have adequate fraud audit systems and mechanisms. The findings are represented below

Figure 4.5: Presence of a Strong Audit Function



The results exhibit that the highest proportion of respondents, constituting 66%, indicated that there was no strong fraud audit function in the public universities which they worked for. This implies that a majority of the public universities have not implemented a strong fraud audit function.

Descriptive statistics were derived for the attributes under the component strong fraud audit function. The outcomes are revealed in Table 4.8 below.

Table 4.8: Strong Fraud Audit Function Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Checking accuracy of accounting records	56	1.00	5.00	3.5536	1.06035
Checking routine transactions	56	1.00	5.00	3.1429	1.03447
Investigating errors occurring	58	1.00	5.00	3.2931	1.04308
Others	57	1.00	5.00	3.6316	1.20463
Valid N (listwise)	55				

The study findings exhibit that the highest mean is 3.6316 of the attribute other attribute not indicated in the questionnaire of a strong audit function. It has a standard deviation of 1.20463. The attribute with the lowest mean is checking routine transactions, which has a mean of 3.1429, and a standard deviation of 1.03447. All the attributes had a mean of between 3 and 4 which implies that most of the respondents disagree that a strong fraud audit function impacts on fraud detection and prevention.

The attributes denoting strong fraud audit function were merged to create the variable strong fraud audit function. This was achieved by estimating the median value of all the attributes. The results are displayed in Table 4.9 in the following page.

Table 4.9: Strong Fraud Audit Function Variable Descriptive Statistics

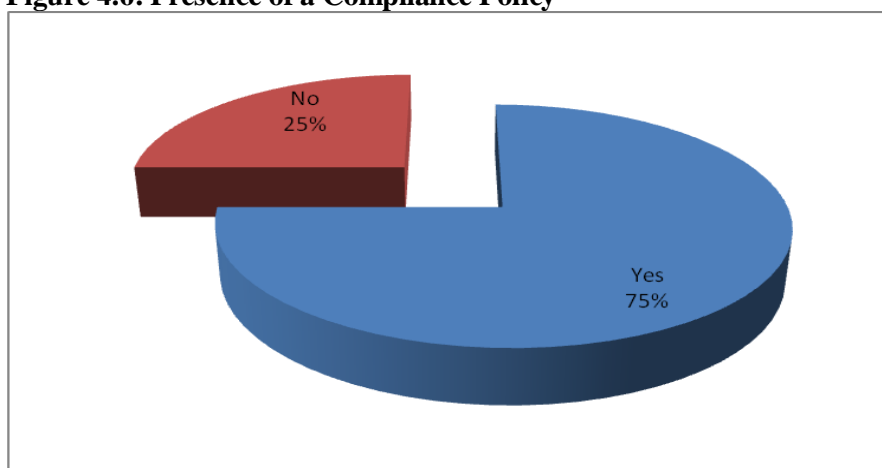
	N	Minimum	Maximum	Mean	Std. Deviation
Str_Fraud_Aud_Funct	58	1.50	5.00	3.4138	.81185
Valid N (listwise)	58				

The results exhibit that the variable has a mean of 3.4138 and a standard deviation of 0.81185. This implies that the most of the respondents disagree that the universities' fraud audit function has an impact on fraud detection and prevention.

4.3.5 Policy Compliance

The respondents in the survey were required to indicate whether the organization which they work for has a have a compliance policy so as to establish whether the universities have adequate compliance policies. The findings are exhibited in Figure 4.6 below.

Figure 4.6: Presence of a Compliance Policy



The results exhibit that the highest proportion of respondents, constituting 75%, indicated that there was a compliance policy in the public universities which they

worked for. This implies that a majority of the public universities have devised a compliance policy.

Descriptive statistics were derived for the attributes under the component policy compliance. The findings are shown below.

Table 4.10: Policy Compliance Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Standards for data processing Controller's procedures	58	1.00	5.00	2.2586	1.14800
Procurement	58	1.00	5.00	2.3276	1.01546
Data retention requirements	58	1.00	5.00	2.4828	1.03010
Security policies	58	1.00	5.00	2.3793	1.07324
Personnel administration	58	1.00	5.00	2.2414	.92358
Other policy	58	1.00	5.00	2.3448	1.06872
Valid N (listwise)	58				

The study findings exhibit that the highest mean is 2.4828 of the attribute data retention requirements. It has a standard deviation of 1.03010. The attribute with the lowest mean is personnel administration, which has a mean of 2.2414, and a standard deviation of 0.92358. All the attributes had a mean of between 2 and 3 which implies that most of the respondents are moderate on whether policy compliance impacts on fraud detection and prevention.

The attributes denoting policy compliance were summarised to create the variable policy compliance. This was achieved by estimating the median value of all the attributes. The results are displayed in Table 4.11 in the following page.

Table 4.11: Policy Compliance Variable Descriptive Statistics

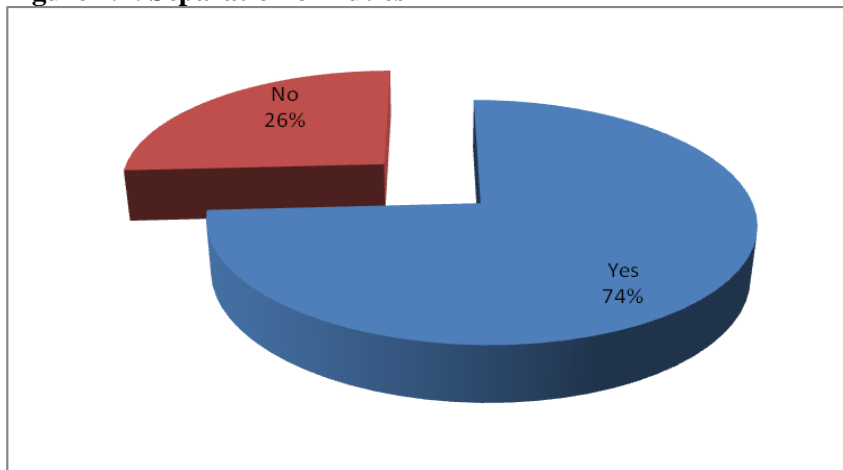
	N	Minimum	Maximum	Mean	Std. Deviation
Policy_Ccompl	58	1.00	5.00	2.3621	.94495
Valid N (listwise)	58				

The results exhibit that the variable has a mean of 2.3621 and a standard deviation of 0.94495. This implies that the most of the respondents are moderate on whether the universities' policy compliance has an impact on fraud detection and prevention.

