

**EFFECT OF INTERNAL CONTROL SYSTEM ON CREDIT RISK MANAGEMENT IN
COMMERCIAL BANKS IN KENYA**

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REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN FINANCE AND
ACCOUNTING OF KCA UNIVERSITY**

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DECLARATION

I declare that this research project report is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this document contains no material written or published by other people except where due reference is made and author duly acknowledged.

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DEDICATION

This thesis is dedicated to my loving husband Kennedy for being my pillar and support system and to my son and daughter Arthur and Sophie for encouragement and inspiration.

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I would like first and foremost to give thanks to God for His amazing grace and gift of life during this period of study. Secondly, my family and workmates have been understanding and supportive. My heartfelt gratitude goes to Dr. Fred Sporta who has been the ideal thesis supervisor. He gave me good advice, positive criticism and patient encouragement and I am forever grateful. I would like to thank KCA as an institution, my life at the university has been surrounded by a wonderful community constituting of a rich and bountiful environment to study and explore new concepts. To all my lecturers and colleagues thank you.

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ABSTRACT

The purpose of the study is to investigate the effect of internal control system on credit risk management among commercial banks in Kenya. The study sought to determine the effect of the control environment on credit risk management in commercial banks in Kenya; investigate the effect of risk assessment on credit risk management in commercial banks in Kenya; examine the effect of information and communication on credit risk management in commercial banks in Kenya; and determine the effect of the control activities on credit risk management in commercial banks in Kenya. Descriptive research design was used in investigating the research questions. The study used census, in which every unit in the population participated in the study; meaning 43 respondents from the 43 banks were selected for the study. Questionnaires were used to collect primary data in this study. Questionnaires were pilot tested and subjected to validity and reliability testing. Standardized questionnaires were self-administered to respondents at their places of work. All the data collected were entered into an Excel sheet, organized and cleaned for any inconsistencies. The Excel data sheet was uploaded in Statistical Packages in Social Sciences software (SPSS 23) for descriptive (percentages, means, standard deviations) and inferential analysis (correlation analysis, regression analysis). The regression findings showed that the control environment and credit risk management in commercial banks in Kenya. There was a negative relationship between risk assessment and credit risk management, implying that the risk assessment framework was inadequate in achieving the desired performance objectives in credit risk management. Information and communication had a positive influence on credit risk management, but the relationship was not statistically significant. Finally, there was a positive and significant effect of control activities on credit risk management. The study recommends that commercial banks should routinely carry out evaluations and continually strengthen independent oversight, build a robust risk assessment model, regularly review anti-fraud policies, and update the enterprise security framework.

DEFINITION OF TERMS

Internal control system: A set of policies and procedures adopted by a firm to control its activities in the pursuit of corporate goals and objectives (Institute of Internal Auditors, 2012).

Control environment: The foundational corporate ethical values, personnel competencies and skills, organizational structure, and roles and responsibilities attached to each center of authority (Kumuthinidevi, 2016).

Risk assessment: Refers to all processes and methodologies that organizations use in identifying and analyzing risks that threaten the achievement of strategic objectives, notably: risk identification, risk analysis, and risk management procedures (Mutange & Datche, 2017).

Control activities: Are procedures developed by an institution to direct how employees carry out delegated responsibilities from the executive management and the board of directors (Umar & Dikko, 2018).

Information and communication: Refers to technologies used to capture and transmit communications between stakeholders, while also providing information used by employees, management, and board of directors to carry out their responsibilities (Bukonya & Kinatta, 2012).

Credit risk management: These are measures put into place to reduce or eliminate the risks associated with lending, in other words, the inability of the borrower to honor their obligation to service debt (Wanjohi, 2014).

ACRONYMS AND ABBREVIATIONS

COSO	: Committee of Sponsoring Organizations
IMA	: Institute of Management Accountants
AICPA	: American Institute of Certified Public Accountants
IIA	: Institute of Internal Auditors
FEI	: Financial Executive International
CBK	: Central Bank of Kenya
ICT	: Information and Communication Technology
DFID	: Banking Fraud and Investigation Department
SACCO	: Savings and Credit Co-operative Societies

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The evolution of modern internal control systems can be traced to the United States. Following an upsurge in corporate scandals and increased pressure on the private sector to reform, in 1985, the Committee of Sponsoring Organizations (COSO) of the Treadway Commission was formed to combat corporate fraud. It was an initiative of five private sector organizations, known as the sponsoring organizations, and included the Institute of Management Accountants (IMA), American Accounting Association (AAA), American Institute of Certified Public Accountants (AICPA), Institute of Internal Auditors (IIA), and the Financial Executive International (FEI). The Commission was established to combat corporate fraud by developing guidelines for achieving high standards of corporate governance, corporate ethics, internal controls, risk management, fraud detection and prevention, and financial reporting. The Committee developed a model for assessing the internal control systems of companies and organizations. The COSO framework presents internal control system as a system for ensuring that there are appropriate checks and balances in an organization, as a way of preventing theft, safeguarding organizational assets, ensuring compliance, supporting operational efficiency, and ensuring appropriate reporting (COSO, 2013).

Over the years, the COSO framework has been adopted by corporate organizations around the world as the primary framework for internal controls. Efficient and effective internal controls are critical in achieving long-term goals and objectives of financial institutions (Kabue & Aduda, 2017). On the contrary, when the internal control systems are ineffective or inefficient they can have a negative effect on organizational productivity and increase the likelihood of losses. Internal control systems are embedded in organizational systems and fitted deep into the culture and tradition of the organization and influence the way an organization responds to both internal and external challenges. While there is no perfect internal control system that can eliminate all the possible issues associated with human errors, poor judgement, deliberate circumventing by employees, managerial overriding of controls, or unforeseen circumstances, a sound system reduces the consequences of these actions (Ali, Awad, & Yousef, 2015).

In Kenya, commercial bank failures and widespread reductions in revenue has been associated with ineffective internal controls (Nyakarimi & Karwirwa, 2015). These controls are perceived as one of the pillars of an efficient accounting system. The growing volatility of global markets and the need to enhance shareholder returns has forced commercial banks to implement internal control mechanisms in order to achieve and maintain competitive advantage. At the same time, due to technological advancements, banks are increasingly at risk of financial risks, including frauds (Muthusi, 2017). Nyakarimi and Karwirwa (2015) note that a sound internal control system can prevent frauds, errors, and minimize wastes, while at the same times strengthening the custody of assets, assuring the management that accounting data is dependable, and maintaining adequate and reliable accounting records (Njeri, 2014).

1.1.1. Components of the Internal Control System

The concept refers to a wide range of procedural guidelines, methodologies, and controls implemented by organizations. It can also refer to a group of policies and procedures adopted by a firm to control its activities in the pursuit of corporate goals and objectives (Institute of Internal Auditors, 2012). It also refers to the arrangements, laws and directions adopted by a firm to guarantee trustworthy budgeting (Serem, 2016). The COSO framework applies to all organizational processes to ensure proficient financial reporting and compliance with legislative and regulatory provisions. The framework stipulated five components of internal control: control environment, control activities, risk assessment, information and communication, and monitoring (COSO, 2013).

