MASTER'S THESIS

INTERNAL CONTROL SYSTEMS AND MANAGEMENT SUPPORT IN RELATION TO AUDIT EFFECTIVENESS IN SELECTED COUNTY GOVERNMENTS IN KENYA

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DECLARATION

Student's Declaration

I declare that this thesis is my original work and has not been presented for the award of any degree or any other academic qualification in this or any other university. All sources of information used in this study have been duly acknowledged through appropriate referencing.

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Supervisor's Declaration

This thesis has been submitted for examination with my approval as the University Supervisor.

Supervisor's Name: Dr. Evans Mogeni, PhD

Supervisor Signature:  **Date:13/11/2026**

DEDICATION

I would like to dedicate this thesis to my family for their patience, understanding, encouragement, and steadfast support throughout my time at university.

ACKNOWLEDGEMENT

I sincerely appreciate the Almighty God for given me good health, wisdom, strength and perseverance throughout my study. I would to sincerely thank my supervisor Dr. Evans Mogeni, PhD for his advice, constructive criticism, encouragement and professional support during my dissertation. His efforts and insights were crucial to the completion of this job. I also thank the Open University of Kenya, especially the School of Business and Economics for the favourable learning atmosphere and the tools I needed for my research. I wish to thank the administration and personnel of the County Governments in the South Rift Region for their cooperation and for providing to me the essential information. Finally I would want to thank my coworkers, friends and classmates for their inspiration, guidance and support during my studies. Most significantly I would like to thank my family for their continuous support, patience, understanding and encouragement during my educational path. Their sacrifices and believe in me have always inspired me. God bless you all..

ABSTRACT

Recurring audit findings in Kenyan county governments raise questions about how internal controls and management support relate to perceived audit effectiveness. This study examined the associations of control environment, risk assessment and control activities with perceived audit effectiveness and tested whether management support moderated the association with the internal control composite. Guided by Agency Theory, Institutional Theory and the COSO Internal Control Framework, the study used a quantitative cross-sectional survey of 264 staff in Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia. The target population comprised 780 staff across internal audit, accounting, finance, procurement and senior management. Respondents were selected using stratified random sampling. The questionnaire was piloted with 26 respondents in Uasin Gishu. Cronbach's alpha ranged from 0.874 to 0.963, and the Kaiser–Meyer–Olkin measure was 0.958. Descriptive statistics, Pearson correlations, multiple regression and moderation analysis were used. The three control dimensions jointly explained 77.2% of the observed variance in perceived audit effectiveness ($R = 0.776$, $R^2 = 0.602$, adjusted $R^2 = 0.597$). The control environment had the largest standardized coefficient ($\beta = 0.346$), followed by control activities ($\beta = 0.337$) and risk assessment ($\beta = 0.310$). At average internal control, management support was positively associated with perceived audit effectiveness ($B = 0.134$, $p = 0.012$). The positive interaction ($B = 0.125$, $SE = 0.061$, $p \approx 0.041$) indicated that the internal control association was stronger at higher management support. The findings can inform county decisions on accountability, risk assessment, operational controls, audit resourcing and follow-up. The findings concern self-reported perceptions and are interpreted as cross-sectional associations.

Keywords: Internal control systems; perceived audit effectiveness; control environment; risk assessment; control activities; management support; county governments; Kenya.

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DEFINITION OF TERMS

Audit Effectiveness

"Audit effectiveness" means to what extent the audit function meets its objectives. The objectives include the following: detection of mistakes and fraud, compliance with the rules and regulations that apply, encouraging accountability and making credible recommendations that will improve performance and governance.

Control Activities

Control activities are the rules, procedures and practices that management puts in place to ensure the organisation's directives are carried out and the risks identified are adequately mitigated. These include authorizations, segregation of duties, reconciliations, monitoring and physical controls .

Control Environment

The general attitude, awareness, ethical values, management philosophy, and governance structures that will have an effect on the efficiency of the internal control system are all components of the control environment.

Control System Internal

The internal control system is the system of policies, procedures, practices and organizational structures designed to provide reasonable assurance regarding the achievement of objectives of the organization, the reliability of financial reporting, compliance with laws and regulations and the safeguarding of assets.

Organization of Public Sector

A public sector organization is a government owned organization, which is established to provide public services and manage public resources on behalf of the citizen. In this study the public sector entity is the County Governments in South Rift Region of Kenya.

Risk Evaluation

Risk assessment is the process of identifying, analyzing, evaluating and prioritizing those events or conditions that may have a negative impact on the achievement of the

organisation's objectives and selecting what reaction is appropriate.

Accountability .

Accountability is the duty of public officials and public organizations to justify their actions and decisions . It is the action of explaining and justifying . It is taking responsibility for their actions and decisions .

Finance Management

Financial management is the planning, controlling, monitoring and reporting of the financial resources of the organization so that monies are spent efficiently and effectively.

Fraud

Fraud Fraud is any deliberate act of deception, misrepresentation or concealment to gain for oneself or to inflict loss to an organization.

Management

Governance is the system of rules, processes, structures and practices through which an organisation is directed and controlled to achieve its objectives.

Audit Internal

Internal audit is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

County Administration

County government is a devolved level of government under the Constitution of Kenya (2010) and is mandated with the delivery of services and administration of public resources within a county. In this study it refers to county governments in the South Rift region of Kenya.

ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CPA	Certified Public Accountant
EACC	Ethics and Anti-Corruption Commission
EFA	Exploratory Factor Analysis
IFMIS	Integrated Financial Management Information System
IIA	Institute of Internal Auditors
IPSAS	International Public Sector Accounting Standards
KMO	Kaiser-Meyer-Olkin
MBA	Master of Business Administration
OAG	Office of the Auditor-General
OUK	Open University of Kenya
PFM	Public Finance Management
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor

Additional Symbols Used in the Study

Symbol	Meaning
Y	Audit Effectiveness
X_1	Control Environment

Symbol	Meaning
X_2	Risk Assessment
X_3	Control Activities
β_0	Constant Term
β_1	Regression Coefficient for Control Environment
β_2	Regression Coefficient for Risk Assessment
β_3	Regression Coefficient for Control Activities
E	Error Term
A	Cronbach's Alpha Coefficient
n	Sample Size
N	Population Size
E	Level of Precision (Sampling Error)

CHAPTER ONE
INTRODUCTION TO THE STUDY

1.0 Introduction

This chapter offers the thesis and evaluates internal control systems, managerial support and audit effectiveness among county governments in South Rift Region of Kenya. The study starts with background material starting from a global and regional viewpoint to Kenya and the many counties examined. The chapter also presents the study topic, purpose, aims, hypotheses, significance, scope and limits.

1.1 Study Background

1.1.1 The Global Situation

Internal controls are helpful in enabling a business to reach its goals, produce dependable financial reports, comply with legal and regulatory requirements, and preserve its assets. effective internal controls are the foundation of effective governance, accountability and transparency. Excellent internal controls also enable for efficient use of resources. According to the Committee of Sponsoring Organisations (COSO) (COSO, 2013), internal control is the policies, processes and actions that provide reasonable certainty that the organization will achieve its objectives.

Around the globe, public sector organisations are facing growing pressure from their various stakeholders to be accountable and to manage public monies appropriately. Therefore, a number of countries have established internal control systems to improve financial management, prevent fraud, deliver better services and build public trust in government. These frameworks are the bedrock of excellent audits, providing assurance that appropriate controls are in place.

The effectiveness of an audit is determined by how well the audit activities achieve their objectives (i.e., identifying errors, preventing fraud, ensuring compliance and providing significant recommendations for improving governance and performance) (Institute of Internal Auditors [IIA], 2020). An effective audit function fosters transparency and accountability, and helps individuals to make more informed decisions in the public and private sectors.

1.1.2 African and Regional Contexts

The developing world has been identified as being plagued by financial mismanagement, corruption, procurement fraud and poor service delivery due to poor internal control systems.

Studies in Africa have shown that poor control environment, poor risk assessment and poor control activities have negative impact on the quality of audit (Mzenzi & Gaspar, 2015; Aikins, 2011). This has enhanced the importance of building internal control systems as part of the overall public financial management reform agenda.

1.1.3 Context of national

In Kenya, the devolution of government by the Constitution of Kenya (2010) resulted in a major increase in the responsibility of the county governments in the management of public resources. The government enacted the Public Finance Management Act (2012) and established the Integrated Financial Management Information System (IFMIS) to empower the oversight institutions (the Auditor-General and the Ethics and Anti-Corruption Commission) to enhance accountability and transparency (Republic of Kenya, 2012). However, despite these efforts, audit reports consistently show weaknesses in financial management in the county administrations.

The OAG reports have often identified concerns about unauthorised expenditure, failure to comply with procurement laws, poor asset management, delayed reporting and inadequate documentation of financial activity in the counties (OAG, 2024). There is clearly a concern about the strength of the internal control measures in place to underpin the audit function and guarantee public funds are properly accounted for.

1.1.4 Study Area and Local Setting

The county governments in the South Rift are in a position to access significant amounts of public money to drive the socio-economic development of the region. Despite ongoing reforms in public financial management, procurement irregularities, unauthorised expenditure, poor revenue management and weaknesses in internal control are still shown in the audit reports of the many counties.

The six participating county governments were Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia. The study examined internal control and audit processes within their finance, procurement, administration and internal audit functions.

1.1.5 Relation to the Research Problem

Prior studies link internal controls to financial compliance, accountability and organisational performance. Evidence from Kenyan county governments remains limited on the relative associations of specific control dimensions with perceived audit effectiveness and on whether management support changes the strength of the overall

control–audit association.

1.2 Statement of the Problem

The implementation of sound internal control and auditing is expected to improve accountability, transparency, compliance and responsible management of public resources. Experience in the public sector shows that the mere existence of an internal audit and control function does not in itself result in effective auditing, and that institutional and control inadequacies will persist. The World Bank (2025) reports that 86% of internal audit functions across more than 500 Public Expenditure and Financial Accountability assessments of national and sub-national governments carried out between 2005 and 2023 were operating at a basic or substandard level of performance, with only 2% at the highest level of performance. The case represents the continuous gulf between the presence of formal audit and control systems and their true efficacy in public financial management.

In Kenya, the county governments are obliged to have effective systems of internal control and accountability as prescribed by the Public Finance Management Act (2012) as well as other public financial management systems such as the IFMIS (Republic of Kenya, 2012). The Auditor General's reports have on many occasions highlighted issues of unauthorised expenditure, non-compliance with procurement rules, poor asset management, delayed financial reporting and poor documentation of financial transactions in county governments (Office of the Auditor General, 2024). The existence of these financial management and control weaknesses in the South Rift Region (Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia) despite the existence of audit and internal control systems is a cause for concern regarding the effectiveness of those systems in supporting audit functions and accountability.

Recurring findings create a practical problem for county management and audit committees. When control breaches and audit findings persist, these bodies need evidence to decide which control practices and management actions to prioritise in audit planning, corrective action and resource allocation. Chapter Two sets out the empirical research gap that informed the study.

1.3 Aim of the Study

The study aimed to examine the associations between selected internal control dimensions and perceived audit effectiveness and to test whether management support moderated the association between the internal control composite and perceived audit

effectiveness.

1.4 Purpose of the Study

The study sought to provide evidence to guide internal control and audit oversight decisions in the six selected county governments in Kenya.

1.4.1 Objectives

1. To estimate the association between control environment and perceived audit effectiveness in the selected county governments in Kenya, adjusting for the other two control dimensions.
2. To estimate the association between risk assessment and perceived audit effectiveness in the selected county governments in Kenya, adjusting for the other two control dimensions.
3. To estimate the association between control activities and perceived audit effectiveness in the selected county governments in Kenya, adjusting for the other two control dimensions.
4. To test whether management support moderates the association between the internal control composite and perceived audit effectiveness in the selected county governments in Kenya.

1.5 Research Hypotheses

H01: The adjusted association between control environment and perceived audit effectiveness is zero.
H02: The adjusted association between risk assessment and perceived audit effectiveness is zero.
H03: The adjusted association between control activities and perceived audit effectiveness is zero.
H04: The interaction coefficient between the internal control composite and management support in the perceived audit effectiveness model is zero.

1.6 Significance of the Study

The findings can inform decisions by county executives, audit committees, practitioners and public financial management oversight bodies.
County executives and senior managers can use the findings to prioritise staff training, audit resources and follow-up of corrective actions. Audit committees can use action

registers to assign responsibility, track deadlines and escalate overdue findings.
Policymakers and oversight bodies can use the findings to inform reporting requirements for risk registers, control breaches and outstanding audit recommendations. Other public institutions with similar audit functions can use these indicators to review their own practices.
Internal auditors, finance officers and procurement staff can use the findings to focus risk-based audit plans and review segregation of duties, reconciliations and transaction documentation.
Objectives 1–3 address the limited county-level evidence on the relative associations of control environment, risk assessment and control activities with perceived audit effectiveness by estimating their coefficients in one model. Objective 4 addresses the gap on management support by estimating its association at average internal control and testing whether the internal control slope varies with management support. These estimates extend prior evidence on management support and provide a basis for replication in other counties.

1.7 Area of Study

The study was carried out in six county administrations in the South Rift region of Kenya, namely Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia. It studied three domains of the internal control system (control environment, risk assessment and control activities) using audit effectiveness as the dependent variable. The study objectives and conceptual framework showed that management support was the moderating variable on the relationship between internal control system and audit effectiveness.
The study sample was selected from the staff working in finance, audit, procurement and governance in the several county governments analysed. Internal auditors, accountants, finance officials, procurement officers and senior management were among the survey respondents.
The geographic scope was limited to the six participating counties. The internal control composite covered the three measured COSO dimensions, with management support modelled separately as a moderator.

1.8 Limitations of the Study

The cross-sectional design limits inference to associations. Questionnaire scores capture staff perceptions and may be affected by common-source and response bias. Restricted

access to confidential records limited independent verification of audit performance. The findings are specific to the participating counties. Longitudinal studies could link staff responses to administrative audit outcomes over time.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter reviews the concepts, the empirical evidence and the theory underpinning the study. It begins by defining the study variables, then goes on to look at the evidence in relation to the research objectives and identifies the research gaps. The theoretical and conceptual frameworks are then presented to explain the relationships that are being tested in the study.

2.2 Conceptual Literature Review

This section looks at audit effectiveness, control activities, control environment, internal control system, risk assessment and management support. It sets out the conceptual meaning of each and how they are to be applied in the study of audit effectiveness in county government. It makes the distinction between organisational control practice and audit outcome and identifies the proposed moderating effect of management support.

2.2.1 Audit Effectiveness

Audit effectiveness is about how well the audit work achieves its objectives and provides useful assurance and recommendations. The IIA (2024) identifies effective engagement planning, evidence based findings, clear communication and monitoring of action plans as key components of professional auditing. Audit effectiveness is thus about both the quality of the audit work and its usefulness to the organisation.

Audit effectiveness in this study is defined as audit quality, timeliness, compliance and the usefulness and implementation of the recommendations. It is a way of assessing audit performance beyond the simple number of audits completed. A report could be perfectly technically sound and yet have very little value if it gets to the people who need to make decisions too late or if the recommendations are such that they don't actually deal with the problem identified.

The IIA (2024) deals with the recommendations and action plans under Standard 14.4 and with the confirmation of implementation under Standard 15.2. These provisions are designed to allow for the consideration of follow-up when assessing audit effectiveness. It is important to separate out management's responsibility for implementing the corrective actions from the auditor's responsibility for assessing and reporting on progress.

Audit effectiveness was the dependent variable in this study. It was measured via the respondents' assessment of the quality, timeliness, contribution to compliance and practical usefulness of the audit work. This was a measure of perceived audit effectiveness rather than an independent assessment of each individual audit assignment or recommendation.

2.2.2 Control Activities

Control activities are the measures that are put in place to manage risks and ensure the proper performance of organisational responsibilities. These will include preventive and detective controls, segregation of duties and controls over both manual and automated processes. The US Government Accountability Office (GAO, 2025) highlights the importance of both the design of the appropriate controls and their implementation via documented policies and procedures.

For application to county governments control activities can be expenditure authorisation, verification of supporting documentation, reconciliation of the records, physical verification of assets and restriction of access to the financial system. A good example would be the requirement that separate officers should be responsible for initiating, authorising and verifying a payment thereby providing the opportunity to identify unauthorised transactions prior to payment being released.

The relevance of control activities to this study is in their potential link to the availability and reliability of audit evidence. A documented approval process may assist the auditor in establishing who approved the transaction and whether the appropriate procedure was carried out. The existence of such a process in itself does not establish effectiveness.

Control activities were thus viewed as an explanatory variable with respect to operational checks and procedures. Audit effectiveness was the extent to which the audit function's work in the review of organisational activities was seen to be of good quality and useful.

2.2.3 Control Environment

The control environment is about the organisational context in which the internal controls operate. The Committee of Sponsoring Organisations of the Treadway Commission (COSO, 2013) identify the following as key components of the control environment: ethical values, oversight, organisational structure, assignment of authority, competence and accountability.

These are the factors which in turn will influence what is expected of the organisation in terms of the way its responsibilities are carried out.

In the context of county government the focus would be on the behaviour of the leadership, the clarity of lines of reporting, the extent to which staff understand their own roles and responsibilities and the consistency with which breaches of procedure are dealt with. A good example of this would be an approval process which has very little real effect if senior officers consistently go around it without any explanation or review.

The control environment was looked at in this study as a wider organisational context which could be linked to audit effectiveness. It was differentiated from management support in terms of scope. The control environment was about the general ethos and administration of the organisation whereas management support was about the specific commitment of senior management to the audit function, the resources available to it and the follow-up to audit findings.

2.2.4 Internal Control System

An internal control system is a set of interrelated organisational arrangements designed to provide reasonable assurance as to the achievement of the organisation's operational, reporting and compliance objectives. The COSO (2013) framework identifies five components: the control environment, risk assessment, control activities, information and communication and monitoring activities. The importance of the integration of these components cannot be overstated as each individual control procedure will be operating within the wider system.

Reasonable assurance is that the internal control is in place. Internal control has limitations and human error, collusion and management override can all compromise controls even where controls have been formally put in place (COSO, 2013). The mere existence of a policy manual should not be taken as proof that controls are working.

The internal control system formed the overarching conceptual framework for the study. The empirical work was concerned with the control environment, risk assessment and control activities. These elements were looked at in isolation in terms of their impact on audit effectiveness. The study was therefore not a full assessment of the five components of internal control.