4.3.6 Separation of Duties

The respondents in the survey were required to indicate whether the organization which they work for has clear separation of duties so as to establish whether the universities have adequate segregation of duties as a control measure. The outcomes exhibited in Figure 4.7 below.

Figure 4.7: Separation of Duties



The results obtained display that the highest proportion of respondents, constituting 74%, indicated that there was separation of duties in the public universities which

they worked for. This implies that a majority of the public universities have devised and implemented segregation of duties as a control measure.

Descriptive statistics were derived for the attributes under the component separation of duties. The results are presented in Table 4.12 below.

Table 4.12: Separation of Duties Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The organization does not let the person writing the cheques to reconcile the bank statement	54	1.00	5.00	3.0370	1.30258
The organization does not let the person initiating the purchase order approve the payment	54	1.00	5.00	2.6667	1.04611
The management brainstorm about fraud risks	56	1.00	5.00	2.9286	.98824
The organization assign different people responsibility for authorizing transactions	55	1.00	5.00	3.3273	1.32014
The organization assign different people responsibility for recording transactions	56	2.00	5.00	2.8214	1.02881
The organization assign different people responsibility for maintaining custody of assets	56	1.00	5.00	2.6429	1.06904
Other (please specify)	56	1.00	5.00	2.3750	1.07132
Valid N (listwise)	50				

The study findings exhibit that the highest mean is 3.3273 of the attribute assigning different people responsibility for authorizing transactions. It has a standard deviation of 1.32014. The attribute with the lowest mean is other attributes not included in the

questionnaire, which has a mean of 2.3750, and a standard deviation of 1.07132. All the attributes had a mean of between 2 and 4 which implies that most of the respondents are moderate or disagree on whether separation of duties impacts on fraud detection and prevention.

The attributes denoting separation of duties were merged to create the variable separation of duties. This was achieved by estimating the median value of all the attributes. The findings are depicted in Table 4.13 in the below.

Table 4.13: Separation of Duties Variable Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Sep_of_Duties	58	2.00	4.00	2.6552	.76781
Valid N (listwise)	58				

The results exhibit that the variable has a mean of 2.6552 and a standard deviation of 0.76781. This implies that the most of the respondents are moderate on whether the universities' separation of duties mechanism has an impact on fraud detection and prevention.

4.3.7 Litigation Support

Descriptive statistics were derived for the attributes under the component litigation support. The results are shown in Table 4.14 in the subsequent page.

Table 4.14: Litigation Support Attributes Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Analysis of the financial components of the initial complaint	59	1.00	5.00	2.3390	1.12357
Accounting and financial analysis for damages	59	1.00	5.00	2.2712	.88728
Preparation of disclosure statements including expert report	59	1.00	5.00	2.5254	.87801
Presentation of expert testimony	59	1.00	5.00	2.4746	1.00612
Discovery, interrogatory preparation and requests for production	58	1.00	5.00	2.4310	.95719
Valid N (listwise)	58				

The study findings show that the highest mean is 2.5254 of the attribute preparation of disclosure statements including expert reports. It has a standard deviation of 0.87801. The attribute with the lowest mean is accounting and financial analysis for damages, which has a mean of 2.2712, and a standard deviation of 0.88728. All the attributes had a mean of between 2 and 3 which implies that most of the respondents are moderate on whether litigation processes impacts on fraud detection and prevention.

4.4 Inferential Statistics

The section states the inferential statistics employed to determine the effect of internal controls on fraud detection and prevention among public universities. They included correlation analysis and regression analysis. Some diagnostic statistics were conducted as a precondition of running the regression analysis.

4.4.1 Correlation Analysis

Correlation analysis establishes whether there exists an association between two variables lying between (-) strong negative correlation and (+) perfect positive correlation. Pearson correlation was employed to analyze the level of association between stock returns and real interest rates. The analysis was done both for the null lag and one period lag data. The study employed a Confidence Interval of 95%, as it is the most utilized in social sciences. A two tailed test was utilized.

Table 4.15: Correlation Analysis

		Fraud_Detection_and_Prevention	Strong_Int_Ctrls	Mgt_ACC_Ctrls	Str_Fraud_Aud_Funct	Policy_Compl	Sep_of_Duties
Fraud_Detection_and_Prevention	Pearson Correlation	1	-.047	-.063	.063	.800**	-.116
	Sig. (2-tailed)		.729	.641	.644	.000	.391
	N	59	58	57	56	58	57
Strong_Int_Ctrls	Pearson Correlation	-.047	1	.104	.037	-.035	.213
	Sig. (2-tailed)	.729		.436	.785	.795	.111
	N	58	60	58	57	57	57
Mgt_ACC_Ctrls	Pearson Correlation	-.063	.104	1	.405**	-.047	.327*
	Sig. (2-tailed)	.641	.436		.002	.731	.014
	N	57	58	59	56	56	56
Str_Fraud_Aud_Funct	Pearson Correlation	.063	.037	.405**	1	.206	.395**
	Sig. (2-tailed)	.644	.785	.002		.131	.003
	N	56	57	56	58	55	55
Policy_Compl	Pearson Correlation	.800**	-.035	-.047	.206	1	-.045
	Sig. (2-tailed)	.000	.795	.731	.131		.742
	N	58	57	56	55	58	56
Sep_of_Duties	Pearson Correlation	-.116	.213	.327*	.395**	-.045	1
	Sig. (2-tailed)	.391	.111	.014	.003	.742	
	N	57	57	56	55	56	58

** . Correlation is significant at the 0.01 level (2-tailed).; * . Correlation is significant at the 0.05 level (2-tailed).

The study findings in Table 4.15 above indicate that only policy compliance is significantly correlated at the 5% significance level to the fraud detection and prevention. Thus, the findings imply a positive connection occurs between the two variables.

The significant correlation at the 5% significant level between the predictor variables; management accounting controls and strong audit function, management accounting controls and separation of duties, strong audit function and separation of duties indicates multi-collinearity.

4.4.2 Diagnostic Statistics

The following diagnostic statistics were carried out in the study; normality, homoscedacity, linearity, stationarity and autocorrelation. Normality test was carried out using Shapiro wilk test which was supplemented by the Kolmogorov-Smirnov test. The homoscedacity test was conducted through scatter plots diagrams. Linearity tests were done by checking whether the conditions of normality nad homoscedacity had been met. Tests on Multicolinearity of data was carried out using the Tolerance and Variance Inflation Factors (VIF) statistics.