The control environment is the foundation of the internal control system, and captures the attitudes of board of directors and executive management and the level of importance and support they give to the establishment of a control environment reflecting the desire of the bank to ensure that the banks operations are guided by proper internal controls (Kumuthinidevi, 2016). The main components of internal control include: the integrity of personnel and the ethical values they espouse, dedication of staff, staff skills and competence and skills; responsibilities of board members and board committees, senior management commitment, sound organizational structure, clear job descriptions and duties, and clear authority as per as decision making is concerned. In addition, other words, the control environment is demonstrated by clear definition of responsibilities, and availability of competencies and resources (Ali, Awad, & Yousef, 2015).

Risk assessment is a term used to refer to all processes and methodologies that organizations use in identifying and analyzing risks that threaten the achievement of strategic objectives. There are three main processes in risk assessment: risk identification, risk analysis, and risk management procedures (Mutange & Datche, 2017). Risk identification is how banks identify risks with significant effect on the ability of a bank to meet its goals. Risk analysis involves determining the severity of the risks identified and their likelihood in affecting the bank considering existing control measures and the operating environment. Risk management procedures are those practices established by the board of directors and top management to manage risks and preventing any significant effect on the operations of the bank (Direzzo, Hillairet, & Picard, 2004).

Control activities are procedures developed by an institution to direct how employees carry out delegated responsibilities from the executive management and the board of directors (Umar & Dikko, 2018). There are various domains of control activities. The first domain relates to operational performance. These encompass comparing budgeted forecasts and actual financial performance to establish the variances. The second domain is information processing. In this case, there are controls which govern how the accuracy of bank transactions are verified and the completeness of transactions to ensure that they have passed through proper authorization. There are two control activities that relate to information processing: general controls and application controls. General controls include those activities that provide oversight over operations in the data center, such as such as mainframes, servers, and system software used to limit access to data. On the other hand, application controls are those programs used for processing and monitoring bank transactions. The third domain are the physical controls, which are generally the physical structure of the bank that control access. The last domain are the segregation of duties, which is essentially assigning different duties to different persons so as to prevent every employee from having the authority to approve all aspects of a transaction. This helps in preventing bank employees from concealing an illegal and irregular activities as they carry out their normal day-to-day responsibilities. These control activities can be established at every organizational level or functional level, and includes both manual controls and computerized controls (Kumuthinidevi, 2016).

Information and communication technologies capture and transmit communications between stakeholders, while also providing information used by employees, management, and board of

directors to carry out their responsibilities (Bukenya & Kinatta, 2012). An example of information and communication systems include accounting systems are used for identifying, assembling, analyzing, classifying, recording, and reporting bank transactions (Micheni, 2016). The information and communication system must be developed to be secure, reliable, available and relevant to the accounting and financial needs of the organization (Bukenya & Kinatta, 2012). The system should be anchored by rules governing access to the system, validation, processing, and cut-off procedures, as well as record keeping and verification functionalities; and have inbuilt system controls to prevent duplication of entries, establish thresholds for user entries, limit access to different levels of transactions, and automate reconciliation. It should enable the company to meet the requirements for tax authorities through data storage in a manner that allows for substantiating transactions in documents filed with the tax administration, and secure documentation (Kumuthinidevi, 2016).

Monitoring and evaluation operates as an oversight function concerned with assessing the performance of the entire controls system. As a self-assessment approach, it focuses on reviewing internal control system to determine its effectiveness. Monitoring is done as part of supervisory examinations and is an independent layer of the internal control system. Further, it is not only a review on how the system is operating, but since it is an ongoing process, it provides the management with the opportunity to assess the relevance and appropriateness of activities that are being implemented (COSO, 2013).

1.1.2. Credit Risk Management

Risks are an inherent part of business. Banks are exposed to different types of risks, which have the potential of affecting business activity and overall performance. The responsibility of management is to maximize shareholder wealth. This means that to achieve this goal, managers must assess cash flows and assumed risks in directing financial resources in different areas of utilization (Direnzo, Hillairet, & Picard, 2004). There are various risks in the commercial banking sector, including market risk, credit risk, legal risk, operational risk, and liquidity risk. One of the most significant risks in the banking sector is credit risk, since lending is the primary source of income for commercial banks. Credit risk is the risk that a borrower defaults and does not honor its obligation to service debt. Credit risk occurs when the borrower is unable to pay or cannot pay on time. It refers to the risk of losing the principal or loss of a financial reward originating from

the borrower's failure to repay the loan. The risk is primarily that of the lender and includes lost principal and interest, disruption to cash flows, and increased collection costs (Alshatti, 2015).

The effective management of credit risk is inextricably linked to the development of banking technology, particularly those that increase the speed of decision-making while also simultaneously reducing the risk of controlling credit risk. The effective management of credit risk reduces the bank's exposure to risk, and increases the viability and profitability of the bank (Alshatti, 2015).

Risk managers are responsible for protecting and securing their organizations. As such, they must implement risk management programs necessary for the effective management of risk. Risk managers must meet the expectations of board of directors, executive management, regulators, as well as other stakeholders such as customers and investors. Since commercial banks dominate the financial sector in Kenya, designing and implementing proper controls can help in managing risks (Asiligiwa, 2017). Risk management aims at helping organizations to identify and control risks. In financial institutions, risks have a significant effect on the achievement of organizational goals and objectives (Wanjohi, 2014).

1.1.3. Commercial Banks in Kenya

There are 42 commercial banks in Kenya and one mortgage finance bank. The commercial banks are classified into three peer groups: are large banks, medium banks, and small banks, using a weighted composite index that comprises of net assets, customer deposits, capital and reserves, number of deposit accounts and number of loan accounts. According to this classification, large banks have a weighted composite index of 5% and above, and comprise of 8 large banks. The large banks command a 65.98% market share. Medium banks have a composite index ranging from 1% to 5%, and comprises of 11 medium banks commanding a 26.10% market share. The last tier include small banks with a composite index below 1%. Currently, this tier consists of 21 banks commanding a 7.92% market share (CBK, 2017).

1.2. Statement of the Problem

The presence of effective internal control system in commercial banks has broader financial, economic and social benefits. A sound internal control system supports the goals and strategic

objectives, maintains reliable managerial and financial reporting, and helps financial institutions manage risks effectively and attain long-term profitability. Therefore, improvement of bank's operational management demands an examination of the internal control system. In Kenya, Central Bank's Bank Supervision Annual Report (2017), commercial banks continue to suffer from various risks, including credit risk, liquidity risk, and technology and cyber risks. The report notes that technology and cyber risks posed negative effects on business continuity and corporate reputation. It also stated that increased use of ICT in commercial banks has led to an increase in the number of ICT-related frauds with reports to the Banking Fraud and Investigation Department (DFID) indicating the rise of computer, mobile and internet banking frauds. Another risk was the threat of cybercrime where criminals gained authorized access to institution's computer program and data and perpetrated frauds (CBK, 2017). Poor internal control system is associated with increased bank losses (Kabue & Aduda, 2017). The Central Bank Supervision Report showed that the net loans and advances reduced from KES 2,182,631 million to 2,013,610 million, representing -7.74% drop in the banks issuance of credit. In terms of asset quality, gross loans and advances reduced by 5.9%, total loans reduced by 6.3%, and the net loans reduced by 7.7% as indicated. These findings indicate negative credit performance.