2.2.5 Risk Assessment

Risk assessment is about identifying and assessing the circumstances which could impede the achievement of an organisation's objectives and then deciding what to do about them. COSO (2013) places risk assessment within its internal control framework and highlights its link to the organisation's objectives. The GAO (2025) looks at the assessment of fraud, improper payment, information security and risks associated with major changes.

For application to county governments the risk assessment might well be looking at potential weaknesses in revenue collection, procurement, payroll, project delivery and asset management. A good example would be the regularity of differences between the revenue records and the bank deposits which would then lead to a consideration of the likelihood, the possible causes and the potential consequences of an incomplete reconciliation.

Risk assessment in this study was about the organisation's approach to identifying and assessing risks. The proposed link to audit effectiveness was based on the assumption that a better understanding of the organisation's risks would lead to a more focused audit of the key activities. That was simply a proposition to be tested empirically.

2.2.6 Management Support

Management support is about the commitment of senior management to enabling the audit work and dealing with audit matters. The IIA (2024) deals with board and senior management support in Standard 6.3. Its standards also cover the provision of resources and organisational independence, providing a professional basis for the assessment of the conditions that enable the audit work.

Management support was about providing the resources, access to information, attention to the findings and follow-up on the recommendations. These were in fact separate from the wider control environment as they were specifically related to the audit function.

Management support was looked at as a potential moderator of the relationships between the control environment, risk assessment, control activities and audit effectiveness. The idea being that the strength or direction of the relationship between any of the above might be different depending on the level of management support. That was a study specific hypothesis which would have to be tested statistically.

It was also estimated within the interaction model whether there was a direct association. A direct association refers to the relationship between management support and audit effectiveness at the relevant reference values of the interacting predictors. Moderation would be the case where management support would affect the relationship between an internal control dimension and audit effectiveness. A finding of a direct association in itself doesn't establish moderation.

2.2.7 Operational Distinctions

The questionnaire separated out the operational control practices from the perceived audit outcomes. The control activities were the actual procedures and controls; the control environment was the organisational values and structures; risk assessment was the identification and evaluation of risks; management support was the level of commitment to the audit work. Audit effectiveness was the perception of the quality of the audit, the timeliness of the audit, the contribution to compliance and the usefulness and implementation of the recommendations.

These distinctions were used to interpret the results. Given that it was a cross-sectional study and the results were based on respondents' self assessments, the estimated relationships were interpreted as associations rather than as evidence of causation.

2.3 Empirical Literature Review

2.3.1 Control Environment and Audit Effectiveness

The control environment is widely seen as the cornerstone of the internal control system. In the COSO framework it is defined as the "standards, processes and structures that are established and maintained by the board of directors, the audit committee and management that provide the basis for all other internal controls". It encompasses the following elements: the integrity and ethical values of the organisation's people, the governance environment, the organisation's structure, the assignment of authority and responsibility and the organisation's human resource policies (COSO, 2013). A strong control environment will foster a culture of accountability and transparency which in turn will encourage people to follow the rules and procedures and will reduce the opportunity for fraud and mismanagement.

From an auditing point of view the control environment is about how employees view the importance of controls and compliance. If senior management are setting the right tone and are demonstrably leading by example in terms of ethics and supporting the accountability mechanisms, then employees are far more likely to comply with the rules and procedures. The auditor can therefore have greater confidence in the internal controls and the audit process will be more effective and the audit outcome will be better. It's all down to the tone that senior management set.

Aikins (2011) found that organisations with a strong ethical culture, transparent leadership and good governance were more accountable in terms of their financial statements and had more effective audit processes. The key point was that management's commitment to ethics leads to an environment in which internal controls are taken seriously and are actually applied. Mihret and Yismaw (2007) made a similar point in that management support is a major factor in determining the effectiveness of the internal audit function as it enables the auditor to be independent, to have the resources to do their job and to implement the recommendations that they make.

These results suggest that audit effectiveness is not just a function of the technical skill of the auditors. It is also very much a function of the culture that management creates within the organisation. A very capable team of auditors can be completely hamstrung in their ability to do their job if management are not committed to accountability and don't take the findings of the audit seriously. Management support is therefore an absolutely vital enabler of the audit function.

In the public sector context the importance of a strong control environment cannot be overstated. The public sector is in a position to be entrusted with the management of public funds and the delivery of public services. A good control environment is one that has effective governance, ethical leadership and well defined lines of reporting. This in turn leads to better financial management and greater public confidence in the institution. It is in that context that auditors can be more effective at assessing compliance, identifying irregularities and providing assurance as to the proper use of public funds.

In Kenya Mugo (2021) looked at the impact of internal control on financial management in the county governments and found that a positive control environment had a very significant effect on compliance with financial regulations and on audit outcomes. The study showed that county governments with well defined structures, good leadership and

a strong culture of ethics were more likely to achieve a clean audit opinion and to be more accountable in their financial management. This is a very practical finding in terms of the role of governance and leadership in enabling good auditing in the devolved units.

The Kenyan county government findings point to the direct impact of a strong control environment on audit quality and financial stewardship. County governments operate in a highly complex financial environment with increasing levels of public scrutiny so a culture of integrity and accountability is fundamental to achieving good audit outcomes and to good financial stewardship.

Despite its importance, a number of public bodies continue to be hampered by weak control environments. The problems are well known and include lack of management support, unclear lines of authority, poor ethics, political interference and weak governance. This in turn leads to poor compliance with controls, reduced auditor independence and the failure to implement audit recommendations. The result is that audit reports will regularly highlight ongoing financial irregularities and control deficiencies.

A strong control environment is therefore a fundamental pre-requisite for achieving audit effectiveness. An organisation which promotes ethical leadership, accountability, transparency and good governance is more likely to have in place a strong internal control system which in turn will support an effective audit process. The literature reviewed would suggest that an improvement in the control environment would lead to improved audit effectiveness through better compliance, reduced instances of financial fraud and a greater likelihood of achieving the objectives of the organisation.

2.3.2 Risk Assessment and Audit Effectiveness

Risk assessment is a key element of an effective internal control system and involves the identification, analysis and evaluation of the risks that could prevent the organisation from achieving its objectives. The COSO framework states that organisations must continuously assess both internal and external risks and then determine the appropriate response to each risk (COSO, 2013). Risk assessment provides management and the auditor with a framework within which to understand the uncertainties that could have an effect on financial reporting, operational effectiveness, compliance with regulation and overall performance.

The key value of risk assessment is that it allows you to anticipate problems before they actually occur. It enables you to identify the risks and then take steps to mitigate them in order to reduce the probability of suffering financial loss, fraud, operational disruption or non-compliance. In that sense it improves an organisation's resilience and underpins good decision making. It is therefore an organisation that is actively managing its risks that is in a far stronger position to achieve its objectives and to do so in a manner that is accountable and transparent.

Risk assessment from an auditing point of view is the bedrock upon which the planning and execution of the audit is built. It's the process by which the auditor identifies the areas which are most susceptible to error, fraud, inefficiency or non-compliance. The audit is then planned and carried out with a view to concentrating on those high risk areas. This leads to a more efficient and effective audit as the auditor is able to target the areas of most significance. Risk based auditing is therefore a more efficient and effective approach to the audit process.

Arena and Azzone (2009) note that organisations with a good risk assessment practice have a better developed internal audit function and better governance outcomes. They point to the fact that a good risk assessment practice enables auditors to better prioritise issues and to make more relevant, value adding recommendations that will support the achievement of the organisation's objectives. It also enables better communication between management and the auditors on the risks that are emerging and the control weaknesses.

These results point to risk assessment enhancing audit effectiveness through an improvement in the relevance and quality of the audit work. Where auditors have a good understanding of the organisation's risk profile they can then develop audit plans that are focused on the areas of greatest risk. The audit findings in such circumstances are therefore more useful to management in terms of their ability to strengthen controls and improve performance.

Risk assessment is of paramount importance in the public sector given that public bodies operate in a highly regulated environment with a requirement for public accountability and significant financial exposure. The risks that public bodies are exposed to are many and varied; these include procurement fraud, revenue leakage, budget overruns, fraud, corruption and non-compliance with the law. Good risk assessment allows public bodies

to identify the risks early and put in place the appropriate controls to prevent financial mismanagement and service delivery failures.

Onumah and Yao Krah (2012) found that public institutions with a formalised risk management framework had fewer audit queries and were more accountable. They found that institutions which routinely assessed their operational and financial risks were better able to prevent control failures and ensure compliance with the rules and procedures in place. The key point is that risk assessment should be embedded in the way institutions go about their day to day management and auditing.

The implication of that evidence is that risk assessment is a major contributor to good governance and accountability in public sector institutions. It enables the identification of risks prior to them manifesting as financial misstatement and so can be a significant enabler of compliance, protection of public funds and improved quality of financial reporting. It in turn enables the auditor to do a better job of oversight and to provide greater assurance to those who rely on the financial statements.

In the Kenyan context Njagi (2022) found that counties with robust risk assessment processes had higher levels of financial compliance and audit effectiveness than those with poor risk management. The study showed that counties which routinely identified, monitored and assessed financial and operational risks were more likely to have effective internal controls and better audit outcomes. This is a clear demonstration of the value of a risk based approach to management in the devolved system.

The findings from the county governments show that good risk assessment leads to better audits in that it enables the early identification of potential control weaknesses and financial irregularities. As county governments continue to manage large amounts of public money under ever increasing demands for accountability, the adoption of a full risk assessment approach is key to promoting transparency, improving financial management and enabling effective auditing.

Despite its importance, many of the public sector organisations still have problems with risk assessment. The problems are a lack of risk management policy, lack of technical expertise, lack of management commitment and failure to update risk registers. All of these could mean that the organisation is not in a position to identify new risks and as such the effectiveness of the internal controls and the audit function would be reduced.

Risk assessment is therefore a key determinant of audit effectiveness. The more systematic

the organisation's approach to identifying, assessing and monitoring risk the more likely it is to result in improved internal controls, better governance and greater accountability. The literature reviewed would suggest that effective risk assessment will have a positive impact on audit effectiveness in that it will enable a more proactive approach to risk management, improve the quality of audit planning and reduce the incidence of financial misstatement in the public sector.

2.3.3 Control Activities and Audit Effectiveness

Control activities are the specific policies, procedures and mechanisms which management puts in place to ensure that the organisation's objectives are achieved and that the risks identified are properly managed. In the COSO framework (COSO, 2013) control activities are the actions which are designed to ensure that management's directives are effectively implemented at all levels of the organisation. They include segregation of duties, authorisation and approval processes, reconciliations, physical controls over assets, supervisory reviews and performance appraisals. They are the vital link between the risk assessment and the actual implementation of internal controls.

The principal purpose of control activities is to prevent, detect and correct errors, fraud and irregularities that may arise in the course of operations. They are about establishing the procedures and the accountability that will reduce the risk of such things occurring in the first place. Good control activities will ensure that transactions are properly authorised, properly recorded and properly monitored. They are therefore a major factor in the protection of assets and in the maintenance of the integrity of the financial information.

From an audit perspective control activities provide the auditor with evidence as to the effectiveness of the internal control. The auditor will be looking at whether the control procedures are properly designed and are in fact being applied. Good control activities will reduce the risk of error and fraud and allow the auditor to place more reliance on the internal controls. This in turn will make the audit more efficient and effective.

Amudo and Inanga (2009) in their study of public sector organisations in East Africa found that effective control activities had a significant impact in reducing fraud and improving audit outcomes. They identified authorisation procedures, supervisory review and segregation of duties as the most influential of the controls in terms of promoting accountability and preventing abuse of public funds. The study also found that

organisations with well established control procedures had fewer control failures and better governance.

The implication is that control activities are the practical means by which an organisation can ensure accountability and discipline in its operations. Without effective control activities, even the most well conceived policies and risk management frameworks are likely to be ineffective. Control activities are thus fundamental to the realisation of management's intentions in the form of actual operational practice which in turn will deliver on financial integrity and performance.

Segregation of duties is key to enhancing audit effectiveness as it reduces the opportunities for fraud and error by ensuring that no one person has control over all aspects of a transaction. A good example is the separation of the duties of authorisation, record keeping and asset custody which provides a system of checks and balances and improves accountability. Authorisation controls are also important in that they ensure that a transaction is approved by the appropriate authority prior to any resources being committed or any expenditure being incurred. This in turn leads to the establishment of a sound financial management system which is conducive to effective auditing.

In the Kenyan public sector Mulyungi and Mugi (2018) found that effective control activities made a significant contribution to improved financial management and organisational performance. They found that institutions with effective authorisation procedures, regular reconciliations and effective supervision were more likely to have good financial discipline and strong accountability. The presence of well defined operational procedures also led to greater compliance with rules and better quality of financial reporting.

The findings from the Kenyan public sector institutions point to the importance of control activities in enhancing audit effectiveness. The more consistently an organisation implements control activities (e.g. authorisation controls, reconciliations, supervisory reviews) the better the auditor will be able to verify the financial information. This in turn leads to better audit outcomes and greater confidence in the financial management of the institution by its stakeholders.

Within the county environment control activities are of particular importance given the complexity of the financial transactions and the increasing pressure for accountability in the management of public resources. Counties with effective control systems in place

(adequate record keeping, segregation of duties, robust authorisation procedures etc) are far more likely to prevent fraud and ensure compliance with public finance legislation. Such controls provide the auditor with a solid basis upon which to assess the financial operations and the accountability of the organisation.

Despite their importance, many of the public sector institutions still suffer from deficiencies in their control activities. The usual problems are a lack of segregation of duties, poor documentation, insufficient supervision, unauthorised transactions and the failure to carry out regular reconciliations. All of these will increase the risk of fraud, error and non-compliance and will in turn have a negative impact on the effectiveness of the audit and on financial accountability.

Control activities are therefore a key driver of audit effectiveness in the public sector. Good control activities provide assurance that operations are being carried out in accordance with policy and regulation and that public funds are not being misappropriated. The literature reviewed would suggest that effective control activities will have a positive impact on audit effectiveness in terms of enhancing accountability, reducing instances of financial irregularity, improving compliance and increasing the reliability of the financial reporting in county government.

2.3.4 Management Support and Audit Effectiveness

Management support is universally acknowledged as a key organisational enabler of the internal audit function and a key element in the overall quality of governance. It involves the commitment of senior management to accountability, to providing the necessary financial and human resources, to the independence of the internal audit function, to the implementation of audit recommendations and to the promotion of an ethical culture (Cohen & Sayag, 2010). In the public sector it is the provision of this management support which creates the enabling environment in which internal auditors can carry out their work and in which the effectiveness of internal control can be improved.

Empirical work has repeatedly shown a positive link between management support and audit effectiveness. Cohen and Sayag (2010) in Israel found that management support was one of the most significant factors affecting the effectiveness of internal audit. The study showed that in organisations where senior management actively supported the internal auditors, audit quality was higher, the implementation of audit findings was better and

overall organisational performance was improved. Alzeban and Gwilliam (2014) found that management commitment had a very positive impact on the effectiveness of internal audit in the Saudi Arabian public sector, with the support enabling greater auditor independence, better access to resources and improved levels of organisational cooperation.

In developing countries management support is still a key ingredient in the development of public financial management systems. Endaya and Hanefah (2016) found that management support had a positive impact on internal audit performance through the provision of sufficient resources, ongoing staff development and the timely implementation of audit findings. Badara and Saidin (2014) similarly found that management support made a significant contribution to the effectiveness of internal audit in Nigerian public institutions by improving compliance with financial regulations and enhancing governance.

In the Kenyan public sector senior management has a key role to play in ensuring compliance with the Public Finance Management Act, the Public Audit Act and all other public financial management regulations. Good management support enables the effective implementation of internal control systems, facilitates the co-operation between management and internal auditors and promotes accountability in the use of public resources. Counties that invest sufficient resources in their internal audit units, ensure the independence of their auditors and act on audit recommendations will be in a far better position to improve the effectiveness of their audit function and to build public confidence in the integrity of their financial reporting.

Despite the acknowledged significance of management support, prior research has largely focused on its direct effect on audit effectiveness with very little attention to its role as a moderator of the relationship between internal control and audit effectiveness. This study seeks to redress that imbalance by looking at management support both as an independent organisational factor and as a moderator of the internal control and audit effectiveness relationship in the case of county governments in the South Rift region of Kenya.

2.3.5 Moderating Effect of Management Support on the Relationship between Internal Control Systems and Audit Effectiveness

Internal control systems are of course absolutely essential in terms of promoting

accountability and improving the effectiveness of the audit. Their success in that respect will in many cases be a function of the degree of management commitment to their implementation and to their ongoing improvement. Management support is an important organisational enabler in the sense that it enhances the effectiveness of the control environment, the assessment of risk and the control activities themselves through policy enforcement, the provision of resources, ethical leadership and the implementation of audit recommendations. The degree to which internal control and audit effectiveness are linked will therefore vary according to the level of management support within an organisation.

The moderating role of management support has long been recognised in the organisation and governance literature. Stewardship Theory posits that managers who are genuinely committed to the objectives of the organisation will create an environment which in turn enables the governance structure to work effectively and improves organisational performance (Davis et al., 1997). Contingency Theory would suggest that the effectiveness of an organisation will be a function of the extent to which management practice is aligned with the circumstances of the organisation, with the effectiveness of internal control being a function of the level of management commitment and support.

There is empirical evidence of the interaction between management support and internal control. Alzeban and Gwilliam (2014) found that organisations with strong management support derived greater benefit from their internal audit functions than those with weak management support. Cohen and Sayag (2010) found that management commitment had a significant impact on the effectiveness of internal audit with the most notable effects being in the areas of implementation of audit recommendations, budget allocation and the level of organisational cooperation. Endaya and Hanefah (2016) found that management support had a positive effect on the effectiveness of internal control systems in terms of promoting continuous improvement and accountability.

Within county governments in Kenya management support is expected to improve the effectiveness of the internal control systems by ensuring that the identified control weaknesses are properly addressed, that audit recommendations are implemented and that sufficient financial and technical resources are available to enable the internal control systems to be strengthened. Without management support the internal control systems, however well designed, are likely to fail to achieve their intended outcomes due to poor implementation, lack of organisational buy-in or political interference.

Whilst there have been a number of studies looking at the direct impact of internal control systems and management support on audit effectiveness in isolation, very few have looked at whether management support actually strengthens or weakens the relationship between internal control systems and audit effectiveness. This study specifically looked at the moderating effect of management support on the relationship between internal control systems and audit effectiveness in the county governments of the South Rift Region of Kenya.