4.4.2.1 Normality Tests

For the data series fraud detection and prevention, the results are revealed below

Table 4.16: Fraud Detection and Prevention Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Fraud_Detection_and_Prevention	.358	59	.000	.797	59	.000

a. Lilliefors Significance Correction

The null hypothesis is that the data is normally distributed. Since the significance value in both tests is less than the α (0.05), the null hypothesis is rejected. Hence, the data series is not normally distributed.

For the data series strong internal controls, the results are displayed in Table 4.17 below.

Table 4.17: Strong Internal Controls Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Strong_Int_Ctrls	.364	60	.000	.756	60	.000

a. Lilliefors Significance Correction

Since the significance value in both tests is less than the α (0.05), the null hypothesis is rejected. Hence, the data series is not normally distributed.

For the data series management accounting controls, the results are displayed in Table 4.18 in the following page.

Table 4.18: Management Accounting Controls Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Mgt_ACC_Ctrls	.405	59	.000	.724	59	.000

a. Lilliefors Significance Correction

Since the significance value in both tests is less than the α (0.05), the null hypothesis is rejected. Hence, the data series is not normally distributed.

For the data series strong fraud audit function, the results are displayed in Table 4.19 below.

Table 4.19: Strong Fraud Audit Function Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Str_Fraud_Aud_Funct	.133	58	.013	.957	58	.037

a. Lilliefors Significance Correction

The significance value for the Shapiro-Wilk test is more than 0.05, but the one for the Kolmogorov-Smirnov test is less than 0.05. Since the later test is more conclusive, then the null hypothesis is rejected and hence the data series is not normally distributed.

For the data series policy compliance strong, the results are displayed in Table 4.20 below.

Table 4.20: Policy Compliance Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Policy_Compl	.270	58	.000	.871	58	.000

a. Lilliefors Significance Correction

Since the significance value in both tests is less than the α (0.05), the null hypothesis is rejected. Hence, the data series is not normally distributed.

Finally, the normality tests results for the data series separation of duties are presented below

Table 4.21: Separation of Duties Test for Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Sep_of_Duties	.320	58	.000	.755	58	.000

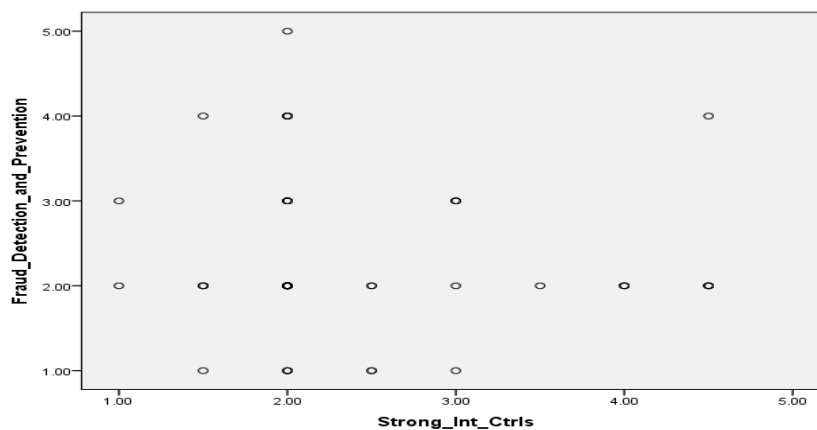
a. Lilliefors Significance Correction

Since the significance value in both tests is less than the α (0.05), the null hypothesis is rejected. Hence, the data series is not normally distributed.

4.4.2.2 Homoscedacity Tests

For the data series fraud strong internal controls, the results are displayed in Figure 4.8 below.

Figure 4.8: Strong Internal Controls Scatter Plot

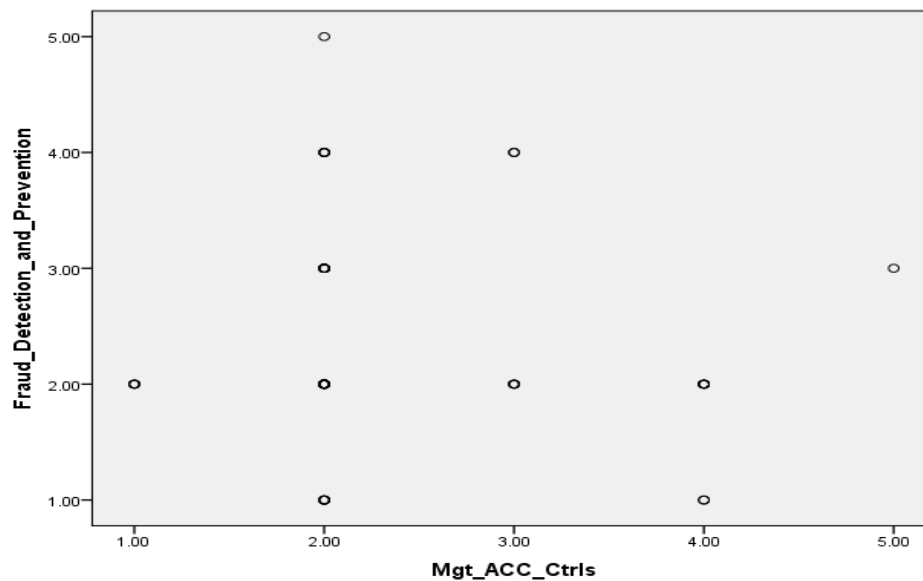


The plotted points are scattered and the majority of them do not lie on around one line of best fit. This indicates that there is no linear relationship between strong internal

controls and fraud detection and prevention. Thus, there is presence of heteroscedacity between the two variables.

For the data series management account controls, the results are displayed in Figure 4.9 below.

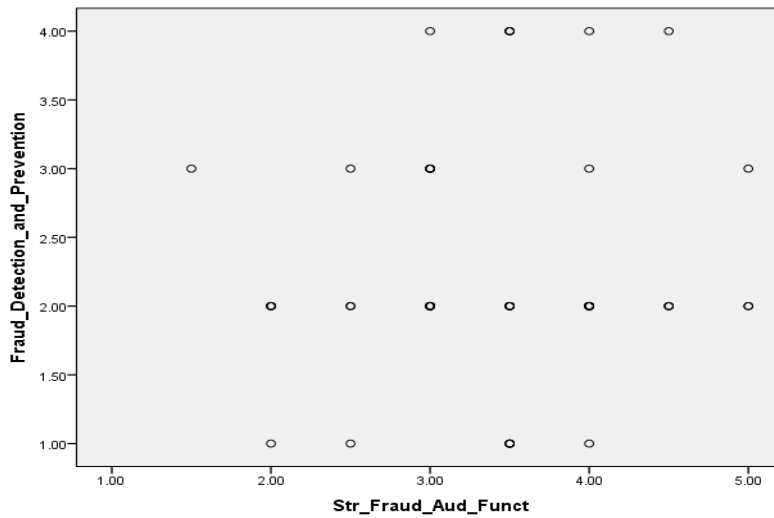
Figure 4.9: Management Accounting Controls Scatter Plot



The plotted points are scattered and the majority of them do not lie on around one line of best fit. This indicates that there is no linear relationship between management accounting controls and fraud detection and prevention. Thus, there is presence of heteroscedacity between the two variables.