Various researchers have investigated internal controls on various performance indices in Kenya. Asiligiwa (2017) measured internal controls using the five elements of the COSO framework and determined their effects on financial performance. Similar findings were reported by Muthusi (2017) in commercial banks and Mutange and Datche (2017) in Savings and Credit Co-operative Societies. Serem (2016) focused on the link between internal management controls and service delivery among Kenya's commercial banks. Micheni (2016) investigated the effectiveness of internal control in detecting and preventing fraud in commercial banks. On the other hand, Njeri (2014) found out that a positive link between internal control and financial performance in Kenya.

In all the studies surveyed, the measures of internal control are the five components of the COSO framework, namely: control environment, risk assessment, control activities, information and communication and monitoring. However, the main limitations of the study is that a majority either focus on the effect of internal control on financial performance (Asiligwa, 2017; Muthusi, 2017; Mutange & Datche, 2017; Serem, 2016; Njeri, 2014) or effect on fraud prevention and detection (Micheni, 2016; Nyakarimi & Karwirwa, 2015; Kabue & Aduda, 2017). There is minimal focus

on the effect of internal control on credit risk management hence the need for studies to bridge the gap.

1.3. Research Objectives

1.3.1. General Objective

The purpose of the study is to investigate the effect of internal control system on credit risk management among commercial banks in Kenya.

1.3.2. Research Objectives

1. To determine the effect of the control environment on credit risk management in commercial banks in Kenya.
2. To investigate the effect of risk assessment on credit risk management in commercial banks in Kenya.
3. To examine the effect of information and communication on credit risk management in commercial banks in Kenya.
4. To determine the effect of the control activities on credit risk management in commercial banks in Kenya.

1.4. Research Questions

1. What is the effect of the control environment on credit risk management in commercial banks in Kenya?
2. What is the effect of risk assessment on credit risk management in commercial banks in Kenya?
3. What is the effect of information and communication on credit risk management in commercial banks in Kenya?
4. What is the effect of the control activities on credit risk management in commercial banks in Kenya?

1.5. Justification of the Study

The CBK, in its Bank Supervision Annual Report of 2017, reported that continued adoption of advanced technologies exposed commercial banks to cyber risks. There has been an increase in cases of ICT-related frauds over the past few years. Evidence from the Banking Fraud and Investigation Department (BFID) also show that there has been an increase in cases relating to computer, mobile and internet banking frauds, which are linked to criminals gaining unauthorized access to the bank's computer programs and data. Those responsible for perpetuating frauds are both internal and external agents, hence the need for establishing internal control systems to avert the increased frequency of monetary losses.

Evaluation of the soundness and robustness of internal control measures is an exercise in establishing the risk exposure of a firm, and can enhance risk management. However, there is a paucity of research on the link between the effectiveness of internal control systems and risk management in commercial banks in the country. This study is justified because it tackles both the institutional policy gap, as demonstrated by increasing threats, risks, and vulnerabilities in the financial sector.

1.6. Significance of the Study

1.6.1. Commercial Bank Managers

Commercial banks have implemented internal controls as a foundation for risk management and financial performance. Inefficient and ineffective internal controls have negative effects on financial institutions. The findings established the state of internal controls in banks, and determine their effectiveness in risk management. The Central Bank of Kenya reports show that even though commercial banks have implemented internal control systems, they continue to make losses as a result of operational vulnerabilities. This study provided insights that can be used by Managers in commercial banks to improve internal control systems and enhance risk management performance.

1.6.2. Government Regulatory Bodies and Policymakers

The Central Bank of Kenya is responsible for providing regulatory oversight in the banking sector. Over the past, the bank has, through its annual reports, outlined increased cases of cybercrime and fraud. The findings on the strength of internal control systems and how they are influencing risk

management provided crucial insights that can be used to improve CBK recommendations to the banking sector.

1.6.3. Researchers

There is a paucity of empirical research on the link between internal control systems and risk management in commercial banks in Kenya. The study provided up to date empirical analysis of the extent of application of the COSO framework in commercial banks and how the effectiveness of internal controls affects risk management in financial institutions. The findings bridged the existing gap in literature. Findings can be utilized by researchers, students, and other academics interested in the fields of Internal Controls, Risk Management and Operations.

1.7. Scope of the Study

The study was limited to the effect of internal controls on risk management. The components of internal control that were examined included: control environment, risk assessment, information and communication, and monitoring. The study was also limited to operational risk management. The study population was limited to commercial banks licensed by the Central Bank of Kenya and operating in the country. The study was carried out between May and June 2019.

CHAPTER TWO

LITERATURE REVIEW

2.1.Introduction

This section presents a critical literature review of existing studies that have investigated the effect of internal control system on credit risk management, with special focus to Kenyan institutions. The section presents various theories as well as an empirical review that critically analyzes studies that have been done by other authors on the topic. The section ends with a section on the research gaps and the conceptual framework guiding the study.

2.2.Theoretical Framework

2.2.1. Agency Theory

The theory grew from the work of Jensen Meckling published in 1976. The theory is concerned with the contractual relationship between owners of a business, known as the principals, and the agents, also known as the management, put in place to manage the business on behalf of the owners. In essence, the principals have delegated decision making authority agents. In corporations, these owners or principals are typically referred to as investors or shareholders, and they perform delegated responsibilities for a reward. The principal responsibility that principals give to agents is that of maximizing shareholder wealth. The theory therefore deals with the structures that must be put in place to maintain the contracts between the principal and the agent, as well as exercise control in a way that minimizes the opportunistic behavior of the agents, while also harmonizing the interests of the two parties (Jensen & Meckling, 1976).

One of the ways through which the relationship between the principal and the agent is strengthened is through the utilization of experts and instituting systems that can be used in monitoring the agent. Such experts and systems includes auditors and internal control systems (Muhunyo & Jagongo, 2018). The theory is appropriate in this study since internal control systems is one of the measures adopted to deal with the agency problem. Internal control systems enhance the monitoring of the behavior of the agents, thereby reducing improving control over decision making and lowering the risk of investments.

To this extent, risk assessment deals with financial reporting. Risk assessment is used in identifying, analyzing and managing risks. In financial management, it guides the preparation of financial statements. Risk assessments helps management to identify gaps in the control systems, and put in measures that plug such gaps while also strengthening existing controls and removing redundancies. Information and communication element in internal controls includes all information systems adopted by an organization. One of such systems is the accounting system which is responsible for recording, processing, summarizing and reporting on an entity's transactions. On the other hand, communication is concerned with ensuring that all personnel understand their responsibilities. It also governs how an institution communicates with both internal and external stakeholders (Bukenya & Kinatta, 2012). Control activities are put in place to prevent fraud, reduce noncompliance, and mitigate risks. They ensure that physical assets are protected, that there is clear segregation of duties, appropriate authorization controls, secure documentation, and proper and independent reviews, verifications and reconciliations (Magu & Kibati, 2016). On the contrary, monitoring assesses the quality of the entire system to generate insights that can be used for improvements (COSO, 2013).