2.4 Critical Synthesis and Research Gaps

The literature is clear in that internal control is a major contributor to organisational accountability, transparency and audit effectiveness. There is a well established body of work which shows a positive relationship between the control environment, risk assessment, control activities and performance. There are however a number of gaps.

First of all the bulk of the research has been in the area of financial performance, fraud prevention and organisational efficiency rather than audit effectiveness.

Secondly, a great deal of the research has been focused on national government agencies, state owned enterprises and private organisations with very little attention paid to county governments.

Thirdly, there is a very limited amount of empirical work looking at the combined effect of the control environment, the risk assessment process and the control activities on audit effectiveness in county government.

The county-level evidence reviewed here leaves two questions open. First, how do control environment, risk assessment and control activities relate to perceived audit effectiveness when estimated together? Objectives 1–3 address this question. Second, does the association with the combined control score vary with management support? Objective 4 addresses this question by including a product term alongside the two main terms.

2.5 Theoretical Framework

The study is based on Agency Theory, Institutional Theory and the COSO Internal Control Framework. These are the theories that underpin our understanding of how internal control affects the effectiveness of the audit in the public sector.

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2.5.1 Agency Theory

Agency theory (Jensen and Meckling 1976) is the theory of the relationship between principals and agents. In the public sector the citizen is the principal and the public servant the agent who is entrusted with the management of public resources on behalf of the citizen.

Agency problems occur when agents act in their own interests rather than those of the organisation. The information asymmetry between the citizen and the public official provides scope for fraud, corruption and the misuse of public funds. Internal control and audit systems are put in place to reduce agency problems by increasing transparency and accountability (Jensen & Meckling, 1976).

The theory is pertinent to this study as good internal controls will support the audit function by ensuring that public officials are acting in accordance with policy and procedure and thus reducing the probability of financial misstatement.

2.5.2 Institutional Theory

Institutional theory posits that organisations will adopt structures, policies and procedures in response to the pressures of regulators, professional bodies and society at large (DiMaggio & Powell, 1983).

Public sector organisations are required to have internal control systems in place as a result of legal and regulatory requirements. County governments in Kenya are required to conform to the Constitution of Kenya (2010), the Public Finance Management Act (2012) and other financial management regulations. The implementation of internal controls is therefore a direct response to institutional pressures to be accountable and to have good governance.

The theory is that the more robust the compliance regime and the governance structure, the more likely you are to get a good audit outcome.

2.5.3 Stewardship Theory

Stewardship Theory (Davis, Schoorman & Donaldson 1997) was developed as an alternative to Agency Theory. Agency Theory assumes that managers are primarily motivated by self interest. Stewardship Theory takes the opposite view and posits that managers and organisational leaders are trustworthy stewards who will act in the best interests of the organisation. The theory holds that when managers are given the autonomy, trust and support to do so they will in fact be more likely to act in the organisation's interest rather than their own.

Stewardship Theory posits that organisational performance will be enhanced when management creates an environment of trust, collaboration, ethical leadership and shared organisational objectives. It's not about control and monitoring per se, but about management commitment, empowerment of the individual, accountability and supportive leadership. This in turn leads to people doing their jobs properly and being transparent in their stewardship of the organisation's resources.

In the public sector, senior management are absolutely key in creating an environment which enables good governance, accountability and financial management. They show stewardship by providing the right level of resources, promoting a culture of integrity, supporting the internal auditors, implementing the audit findings and ensuring compliance with financial rules and regulations. That level of commitment is what leads to better internal controls and better audit quality.

The theory is very pertinent to this study as management support is viewed as a moderating variable in the relationship between internal control and audit effectiveness. Management support will enhance the implementation of the control environment, the risk assessment and the control activities through the promotion of accountability, the provision of appropriate resources and the encouragement of compliance with the established policies and procedures. Stewardship theory therefore provides a useful explanation of how management support can improve audit effectiveness in the county governments of the South Rift Region of Kenya.

2.5.4 Contingency Theory

Contingency Theory was developed by Lawrence and Lorsch (1967) and further developed by Fiedler (1964). The theory holds that there is no one 'best' way of managing an organisation or of implementing internal control which will work in all circumstances. Effectiveness will be a function of how well the management style, structure and control systems of an organisation are matched to the particular internal and external circumstances it faces. These circumstances may be the size of the organisation, the level of complexity, the technology used, the regulatory environment, the level of environmental uncertainty and the nature of the operational risks.

The theory is that the organisation should have an internal control system which is appropriate to its own operating environment. As the environment changes, management will have to continually assess the controls and make changes to them to deal with the new risks and to ensure that the objectives of the organisation are still being met. Good internal control is thus a function of the organisation's ability to identify its risks, to adjust its policies and to put in place the appropriate control procedures for the circumstances.

Within the public sector (in particular county governments) we operate in a constantly changing environment. The regulatory environment is in flux, public accountability is increasing, technology is advancing and the nature of governance is changing. The internal control system has to be flexible enough to deal with all of these changes and still provide effective control over the use of public funds. An organisation that is constantly reviewing its risks and adjusting its control activities will be in a much better position to improve governance, improve financial accountability and improve the effectiveness of the audit.

Contingency Theory is applicable to this study as it states that the effectiveness of internal control systems is contingent upon the extent to which the control environment, risk assessment and control activities are appropriately designed to meet the specific needs of the organisation. Good internal controls which are designed to address the particular issues facing a county government will enable the auditor to identify weaknesses, improve compliance, reduce the incidence of fraud and error and in turn improve the effectiveness of the audit. It is therefore a theory that provides a good basis on which to examine the impact of internal control systems on audit effectiveness in the county governments of the South Rift region of Kenya.

2.6 Conceptual Framework

The study is based on the COSO (2013) Internal Control Framework which asserts that effective internal controls lead to improved organisational accountability, compliance and governance outcomes. The framework holds that a robust control environment, effective risk assessment and appropriate control activities will all lead to improved audit effectiveness in county government.

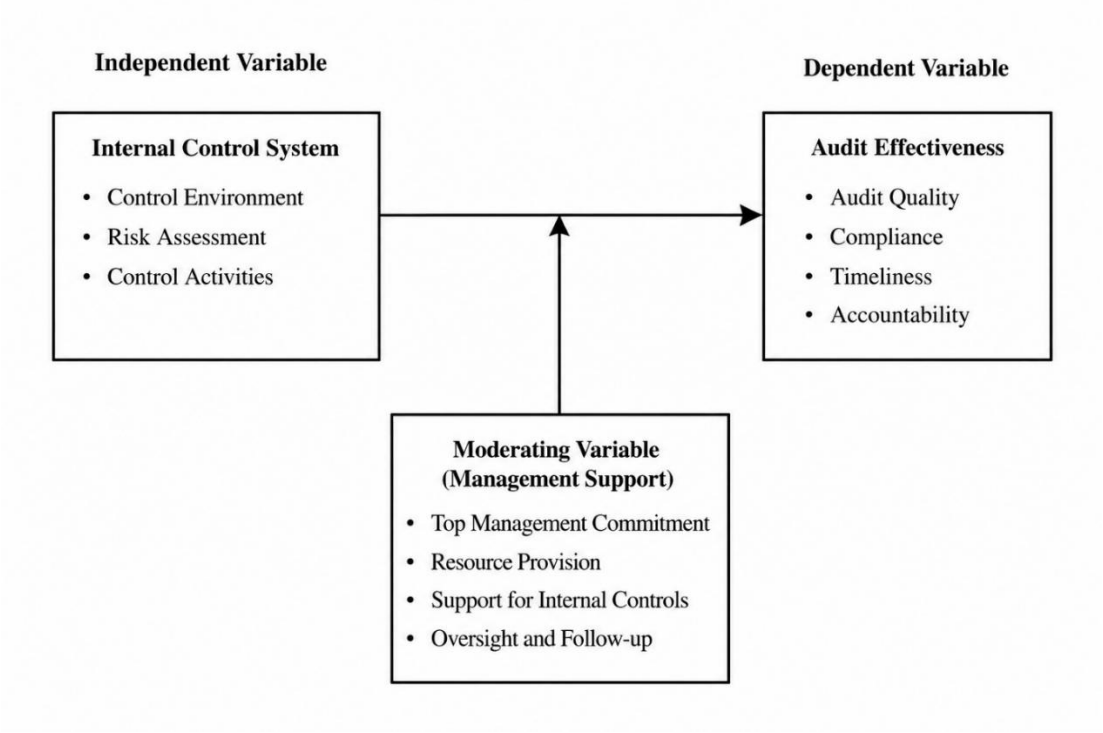

Figure 1:Relationship between Internal Control Systems and Audit Effectiveness in County Governments

The conceptual framework in Figure 1 depicts the relationships that were examined between internal control and audit effectiveness in county governments. The study used the control environment, risk assessment and control activities as the independent variables (based on the COSO 2013 framework) with audit effectiveness as the dependent variable. Management support was included as a moderating variable to assess whether it would have an effect on the relationship between internal control and audit effectiveness.

The control environment was the set of ethical values, governance structures and mechanisms of accountability which underpinned effective audit. Risk assessment was the process of identifying, assessing and managing the risks which could impact the financial reporting processes and the audit process itself. Control activities were the policies and

procedures in place to prevent and detect errors, fraud and financial misstatement. These three elements together formed the internal control system which was the subject of the study in terms of its impact on audit effectiveness. The study also looked at whether management support would have a moderating effect on the relationship between the overall internal control system and audit effectiveness.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter details the research philosophy and design, the sampling procedures, the data collection methods, the analysis and the ethical considerations employed in the study of internal control systems and audit effectiveness in the six county governments. The procedures are consistent with the study objectives and the analyses presented in Chapter Four.

The method employed was a systematic approach to data collection, analysis and interpretation in order to achieve the study objectives and test the research hypotheses.

3.2 Research Philosophy

Research philosophy is the set of assumptions and beliefs that underpin the way we go about the development of knowledge and the way we go about investigating a research problem (Saunders, Lewis & Thornhill, 2019). The study adopted a positivist research philosophy.

Positivism presumes that phenomena can be observed, measured and analysed in an objective manner via systematic empirical procedures. It is all about quantitative measurement, hypothesis testing and the statistical analysis of relationships between variables.

The positivist approach was appropriate for this study as it was a study of the relationships between internal control systems and audit effectiveness, using quantitative data collected from county government staff. It enabled an objective test of the relationships between the control environment, risk assessment, control activities, management support and audit effectiveness.

3.3 Research Design

The study used a quantitative approach and a descriptive and analytical cross-sectional survey design. The descriptive analysis summarised respondent characteristics and questionnaire scores. The analytical component estimated associations and tested the four hypotheses.

A standardised questionnaire allowed the same control, management support and audit effectiveness measures to be applied across the six participating county governments.

The design was appropriate for estimating contemporaneous associations from a single survey round. Exposure and outcome measures were collected in the same period, so the analysis could not establish temporal order or cause-and-effect relationships.

3.4 Sampling Design

The sampling design specified the eligible population, the sampling frame, the required sample size and the method of respondent selection. The population and sample allocation are given prior to the data collection procedures so that the coverage of the empirical analysis can be checked against the planned study design.

3.4.1 Target Population

Target population is the whole population of individuals who possess the characteristics of interest in a study and from whom the conclusions are drawn (Mugenda & Mugenda, 2019).

The study covered six selected county governments in Kenya's Rift Valley: Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia. These county administrations defined the geographic scope of the study. Each had staff sampling frames for the eligible functions, allowing the same respondent eligibility criteria to be applied across sites. These functions were chosen for their direct involvement in controls, financial management, audit, procurement or governance. Respondent sampling took place within these study sites.

The target population was the human resource cadre of the various posts within the devolved system of government in Kenya as per the County Governments Act, 2012. The target population was 780 comprising 90 internal auditors, 210 accountants, 240 finance officers, 150 procurement officers and 90 senior management staff.

Table 1:Target Population

Employee Category	***Target Population***
Internal Auditors	210
Accountants	90
Finance Officers	240
Procurement Officers	150
Senior Management Staff	90
Total	**780**

Source: *County Government Human Resource Establishment, guided by the County Governments Act, 2012.*

As per Table 1, finance officers were by far the largest category of employee, followed by accountants and procurement officers. These were the categories of staff directly involved in financial planning and budgeting, accounting, financial reporting, procurement, contract administration and compliance with public financial management requirements.

Internal auditors were responsible for the assessment of internal controls, risk management and governance processes. Senior management were responsible for the provision of strategic leadership, oversight, resource allocation and support in relation to financial accountability and the audit function.

The population was therefore appropriate in that it comprised people who had direct knowledge and experience of the internal control and audit processes under investigation in the study.

3.4.2 Sampling Frame

A sampling frame is the list of the elements of the target population from which the sample is drawn (Cooper & Schindler, 2014).

The sampling frame consisted of the employees in the relevant positions in internal audit, accounting, finance, procurement and senior management in the six county governments. It was drawn from the relevant HR establishment and staff records for the positions in the study.

The sampling frame formed the basis for identifying the eligible respondents and selecting the participants from the five functional areas. It also enabled representation of staff involved in

the implementation, monitoring and evaluation of the financial controls, risk management, procurement, governance and audit processes.

3.4.3 Sample Size Determination

The sample size was determined using Yamane's (1967) formula for a finite population:

$$n = \frac{N}{1 + N(e^2)}$$

where:

n= required sample size;

N= target population; and

e= level of precision.

Using a target population of $N = 780$and a precision level of $e = 0.05$:

$$n = \frac{780}{1 + 780(0.05^2)}$$
$$n = \frac{780}{1 + 1.95}$$
$$n = \frac{780}{2.95}$$
$$n = 264.41$$

The resulting sample size was therefore approximately 264 respondents. Accordingly, 264 respondents were included as the planned sample for the study.

3.4.4 Sampling Technique

The study used stratified random sampling as the population of interest consisted of different employee groups with differing responsibilities in the areas of finance, audit, procurement, governance and internal control.

The target population was split into five functional groups: internal auditors, accountants, finance officers, procurement officers and senior management staff. Proportionate allocation

was used to work out the number of respondents to be drawn from each employee stratum in accordance with its proportion of the target population.

The proportionate allocation was calculated as:

$$n_i = \frac{N_i}{N} \times n$$

where:

n_i= sample allocated to stratum i;

N_i= population of stratum i;

N= total target population; and

n= overall sample size.

Table 2:Proportionate Sample Allocation

Employee Category	***Population***	***Sample Allocation***
Internal Auditors	210	71
Accountants	90	30
Finance Officers	240	81
Procurement Officers	150	51
Senior Management Staff	90	31
Total	**780**	**264**

Simple random sampling was used within the identified employee groups to enable the selection of eligible respondents.

In Table 2 the final analytical dataset comprised 264 respondents, equally distributed across the six participating counties (44 from each county). So each county represented 16.7% of the final analytical sample.

The respondents were drawn from the finance, procurement, admin and internal audit functions and included finance officers, accountants, procurement officers, managers/senior officers and auditors.

3.5 Data Collection Methods

The study used the primary questionnaire data to measure the constructs consistently across the counties. The following sections describe the instrument, the pilot testing, the validity, the reliability, the operationalisation and the administration of the instrument. The theoretical and contextual background was drawn from published materials rather than from a separate empirical dataset.

3.5.1 Sources of Data

The study used primary data collected directly from the respondents in the six county governments in the South Rift region of Kenya.

Primary data were gathered via a structured questionnaire administered to staff across the internal audit, accounting, finance, procurement, administration and senior management functions. The questionnaire was designed to elicit information on the key study constructs: control environment, risk assessment, control activities, management support and audit effectiveness.

The closed items provided the quantitative measures for the descriptive and inferential analyses. Responses to the open items in Section F were grouped and counted to describe implementation challenges and suggestions.

Published reports, legislation, books, journal articles and policy documents were used to provide the theoretical, empirical and contextual background to the study and were not treated as a separate empirical dataset.

3.5.2 Data Collection Instrument

The main data collection instrument was a structured questionnaire. It was appropriate in that it enabled the collection of information from the respondents in the six counties in a standardised manner.

The questionnaire measured demographic characteristics, control environment, risk assessment, control activities, management support and perceived audit effectiveness. Construct items used a five-point Likert scale. Section F contained open items on implementation challenges and suggested improvements.

Table 3:Likert Scale Measurement

Response Category	***Score***
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

As per Table 3 the respondents were asked to indicate on a five point scale the extent to which they agreed or disagreed with each statement. The responses were then coded numerically in order to allow the calculation of descriptive statistics, composite construct scores, correlation coefficients and regression analyses.

3.5.3 Pilot Study

A pilot study was carried out prior to the main data collection to assess the clarity, appropriateness, validity and reliability of the research instrument. As Mugenda and Mugenda (2019) point out, pilot testing enables the researcher to identify any weaknesses in the research instrument prior to the main study.

The pilot study was carried out in Uasin Gishu County (which was not one of the six counties in the main study). 26 respondents (equivalent to about 10% of the main study sample) took part in the pilot study.

The pilot participants were representative of the employee groups that the main study was targeting. The pilot was used to assess the clarity and relevance of the questionnaire items and to identify any ambiguities or inconsistencies that would need to be ironed out.

Feedback from the pilot study was used to refine the questionnaire prior to its administration in the main study.

3.5.4 Validity of the Research Instrument

Validity is to do with the extent to which the research instrument actually measures what it is supposed to measure (Kothari, 2018). Validity had to be established in order to ensure that the questionnaire did in fact measure the constructs that were the subject of the study.

The instrument was validated in terms of content validity and construct validity.

3.5.4.1 Content Validity

Content validity is to do with the extent to which the items in the instrument reflect the concepts being investigated.

The questionnaire was checked for relevance, clarity, sufficiency and appropriateness of items in the light of the study objectives and variables. The pilot study also allowed us to identify any items which were unclear or ambiguous. The feedback from this process was used to refine the questionnaire prior to the main data collection.

3.5.4.2 Construct Validity

Construct validity concerned whether the measurement items adequately represented the theoretical constructs of control environment, risk assessment, control activities, management support, and audit effectiveness.

The adequacy of the measurement data for construct-level analysis was assessed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO statistic assessed the adequacy of the correlation structure among the questionnaire items, while Bartlett's Test determined whether the correlation matrix differed significantly from an identity matrix.