For the data series strong fraud auditing function, the results depicted below

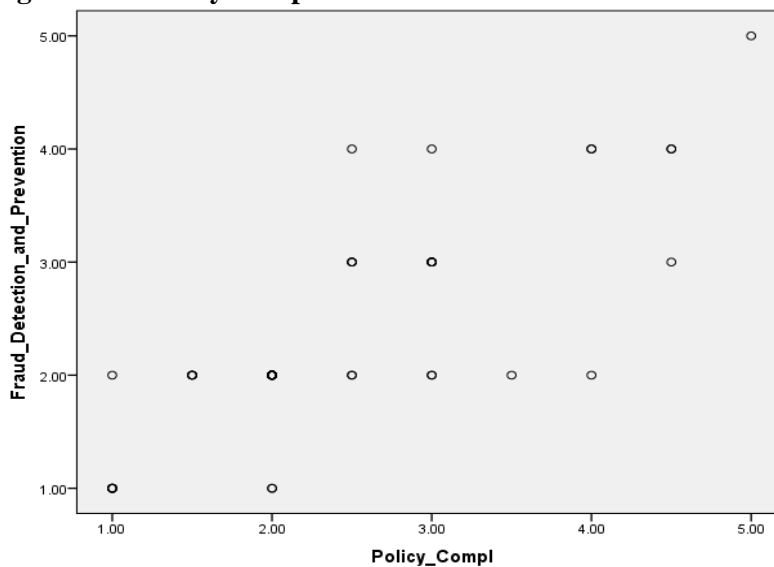
Figure 4.10: Strong Fraud Auditing Function Scatter Plot



The plotted points are scattered and the majority of them do not lie on around one line of best fit. This indicates that there is no linear relationship between strong audit auditing function and fraud detection and prevention. Thus, there is presence of heteroscedacity between the two variables.

For the data series policy compliance, the results are depicted below

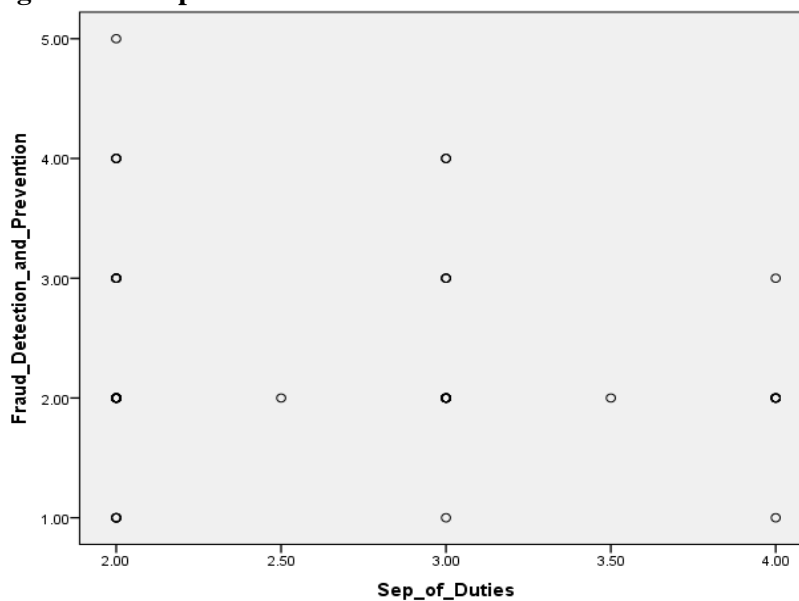
Figure 4.11: Policy Compliance Scatter Plot



The plotted points are scattered and the majority of them do not lie on around one line of best fit. This indicates that there is no linear relationship between policy compliance and fraud detection and prevention. Thus, there is presence of heteroscedacity between the two variables.

For the data series separation of duties, the results are displayed in Figure 4.12 below.

Figure 4.12: Separation of duties Scatter Plot



The plotted points are scattered and the majority of them do not lie on around one line of best fit. This indicates that there is no linear relationship between separation of duties and fraud detection and prevention. Thus, there is presence of heteroscedacity between the two variables.

4.4.2.3 Test of Linearity

In order for a predictor variable to be linearly related to the response variable, the condition of normality and homoscedacity must be met. All the independent variables were not normally distributed and they exhibited homoscedacity. Thus, they do not have a linear relationship with the dependent variable, fraud detection and prevention.

4.4.2.4 Test for Multi-Collinearity

Results on Test for Multicollinearity of data carried out using Tolerance and VIF are displayed in Table 4.22 below.

Table 4.22: Multicollinearity Statistics

Model	Collinearity Statistics		
	Tolerance	VIF	
1			
	Strong_Int_Ctrls	.933	1.072
	Mgt_ACC_Ctrls	.781	1.280
	Str_Fraud_Aud_Funct	.724	1.381
	Policy_Cmpl	.905	1.105
	Sep_of_Duties	.820	1.220

a. Dependent Variable: Fraud_Detection_and_Prevention

A VIF statistic of greater than 10 or less than 1 indicates multicollinearity. A Tolerance statistic of less than 0.2 also indicates multicollinearity. The VIF statistics obtained in the study is less than 10 but greater than 1 and the Tolerance statistic is greater than 0.2. Hence, there is no presence of multicollinearity between the predictor variables included in the model.

4.4.3 Regression Analysis

The variables of the study were analyzed using regression model. Fraud detection and prevention was regressed against; strong internal controls, management accounting controls, strong fraud audit function, policy compliance, and separation of duties. The regression analysis was undertaken at 5% significance level. The critical value obtained from the F test and T test were compared with the values obtained in the analysis. The results are displayed below.