2.2.2. Stewardship Theory

The theory can be traced to sociology and psychology studies and related to the role of stewards. Schoorman and Donaldson (1997) theorized that the stewardship theory is concerned with how a steward can protect and maximize shareholder wealth through firm performance, since by doing so, the steward's own utility functions are maximized. The stewardship theory adopts the opposite approach when compared with the agency theory. While in the agency theory, the agents have interests and the role of controls is to ensure that they do not pursue their own interests at the expense of the principal's interest, in the stewardship theory, the top management are stewards, meaning that their interests and those of the organization are not in conflict since improving organizational outcomes improves their individual outcomes (Muhunyo & Jagongo, 2018).

With regards to internal control systems, the function of management is to create an environment that allows for the integration of management and shareholder goals. The control environment is the basic superstructure on which all the components of the internal control system are linked. It

captures the culture of the company, employee attitudes, and the actions of management and directors. It presents the vision, mission, values, philosophy, and culture of the organization, as well as the organizational culture, management and leadership style, and policies and procedures governing every aspect of the organization (COSO, 2013). In this study, the stewardship theory explores internal control systems as part of the structures that manager's implement as stewards of shareholders, as well as both internal and external stakeholders.

2.2.3. Stakeholder Theory

The stakeholder theory arose from the work of Freeman (1984) titled "Strategic Management: A Stakeholder Approach". The work defined stakeholders as all the groups that affect and are affected by the activities of a firm, and relates to how a firm satisfies the demands of these disparate groups. In the traditional sense, as captured in the agency theory, the owners of the firm are shareholders and the management have a fiduciary duty to safeguard their interests. The stakeholder theory expands the scope of this responsibility by including other stakeholders such as employees, customers, suppliers, government, and communities, as well as others such as non-governmental organizations and civil society groups, trade associations, trade unions, and industry competitors. All these groups affect or are affected by the activities carried out by a company (Freeman, 1984).

In this case therefore, the primary focus is on managing the contentious, compatible and incompatible interests of various stakeholders. Internal control should work towards achieving the interests of legitimate stakeholders, since the success of a business operation depends on the relationship between the business and stakeholders.

2.3. Empirical Review

This section presents a critical assessment of research that have been carried out on the relationship between internal control systems and credit risk management. The focus of the section is to highlight the objectives of such studies, the methodological approaches adopted, and the findings so as to identify the research gap to be filled by the present study.

2.3.1. Control Environment and Credit Risk Management

Internal control are of paramount importance to commercial banks in Kenya (Nyakarimi & Karwirwa, 2015). These controls are perceived as one of the pillars of an efficient accounting system. The growing volatility of global markets and the need to enhance shareholder returns has forced commercial banks to implement internal control mechanisms in order to achieve and maintain competitive advantage. At the same time, due to technological advancements, banks are increasingly at risk of financial risks, including frauds (Muthusi, 2017). Nyakarimi and Karwirwa (2015) note that a sound internal control system can prevent frauds, errors, and minimize wastes, while at the same times strengthening the custody of assets, assuring the management on the dependability of accounting data, and maintaining adequate and reliable accounting records (Njeri, 2014).

A system of internal control is a fundamental aspect of the foundation and management of financial institutions. Efficient and effective internal controls are critical in achieving long-term goals and objectives of financial institutions (Kabue & Aduda, 2017). On the contrary, inefficient and ineffective internal control systems has a negative effect on organizational productivity and increases the likelihood of losses. Internal control systems are embedded in organizational systems and fitted deep into the culture and tradition of the organization and influence the way an organization responds to both internal and external challenges.

In a study carried out in Ghana, Ayagre, Appiah-Gyamerah, and Nartey (2014) investigated whether the control environment had any effect on the financial performance of commercial banks. Results demonstrated the existence of top management support for ethical values, and that most banks had a code of conduct governing behavior, activities and decisions. In the same vein, organizations also held individuals accountable for their responsibilities; the boards had established an oversight structure and detailed clear reporting heirachies while the human resource management functions ensured that the banks were able to attract competent employees. The management showed a strong commitment to maintain an effective internal control structure (Ayagre, Appiah-Gyamerah, & Nartey, 2014).

Another study (2014) investigated how internal control systems affects financial performance in tertiary training institutions in Kenya. The study was informed by the fact that there are cases of

financial impropriety leading to losses in these institutions. There have been persistent poor financial performance and this can be related to the internal controls. The study was restricted to the African Institute of Research and Development Studies. The results showed that most respondents noted that the organization had implemented internal controls. The study concluded that there is need to entrench internal control strategies so as to ensure prudent management of finances.

Kamau (2014) looked at how internal controls affect the financial performance of manufacturing companies in Kenya. The results indicated that manufacturing companies had implemented internal control systems and that they were functional at the firm level. The results showed that the staff were adequately trained to impart them with the necessary skills and knowledge necessary for implementing the accounting and financial management system. Further, there were adequate security controls in the system to safeguard organizational assets. Inferential analysis revealed that there was a positive and significant relationship between internal controls and financial performance among manufacturing firms in the country.

At the same time, Mwakimasinde, Odhiambo and Byaruhanga (2014) looked at how internal control systems were affecting the financial performance of Sugarcane out-grower companies in Kenya. The researchers sought to determine how the control environment, risk assessment, information system, and control activities were affecting financial performance. The dependent variable was measured through cost per unit, goal attainment, productivity and profitability. The results showed that there was a statistically significant relationship between internal controls and financial performance among the targeted companies.

Kinyua (2015) did a study on how internal control environment affects financial performance of companies listed at the Nairobi Securities Exchange. The researchers wanted to establish how indicators of internal control affected financial performance measures. The study showed a significant effect of internal controls. This implies that when listed companies implement and enforce internal control systems, they can improve their financial performance.

Nyakarimi and Karwirwa (2015) investigated the link between internal control systems and fraud control in deposit taking savings and credit cooperative societies. The components of the internal control system were adopted from the COSO framework. Stratified random sampling guided the

selection of 92 participants from a target population of 120. The data collected using questionnaires was analyzed using Statistical Package for Social Sciences (SPSS). The study reported that there was a positive and significant relationship between the control environment and fraud control (Nyakarimi & Karwirwa, 2015).

Renox (2017) assessed the relationship between internal controls and financial performance in commercial banks in Kenya. The study based the conceptualization of internal controls on the framework by the Committee of Sponsoring organizations of Treadway Commission. All the 43 banks were included in the study. The results showed that banking institutions had strong and effective internal controls, and this has positively contributed to financial performance (Rennox, 2017).

Kitolo (2016) investigated the relationship between internal audit and corporate governance among 44 regulatory authorities in Kenya. The study showed that the institution of administrative controls, bookkeeping, operational and correspondence approaches improved the effectiveness of internal control mechanisms in the organizations. The research also examined the risk assessment controls and established that they positively influenced organizational performance, while enhancing corporate governance properties of accountability, transparency, independence, fairness, social responsibility and discipline, as well as guaranteeing the adoption and compliance with laws, controls and regulations (Kitolo, 2016).