The completed analysis produced a KMO value of 0.958, indicating excellent sampling adequacy. Bartlett's Test was also statistically significant, $\chi^2(946) = 9477.880, p < 0.001$, demonstrating sufficient relationships among the measurement items for construct-based analysis.

3.5.5 Reliability of the Research Instrument

Reliability refers to the consistency with which a research instrument measures the constructs under investigation. Internal consistency reliability was assessed using Cronbach's alpha coefficient.

Cronbach's alpha was calculated separately for control environment, risk assessment, control activities, management support, and audit effectiveness. A coefficient of 0.70 or above was considered acceptable.

The completed reliability analysis showed that all five scales exceeded the acceptable threshold. Control environment recorded $\alpha = 0.935$, risk assessment $\alpha = 0.939$, control activities $\alpha = 0.948$, management support $\alpha = 0.874$, and audit effectiveness $\alpha = 0.963$. These results demonstrated strong internal consistency and supported construction and use of the composite scores in subsequent analyses.

Reliability is the degree to which a research instrument produces consistent results when measuring the constructs under investigation. Internal consistency reliability was assessed via Cronbach's alpha.

Cronbach's alpha was calculated separately for control environment, risk assessment, control activities, management support and audit effectiveness. A value of 0.70 or above was regarded as acceptable.

The full reliability analysis showed that all five scales were above the acceptable level. Control environment $\alpha = 0.935$,, risk assessment $\alpha = 0.939$,, control activities $\alpha = 0.948$, management support $\alpha = 0.874$ and audit effectiveness $\alpha = 0.963$. all met the criteria. This confirmed good internal consistency and meant that the composite scores could be constructed and used in the subsequent analyses.

3.5.6 Operationalisation and Measurement of Variables

The study variables were largely operationalised in accordance with the COSO Internal Control Framework (2013) and relevant internal auditing literature as set out in Table 4.

The independent variables were control environment, risk assessment and control activities. Audit effectiveness was the dependent variable and management support was the proposed moderating variable in the relationship between the overall internal control system and audit effectiveness.

The questionnaire had 10 items each for control environment, risk assessment, control activities and audit effectiveness and 4 items for management support. This is the structure that is subsequently reflected in the reliability analysis reported in Chapter Four.

All the construct items were measured on a 5 point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 4:Operationalization and Measurement of Study Variables

Study Objective	Variable	Main Indicators	Measurement	Role
Determine the effect of control environment on audit effectiveness	Control Environment (X_1)	Ethical values, management commitment, accountability structures, staff competence, leadership and supervision	Five-point Likert scale	Independent
Assess the effect of risk assessment on audit effectiveness	Risk Assessment (X_2)	Risk identification, analysis, mitigation, monitoring and fraud-risk assessment	Five-point Likert scale	Independent
Evaluate the effect of control activities on audit effectiveness	Control Activities (X_3)	Segregation of duties, authorization, reconciliations, supervision and documentation controls	Five-point Likert scale	Independent
Examine the moderating effect of management support	Management Support (M)	Management commitment, provision of resources, support for audit activities and follow-up of audit matters	Five-point Likert scale	Proposed Moderator
Measure the outcome of the internal control and audit processes	Audit Effectiveness (Y)	Audit quality, detection of irregularities, compliance, implementation of recommendations and timeliness	Five-point Likert scale	Dependent

Source: *Researcher (2026), adapted from COSO (2013), IIA (2020), and the study questionnaire.*

The model included the three COSO dimensions operationalised as distinct questionnaire scales. They represented the organisational setting for controls, identification and assessment of risks, and execution of control procedures. Information and communication and monitoring activities were outside the scope of the model as separately measured constructs. Some questionnaire items touched on these processes within the included scales. Accordingly, the composite represents the three measured dimensions of the COSO framework.

Composite scores were derived from the relevant questionnaire items and these were used in the descriptive, correlational, regression and moderation analyses.

3.5.7 Data Collection Procedure

An introductory letter authorising the conduct of the study was obtained from the university. A research licence was obtained from NACOSTI prior to the commencement of the main data collection exercise and the requisite administrative permission was obtained from the county governments in the South Rift region of Kenya.

The pilot study was carried out in Uasin Gishu County prior to the main fieldwork. Feedback from the pilot exercise was used to refine and finalise the questionnaire.

Having completed the requisite research authorisation procedures the final questionnaires were administered to the selected respondents in Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia counties. The questionnaires were administered physically and electronically where appropriate in line with the data collection procedure as described in the original methodology. The completed questionnaires were checked for completeness and consistency prior to coding. The data were then cleaned and prepared for statistical analysis. The final dataset consisted of 264 complete and usable responses, which was exactly the sample size we had planned for.

3.6 Data Analysis Procedures

The data were coded, cleaned and analysed using R statistical software. The analysis included descriptive statistics, reliability analysis, construct adequacy, Pearson's correlation analysis, regression diagnostics, multiple linear regression, moderation analysis and hypothesis testing. The open ended responses from the questionnaire were also analysed to provide a further dimension to the findings. All of these procedures are the same as those described in Chapter Four.

Statistical significance for the inferential analyses was assessed at the 5% level $(p < 0.05)$. Results were presented in the form of tables and figures, descriptive statistics, correlation coefficients, regression coefficients, coefficients of determination, test statistics and p-values.

3.6.1 Descriptive Statistics

Descriptive statistics were used to summarise the respondents' demographic characteristics and the key study variables.

Frequencies and percentages were used to present the categorical variables (county, gender, age, education, department, length of service and position held). Means and standard deviations were used to present the composite scores for control environment, risk assessment, control activities, management support and audit effectiveness.

Descriptive results were presented in the form of tables and figures to aid interpretation.

3.6.2 Inferential Statistics

The research hypotheses were tested using inferential statistics to explore relationships among the study variables. The main procedures were Pearson product-moment correlation analysis, multiple linear regression, and moderation analysis.

3.6.2.1 Pearson Correlation Analysis

Pearson product–moment correlations were performed to determine the magnitude and direction of bivariate associations among study variables.

3.6.2.2 Multiple Linear Regression Analysis

Multiple linear regression estimated the joint and adjusted associations of the three internal control dimensions with perceived audit effectiveness.

The direct-effects model was specified as:

$$AE_i = \beta_0 + \beta_1 CE_i + \beta_2 RA_i + \beta_3 CA_i + \varepsilon_i$$

where:

AE_i= Audit Effectiveness;

CE_i= Control Environment;

RA_i= Risk Assessment;

CA_i= Control Activities;

β_0= Regression constant;

$\beta_1, \beta_2, \beta_3$= Regression coefficients; and

ε_i= Error term.

Model fit was summarised using the F test, multiple R, R^2 and adjusted R^2. Individual predictors were evaluated using unstandardized and standardized coefficients, t statistics and corresponding p-values.

3.6.2.3 Moderation Analysis

Moderation analysis was carried out to determine whether management support moderated the relationship between the overall internal control system and audit effectiveness.

The composite combined control environment, risk assessment and control activities. The composite and management support were each centred at their sample mean before multiplication. Centering allows each main coefficient to be interpreted at the sample mean of the other predictor.

The moderation model was specified as:

$$AE_i = \beta_0 + \beta_1 ICS_{ci} + \beta_2 MS_{ci} + \beta_3 (ICS_{ci} \times MS_{ci}) + \varepsilon_i$$

where:

ICS_c= Mean-centered Internal Control System composite;

MS_c= Mean-centered Management Support;

$ICS_c \times MS_c$= Interaction between Internal Control System and Management Support; and

β_3= Interaction coefficient representing the proposed moderating effect.

The product term tested whether the slope linking the internal control composite to perceived audit effectiveness changed with management support. A two-sided t test evaluated whether its

coefficient differed from zero at α = 0.05. Fitted slopes were plotted at average management support and at one scale point below and above average.

3.6.3 Research Hypotheses and Decision Rules

The study tested the following null hypotheses:

H01: The association between the control environment and perceived audit effectiveness is zero after adjusting for risk assessment and control activities.

H02: The association between risk assessment and perceived audit effectiveness is zero after adjusting for the control environment and control activities.

H03: The association between control activities and perceived audit effectiveness is zero after adjusting for the control environment and risk assessment.

H04: Management support does not moderate the association between the internal control composite and perceived audit effectiveness. The interaction coefficient between the internal control composite and management support is zero.

3.6.4 Regression Diagnostic Tests

The study assessed multicollinearity, heteroscedasticity, first-order residual autocorrelation and residual normality in the multiple linear regression model.

3.6.4.1 Multicollinearity

Variance inflation factors (VIFs) ranged from 1.274 to 1.352. These values indicate that overlap among the three internal control predictors had little effect on the variance of their estimated coefficients. There was no evidence of problematic multicollinearity.

3.6.4.2 Homoscedasticity

The Breusch–Pagan test provided insufficient evidence of heteroscedasticity at the 5% significance level (LM p = 0.230, F p = 0.232).

3.6.4.4 Residual Normality

Residual normality was assessed using a number of complementary statistical tests (Shapiro-Wilk test, omnibus normality test and Jarque-Bera test).

Shapiro–Wilk rejected exact residual normality at α = 0.05 (W = 0.987, p = 0.020). The omnibus (p = 0.060) and Jarque–Bera (p = 0.063) tests did not reject normality at that level. The diagnostics were therefore mixed and suggest a modest departure from exact normality.

3.6.5 Construct Adequacy and Factorability

The appropriateness of the item correlation matrix for a construct based analysis was tested using Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO statistic tests if the correlations between the items are large enough to justify study at the construct level. A KMO rating above 0.60 was rated satisfactory while values above 0.90 were classified as excellent.

The null hypothesis that the item correlation matrix was an identity matrix was tested using Bartlett's Test of Sphericity. The correlations among the items were adequate to warrant the usage of the questionnaire, with an important result ($p<0.05$).

The analysis was completed with KMO = 0.958 and Bartlett's $\chi^2(946) = 9477.880, p < 0.001$ which supports both the adequacy and factorability of the measurement data.

There was no separate claim of having carried out an exploratory factor extraction as Chapter Four simply reports the KMO and Bartlett's test rather than an EFA factor solution.

3.6.6 Analytical Coverage of the Planned Sample

The last analytical sample was checked against the sample size which had been calculated using Yamane's formula.

The intended sample was 264. After data collection, completeness checks and data preparation the final analytical dataset also consisted of 264 complete and usable responses. The analysis therefore achieved full coverage of the intended sample.

As the final analytical dataset was exactly the planned sample size, no separate non-response bias analysis was undertaken.

3.6.7 Frequency Coding of Questionnaire Responses

Section F of the questionnaire asked respondents to describe implementation challenges and suggest improvements.

Responses were grouped into categories by similarity of meaning and counted. Chapter Four reports the resulting category frequencies as descriptive survey findings.

3.7 Ethical Considerations

The study followed the standard ethical principles of social science research with respect to the rights, privacy, confidentiality and welfare of the respondents.

The Open University of Kenya authorised the study. Ethics approval was obtained from the Amref Ethics and Scientific Review Committee (approval No. 207653, 2 August 2026). NACOSTI research licence NACOSTI/P/26/4195068, issued on 26 August 2026, covers Bomet, Kajiado, Kericho, Laikipia, Nakuru and Narok, the six main survey counties. Appendix IV reproduces the licence under the original protocol title. Administrative permission was obtained from the participating county governments. Uasin Gishu is described separately in Section 3.5.3 as the pilot site.

Participation in the study was voluntary. Participants were made aware of the purpose of the research, the nature of their involvement and their right to withdraw at any time without any negative consequences. Informed consent was obtained prior to participation.

Confidentiality and anonymity were fully maintained throughout the research. Respondents were not required to give their names on the questionnaire and the information gathered was used solely for research purposes. The questionnaire itself made it very clear that names were not to be given and that participation was entirely voluntary with all responses being kept strictly confidential.

The data were kept securely and were only used for the purposes of the study. The findings were reported in aggregate to minimise the possibility of identifying any individual respondent.

The researcher was in full compliance with the relevant university requirements, NACOSTI research requirements and the administrative authorisation procedures of the respective county governments.

CHAPTER FOUR
DATA ANALYSIS INTERPRETATION AND DISCUSSION

4.1 Introduction and Data Management

Before analysis the questionnaire responses were coded, checked for completeness and then organised into the study constructs. The final analytical dataset comprised 264 complete and usable records. Descriptive statistics were used to establish the respondent profile and the distribution of the constructs prior to the examination of the correlations, regression diagnostics, direct associations and the management support interaction. The open ended responses were also grouped into themes to provide a complementary qualitative interpretation.

This chapter reports descriptive results, associations between the three internal control dimensions and perceived audit effectiveness, and the management support interaction. It also presents the coded frequencies from Section F of the questionnaire.

4.2 Analytical Coverage of the Planned Sample

The final dataset contained 264 complete and usable responses, equal to the planned sample of 264 respondents. On this basis, the analysis achieved full coverage of the planned sample. Respondents were drawn from Bomet, Kericho, Narok, Nakuru, Kajiado and Laikipia county governments. The complete analytical dataset provided an adequate basis for the descriptive and inferential analyses reported in this chapter.

4.3 Demographic Characteristics of Respondents

Demographic characteristics were looked at to describe the respondents and to establish the range of professional perspectives represented in the study. The characteristics examined were county, gender, age, level of education, department, length of service and position held (as shown in Table 5-11).

4.3.1 Distribution of Respondents by County

Table 5:Distribution of Respondents by County

County	Frequency	Percentage (%)
Bomet	44	16.7
Kericho	44	16.7
Narok	44	16.7
Nakuru	44	16.7
Kajiado	44	16.7
Laikipia	44	16.7
Total	264	100.0

As per Figure 2 and Table 5 the respondents were evenly spread across the six counties with 44 respondents from each county (16.7% of the total sample). This even distribution meant that no one county was over-represented in the overall results and allowed the study to capture the views of the South Rift Region as a whole.

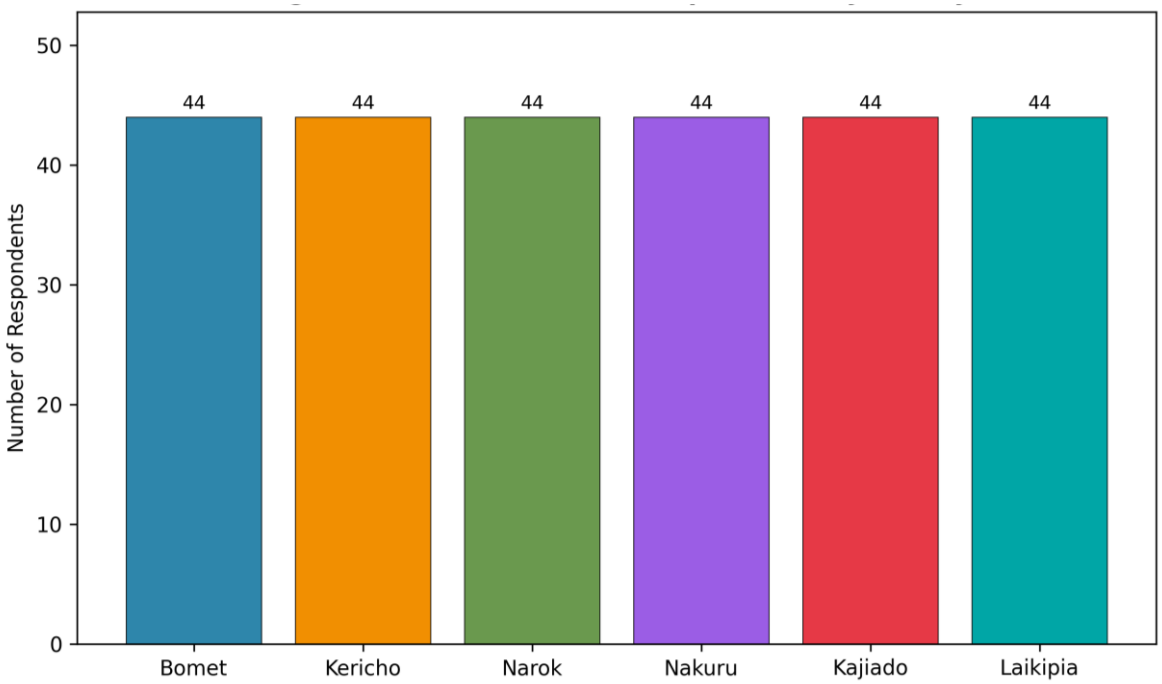

Figure 2: Distribution of Respondents by County

Source: Survey Data (2026)

4.3.2 Gender Distribution

Table 6:Gender Distribution

Gender	Frequency	Percentage (%)
Male	164	62.1
Female	100	37.9
Total	264	100.0

In Figure 3 and Table 6 male respondents made up 62.1% of the sample with females making up 37.9%. Male respondents were the majority but of course there was a balance of both genders in the sample and so we had perspectives from staff working in financial management, procurement, administration and internal audit.

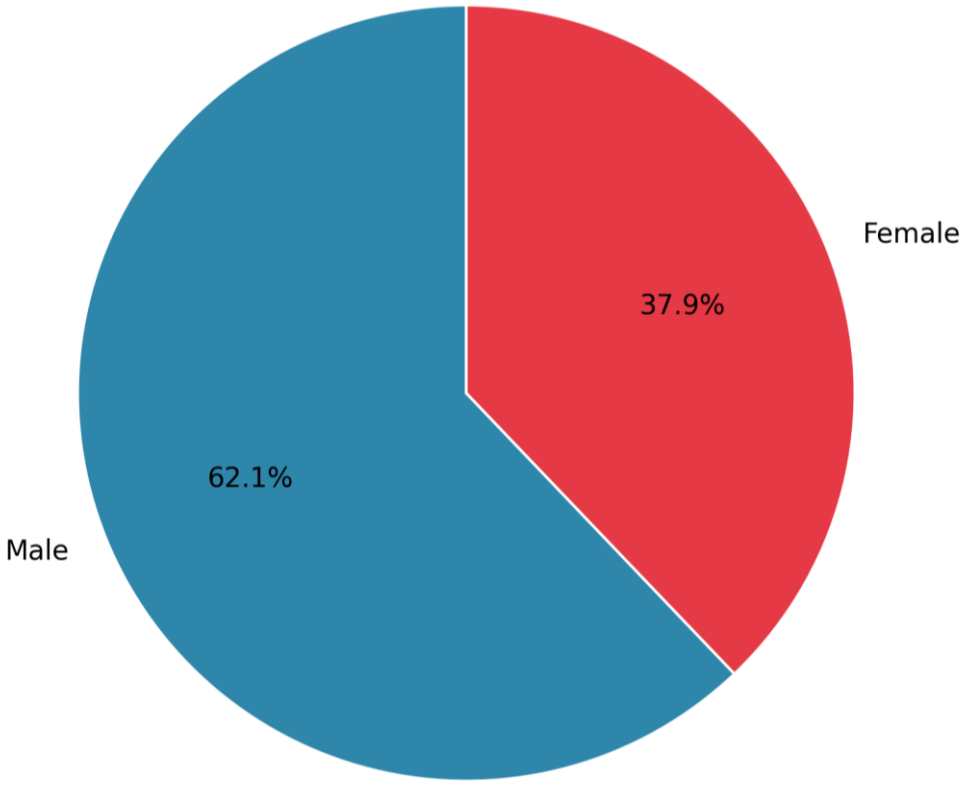

Figure 3: Gender Distribution of Respondents

Source: Survey Data (2026)

4.3.3 Age Distribution

Table 7:Age Distribution

Age Category	Frequency	Percentage (%)
Below 30 years	29	11.0
30–39 years	91	34.5
40–49 years	86	32.6
50–59 years	47	17.8
Above 60 years	11	4.2
Total	264	100.0

Figure 4 and Table 7 show the largest number of respondents in the 30–39 age group (34.5%), then the 40–49 age group (32.6%). The 50–59 age group made up 17.8%, those under 30 accounted for 11.0% and 4.2% were over 60. So again we have the bulk of the respondents in the age groups that would be professionally active and thus most likely to have the relevant institutional experience in relation to internal controls and audit processes.