Table 4.23: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.739 ^a	.546	.494	.56668

a. Predictors: (Constant), Sep_of_Duties, Policy_Compl, Strong_Int_Ctrls, Mgt_ACC_Ctrls, Str_Fraud_Aud_Funct

From the outcome in Table 4.23 above, the value of R square was 0.546, a discovery that 54.6% of the deviations in fraud detection and prevention are caused by the predictor variables included in the study. Other variables not included in the model justify for 45.4% of the variations in fraud detection and prevention.

Table 4.24: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.990	5	3.398	10.582	.000 ^b
	Residual	14.130	44	.321		
	Total	31.120	49			

a. Dependent Variable: Fraud_Detection_and_Prevention

b. Predictors: (Constant), Sep_of_Duties, Policy_Compl, Strong_Int_Ctrls, Mgt_ACC_Ctrls, Str_Fraud_Aud_Funct

F-test was carried out to establish the significance of the overall model. The formulae for calculating the critical value for the F test is;

$$F = (SSE_1 - SSE_2 / m) / SSE_2 / n-k$$

Where;

SSE = Residual sum of squares,

m = Number of restrictions

k = Number of independent variables.

A critical value of 2.37969702 was obtained from the F-Test tables. The F statistic of 10.582 indicated in the study findings in Table 4.24 is more than the critical value, thus the overall model is significant to explain fraud detection and prevention.

Table 4.25: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.898	.490		1.831	.074	-.090	1.886
Strong_Int_Ctrls	-.014	.105	-.014	-.138	.891	-.227	.198
Mgt_ACC_Ctrls	.004	.102	.005	.040	.968	-.201	.209
1 Str_Fraud_Aud_Funct	-.097	.114	-.101	-.850	.400	-.327	.133
Policy_Co mpl	.744	.105	.755	7.071	.000	.532	.956
Sep_of_Du ties	-.002	.126	-.002	-.014	.989	-.255	.251

a. Dependent Variable: Fraud_Detection_and_Prevention

The significance of the individual coefficients was established using the T-Test. The T-Test critical value of ± 2.000298 was obtained from the T tables. It was a two tailed test at the 5% significance level. Only policy compliance has a significant effect on

fraud detection and prevention at the 95% confidence interval as exhibited by its t-statistic value. It has a positive effect as exhibited the coefficient.

The regression equation below was thus estimated:

$$Y = 0.898 - 0.014X_1 + 0.004X_2 - 0.097X_3 + 0.744X_4 - 0.002X_5$$

Where;

Y= Fraud detection and prevention in the public universities as measured by risk assessment culture, structure for regulatory compliance, vigorous fraud hotlines, effective internal audit and probing suspect deals

X₁ = Strong internal controls as measured using a likert scale

X₂= Management accounting controls as measured using a likert scale

X₃= Regular fraud audits as measured using a likert scale

X₄= Compliance with policies as measured using a likert scale

X₅= Segregation of duties as measured using a likert scale

4.5 Interpretation and Discussion of Findings

The study sought to determine how internal control services impact on fraud detection and prevention among public universities. The effect of every independent variable on the dependent variable was analyzed in terms of strength and direction.

Figure 4.1 and Figure 4.2 reveal that majority of the respondents worked at the lower management level and have worked for less than five years. This can impair the study findings because the respondents can have limited knowledge on ICS because they do majorly do not participate in the management of the institution or they do not have

adequate experience in running the organization, Figure 4.3 to Figure 4.7 reveal that all the internal control elements apart from regular fraud audits are present in public universities in Kenya. This is reinforced by the descriptive statistics displayed in Table 4.2 to Table 4.13.

The tests for normality from Table 4.16 to Table 4.21 and the test for homoscedacity from Figure 4.8 to Figure 4.12 exhibit that predictor variables do not have a linear relationship with the response variable and this might compromise study findings. The test for autocorrelation indicates that there is no serial autocorrelation. The tests for multicollonearity in Table 4.22 shows that there is no multicollinearity in the model. However, the test for multicollinearity using the correlation matrix in Table 4.15 indicates that there is presence of multicollinearity.

The test for correlation contained in Table 4.15 shows that only policy compliance is significantly fraud detection and prevention the 5% level of significance. The findings imply that there exists a positive link between the two variables. This is reinforced by the T test conducted on the individual coefficients where policy compliance is the only significant variable at the 5% level of significance. The model coefficient of 0.0744 indicates a positive relationship where a unit increase in policy compliance will lead to a 0.0744 increase in fraud detection and prevention.

The analysis of variance which is exhibited in Table 4.24 shows that the model developed is significant as evidenced by the F value obtained when compared to the critical value. This implies that the model is appropriate in predicting stock market returns by utilizing the selected internal controls components selected for the study.

The study findings from the correlation analysis, and regression analysis sections agree with that of a study done by Ndungu (2013) on the impact of internal controls on revenue generation in University Of Nairobi Enterprises and Services limited (UNES) which found out that systems of internal control should be functioning as per the intended plans to help in enhancing efficiency and accurate data capturing. It also inn sync with studies conducted by; Abbott (2000), Bara (2010), Wainaina (2011), Mwachiro (2013), and Opiyo (2017) that concluded that there is a strong relationship between internal controls and fraud mitigation

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This section discusses the summary of the study's findings and offers conclusions and recommendations on the effect of macro-economic variables on the stock market returns. It further goes on to state the study limitations and provide suggestions for further research.

5.2 Summary

This study aimed at determining the effect of internal control services impact on fraud detection and prevention among public universities in Kenya. Five internal control components were picked which include; strong internal controls, management accounting controls, strong fraud audit functions, policy compliance, and separation of duties. It was a crosssectional study done across several institutions in one time period. Primary method of data collection was utilized where questionnaires were administered to two respondents in each of the 31 public universities in Kenya. The study employed the use of descriptive statistics, correlation analysis, and regression analysis to investigate the influence of internal control services impact on fraud detection and prevention. The study established that there is a significant relationship between one of the internal control components, policy compliance, with fraud detection and prevention through correlation and regression analysis.

5.3 Conclusion

The study concluded that the model developed in the study is significant and sufficient in predicting levels of fraud detection and prevention. From the above findings, a conclusion is made that policy compliance has a significant positive relationship with fraud detection and prevention. Higher levels of policy compliance generally leads to higher levels of fraud detection and prevention. Strong internal controls, management accounting controls, strong fraud audit functions, and separation of duties inflation rates.

The conclusions are similar to those of Rezaee (1995) which states that internal control theory points out that for every organization's functions to be safe and sound, an effective internal control should be put in place. The goals and objectives of the organization together with their long term objectives will both be achieved only through a strong internal control system which will further enable it to maintain a reliable managerial and financial reporting.