In a study assessing Non-Governmental Organizations (NGOs) Mulei (2016) investigated the adoption of accountability, managerial competence and a strong internal control system due to widespread reports that the NGO sector was unaccountable in the utilization of donor funds. The study sampled 15% of the 1183 senior audit officers and senior organizational personnel in NGOs working in Nairobi County. Based on analysis done using multiple regression, the findings revealed that there was a significant relationship between the establishment of policies and guidelines relating to the competence of internal auditors, independence of the internal audit function, follow-up mechanisms, and corporate governance in the institution (Mulei, 2016).

In another study, Mutave (2014) focused on the effect of internal audit on corporate governance on financial institutions, and sampled company secretaries of 9 microfinance institutions. Using a multivariate analysis, the researcher revealed that control environment

consisted of risk management, internal controls, compliance and consulting and audit committee, and that they had a significant effect on corporate governance (Mutave, 2014).

A study by Ejo and Ejom (2014) sought to establish the relationship between the internal audit function and financial performance of tertiary institutions in Nigeria. The study targeted the Cross River State College of Education in Akamkpa. Analysis of data collected using questionnaires found out that the internal audit department was not sufficiently staffed, there was no audit autonomy and independence from management. Regression analysis showed that there was no significant relationship between the internal audit function and performance (Ejo & Ejom, 2014).

Magara (2013) established that the internal control system influences financial performance. Internal controls promote efficiency, reduce risk of asset loss and help ensure the reliability of financial statements and compliance with the laws and regulations. Company level of control problems, which cannot be audited as easily, are associated with lower earnings quality, which explore links between disclosure of material weakness and fraud, earnings management or restatements. As a result, effective internal controls are one of the mechanisms used to address the agency problems. Banks that have effective internal controls in place easily address the agency problems, minimize agency costs and mitigates against earnings management resulting to scandalous reporting that could lead to loss of resources (Magara, 2013)

Unegbu and Kida (2011) investigated whether the internal audit function affected the management of institutions. It focused on the availability of adequate personnel and professional competencies. The results showed that job competency was associated with an effective internal audit function. At the same time adequacy of internal audit function personnel positively related to the adequacy of the internal control system, and by extension, its effect on accuracy and integrity of financial reporting (Unegbu & Kida, 2011).

Magu and Kibati (2016) studied internal control systems at the Kenya Farmers Association (KFA) to determine whether they ensured safe custody of assets, and improved detection of fraud. Internal control was measured by looking at the control environment and control activities. The researchers sampled 78 managers, which was a census sample, and used SPSS to analyze for descriptive and inferential statistics. With respect to the dimensions of the control environment, the researchers

reported high levels of agreements with the statements that KFA has instituted accounting and financial systems, that management was committed to internal control systems, but that they did not closely monitor the implementation of the internal control systems. Respondents also noted that the management was not providing feedback to junior officers, and that there were inadequate measures put in place to correct accounting and financial errors. There was low level of integrity in management in the execution of internal control actions, and low upholding of ethical values. KFA did not have a strong and independent board of directors. The regression results indicated that a unit increase in the dependent variable (control environment) increased performance by a factor of 0.664. Further, the relationship between the control environment and the ability of KFA to safeguard its assets and prevent fraud was significant at $p=0.019$ (Magu & Kibati, 2016).

Micheni (2016) investigated the increasing reports of fraud in the financial system in Kenya, despite the fact that banks had instituted internal controls. The focus was to establish if the internal control system was effective in preventing and detecting fraud. The sample included 11 Heads of Audit departments drawn from banks listed at the Nairobi Securities Exchange. Data was collected using questionnaires and analyzed using SPSS. The results indicated that internal controls had a strong and positive effect on the ability of the organization to detect and prevent fraud. With specificity to the control environment, there was a positive effect of the control environment on fraud detection and prevention in listed commercial banks in Kenya ($\beta=0.2366$, $p=0.05$) (Micheni, 2016).

Mutange and Datchie (2017) investigated the effects of internal control on credit business performance at the Mombasa Teachers Sacco Limited. The population of the study was 3500 members, but purposive sampling was used to generate a sample of 120 Class A members. The data was analyzed using SPSS. The control environment was called the credit cultural environment in the study. Analysis of results showed that there was a positive relationship with an increase in credit cultural environment associated with an increase in credit risk management by a factor of 0.149 (Mutange & Datchie, 2017).

Muthusi (2017) carried out a study to investigate the effects of internal controls commercial banks' financial performance. The conceptualization of the internal controls drew from the COSO framework, as presented in this study. The sample selected included all the 43 commercial banks. Data was collected from both primary and secondary sources, with primary data collected using

questionnaires and the secondary data obtained from audited financial statements. The researcher used SPSS to analyze the data. Findings also showed a positive significant relationship between risk assessment and financial performance. The measures included there were steps to detect fraud and enhance efficacy of auditors. There was also an acknowledgement that there was honest and fair dealings with all stakeholders, that strong internal controls discouraged fraudulent activity through the appropriate checks put in place, banks were committed to the corporate ethics in the operations, and that the auditing standards were held high. In the same vein, the regression results of the study showed that there was a positive and significant relationship between the control environment and the performance of commercial banks ($\beta=0.146$, $p = 0.020$) (Muthusi, 2017).

Amoaeng (2017) carried out a study in Ghana to determine how the internal control systems of savings and loans companies was effective in meeting the organizational objectives. The target included 12 savings and loans companies, from which a total of 29 branches were selected. From these branches, the researchers selected 174 staff. Using a self-administered questionnaire and descriptive analysis and inferential statistics, the study found that the control environment was highly effectively. Assessment of the risk management process, control activities, and monitoring and evaluation also indicated that the system was effective (Amoaeng, 2017).

According to Umar and Dikko (2018) the control environment also incorporates the attitudes and actions of the management as well as the board of directors. It is concerned with the overall governance framework for each company and the level of importance laid on the framework. The control environment refers to the set of policies, procedures and methods. The senior management develops the framework to that reflects the moral values. As a result it involves the communication, enforcement of integrity, and ethical values. This control environment is what determines how an organization operationalizes their organization culture (Umar & Dikko, 2018).

Muhunyo and Jagongo (2018) researched on the effect of internal control systems on financial performance among institutions of higher learning in Nairobi City County, using the COSO framework. The study was also grounded on the agency theory, attribution theory, stewardship theory, and positive accounting theory. It adopted a descriptive research design and sampled 96 employees from different departments of Public Institutions of Higher Learning in Nairobi City County. Completed questionnaires were analyzed and the results showed that the elements of internal control system accounted for 99.1% of the changes in the financial performance of these

institutions. With specific regard to the control environment, the findings demonstrated that it had a great influence on the financial performance as measured by the revenues generated including fees income and operational costs over a five year period. The regression results showed that a unit increase in the control environment increased performance by a factor of 0.955 in higher learning institutions in the County (Muhunyo & Jagongo, 2018).