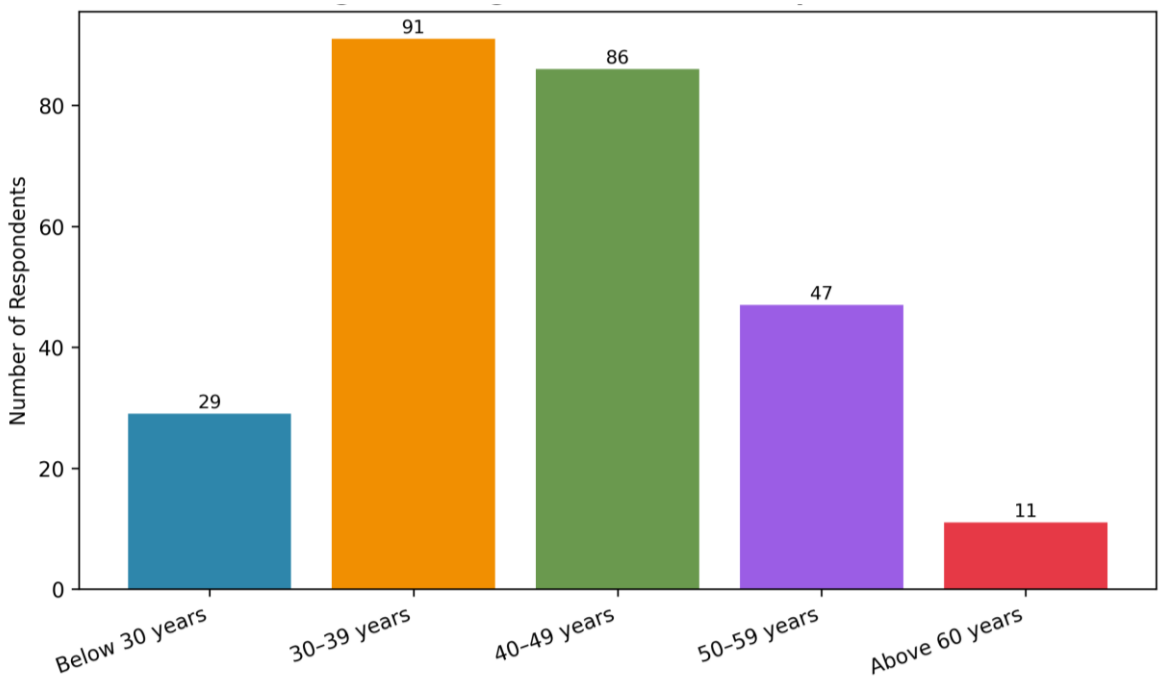

Figure 4: Age Distribution of Respondents

Source: Survey Data (2026)

4.3.4 Highest Level of Education

Table 8: Highest Level of Education

Education Level	Frequency	Percentage (%)
Diploma	39	14.8
Bachelor's Degree	129	48.9
Master's Degree	79	29.9
Doctorate Degree	10	3.8
Other	7	2.7
Total	264	100.0

In Figure 5 and Table 8 nearly half of the respondents had a bachelor's degree, 29.9% had a master's degree, 14.8% had a diploma, 3.8% had a doctorate and 2.7% had other qualifications. The educational profile is such that the majority of respondents have tertiary qualifications and would be well placed to understand the questionnaire items relating to internal control and audit effectiveness.

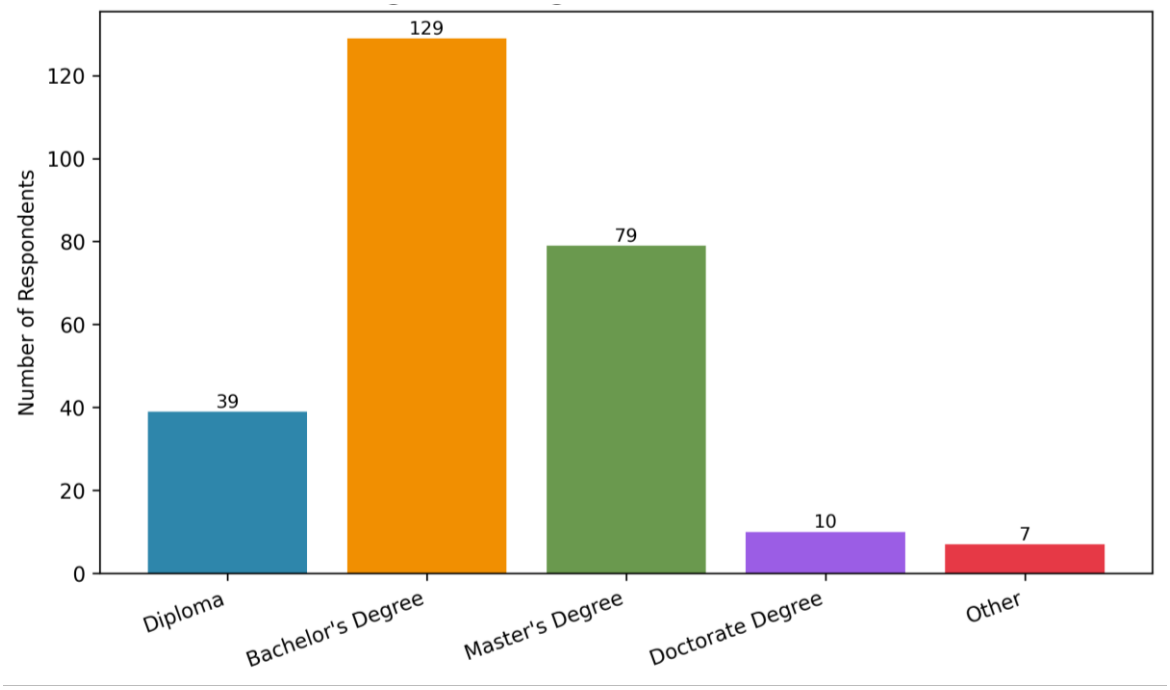

Figure 5: Highest Level of Education

Source: Survey Data (2026)

4.3.5 Department of Respondents

Table 9:Department of Respondents

Department	Frequency	Percentage (%)
Finance	144	54.5
Procurement	49	18.6
Administration	42	15.9
Internal Audit	29	11.0
Total	264	100.0

As shown in figure 6 and table 9, Finance accounted for the largest proportion of respondents at 54.5%, followed by Procurement at 18.6%, Administration at 15.9% and Internal Audit at 11.0%. These departments are directly or indirectly involved in financial controls, authorization procedures, risk management, accountability and audit processes, making their representation appropriate for the study.

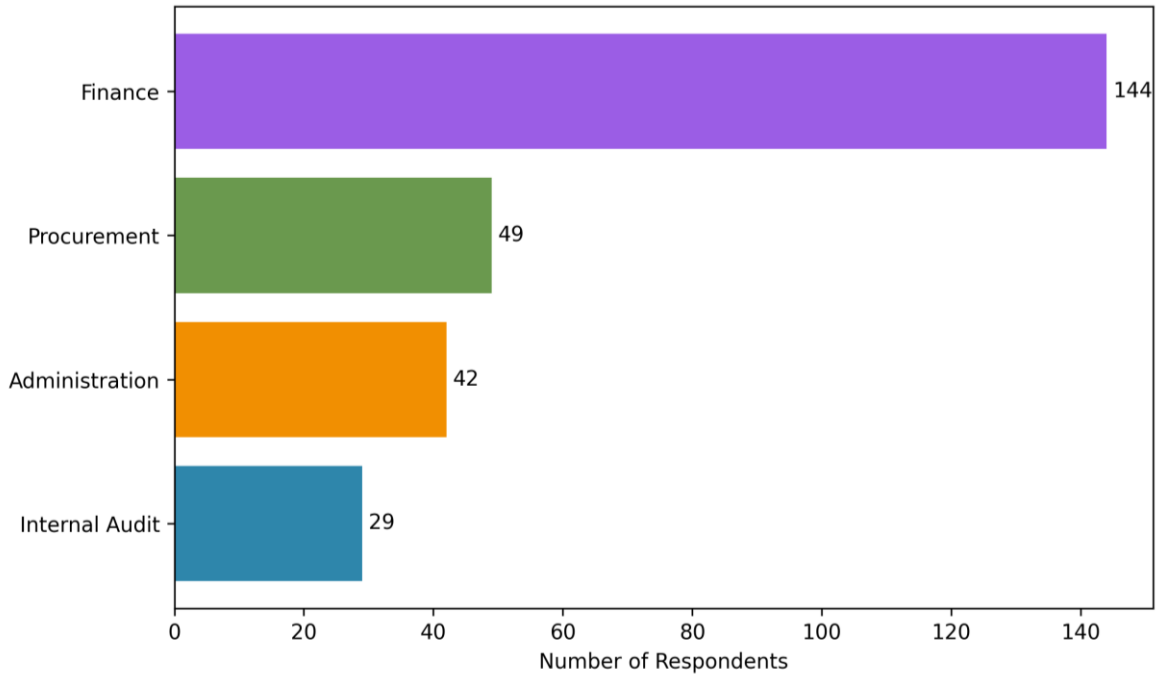

Figure 6:Distribution of Respondents by Department

Source: Survey Data (2026)

4.3.6 Length of Service

Table 10:Length of Service

Length of Service	Frequency	Percentage (%)
Less than 1 year	20	7.6
1–5 years	72	27.3
6–10 years	73	27.7
11–15 years	52	19.7
More than 15 years	47	17.8
Total	264	100.0

In Fig 7 and Table 10 more than half of the respondents had between 1 and 10 years' service and a significant number had over 10 years' service. This shows that the study did include people with both relatively short and long institutional experience and that is useful when you're looking at the way internal control and audit practice evolves over time.

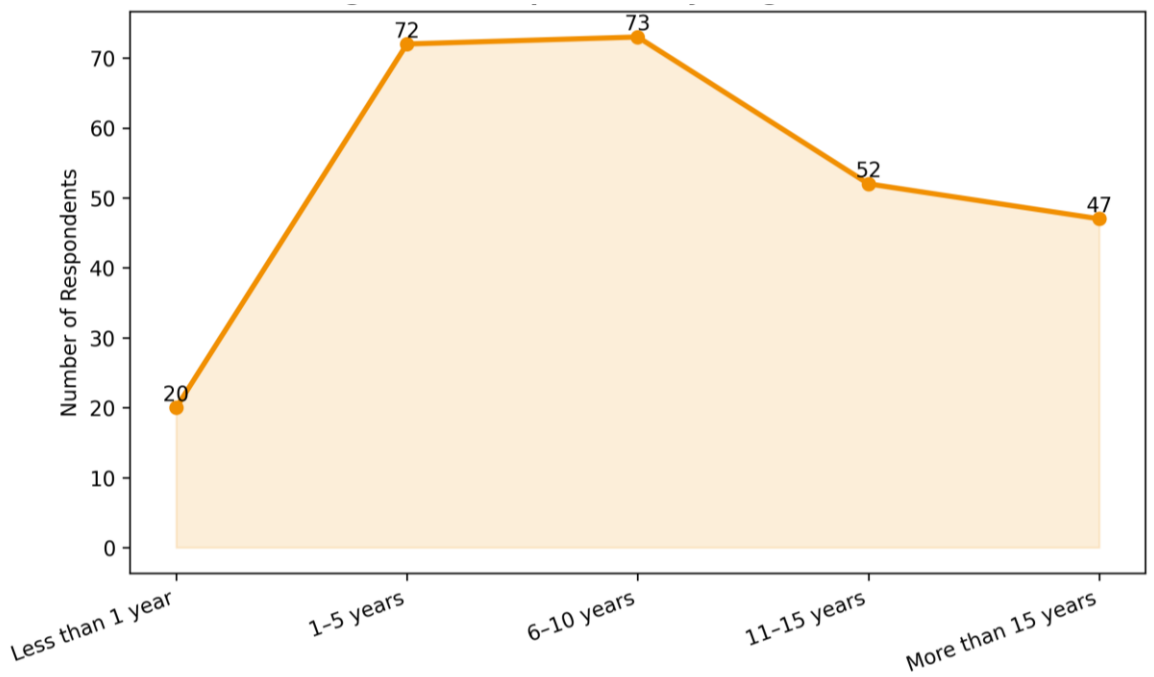

Figure 7:Respondents by Length of Service

Source: Survey Data (2026)

4.3.7 Position Held

Table 11:Position Held

Position	Frequency	Percentage (%)
Finance Officer	81	30.7
Accountant	30	11.4
Procurement Officer	51	19.3
Manager/Senior Officer	31	11.7
Auditor	71	26.9
Total	264	100.0

As per Table 11, Finance Officers and Accountants made up over half of the respondents. There was also a good representation of Procurement Officers, Managers/Senior Officers and Auditors. The mix of respondents ensured that the study would have access to people who had direct knowledge of the financial processes, control activities, risk management and audit functions.

4.4 Reliability Analysis

Reliability was assessed to determine the internal consistency of the items used to measure each construct. Cronbach's alpha was used and a value of 0.70 or above was considered acceptable.

Table 12: Reliability Analysis

Construct	Items	Cronbach's Alpha	Interpretation
Control Environment	10	0.935	Excellent
Risk Assessment	10	0.939	Excellent
Control Activities	10	0.948	Excellent
Audit Effectiveness	10	0.963	Excellent
Management Support	4	0.874	Good

As per Table 12 all five constructs had Cronbach's alpha coefficients above the acceptable level. Audit effectiveness had the highest ($\alpha = 0.963$), followed by control activities ($\alpha = 0.948$), risk assessment ($\alpha = 0.939$), control environment ($\alpha = 0.935$) and management support ($\alpha = 0.874$). The results indicate good internal consistency and the composite scores can be used in the subsequent analyses (see Figure 8).

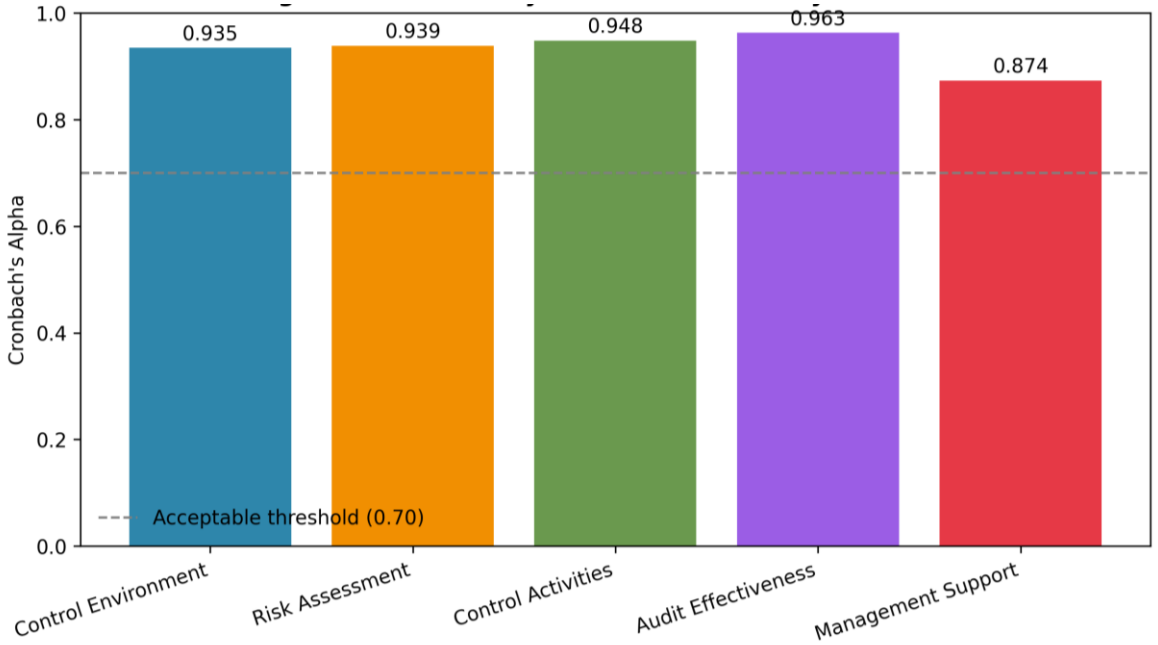

Figure 8:Reliability Coefficients of the Study Constructs

Source: Survey Data (2026)

4.5 Construct Adequacy and Factorability

The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were used to assess whether the item correlation structure was adequate for a construct level analysis (see table 13).

Table 13:Construct Adequacy and Factorability

Test	Statistic
Kaiser-Meyer-Olkin Measure	0.958
Bartlett's Approximate Chi-Square	9477.880
Degrees of Freedom	946
Significance	<0.001

The KMO value of 0.958 indicated excellent sampling adequacy. Bartlett's Test of Sphericity was statistically significant, $\chi^2(946) = 9477.880$, $p < 0.001$, demonstrating that the item correlation matrix was not an identity matrix. The results therefore supported the adequacy of the measurement data for construct-based analysis.