5.4 Recommendations

Policy recommendations are that since policy compliance has been established to exhibit significant positive effect on fraud detection and prevention, the government can formulate of guidelines that will increase the level of effectiveness of service delivery by use of internal control services hence leading to reduction of the rate of financial fraud happening in public universities, and by extension, public institutions.

Public and private institutions can use the conclusions of the study to the lobby for the forensic experts in Kenya to be highly involved in the activities that will lead to the

creation and modification of various accounting practices hence making them much more practical and useful.

The management of public and private institutions alike can use the study findings to form a foundation for implementing an effective internal control service. The study would help the Government of Kenya in formulation and implementation of policies for detecting and preventing fraud. Through the results of this study, public universities would find the benefits realized and how more benefits can be realized for optimal fraud detection and prevention.

5.5 Limitations of the Study

Due to time limitations, the scope of the study has been limited to the thirty one public universities. Thus, it has not been determined if the result findings would hold for all the universities or even all public institutions. Since the study employed primary sources of data, some of the respondents were not readily accessible and the researcher had to go to great lengths to obtain the responses. The researcher recommends that more time is allocated for the studies. The researcher further recommends a full academic year for the studies to be made.

Due to the cost limitations, the data collected had to be coded and inputted into SPSS which is a long and technical process with time and cost implications because the data had to be edited and processed further before the researcher could be able to compile it and payment had to be done to individuals coding the data. To solve the cost limitation, the researcher recommends that the faculty awards researchers research

funds to conduct studies. The funds will assist in hiring of research assistants and data analysts to assist in the research.

5.6 Recommendations for Further Study

On the basis of information gathered and the knowledge gained in this study, the researcher has suggested some areas for further research. First, there are more macro-factors impacting fraud detection and prevention, apart from the ones selected in the current study. Further research can be done to identify and analyze them. The current study's scope was limited to thirty one public universities, further research can be done on all the universities, public institutions and even private organizations. This can be helpful to confirm or disapprove the findings of this study. The scope of the study was also limited to the Kenyan context where the country's public universities were examined. Researchers in other East African, African, and other global countries can conduct the study in these jurisdictions to ascertain whether the current study findings would hold.

Primary data was solely utilized in the study, alternative research can be employed using secondary sources of data. This can then approve or disapprove the current study findings. Multiple linear regression and correlation analysis were used in this research, further research can incorporate other analysis methods like factor analysis, Granger causality, cluster analysis, and discriminant analysis.

REFERENCES

- Abbott, L. J. (2000). The Effects of Audit Committee Activity and Independence on Corporate Fraud. *Managerial Finance*, 26 (11), 55.
- Adari, F. (2007). Forensic accounting: A tool for fraud detection and prevention in the public sector (A study of selected ministries in Kogi state). *International Journal of Academic Research in Business and social sciences*, 3(3), 11-19.
- Albrecht, C., Turnbull, C., Zhang, Y. & Skousen, C. J. (2010).The relationship between South Korean Chaebols and Fraud. *Management Research Review*, 33 (3), 257- 268
- Albrecht, W. S., Albrecht, C. C., Albrecht, C. O. &Zimbelman, M. F. (2009).*Fraud Examination*. Natorp Boulevard, USA: South-western Cengage Learning.
- American Institute of Certified Public Accountants (AICPA) (2003). *Forensic and Litigation Services Committee and Fraud Task Force*. Discussion Memorandum.Forensic Services Audits, and Corporate Governance: Bridging the Gap. New York, NY: AICPA
- Amudo, A. &Inanga, E. L. (2009). Evaluation of Internal Control Systems: A Case study from Uganda. *International Research Journal of Finance and Economics*. 27(3), 124-144.
- Baird, J., &Zelin, R. C. (2009).II (2009).An examination of the impact of obedience pressure on perceptions of fraudulent acts and the likelihood of committing occupational fraud.*Journal of Forensic Studies in Accounting and Business*, 1(1), 1-14.
- Barra, R. A. (2010). The Impact of Internal Controls and Penalties on Fraud, *Journal of Information Systems*, 24(1), 11-29.
- Beeler, R.A., Myers, S.C & Marcus, A J. (1999).*Fundamentals of Corporate Finance*. 6th ed. McGraw –Hill
- Boritz, J. E., Kotchetova, N., & Robinson, L. A. (2008).*Planning fraud detection procedures: Forensic accountantsvs auditors*. Paper presented at the IFA conference, accessed May.
- Cohen, J., Ding, Y., Lesage, C., &Stolowy, H. (2011). Corporate Fraud and Manager's Behavior: Evidence from the Press. *Journal of Business Ethics*, 57(2), 271-315.
- Committee of Sponsoring Organization of the Treadway Commission, (COSO) (2012).*Internal Control-Integrated Framework*, AICPA, New York
- Cooper, R., & Schindler, S. (2008). *Business research methods*. New York: McGrawhill

- Dhar, P. and A. Sarkar, (2010). Forensic accounting: An Accountant's Vision. *Vidyasagar University Journal of Commerce*, 15(3): 93-104.
- Di Napoli, J. A., (2010). An Empirical View of the Transparent Objectivity of Forensic Accounting Expert Witnesses, <http://ssrn.com/abstract=1534705>
- Dumitrascu, M. & Savulescu, I. (2012). Internal Control and the Impact on Corporate Governance, in Romanian Listed Companies. *Journal of Eastern Europe Research in Business & Economics*, 12, 1-12
- Enofe, A., Ekpulu, G., & Ajala, T. (2015). Forensic accounting and corporate crime mitigation. *European Scientific Journal*, 11(7).
- Enofe, A., Okpako, P., & Atube, E. (2013). The impact of forensic accounting on fraud detection. *European Journal of Business and Management*, 5(26), 61-72.
- Field, A.P. (2009). *Discovering statistics using SPSS* (3rd edition). London: Sage
- Fiaa, F. (2013). Forensic accounting: A tool for fraud detection and prevention in the public sector. (A study of selected ministries in Kogi state). *International Journal of Academic Research in Business and social sciences*, 3(3), 1.
- Forensic, K. (2013). *Fraud survey 2013*. Montvale, NJ.
- Gbegi, D.O. (2013). The new Fraud Diamond Model-How can it help forensic Accountants in fraud investigation in Nigeria? *European Journal of Accounting Auditing and Finance Research*, 1(4), 129-138.
- Gollwitzer, P.M., and R.F. Kinney. (1990). Effects of deliberate and implemental mindsets on Illusion of control. *Journal of personality and social psychology*. 56 (4):531-542
- Hillison, W., Pacini, C. & Sinason, D. (1999). The internal auditor as fraud- buster. *Managerial Auditing Journal*, 14 (7), 351-363.
- Hongming, C and Yanan, S. (2012). *An Empirical Study on the Correlation between the Internal Control and Enterprise Value-Based on the Information System*.
- Islam, M. J., Rahman, M. H., & Hossan, M. T. (2011). *Forensic Accounting as a Tool for Detecting Fraud and Corruption: An Empirical Study in Bangladesh*.
- Kakucha, W. (2009). *An evaluation of internal controls: the case of Nairobi small businesses*, Unpublished MBA Thesis. Strathmore University, Kenya
- Khan, J. A. (2008). *Research Methodology*. New Delhi. APH Publishing Corporation