2.3.2. Risk Assessment and Credit Risk Management

Risk is the possibility of loss occurrence. Risks are categorized as financial, operational, strategic, compliance, or reputational. In corporations, the risk function is the framework used in defining, controlling, and responding to risks emanating from the internal and external environment. The provision of any service has both internal and external risks that can influence financial performance, compliance and the reputation of the company. According to KASNEB (2011) risk assessment involves identifying and responding to business risks. An entity's business risk assessment encompasses the processes through which management identifies the risks relevant in the preparation of financial statements, in accordance to the recommended financial reporting framework. No business entity can operate in an environment devoid of risks. They are expected and accompany all business activities. Therefore, governments must put in place measures that protect business operations from the negative consequences of risk exposure, and this means that there must be a formal process for risk identification and management.

The COSO framework notes that enterprise risk management is concerned with risks and opportunities that affect value creation, hence the definition as a "process, effected by the entity's board of directors, management, and staff, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of the entity objectives (McNally, 2013).

Modern corporations employ enterprise risk management (ERM) practices in risk management. ERM is used to assess and prioritize risks periodically, with collaboration from all organizational departments. ERM embraces a more holistic view of risk and risk management and includes developing clear mission and objectives of the risk management function, creating general measurement principles, implementing a risk management framework, developing a risk map,

establishing relevant governance structures and policies, and investing in appropriate IT support systems. The identification and mitigation of risks ensure that an organization can meet its strategic objectives. Risk management involves setting strategic objectives, identifying risks, assessing risks, treating risks, controlling risks, communicating and monitoring risks, and utilizing the knowledge gained through the process to refine the initial strategic objectives. These processes are integrated into an ERM framework (Ogetange, 2017).

A typical workshop consists of an overview of ERM, business strategy, and risk management. An introduction to ERM involves an understanding of the importance of the tool in managing risk in a dynamic, uncertain, complex, and increasingly complex environment. The components of ERM are defined and its characteristics elucidated. Examination also involve an evaluation of the different ERM standards and frameworks in the market, such as ISO 31000, current Committee of Sponsoring Organizations of the Treadway Commission (COSO) Framework, as well as ways of customizing the organization's ERM architecture (COSO, 2013).

An examination of business strategy, explores the particulars of risk strategy, risk appetite, risk profile, risk governance, risk monitoring and reporting, and risk culture. Risk strategy is the formulation of objectives that link risk to business strategy and organizational performance. Risk appetite refers to the definition of the balance between risk appetite and risk balance for different risk types in the organization. Risk profile identifies, analyzes, evaluates, and mitigates risk. Risk governance encompasses standards for governance, risk and compliance. It also defines the roles of key personnel. Monitoring and reporting establish a framework for continuous assessments of Key Risk Indicators (KRIs) and governance. Finally, risk culture assesses the level of risk culture maturity and lays the foundation for integrating attributes that help the organization to develop a favorable risk culture (COSO, 2013).

ERM workshops help senior management and departmental heads to understand risks, by gathering data across the entity and reporting risks upwards to executives. In the end, such workshops build the foundation for business management by building executive-level support, strengthening core teams, aligning expectations, and developing segment-level managerial commitments. At the segment-level, they execute the risk management approach across all segments, engage specific focus areas, link personnel to process, and demonstrate tangible value within each segment. Finally, at the enterprise level, they enable an evolution of a process that

connects all commitments across all segments, enhance coordination and integration, and deepen risk management focus (IMA, 2017).

ERM, as the name suggests, is an enterprise-wide strategy and process used in the identification of events that affect the overall functioning of the entity, risk management and assures the achievement of the strategic objectives. It is a structured, consistent and continuous process used to identify, assess, and decide responses to events and also report on opportunities and threats in the organization. As a result, ERM is a holistic approach that demands participation from all levels of the organization and is crucial to the stakeholders in examining the performance of the business entity (Boyle & Douglas, 2013).

Internal audit activities are important features in ERM and enable the organization to meet its strategic, operational, and compliance objectives. Concerning risk management, internal auditing improves operational functions and helps in achieving strategic objectives through its deployment of a systematic approach in evaluating and improving risk management, internal control and corporate compliance. The board has the responsibility of putting in place structures for risk management. To effectively perform this function, boards delegate to the management team. While various roles of risk management are performed by different employees across organizational hierarchies, internal auditing provides an independent and objective approach for evaluating the effectiveness of risk management (Boyle & Douglas, 2013).

There are various activities in ERM that are performed by the internal audit team. These roles are divided into three categories. The first category is the core internal audit roles which include assuring the risk management processes, putting in place risk evaluation processes, evaluating risk, reporting key risks, and reviewing key risks. The second category is instituting internal audit safeguards, including facilitating the identification and evaluation of risks, coaching management on risk management, coordinating ERM activities, consolidating risk reporting, and development and maintenance of the ERM framework, developing risk management strategy for the board. The third category encompasses those roles that internal auditors should not undertake in ERM. These include setting the risk appetite levels in the organization, forcing risk management processes on management, managing risk assurance, determining the risk responses, implementing risk responses, and taking accountability for risk management (Boyle & Douglas, 2013).

One of the common operational risks in financial institutions is fraud, the occurrence of which has significant effects on the financial, brand, image and reputation of the business (Wanjohi, 2014). These institutions are vulnerable to fraudulent reporting and fraud can go undetected and spread silently involving more people and affecting more accounts (Mutange & Datche, 2017). It has been approximated that up to 90% of businesses experience fraud incidents, and the consequences vary with the level of severity, from organization to organization (Micheni, 2016). Since commercial banks dominate the financial sector in Kenya, designing and implementing proper controls can help in managing risks (Asiligiwa, 2017). Risk management aims at helping organizations to identify and control risks. In financial institutions, risks have a significant effect on the achievement of organizational goals and objectives (Wanjohi, 2014).

According to Amposah (2012) risk management is an important component of the internal control system because in the absence of a risk management system, shareholders may suffer from losses or lose their investments altogether. The study by Amposah (2012) sought to determine the place of risk assessment in achieving effective risk management. The sample was Intercontinental Bank. The research found out that the risks associated with providing banking services included availability of organizational objectives, availability of competent personnel and financial resources, as well as risk management policies and technology. These elements had been implemented by the bank and exhibited appropriate strength. However, the study also identifies weak points including the allocation of resources to personnel in performing risk analysis of small and medium enterprises applying for loans (Amposah, 2012).

Nyakarimi and Karwirwa (2015) also investigated the relationship between internal control systems and fraud control in deposit-taking savings and credit cooperative societies. The components of the internal control system were adopted from the COSO framework. Stratified random sampling was used to select a sample of 92 participants from a population sample of 120. With regard to the relationship between risk assessment and fraud control, the study found out that there was a positive and significant relationship between the two variables, implying that existing risk assessment structures were effective in controlling fraud.