4.6 Descriptive Statistics for the Main Study Variables

Table 14:Descriptive statistics for the main Study Variable

Construct	N	Mean	Std. Deviation	Minimum	Maximum
Control Environment	264	3.519	0.973	1.10	5.00
Risk Assessment	264	3.394	0.975	1.00	5.00
Control Activities	264	3.403	1.010	1.10	5.00
Management Support	264	3.553	0.984	1.00	5.00
Internal Control System	264	3.439	0.770	1.30	4.97
Audit Effectiveness	264	3.511	1.138	1.00	5.00

As per Figure 9 and Table 14 all the construct means were above the midpoint of the 5 point scale. Management support had the highest mean (M = 3.553, SD = 0.984), followed by control environment (M = 3.519, SD = 0.973) and audit effectiveness (M = 3.511, SD = 1.138). Control activities were at 3.403 and risk assessment the lowest at 3.394. The results indicate fairly positive perceptions but the constructs were not rated anywhere near the maximum score so there is clearly room for improvement.

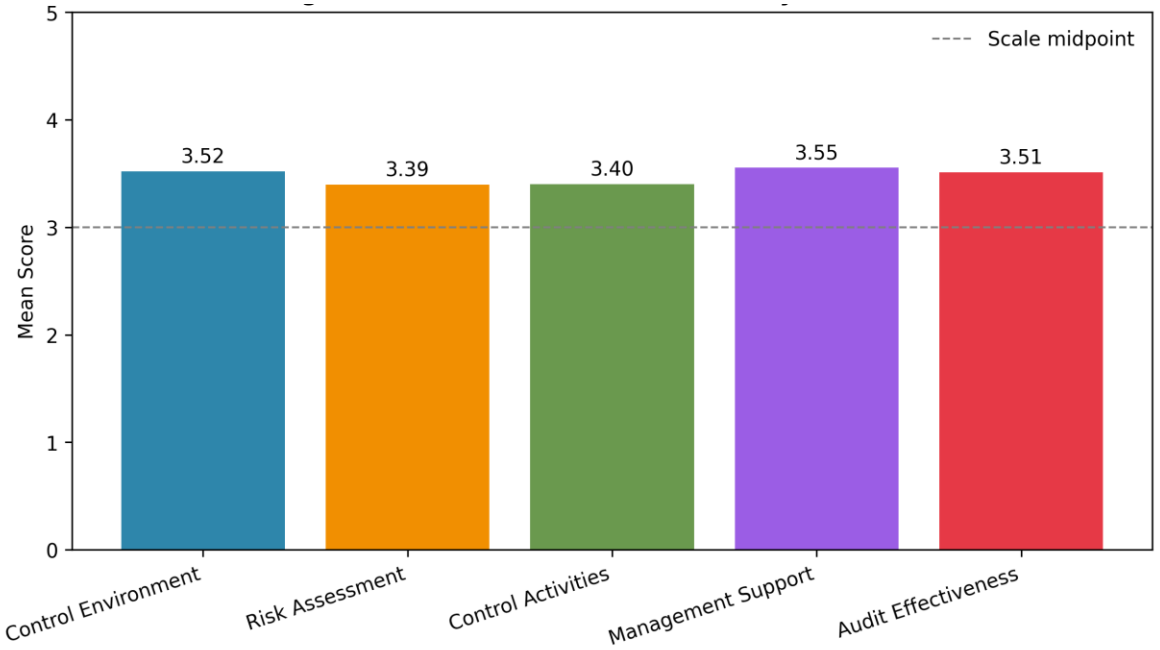

Figure 9: Mean Scores of the Main Study Constructs

Source: Survey Data (2026)

4.7 Control Environment

The first study objective was to look at the effect of the control environment on audit effectiveness. The construct encompassed management's commitment to integrity and ethical values, accountability, clarity of roles and responsibilities, supervision, organisational structure, support for internal controls, staff training, enforcement of ethical behaviour, disciplinary action and promotion of transparency. The overall mean was 3.519 (SD = 0.973). Item means ranged from 3.436 to 3.598. The item which scored highest was the extent to which top management actively promoted transparency and accountability and the item which scored lowest was the extent to which disciplinary action was taken against staff who breached control procedures.

The results point to a fairly positive control environment at the county level. The lower mark for disciplinary enforcement suggests that the formal expectations around ethical behaviour and accountability may not be consistently enforced. There is therefore potential to improve the control environment through better enforcement of accountability, improved staff supervision and more consistent enforcement.

4.8 Risk Assessment

Risk assessment had the lowest mean of the three internal control dimensions at 3.394 (SD = 0.975). The construct encompassed identification of risks, regular risk assessment, evaluation of financial risks prior to decisions, fraud risk assessment, documentation and communication of risks, risk mitigation, monitoring of new risks, internal auditor involvement and management's response to identified risks. Item means ranged from 3.326 to 3.451. The evaluation of financial risks prior to key decisions was the highest mean and the assessment of fraud risks on a regular basis was the lowest.

The findings suggest that risk management processes were in place but not consistently robust. Specifically, there is room for improvement in the areas of systematic fraud risk assessment, ongoing monitoring of new risks and the timely implementation of risk mitigation.

4.9 Control Activities

Control activities recorded a mean of 3.403 (SD = 1.010). The construct covered segregation of duties, authorisation procedures, procurement controls, reconciliations, access restrictions, documentation, physical safeguards, supervisory reviews and the proper recording of financial transactions. Item means ranged from 3.326 to 3.489. Supervisory review procedures had the highest mean and physical asset safeguarding the lowest.

The controls were broadly in place across the county governments involved. The level of variation between the individual items however suggests that implementation was far from consistent. There is clearly scope for improvement in the degree of segregation of duties, authorisation, documentation, asset protection and reconciliation.

4.10 Management Support

Management support had the highest mean (3.553, SD = 0.984) of all the main study constructs. This suggests that respondents in general saw management as providing a fairly supportive environment for internal control and audit. It should be noted though that the presence of management support does not in itself imply that it will alter the strength of the relationship between the internal control system and audit effectiveness. The moderating effect was therefore tested in isolation via an interaction model.

4.11 Audit Effectiveness

Audit effectiveness had an overall mean of 3.511 (SD = 1.138). The construct was defined as the degree to which audits were carried out on a regular basis, the timeliness of the reports, the accuracy and reliability of the findings, the usefulness and implementation of the recommendations, the detection of fraud, compliance, accountability, support to management decisions, governance and transparency. Item means ranged from about 3.455 to 3.564. The item which scored the highest was the extent to which auditing supported management decision making and the item which scored the lowest was the implementation of audit recommendations.

The somewhat lower rating for implementation of audit recommendations is significant as audit effectiveness is not just about finding the weaknesses but about management actually taking the necessary corrective action in a timely manner. Poor follow up can in fact render otherwise excellent audit work of very limited value.

4.12 Comparison of Construct Scores Across Counties

Table 15:Comparison of Construct Scores Across Counties

County	Internal Control System	Audit Effectiveness	Management Support
Bomet	3.443	3.657	3.483
Kajiado	3.475	3.393	3.648
Kericho	3.537	3.711	3.551
Laikipia	3.206	3.350	3.534
Nakuru	3.532	3.582	3.619
Narok	3.440	3.373	3.483

As per Table 15 there were descriptive differences across the counties. Kericho had the highest mean audit effectiveness, Laikipia the lowest mean internal control system score. Kajiado had the highest management support score, Nakuru the second highest. These are just descriptive differences and should not be taken as indicative of any statistically significant differences without the appropriate inferential comparison (Figure 10).

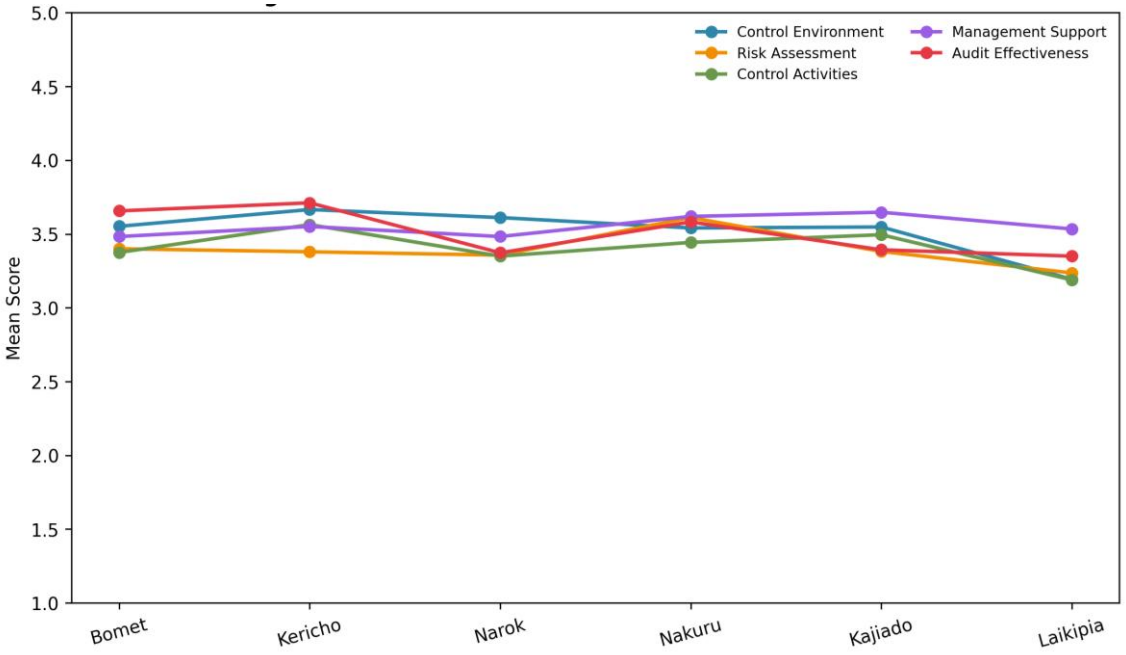

Figure 10: Mean Construct Scores Across the Six Counties

Source: Survey Data (2026)

4.13 Likert Response Distribution

In Fig 11 the overall Likert response distribution is shown to provide a visual summary of the distribution of responses across the five response categories for each construct. This pattern is consistent with the composite means in that the majority of responses were positive, with neutral and negative responses also being present across the constructs.

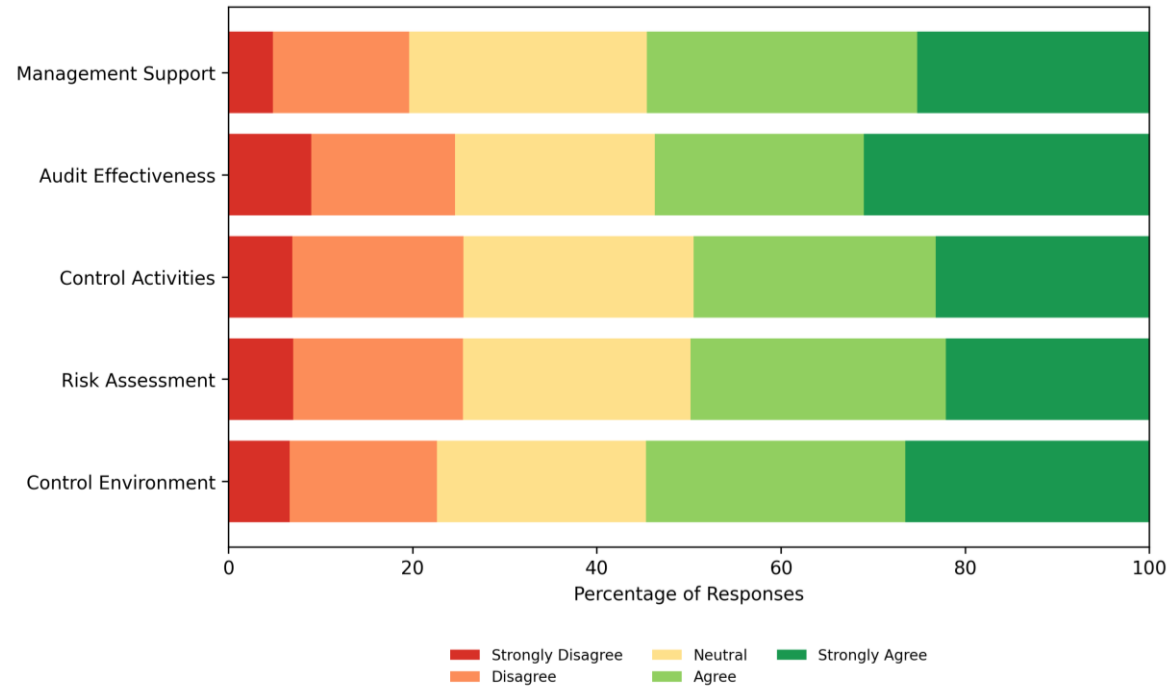

Figure 11:Likert Response Distribution by Construct

Source: Survey Data (2026)

The distribution supports the descriptive stats findings: the overall perception was positive but not universally so. The presence of some disagreement and a number of neutral responses indicates that there was variation in the experiences of control practices and audit effectiveness between departments and between county governments.

4.14 Correlation Analysis

Pearson's correlation analysis was used to look at the direction and strength of the bivariate relationships between the study predictors and audit effectiveness.

Table 16:Correlation Analysis

Variable	Pearson r	p-value	Interpretation
Control Environment	0.620	<0.001	Positive and significant
Risk Assessment	0.600	<0.001	Positive and significant
Control Activities	0.596	<0.001	Positive and significant
Management Support	0.498	<0.001	Positive and significant

As per figure 12 and table 16, the control environment had the strongest bivariate correlation with audit effectiveness ($r = 0.620$, $p < 0.001$). Risk assessment was also positively and significantly correlated with audit effectiveness ($r = 0.600$, $p < 0.001$) as were control activities ($r = 0.596$, $p < 0.001$). Management support had a moderate positive correlation with audit effectiveness ($r = 0.498$, $p < 0.001$). So again we see that the stronger the internal control and the stronger the management support, the higher the perceived audit effectiveness.

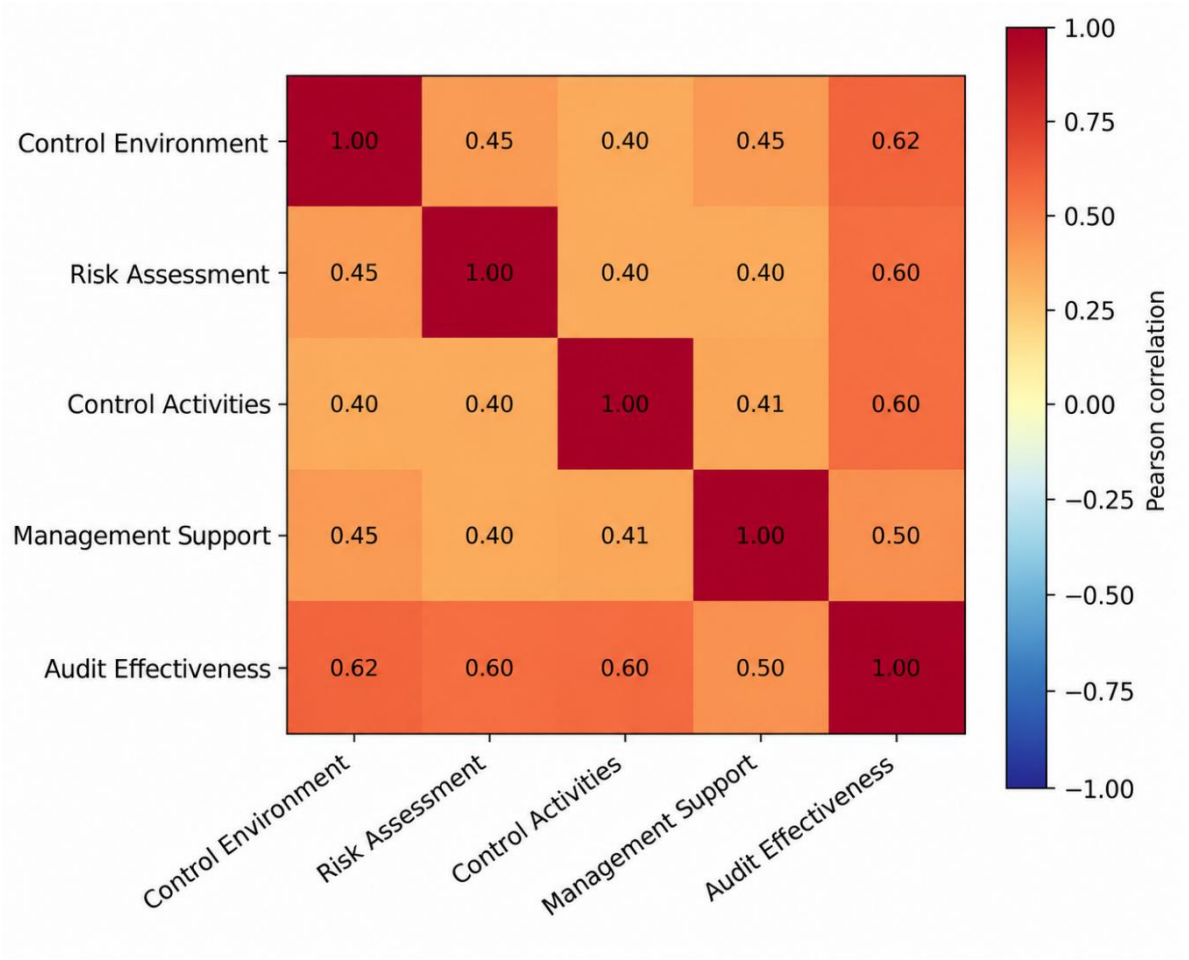

Figure 12: Correlation Matrix of the Study Constructs

Source: Survey Data (2026)

4.15 Regression Diagnostic Tests

4.15.1 Multicollinearity

Table 17: Multicollinearity

Predictor	Variance Inflation Factor (VIF)
Control Environment	1.352
Risk Assessment	1.352
Control Activities	1.274

VIFs ranged from 1.274 to 1.352. These values indicate little inflation of the regression coefficient variances from overlap among the three predictors and provide no evidence of problematic multicollinearity in the three-predictor model.

4.15.2 Homoscedasticity

The Breusch–Pagan tests provided insufficient evidence of heteroscedasticity at the 5% level (LM p = 0.230, F p = 0.232).

4.15.3 Independence of Residuals

The Durbin–Watson statistic was 1.964. Its proximity to 2 is consistent with little first-order residual autocorrelation in the analysed ordering. It does not assess dependence among respondents within counties.