- Kimani, J. (2011). *A study of Fraud Risk assessment plan for Barclays Bank of Kenya*. University of Applied Sciences.
- Koh, A. N., Arokiasamy, L., & Suat, C. L. A. (2009). Forensic accounting: Public acceptance towards occurrence of fraud detection. *International Journal of Business and Management*, 4(11), 145.
- KPMG (2004). *Fraud Survey*. Montvale, NJ.
- Kumar, R. (2005). *Research Methodology: A step by step guide for beginners*. New Delhi: SAGE Publishers
- London, D. & Hamilton, P. (2013). Internal audit and audit committees in the South African Government. IPFA: *Journal of the Institute for Public Finance and Auditing*. Lynnwood Ridge: Gauteng
- Mahinda, C. G. (2012). *Determinants of occupational fraud in commercial banks in Kenya*. University of Nairobi.
- Michino, P. W. (2011). *A Survey of the Impact of Internal Controls on Operational Efficiency among Non-Governmental Organizations in Nairobi*. Unpublished Research Thesis. University of Nairobi.
- Mugenda, Olive M. & Mugenda, A. G., (2003). *Research Methods: Qualitative & Quantitative Approaches*. African Centre for Technology Studies
- Mutua, C., (2014). The effect of fraudulent practices on the growth of Insurance Companies in Kenya. *Journal of Management* 2(16) pg. 301-317.
- Mwachiro, D.B., (2013). *Effect of internal controls on revenue collection in KRA* Unpublished MBA Project, University of Nairobi
- Ngechu M., (2004). *Understanding the Research Process and Methods: An Introduction to Research Methods* Nairobi, Acts Press
- Nila, P., & Viriyanti. (2008). *The relationship between internal control and good corporate governance (survey on state owned enterprises in Bandung, Indonesia)*, Widyatama University working paper.
- Norman, C.S., A. Rose, & Rose, J. (2010). Internal audit reporting lines, fraud risk decomposition, and assessments of fraud risk. *Accounting, Organizations and Society*, 35, 546–557.
- Okunbor, J. A., & Obaretin, O. (2010). Effectiveness of the Application of Forensic Accounting Services in Nigerian Organisations. *AAU J. Manage. Science*, 1(1), 171- 184.
- Omondi, E. O. (2013). *The impact of forensic accounting services on fraud detection and prevention among Commercial Banks in Kenya*. University of Nairobi.

- Owojori, A. (2008). The Role of Forensic Accounting in Solving the Vexed Problem of Corporate World. *European Journal of Scientific Research*, 29,2, 183-187.
- Owojori, A. A., & Asaolu, T. O. (2009). The role of forensic accounting in solving the vexed problem of the corporate world. *European Journal of Scientific Research*, 29(2), 183–187.
- Popoola, O. M. J., Ahmad, A. C., Samsudin, R. S., & Yussof, R. Z. (2013). *Impact of task performance fraud risk assessment on forensic skills and mindsets: Experience from Nigeria*. Paper presented at the Proceedings of the 8th Asian Business Research Conference, Bangkok, Thailand.
- Popoola, O. M., Che-Ahmed, A., & Samsudin, R. S. (2014). Forensic Accounting and Fraud: Capability and Competence Requirements in Malaysia. *Journal of Modern Accounting and Auditing*, 10(8), 825-834
- Pratolo, S. (2007). Good corporate governance and the performance of state owned enterprises in Indonesia. *National Symposium of Accounting X*. Makasar, Indonesia.
- PricewaterhouseCoopers (2014). *Global Economic Survey. Economic Crime: A threat to business globally*.
- Rae, K. & Subramaniam, N. (2008). Quality of internal control procedures: Antecedents and moderating effect on organizational justice and employee fraud. *Managerial Auditing Journal*, 23 (2), 104-124.
- Ramaswamy, V. (2011). New frontiers: training forensic accountants within the accounting program. *Journal of College Teaching & Learning (TLC)*, 4(9).
- Rezaee, Z. (1995). What the COSO report means for internal auditors. *Managerial Auditing Journal*, 10 (6), 5-9.
- Singleton, & Aaron. (2010). *Fraud auditing and forensic accounting*: John Wiley & Sons.
- Skousen, C.J. and C.J. Wright.(2008). Contemporaneous risk factors and the prediction of Financial statement fraud. *Journal of Forensic Accounting*, 9: 37-62.
- Stoel, D., Havelka, D., & Merhout, J. W. (2012). An analysis of attributes that impact information technology audit quality: A study of IT and financial audit practitioners. *International Journal of Accounting Information Systems*, 13(1), 60- 79
- Sudti, B. (2008). *Corporate Crime and the Criminal Liability of Corporate Entities in Thailand* (From UNAFEI Resource Material Series No. 76, 94-114, 2008, Grace Lord, ed. See NCJ-229030).

- Sutherland, Edwin. (1949). *White Collar Crime*. New York: Dryden Press.
- Trinks, P. J., & Scholtens, B. (2017). The opportunity cost of negative screening in socially responsible investing. *Journal of Business Ethics*, 140(2), 193-208.
- Wainaina, S. W. (2011). *An Evaluation of the Internal Control Function: The Case of Kenya Polytechnic University College*, Unpublished MBA Thesis, University of Nairobi, Kenya.
- Wanjohi, M. (2011). *A study of Rationale for use of Forensic accounting in Reducing audit expectations gap; The case of Central Kenya Cooperative Societies*. Unpublished MCOM project.
- Wanyama, D.W. & Olweny T. (2013). Effects of Corporate Governance on Financial Performance of Listed Insurance Firms in Kenya. *Public Policy and Administration Research*, 3(4), 96-116
- Warutere, P. (2006). Detecting and Investigating money laundering in Kenya. Money laundering experiences: *a survey, monograph (124)*.