Muraguri (2016) noted that risk-based auditing was a central aspect of internal audit controls put in place to enhance risk management. The study sampled state-owned enterprises under the Ministry of East African Community, Labour and Social Protection in Kenya. A census sample of

160 respondents was drawn from the ministry. Questionnaires were administered to collect data. The respondents were in agreement that the corporations undertake risk monitoring in order to identify errors in financial reporting, risk assessment is a continuous and permanent process, that risk identification and management is a responsibility of all employees of the organization, that risk assessment in the detection of errors existed and that control was focused on avoiding the unacceptable business/performance risks in order to reduce it to an acceptably low level. On the contrary, the regression analysis did not find a significant effect of risk assessment on performance in state-owned enterprises ($p=0.0488$ $\alpha=0.05$ level of significance), hence indicating that risk assessment is not a significant predictor of performance (Muraguri, 2016).

A study by Mwazo, Weda, Omondi, and Njenga (2017) investigated the role of internal controls on service delivery of the Taita –Taveta National Treasury, Kenya. A descriptive research design was adopted and stratified random sampling techniques was used to generate a sample size of 144 from a population of 225 finance employees in Taita Taveta County. All the data collected using questionnaires was analyzed using SPSS. The measures of risk assessment related to approvals and authorization, risk management systems, better decisions, shareholder value, compliance and fraud detection. The availability of good risk management systems cares for institutional profitability was average. Further risk management systems was found to have an average influence on shareholder value. The correlation analysis indicated that risk management systems has a positive association with service delivery (Mwazo, Weda, Omondi, & Njenga, 2017).

Ogetange (2017) reported that risk management in banks operating in Kajiado County were comprehensive and systematic to identify all risks associated with bank operations. The results also indicated that most members of staff agree that the internal control or audit staffs are involved in every risk assessment process performed by management and the board. Staff members highly agreed to the availability of competent staff members to handle all organizational activities. The organization had sufficient personnel who were competent and knowledgeable to manage the risk management activities (Ogetange, 2017).

In the same vein, a study by Muthusi (2017) the respondents strongly agreed that the management of the banks have defined appropriate objectives for the banks. The respondents also agreed that the banks management identifies risks that affect achievement of the banks objectives. Further, the respondents agreed to a strong extent that the banks' management have criteria for identification

of which fraud-related risks to the banks are most critical. The banks' management have put in place mechanisms for mitigation of critical risks that may lead to the banks' losses. Also, the banks' management have criteria for ascertainment of which fraud related risks to the organization. In the commercial banks, the study establishes that there are frequent escalation and reporting of banks' departmental risks to the management to assist in solving early enough before it develops to losses. Further, findings show that all instructions received from the banks' clients are thoroughly scrutinized before execution to prevent processing fraudulent transactions. The regression results indicated that risk assessment had a positive and significant effect on the banks' performance ($\beta=0.635$, $p=0.031$) (Muthusi, 2017).

2.3.3. Information and Communication and Credit Risk Management

Ünal & Mete (2012) noted that in modern organizations, information and communication occurs within an Information, Communication and Technology (ICT) system. Over the past decades, technology has infiltrated every sphere of human experience, from culture to how people live their lives. From human expression, thoughts and ideas, to communication, human beings are continually relying on technology to increase efficiency. With rapid technological changes as a result of advancements in computer and telecommunication industries, even business, including human resource management, have been infiltrated. As the economy transformed from asset-intensive to a knowledge-intensive, technology became a tool that can be exploited to provide competitive advantage. In an organization, people are the greatest asset and technology can be used to improve the efficiency of information and communication (Madhushree, Radhakrishnan, & Aithal, 2019).

Information technology transforms the architect of organizations and business processes. To continue making profits, a company must consistently deliver products to build its market share. In the absence of high quality human resources that is effectively being managed, a company cannot sustain profitability or pursue its long term strategy (Jacks, Palvia, Schilhavy, & Wang, 2011). Thus, there has been a transition of employees to the position of the most precious assets in any firm. In other words, a strong and efficient human resource management essentially leads to high business performance (Madhushree, Radhakrishnan, & Aithal, 2019).

The current intense competition, shorter product life cycles and volatile product have created a very complex business environment that presents both challenges and opportunities to organizations. While some organizations go under unable to cope with the competitive pressure, some will maintain bare survival, while a select number will continue to flourish. These movements demand that organizations must constantly search for newer sources of competitive advantage. As earlier stated, human resource management is one such competitive advantage that has the power to sustain organizational performance. However, traditional human resource factors that have been cited as being responsible for improved business performance are no longer sufficient in maintaining the firm's competitive strategy. Human resource departments have traditionally been bureaucratic in nature; however, the current environment demands more flexibility and creativity in the delivery of services in a constantly changing environment (Anis, 2017). In short, the traditional management style cannot keep up with rapid changes in the environment. Therefore, there is a new pressure on organizations to adapt hence the need for Information Technology (IT).

Since information and communication occurs within an IT framework, effectiveness of internal control systems demands competency among employees. From a management point of view, employees must possess the required competencies to be able to perform their duties. Competency as a competency is a measurable characteristic that can be defined in terms of ability and willingness to do a task, generic knowledge, motive, trait, social role, or skill of a person that is related to effective performance in a specific job, organization, or culture (Mulyani & Arum, 2016). Competency in a management context relates to the identification of characteristics distinguishing superior from average performance in companies. An evaluation of competencies is important in isolating the underlying characteristics of individuals and how they are causally related to job performance. These characteristics include personal characteristics, attributes, and experience. Competency The approach takes into account the skills, knowledge, and capabilities needed for a particular job or project and aligns them with organizational strategies. The most common managerial competencies cited in literature are either technical or generic. Technical managerial competencies comprise of skills that managers need to effectively perform in specific areas. Other researchers have listed characteristics such as attitudes, motivation or personality traits that are useful in generic situations. Some researchers refer to personality traits as soft

competencies and job specific abilities as hard competencies (Madhushree, Radhakrishnan, & Aithal, 2019)

A particular set of competencies are required for achieving specific strategic goals in the organization. Employees must be evaluated to determine whether they possess the required competencies. A competency gap arises when the individual employees possess abilities that are much lower than those required for the job. Identification of the gaps means that they can be eliminated through targeted through training and development (Anis, 2017).

Studies have reported that latest advanced technologies have the potential of streamlining many human resource functions, specifically in the design and deliver human resource practices. This trend is not surprising owing to the substantial benefits emerging from the integration of information technology into the human resource function. This means that as information technology grows, it will transform the administrative functions. Another way in which technology is causing evolution of human resource management is that traditional human resource competencies such as those involving administrative tasks have not gone away or have not been outsourced, but rather they have been supplemented by additional skills. As such human resource personnel need to be more knowledgeable. There is growing evidence that human resource personnel in leading firms are increasingly focusing on strategic issues. The development of human resource technologies and workforce analytics is helping to transform human resource into a decision science with a measurable impact on business results. The expanded use of the Internet for information and communication within the firm (Mulyani & Arum, 2016).