4.15.4 Residual Normality

The Shapiro–Wilk test rejected exact residual normality (W = 0.987, p = 0.020). The omnibus and Jarque–Bera tests did not reject normality at the 5% level (p = 0.060 and p = 0.063, respectively). Together, the tests give mixed evidence and suggest a modest departure from exact normality. Inference is interpreted with this diagnostic result in view.

4.16 Multiple Regression Analysis

Multiple linear regression estimated the joint and adjusted associations of control environment, risk assessment and control activities with perceived audit effectiveness (Table 18).

The three-predictor model was significant overall ($F(3, 260) = 130.900$, $p \approx 1.08e\text{-}51$). The multiple correlation, $R = 0.776$, is the correlation between observed and fitted scores. $R^2 = 0.602$ means the fitted model accounted for 60.2% of the observed variation in perceived audit effectiveness in this sample. Adjusted $R^2 = 0.597$ accounts for the sample size and the three predictors.

Table 18:Multiple Regression Analysis

Model Statistic	Value
R	0.776
R Square	0.602
Adjusted R Square	0.597
F statistic	130.900
Df	3, 260

Model Statistic			Value		
Model p-value (approx.)			1.08e-51		
Predictor	**B**	**Std. Error**	**Standardized β**	**t**	**p-value (approx.)**
Constant	-0.435	0.204	—	-2.132	0.0339
Control Environment	0.405	0.053	0.346	7.608	5.11e-13
Risk Assessment	0.362	0.053	0.310	6.817	6.47e-11
Control Activities	0.380	0.050	0.337	7.623	4.65e-13

Holding the other two dimensions constant, a one-point higher control environment score was associated with a 0.405-point higher perceived audit effectiveness score ($p \approx 5.11e\text{-}13$). The corresponding estimates were 0.362 points for risk assessment ($p \approx 6.47e\text{-}11$) and 0.380 points for control activities ($p \approx 4.65e\text{-}13$). Approximate p-values in Table 18 were calculated from the displayed rounded statistics and residual degrees of freedom.

The fitted equation was: Perceived audit effectiveness = $-0.435 + 0.405$(Control environment) + 0.362(Risk assessment) + 0.380(Control activities). Control environment had the largest standardized coefficient ($\beta = 0.346$), followed closely by control activities ($\beta = 0.337$) and then risk assessment ($\beta = 0.310$). This ranks the point estimates.

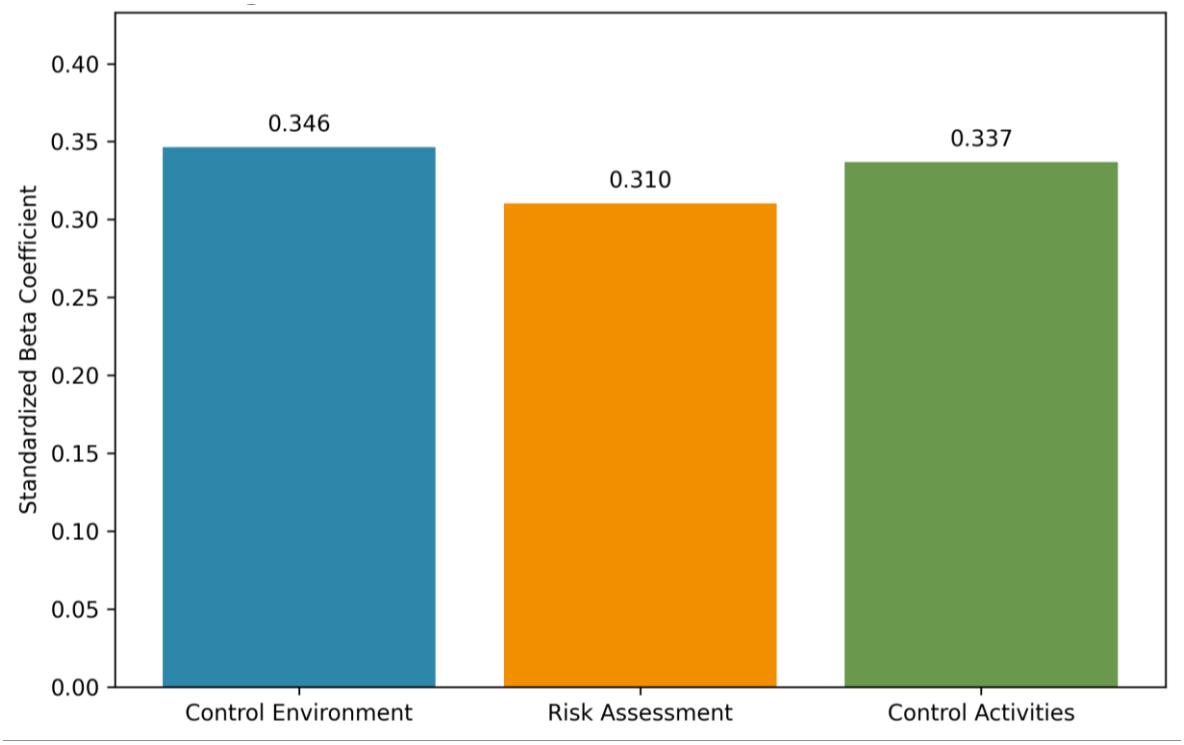

Figure 13: Standardized Regression Effects on Audit Effectiveness

Source: Survey Data (2026)

4.17 Hypothesis Testing for Direct Effects

Table 19:Hypothesis Testing for Direct Effects

Null Hypothesis	Statistical Result	Decision
H01: The adjusted association between control environment and perceived audit effectiveness is zero.	β = 0.346, p ≈ 5.11e-13	Rejected
H02: The adjusted association between risk assessment and perceived audit effectiveness is zero.	β = 0.310, p ≈ 6.47e-11	Rejected
H03: The adjusted association between control activities and perceived audit effectiveness is zero.	β = 0.337, p ≈ 4.65e-13	Rejected

Table 19 shows that H01, H02 and H03 were rejected. Each internal control dimension had a positive association with perceived audit effectiveness after adjustment for the other two dimensions.

4.18 Moderating Effect of Management Support

The fourth objective tested whether the association between the three-dimension internal control composite and perceived audit effectiveness varied with management support. Table 20 presents the model with both mean-centred predictors and their product.

Table 20:Moderating Effect of Management Support

Predictor	B	Std. Error	p-value
Constant	3.497	—	<0.001
Internal Control System (centered)	1.056	0.068	<0.001
Management Support (centered)	0.134	0.053	0.012
ICS × Management Support	0.125	0.061	≈ 0.041

The moderation model was significant overall ($F(3, 260) = 135.9$, $p \approx 5.7e\text{-}53$). $R = 0.781$ is the correlation between the observed and fitted scores. $R^2 = 0.611$ indicates that the model accounted for 61.1% of observed variance in perceived audit effectiveness. Adjusted R^2 was 0.606. The model in Table 18 uses three separate control dimensions, so the difference between the two R^2 values does not isolate the contribution of the interaction.

At average management support, a one-point higher internal control composite was associated with a 1.056-point higher perceived audit effectiveness score. At average internal control, a one-point higher management support score was associated with a 0.134-point higher perceived audit effectiveness score ($p = 0.012$). The interaction was positive and statistically significant at the 5% level ($B = 0.125$, $SE = 0.061$, $t \approx 2.05$, $p \approx 0.041$), so H04 was rejected. For each one-point increase in management support, the estimated internal control slope increased by 0.125. The interaction p-value is approximate because it is based on the displayed rounded statistics.

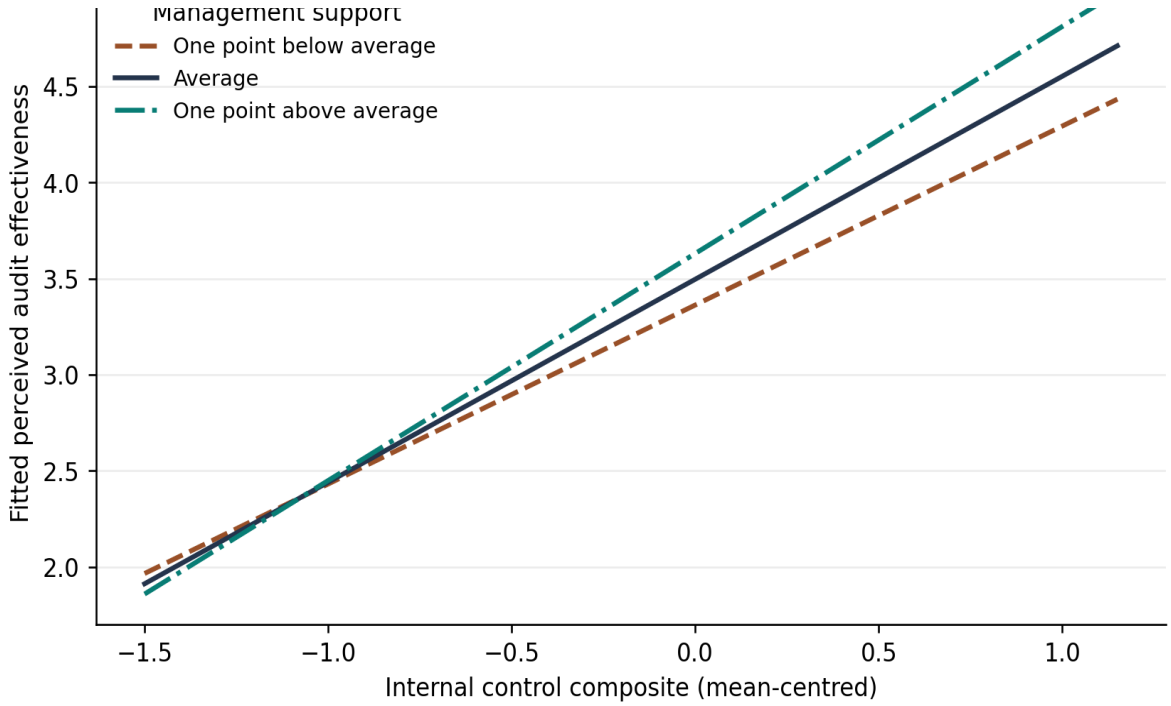

Figure 14:Moderating Role of Management Support

Source: Fitted moderation model based on survey data (2026).

Figure 14 shows the fitted slopes at three management support scores. At one point below average support, the estimated slope was 0.931. At average support, it was 1.056. At one point above average, it was 1.181. These are model-based point estimates and illustrate the positive interaction.

4.19 Summary of Hypothesis Testing

Table 21:Summary of Hypothesis Testing

Hypothesis	Null Statement	Decision	Conclusion
H01	The adjusted association between control environment and perceived audit effectiveness is zero.	Rejected	Positive adjusted association
H02	The adjusted association between risk assessment and perceived audit effectiveness is zero.	Rejected	Positive adjusted association
H03	The adjusted association between control activities and perceived audit effectiveness is zero.	Rejected	Positive adjusted association
H04	The interaction coefficient between internal control and management support is zero.	Rejected	Positive interaction

4.20 Frequency Summaries of Questionnaire Responses

4.20.1 Challenges Affecting Internal Controls and Audit Effectiveness

Table 22: Challenges Affecting Internal Control and Audit Effectiveness

Reported Challenge	Frequency
Limited staff training on internal control procedures	38
Delayed documentation and financial reconciliations	35
Insufficient resources for internal audit activities	34
Weak segregation of duties in some units	33

Reported Challenge	Frequency
Inadequate follow-up on audit recommendations	33
Political and administrative interference	32
Slow response to identified financial and operational risks	32
Limited staffing and competing workload priorities	27

Table 22 shows the frequencies of challenges coded from Section F responses. Limited staff training was the most frequently cited challenge, followed by delays in documentation and reconciliations, insufficient internal audit resources, weak segregation of duties and inadequate follow-up on audit recommendations.

4.20.2 Respondents' Recommendations

Table 23:Respondents' Recommendations

Recommendation	Frequency
Strengthen management follow-up on audit recommendations	50
Provide regular staff training on internal controls and risk management	41
Strengthen accountability for implementation of audit findings	40
Enforce segregation of duties and authorization procedures	34
Improve documentation, reconciliations and supervisory reviews	34
Increase resources and staffing for internal audit functions	33
Conduct regular risk assessments and update risk registers	32

As per Table 23 the most frequent recommendation was to improve management follow-up on audit recommendations. Regular staff training was also a key recommendation as was accountability for the implementation of the findings. The recommendations to improve segregation of duties and authorisation, improve documentation and reconciliations, increase the resourcing of internal audit and carry out more regular risk assessments all fit very closely with the areas identified by the quantitative analysis.

4.21 Discussion of Findings

4.21.1 Control Environment and Audit Effectiveness

The control environment had the largest standardized coefficient among the three dimensions in the joint model, closely followed by control activities. This is consistent with a role for ethical leadership, clear responsibilities and accountability in supporting audit work.

The descriptive results do however indicate that disciplinary enforcement was considerably weaker than the other elements of the control environment. That points to the need for county governments to go beyond the mere statement of integrity and accountability and to actually enforce the consequences when control procedures are breached.

4.21.2 Risk Assessment and Audit Effectiveness

Risk assessment was positively associated with perceived audit effectiveness after adjustment for the control environment and control activities. Documenting and reviewing financial, operational and fraud risks can help internal auditors prioritise areas of greatest exposure.

Risk assessment however came in last for the composite mean of the internal control dimensions and fraud risk assessment was one of the weakest areas. That's a significant practical gap. County governments would stand to gain from having risk registers in place, conducting regular fraud risk assessments and having clear processes for monitoring the implementation of risk mitigation actions.

4.21.3 Control Activities and Audit Effectiveness

Control activities had a positive adjusted association with perceived audit effectiveness. Segregation of duties, authorisation, reconciliations, access controls and supervisory review can create records that auditors use to verify transactions and identify deviations.

The questionnaire frequency summaries identified practical issues with segregation of duties, delayed reconciliations and documentation.

4.21.4 Management Support and Audit Effectiveness

Management support was positively associated with perceived audit effectiveness at average internal control. The positive interaction also indicated that the association between the internal control composite and perceived audit effectiveness was stronger at higher management support.

The pattern is consistent with the proposition that audit resourcing, management attention and follow-up on recommendations can support the application of controls. The cross-sectional data establish a pattern of associations at different levels of management support.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, the conclusions from the empirical findings, recommendations for county governments and the relevant oversight bodies, the implications of the findings, the limitations of the study and suggestions for further research. The conclusions and recommendations are organised around the four study objectives.

5.2 Summary of the Study

The study examined the adjusted associations of control environment, risk assessment and control activities with perceived audit effectiveness and tested whether management support moderated the association between the internal control composite and perceived audit effectiveness.

Respondents were drawn from county finance, procurement, administration and internal audit functions. The survey used five-point Likert items to measure the constructs. The study used descriptive statistics, reliability and construct adequacy checks, Pearson correlation, multiple regression and moderation analysis. Section F responses were summarised as category frequencies.

5.3 Summary of Major Findings

5.3.1 Control Environment and Audit Effectiveness

The control environment was positively correlated with perceived audit effectiveness ($r = 0.620$). It had the largest standardized coefficient in the joint model ($B = 0.405$, $\beta = 0.346$, $p \approx 5.11e\text{-}13$). H01 was rejected.

5.3.2 Risk Assessment and Audit Effectiveness

Risk assessment was positively correlated with perceived audit effectiveness ($r = 0.600$) and retained a positive adjusted coefficient ($B = 0.362$, $\beta = 0.310$, $p \approx 6.47e\text{-}11$). H02 was rejected.

Item scores highlighted scope for strengthening fraud risk assessment and follow-up on identified risks.

5.3.3 Control Activities and Audit Effectiveness

Control activities were positively correlated with perceived audit effectiveness ($r = 0.596$) and retained a positive adjusted coefficient ($B = 0.380$, $\beta = 0.337$, $p \approx 4.65e\text{-}13$). H03 was rejected.

5.3.4 Moderating Effect of Management Support

The management support coefficient was positive at average internal control ($B = 0.134$, $p = 0.012$). The interaction was positive ($B = 0.125$, $SE = 0.061$, $p \approx 0.041$), and H04 was rejected. The estimated internal control slopes were 0.931, 1.056 and 1.181 at one point below average, average and one point above average management support, respectively.

5.4 Conclusions

5.4.1 Conclusion on Control Environment

Control environment had the largest standardized association with perceived audit effectiveness in the joint model. The survey items suggest that consistent disciplinary enforcement warrants particular attention alongside ethical leadership, clear responsibilities and supervision.

5.4.2 Conclusion on Risk Assessment

Risk assessment was positively associated with perceived audit effectiveness. The comparatively low risk assessment scores point to opportunities to improve risk identification, documentation and follow-up in the participating counties.

5.4.3 Conclusion on Control Activities

Control activities were positively associated with perceived audit effectiveness. Authorisation, reconciliations, access controls and supervisory review provide records that support audit verification.

5.4.4 Conclusion on Management Support

Management support had a positive association with perceived audit effectiveness at average internal control. It also moderated the internal control association, with a steeper estimated slope at higher levels of support.

5.4.5 Overall Conclusion

The three internal control dimensions jointly accounted for 60.2% of the observed variation in perceived audit effectiveness ($R = 0.776$, $R^2 = 0.602$, adjusted $R^2 = 0.597$). The control environment had the largest standardized coefficient, followed by control activities and risk assessment. These results describe associations among the surveyed staff in the six selected county governments.

5.5 Recommendations

5.5.1 Strengthen the Control Environment

County governments should be reinforcing ethical leadership and accountability through clear communication of responsibilities, consistent application of internal control requirements and appropriate disciplinary action where controls are breached. Senior management should be making the expectations around integrity, transparency and responsible stewardship of public funds very clear. Supervisory responsibilities should also be clearly defined and monitored.

5.5.2 Institutionalize Risk Assessment

County governments should carry out formal and regular risk assessments covering financial, operational, procurement, fraud, information systems and compliance risks. Risk registers should be maintained and kept up to date with clear risk owners, mitigation actions, implementation dates and monitoring responsibilities. Internal audit should be involved in risk based planning, of course with the necessary independence.

5.5.3 Strengthen Control Activities

County governments should have stronger segregation of duties, stronger authorization controls, better bank and account reconciliations, tighter access controls, better physical asset controls and more robust supervisory review. The control procedures should be documented,

consistently applied and periodically reviewed to ensure they are still appropriate as the systems, the staffing and the operational risks evolve.