APPENDICES

Appendix I: Questionnaire

This questionnaire has been designed to collect information on the role of internal control services on fraud detection and prevention among public universities in Kenya. Please read carefully and answer the questions as honestly as possible. The information gathered will be used purely for the purpose of academic research and will be treated with utmost confidence.

Instructions

1. Tick appropriately in the box or fill in the space provided.
2. Feel free to give further relevant information to the research.

PART A: BACKGROUND INFORMATION

1. Name of the University

.....

2. Your management level in the university

Senior Level Management

Middle level management

Lower level management

3. How long have you worked with the university?

Below 5 years

5 to 10 years

Above 10 years

PART B: ROLE OF INTERNAL CONTROL COMPONENTS IN DETECTING AND PREVENTING FRAUD IN YOUR ORGANIZATION

Component One: Regular Fraud Audits

Does the organization have a strong fraud audit function?

(a) Yes []

(b) No []

To what extent do you agree with the following attributes as ways that strong fraud audit impact on fraud prevention in the university? Use 1- strongly agree, 2-agree, 3-Moderate, 4- disagree, 5- strongly disagree

Component	1	2	3	4	5
Checking accuracy of accounting records					
Checking routine transactions					
Investigating errors occurring					
Others (please specify)					

Component Two: Policy Compliance

Does your university have a compliance policy?

(a) Yes []

(b) No []

To what extent do you feel that compliance with the policies listed below impacts on fraud detection and prevention in the university? Use 1- strongly agree, 2-agree, 3-Moderate, 4- disagree, 5- strongly disagree

Component	1	2	3	4	5
Standards for data processing Controller's procedures					
Procurement policies					
Data retention requirements					
Security policies					
Personnel administration policies					
Other policy (please specify)					

Component Three: strong internal controls

Does the university have Strong working internal controls?

(a) Yes []

(b) No []

To what extent do you agree with the following attributes as ways that Strong internal controls impact on fraud detection and prevention in the university? Use 1- strongly agree, 2-agree, 3-Moderate, 4- disagree, 5- strongly disagree

Component	1	2	3	4	5
Code of conduct in the organization					
Regular fraud audits					
Regular conduct of fraud risk assessment					
A functional whistle blower programme					
Looking at alleged fraud					
Other (please specify)					

Component Four: Management accounting Controls

Does the university have a working management accounting controls?

(a) Yes []

(b) No []

To what extent do you agree with the following attributes as ways that management accounting controls impact on fraud detection and prevention in the university? Use 1- strongly agree, 2-agree, 3- Moderate, 4- disagree, 5- strongly disagree

Component	1	2	3	4	5
The management maintains an appropriate level of skepticism					
The university strengthens committee understanding of the business					
The management brainstorm about fraud risks					
The university ensures that the entity cultivates a vigorous whistle-blower program.					
Other (please specify)					

Component Five: Separation of Duties

Does your university have clear separation of duties?

(a) Yes []

(b) No []

To what extent do you agree with the following attributes as ways that segregation of duties impact on fraud detection and prevention in the university? Use 1- strongly agree, 2-agree, 3-

Moderate, 4- disagree, 5- strongly disagree

Component	1	2	3	4	5
The university doesn't let the person writing the cheques to do bank reconciliations					
The university doesn't let the person initiating the purchase order approve the payments					
The management brainstorms about fraud risks					
The university assigns different people responsibility for					

approving transactions					
The university assigns different people responsibility for recording transactions					
The university assigns different people responsibility for maintaining custody of assets					
Other (please specify)					

Component Six: Litigation Support

To what extent do you agree with the following attributes as ways that litigation processes impact on fraud prevention and detection in the university? Rate your agreement with the following statements using the likert scale below: (Please tick appropriately) Key: 1-Cannot tell, 2- Strongly Disagree, 3-Disagree, 4-Agree, 5-Strongly Agree

Component	1	2	3	4	5
Analysis of the financial components of the initial complaint					
Accounting and financial analysis for damages					
Preparation of disclosure statements including expert report					
Presentation of expert testimony					
Discovery, interrogatory preparation and requests for production					

FRAUD DETECTION AND PREVENTION

To what extent do you agree on fraud detection and prevention in the university? Rate your agreement with the following statements using the likert scale below: 1- Very low extent, 2-Low extent, 3-Moderate extent, 4- Great extent, 5- Very great extent

(Please tick appropriately)

Component	1	2	3	4	5
The university has effective internal audit					
The university has vigorous fraud hotlines					
The university has a structure for regulatory compliance strategies					
The university Probe suspect on financial performance					
The university has a risk assessment culture					

Thank you for your co-operation

Appendix II: List of Public Universities

NO	UNIVERSITY	YEAR OF ESTABLISHMENT	YEAR OF AWARD OF CHARTER
PUBLIC CHARTERED UNIVERSITIES			
1.	University of Nairobi	1970	2013
2.	Moi University	1984	2013
3.	Kenyatta University	1985	2013
4.	Egerton University	1987	2013
5.	Jomo Kenyatta University of Agriculture and Technology	1994	2013
6.	Maseno University	2001	2013
7.	Chuka University	2007	2013
8.	Dedan Kimathi University of Technology	2007	2012
9.	Kisii University	2007	2013
10.	Masinde Muliro University of Science and Technology	2007	2013
11.	Pwani University	2007	2013
12.	Technical University of Kenya	2007	2013
13.	Technical University of Mombasa	2007	2013
14.	Maasai Mara University	2008	2013
15.	Meru University	2008	2013

16.	Multimedia University of Kenya	2008	2013
17.	South Eastern Kenya University	2008	2013
18.	Jaramogi Oginga Odinga University of Science and Technology	2009	2013
19.	Laikipia University	2009	2013
20.	University of Kabianga	2009	2013
21.	Karatina University	2010	2013
22.	University of Eldoret	2010	2013
23.	Kibabii University	2011	2015
24.	Kirinyaga University	2011	2016
25.	Machakos University	2011	2016
26.	Murang'a University of Technology	2011	2016
27.	Rongo University	2011	2016
28.	Taita Taveta University	2011	2016
29.	The Co-operative University of Kenya	2011	2016
30.	University of Embu	2011	2016
31.	Garissa University	2011	2017

Source: Commission for University Education (CUE) info@cue.or.ke