5.5.4 Improve Follow-up of Audit Recommendations

Management should have in place a formal audit recommendation tracking mechanism which would record the finding, the responsible officer, the agreed action, the implementation deadline and the current status. High risk recommendations that are outstanding should be routinely escalated to senior management and to the relevant audit committees. This is a key recommendation as the implementation of audit recommendations was one of the areas identified as being weak by the respondents and was the most frequently cited recommendation in the open comments.

5.5.5 Protect Internal Audit Independence

County governments should ensure the organisational and functional independence of their internal audit units. Internal auditors should have appropriate access to records, systems and responsible officers and should be able to report findings of significance without undue political or administrative interference. Audit committees and the senior governance structures should in turn support the professional independence of the internal auditors.

5.5.6 Strengthen Capacity Building

Regular training should be provided to finance, procurement, admin, audit and management staff on internal controls, fraud risk management, risk assessment, audit recommendations and emerging public finance risks. The training should be practical and directly relevant to the weaknesses identified in the course of audits, risk assessments and control reviews.

5.5.7 Improve Internal Audit Resourcing

County governments should consider whether their internal audit units have the appropriate level of staffing, the requisite professional skills, the necessary financial resources and the right technological tools to carry out their mandates. Where resource constraints are a problem they should be addressed via risk-based approaches to staffing and work planning so that the most critical/high risk areas get the appropriate level of audit attention.

5.5.8 Promote Digitalization and Automation

County governments should be progressively moving towards the automation of internal control monitoring, documentation, reconciliation and audit tracking. The right digital tools can improve timeliness, enhance audit trails, reduce manual processing errors and enable continuous monitoring. This should be done in conjunction with appropriate access controls, information security and staff training.

5.5.9 Strengthen Management Support for Controls and Audit

Senior managers should allocate resources for audit work, assign responsibility for implementing recommendations and review overdue corrective actions alongside the relevant control procedures. The estimated internal control association was stronger at higher management support, supporting joint attention to controls and management follow-up.

5.6 Policy Recommendations

County governments and the relevant oversight bodies should have in place stronger policy requirements in the areas of risk management, audit recommendation tracking, internal audit independence and periodic assessment of internal controls. There should be standardised reporting on the status of outstanding audit recommendations and on high risk control weaknesses to improve transparency and to allow for meaningful comparisons over time. There should also be policy in place to encourage the appropriate use of digital systems for audit trails, control monitoring and evidence retention.

Audit committees should be provided with regular reports on high risk findings, overdue corrective actions, significant risk exposures and the status of implementation of internal and external audit recommendations. Where there are recurring weaknesses, management should be required to put in place time-bound corrective action plans.

5.7 Implications of the Findings

5.7.1 Implications for County Management

The findings show that internal controls are not just about compliance, they are intimately linked to the quality of the audit. County executives and senior managers should therefore see their investment in ethical leadership, risk management and operational controls as an investment in accountability and governance. Management support is of course also valuable in its own right, particularly in terms of providing the necessary resources and implementing the audit recommendations.

5.7.2 Implications for Internal Auditors

Internal auditors should continue to take a risk based approach and in particular should be looking at the recurring weaknesses in SOD, reconciliations, documentation, fraud risk assessment and the follow-up on recommendations. Audit reports should clearly highlight the high risk findings and should set out what the practical corrective actions are, who is responsible and when they are expected to be implemented.

5.7.3 Implications for Oversight and Policymaking

Oversight bodies should look at both the design and the implementation of internal controls when assessing the quality of governance in a county government. If there are a number of audit findings, this may be an indication of a more fundamental problem with the control culture, the risk management process or with management's follow through. The oversight mechanism therefore needs to look not just at the reports that are issued, but at the timely implementation and the sustainability of the corrective actions.

5.8 Limitations of the Study

The cross-sectional survey measured predictors and outcomes in the same period, limiting causal inference. Questionnaire scores reflected employee perceptions and may be affected by reporting bias and common measurement sources. The survey did not independently verify audit performance using administrative records.

The findings are specific to the six participating county governments. The internal control composite covered three of the five COSO components. The estimated interaction is specific to the measures and model used in this study. The following section proposes ways to address these limitations.

5.9 Suggestions for Further Research

Longitudinal research could measure controls, management support and audit outcomes over multiple audit cycles. Studies in other Kenyan counties could assess how consistently the associations and interaction are observed across settings.

Further work could look at objective measures such as the number of repeat audit findings, the time taken to implement recommendations, the value of the questioned expenditure, the frequency of control breaches or the results of external audit. A blend of the perceptual and the administrative would give a far more complete picture of audit effectiveness.

Researchers could also look at other organisational factors which may be influencing the effectiveness of internal control (e.g. internal audit independence, audit committee effectiveness, organisational culture, degree of digitalisation, staff capability and political/administrative interference). Future research could also test out alternative mediating or moderating mechanisms using appropriately specified latent variable or structural equation models.

5.10 Final Conclusion

In the six selected county governments, control environment, risk assessment and control activities were each positively associated with perceived audit effectiveness. Together, they accounted for 77.2% of observed variation in the outcome.

The internal control association was stronger at higher levels of management support. The findings can inform decisions on audit resourcing, tracking corrective actions, risk assessment and consistent application of control procedures.

REFERENCES

Aikins, S. K. (2011). An examination of government internal audits' role in improving financial performance. *Public Finance and Management, 11*(4), 306–337.

Alzeban, A., & Gwilliam, D. (2014). Factors affecting the internal audit effectiveness: A survey of the Saudi public sector. *Journal of International Accounting, Auditing and Taxation, 23*(2), 74–86. https://doi.org/10.1016/j.intaccaudtax.2014.06.001

Amudo, A., & Inanga, E. L. (2009). Evaluation of internal control systems: A case study from Uganda. *International Research Journal of Finance and Economics, 27*, 124–144.

Anderson, U., Head, M., Ramamoorti, S., Riddle, C., Salamasick, M., & Sobel, P. (2017). *Internal auditing: Assurance and advisory services* (4th ed.). Internal Audit Foundation.

Arena, M., & Azzone, G. (2009). Identifying organizational drivers of internal audit effectiveness. *International Journal of Auditing, 13*(1), 43–60. https://doi.org/10.1111/j.1099-

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research, 14*(3), 396–402.

Bananuka, J., Nkundabanyanga, S. K., Nalukenge, I., & Kaawaase, T. K. (2018). Internal audit function, audit committee effectiveness and accountability in public sector entities. *Managerial Auditing Journal, 33*(6/7), 548–567.

Becker, C. L., Defond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1–24.

Bierstaker, J. L., Burnaby, P., & Thibodeau, J. (2019). Factors associated with internal audit effectiveness. *International Journal of Auditing, 23*(1), 52–67.

Chambers, A. D., & Odar, M. (2015). A new vision for internal audit. *Managerial Auditing Journal, 30*(1), 34–55.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2013). *Internal control—Integrated framework*. COSO.

Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (12th ed.). McGraw-Hill Education.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review, 14*(1), 57–74.

George, D., & Mallery, P. (2020). *IBM SPSS statistics 26 step by step: A simple guide and reference* (16th ed.). Routledge.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hayes, R., Dassen, R., Schilder, A., & Wallage, P. (2014). *Principles of auditing: An introduction to international standards on auditing* (3rd ed.). Pearson Education.

Institute of Internal Auditors. (2020). *International standards for the professional practice of internal auditing*. IIA.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360.

Kariuki, J. M. (2023). Internal controls and audit effectiveness in county governments in Kenya. *African Journal of Accounting and Finance, 11*(2), 85–101.

Kenya National Audit Office. (2023). *Annual report on public sector financial accountability*. Government Printer.

Kothari, C. R. (2018). *Research methodology: Methods and techniques* (4th ed.). New Age International Publishers.

Mihret, D. G., & Yismaw, A. W. (2007). Internal audit effectiveness: An Ethiopian public sector case study. *Managerial Auditing Journal, 22*(5), 470–484.

Mugenda, O. M., & Mugenda, A. G. (2019). *Research methods: Quantitative and qualitative approaches*. Acts Press.

Mulyungi, P., & Mugi, J. (2018). Effect of internal controls on financial performance of public institutions in Kenya. *International Journal of Accounting and Finance, 3*(2), 45–59.

Muturi, P. K., & Wanjiku, R. M. (2021). Risk management practices and audit quality in county governments in Kenya. *International Journal of Finance and Accounting, 6*(4), 115–128.

Ndolo, J. (2015). Effect of internal controls on fraud detection in Kenyan public institutions. *Journal of Accounting and Finance, 7*(1), 22–36.

Ngugi, S. W., & Kinyua, J. M. (2022). Internal control systems and accountability in devolved governments in Kenya. *International Journal of Public Administration, 9*(3), 88–104.

Njagi, J. N. (2022). Risk management practices and financial accountability in county governments in Kenya. *African Journal of Public Administration, 8*(1), 33–49.

Nkundabanyanga, S. K., Ahiauzu, A., Sejjaaka, S. K., & Ntayi, J. M. (2019). Internal audit, internal controls and financial accountability in public institutions. *Journal of Financial Reporting and Accounting, 17*(3), 456–478.

Office of the Auditor-General. (2022). *Report of the Auditor-General on County Governments for the financial year 2021/2022*. Government Printer.

Office of the Auditor-General. (2023). *Report of the Auditor-General on County Governments for the financial year 2022/2023*. Government Printer.

Office of the Auditor-General. (2024). *Report of the Auditor-General on County Governments for the financial year 2023/2024*. Government Printer.

Onumah, J. M., & Yao Krah, R. (2012). Risk management and internal audit effectiveness in public sector organizations. *International Journal of Business and Social Science, 3*(7), 213–221.

Public Sector Accounting Standards Board. (2022). *Guidelines on internal controls in public sector organizations*. PSASB.

Republic of Kenya. (2010). *The Constitution of Kenya 2010*. Government Printer.

Republic of Kenya. (2012). *Public Finance Management Act, 2012*. Government Printer.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.

Sekaran, U., & Bougie, R. (2020). *Research methods for business: A skill-building approach* (8th ed.). Wiley.

The Institute of Internal Auditors. (2024). *Global internal audit standards*. Internal Audit Foundation.

Wambua, P. M., & Mutiso, A. N. (2024). Internal control practices and audit effectiveness in Kenyan county governments. *Journal of Public Sector Accounting and Governance, 12*(1), 56–74.

Wanyoike, D. M., & Mwangi, J. K. (2023). Control activities and financial accountability in public institutions in Kenya. *African Journal of Governance and Public Administration, 10*(2), 112–129.

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper and Row.

Yismaw, A. W., & Mihret, D. G. (2020). Internal audit effectiveness and organizational performance in public sector institutions. *Journal of Accounting and Organizational Change, 16*(4), 601–620.

APPENDICES

Appendix I Questionnaire

Internal Control Systems and Management Support on Audit Effectiveness in the Public Sector Organizations, Kenya

Introduction

Dear Respondent,

I am conducting an academic study on the effect of internal control systems on audit effectiveness in County Government in South Rift Region. The study is being undertaken in partial fulfillment of the requirements for the award of a Master of Business Administration (MBA) degree.

Your participation in this study is voluntary. The information provided will be treated with strict confidentiality and will be used solely for academic purposes. You are kindly requested to answer all questions honestly and objectively.

Please do not write your name anywhere on this questionnaire.

Thank you for your valuable participation.

Instructions

Please tick (✓) the appropriate response.

For Sections B, C, D, and E, indicate your level of agreement using the scale below:

Scale	Description
1	Strongly Disagree (SD)
2	Disagree (D)
3	Neutral (N)
4	Agree (A)
5	Strongly Agree (SA)

SECTION A: DEMOGRAPHIC INFORMATION

A1. Gender

□ Male

□ Female

□ Prefer not to say

A2. Age Bracket

□ Below 30 years

□ 30 – 39 years

□ 40 – 49 years

□ 50 – 59 years

□ Above 60 years

A3. Highest Level of Education

□ Diploma

□ Bachelor's Degree

□ Master's Degree

□ Doctorate Degree

□ Other (Specify) _____

A4. Department

□ Internal Audit

□ Finance

□ Procurement

□ Administration

□ Other (Specify) _____

A5. Length of Service in county governments of the South Rift Region.

□ Less than 1 year

□ 1 – 5 years

□ 6 – 10 years

□ 11 – 15 years

□ More than 15 years

A6. Position Held

□ Auditor

□ Accountant

□ Finance Officer

□ Procurement Officer

□ Manager/Senior Officer

□ Other (Specify) _____

SECTION B: CONTROL ENVIRONMENT

Please indicate the extent to which you agree with the following statements regarding the control environment across the **county governments of the South Rift Region**.

Statement	1	2	3	4	5
CE1. Management demonstrates commitment to integrity and ethical values.	□	□	□	□	□
CE2. County leadership promotes accountability at all levels.	□	□	□	□	□
CE3. Employees clearly understand their roles and responsibilities.	□	□	□	□	□
CE4. There is adequate supervision of employees performing financial duties.	□	□	□	□	□
CE5. The county has a clear organizational structure that supports accountability.	□	□	□	□	□
CE6. Management supports implementation of internal controls.	□	□	□	□	□
CE7. Employees are adequately trained on internal control procedures.	□	□	□	□	□
CE8. Ethical conduct is consistently enforced within the county government.	□	□	□	□	□
CE9. Disciplinary measures are taken against employees who violate control procedures.	□	□	□	□	□
CE10. Top management actively promotes transparency and accountability.	□	□	□	□	□

SECTION C: RISK ASSESSMENT

Please indicate the extent to which you agree with the following statements regarding risk assessment practices.

Statement	1	2	3	4	5
RA1. Potential risks affecting county operations are regularly identified.	□	□	□	□	□
RA2. The county conducts regular risk assessments.	□	□	□	□	□

Statement	1	2	3	4	5
RA3. Management evaluates financial risks before making key decisions.	□	□	□	□	□
RA4. Fraud risks are regularly assessed.	□	□	□	□	□
RA5. Risks are documented and communicated to relevant officers.	□	□	□	□	□
RA6. Risk mitigation strategies are implemented effectively.	□	□	□	□	□
RA7. Emerging risks are continuously monitored.	□	□	□	□	□
RA8. Internal auditors participate in risk assessment activities.	□	□	□	□	□
RA9. Management responds promptly to identified risks.	□	□	□	□	□
RA10. Risk assessment contributes to improved financial management.	□	□	□	□	□

SECTION D: CONTROL ACTIVITIES

Please indicate the extent to which you agree with the following statements regarding control activities.

Statement	1	2	3	4	5
CA1. Duties are adequately segregated among employees.	□	□	□	□	□
CA2. Financial transactions require proper authorization.	□	□	□	□	□
CA3. Procurement procedures are followed consistently.	□	□	□	□	□
CA4. Reconciliations are performed regularly.	□	□	□	□	□
CA5. Access to financial records is restricted to authorized personnel.	□	□	□	□	□
CA6. Internal control procedures are documented and followed.	□	□	□	□	□
CA7. Physical assets are adequately safeguarded.	□	□	□	□	□

Statement	1	2	3	4	5
CA8. Supervisory reviews are conducted regularly.	□	□	□	□	□
CA9. Financial transactions are properly recorded and documented.	□	□	□	□	□
CA10. Existing control activities help prevent fraud and errors.	□	□	□	□	□

SECTION E: AUDIT EFFECTIVENESS

Please indicate the extent to which you agree with the following statements regarding audit effectiveness.

Statement	1	2	3	4	5
AE1. Internal audits are conducted regularly.	□	□	□	□	□
AE2. Audit reports are produced on time.	□	□	□	□	□
AE3. Audit findings are accurate and reliable.	□	□	□	□	□
AE4. Audit recommendations improve financial management.	□	□	□	□	□
AE5. Audit recommendations are implemented by management.	□	□	□	□	□
AE6. Audits help detect fraud and financial irregularities.	□	□	□	□	□
AE7. Audits improve compliance with laws and regulations.	□	□	□	□	□
AE8. Audits contribute to improved accountability within the county government.	□	□	□	□	□
AE9. Internal audit reports support management decision-making.	□	□	□	□	□
AE10. The audit function effectively enhances governance and transparency.	□	□	□	□	□

SECTION F: OPEN-ENDED QUESTIONS

1. What are the major challenges affecting the effectiveness of internal control systems in county governments?

2. What measures would you recommend improving audit effectiveness in the county governments?

3. Any other comments regarding internal controls and auditing in county governments?

THANK YOU FOR YOUR PARTICIPATION

Appendix II Budget

Item/Activity	Description	Estimated Cost (KES)
Printing and Photocopying	Printing questionnaires, interview guides, proposal drafts, and photocopying documents	18,000
Transport and travel	Travel for data collection, pilot study, and consultations	35,000
Internet and Communication	Internet bundles, emails, phone calls, and communication expenses	8,000
Data Collection Assistance	Support during questionnaire distribution and collection	15,000
Stationery	Pens, files, notebooks, flash disks, and office supplies	7,000
Data Analysis	SPSS data entry, coding, cleaning, and analysis support	20,000
Typing and Editing	Proposal editing, proofreading, formatting, and typing services	12,000
Binding and Printing	Final proposal printing and binding	10,000
Accommodation and Meals	Meals and incidental expenses during fieldwork and pilot study	15,000
Contingency	Unforeseen research expenses	10,000
Total Estimated Cost		**150,000**

Appendix III Work Plan

Activity	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept
Topic Identification and Approval	✓								
Concept Note Development	✓	✓							
Literature Review		✓	✓						
Proposal Writing (Chapter 1)		✓							
Proposal Writing (Chapter 2)			✓						
Proposal Writing (Chapter 3)			✓	✓					
Development of Research Instruments				✓					
Pilot Study and Instrument Revision				✓					
Proposal Review and Corrections					✓				
Proposal Editing and Formatting					✓				
Proposal Submission						✓			
Proposal Defence Preparation						✓			

Activity	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept
Data Collection						✓			
Research Project Writing							✓		
Research Project Submission								✓	
Research Project Defense and Final Submission								✓	✓

Appendix IV NACOSTI Licence

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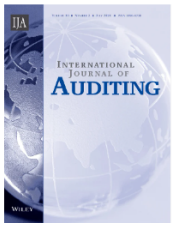
Appendix V Publication



When Do Internal Controls Deliver Effective Auditing? Evidence from Devolved Public Sector Organizations in Kenya

Under Review

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