Adoption of ICT affects all HR practices. IT can either be used as Electronic Human Resource Management (eHRM) or Human Resource Information System (HRIS). HRIS is an integrated system that acquires and stores data for making analysis and decisions in the field of human resource. As a dynamic database, HRIS contains employee's performance and demographic information and can be accessed to provide employee data, job application requirements, criteria for selection and staffing, corporate structure, and performance appraisal among others (Boyle & Douglas, 2013).

eHRM, in relation to information and communication, can be defined as an IT application that supports or connects at least two people or collective actors participating in human resource management activities. In the current business environment, HRIS is accessible (distance access

applications, system intervention, upgrading) for users through internet. In other words, eHRM is a HRIS that HR personnel, managers, and employees access through the internet or intranet. There are various ways through which IT affects organizations and relations at the workplace, through the ways by which it enables people to access information or through it electronically connects people. Arguably, the integration of IT and human resource systems provides benefits that were not in the traditional HRM system and helps achieve organizational goals (Asiligiwa, 2017).

According to Mishra & Akman (2010), the human resource function has gained strategic emphasis and many organizations have acknowledged the importance of aligning human resource functions and business strategy. There is a consensus that effective human resource is vital in meeting the demands of the market. Information Technology and human resource management are intimately related and human resource professionals should have the ability to adopt information technologies necessary for re-engineering the human resource function while simultaneously achieving speed, efficiency and cost effectiveness. Human resource can simultaneously be strategic, flexible, cost-effective, and customer-responsive if they leverage information technology. It has been predicted by many experts over the past two decades that computer systems would become the backbone of human resource processes such as information and communication. This prediction has come to pass with the current virtual HR emerging from sophisticated information technologies and increased external structural options (Mulyani & Arum, 2016).

These complex systems are beginning to allow companies to deliver state-of-the-art human resource services at reduced costs, irrespective of the size of the companies. IT adoption by human resource professionals has also enabled the creation of an IT workplace, hence generating strategic competence. In the same vein, advancements in information technology hold the promise for human resource challenges such as attracting employees, motivating and retaining employees, while at the same time ensuring that strategic human resource function has the capacity to effectively manage employees in an increasingly technological oriented workplace (Ayagre, Appiah-Gyamerah, & Nartey, 2014)

While human resource management supports efforts to technologically innovate, information technology can also enable the human resource personnel to focus on value-added activities as a way of maximizing the potential of the technology in organizational strategy. Even more important IT frees the human resource personnel from performing intermediary roles and allows them to

commit more time and energy in strategic planning and development. This is possible because IT can be used to automate routine responsibilities so that HR professionals can focus on strategies of boosting productivity. Such activities include payroll processing, benefits administration, as well as other transactional activities. IT adoption in HRM has been associated with cost decreases. Interlinked databases, IT enhances the acquisition, creation, capture, synthesis, learning, and use of information, insights and experiences in decision-making. Therefore, it can be said that IT enhances employee's ability produce reliable data through human resource systems, which provide a useful tool for decision making (Hsieh, Lin, & Lee, 2017).

Wanjohi (2014) assessed fraud in the banking industry in Kenya, with the primary objective of establishing the causes of different types of fraud and determining the appropriate strategies that can be employed to prevent and control for the occurrence of fraud. The study was a case study of the Commercial Bank of Africa (CBA) and the researcher selected a sample size of 68 employees drawn from CBA branches in Nairobi County. Data was collected using questionnaires and analyzed using SPSS. The findings showed that the major causes of fraud were availability of opportunities for the commission of fraud, poor personnel practices, and relaxed accounting systems and controls. In terms of weak internal controls and accounting systems, the results showed that nearly half of those surveyed said that the accounting systems and controls were weak and was responsible for fraud in the bank. In addition, about 4 out of 10 of the employees surveyed noted that poor IT structures also contributed to fraud cases. The regression analysis revealed that poor IT structures was negatively correlated with the pressure to commit fraud and the rationalization of the act. IT structures had a positive effect on effective prevention and control of fraud (Wanjohi, 2014)

In the same study by Mwazo et al (2017) in which they sought to investigate the role of internal controls in service delivery at the Taita Taveta Treasury, the information and communication system was conceptualized as communication system, communication channels, communication structures, mutual relationships and demands of results. A survey of opinions showed that the treasury had established good communication systems, that there are good communication channels, and that there was good mutual understanding among institutional groups. The correlation analysis showed that communication systems had a positive association with service delivery (Mwazo, Weda, Omondi, & Njenga, 2017).

Kiyieka and Muturi (2018) investigated the role of internal controls in the performance of deposit taking SACCOs in Kisii, Kenya. The target population was 10 deposit-taking SACCOs. The researchers investigated the information and communication system and found out that deposit-taking SACCOs had established a team of personnel responsible for managing the various activities in the communication system, that employees understood the importance of internal controls, and that there were guidelines and policies governing communication. The regression analysis showed that there is a positive relationship between the information and communication system and the financial performance of SACCOs in Kisii, Kenya (Kiyieka & Muturi, 2018). In an earlier study by Nyakarimi & Karwirwa (2015) to determine the link between internal control systems and fraud control in deposit-taking SACCOs in Imenti North Sub-County, the results also indicated that there was a significant relationship between information and communication and fraud control in deposit taking SACCOs.

2.3.4. Control Activities and Credit Risk Management

Kinyanjui (2017) carried out a research on cash management practices on financial performance of SMEs in Nyeri-Kenya. His findings indicated that cash holding practices and use of technology in cash management had a relevant effect on financial performance of SMEs in Nyeri (Kinyanjui, Kiragu, & Kamau, 2017).

Ngari,(2017) conducted a study on the effect of authorization and approval of accounting transactions on MFIs in Kenya .He concluded that microfinance institutions should limit the number of officers authorizing payments and bank accounts signatories. This is an important control exercised by the companies across the country. It is destined to ensure objectivity in reviewing payments. It ensures each of the officer's check the authenticity of the payment notwithstanding the fact that it has been attended by other signatories. It is hard for one officer to pass payment single handedly. This control is also boosted by the mandates given to the bank for transacting the accounts. A company can give conditionality after appointing signatories as all to sign, some to sign or mandatory signatories. The agency theory, stewardship theory and management control theories are relevant to authorization and approval of accounting transactions and aspects surrounding it (Ngari, 2017).

Hamza, Mutala and Antwi (2015) conducted a study to assess cash management practices and its effect on the financial performance of SMEs in Northern region of Ghana. Their study concluded that cash management practices have influence on the financial performance of SMEs hence there is need for SME managers to embrace efficient cash management practices as a strategy to improve their financial management (Hamza, Mutala, & Antwi, 2015).

Njeru et al., (2015) explored the effect of cash management on financial performance of deposit taking SACCOs in Mount Kenya Region. He concluded that there is need to introduce cash management controls in the SACCOs, there is need to better strengthen the role of SASRA and increase its awareness, there is need to introduce credit management policy and finally increase the monitoring role of the government through its regulator in the sector since the sector plays a critical role on the achievement of vision 2030 and improved economic development of the members.

Ejoh and Ejom (2014) sought to establish the relationship between internal control activities and financial performance in Tertiary Institutions in Nigeria. The study area is Cross River State College of Education, Akamkpa. Data was collected using questionnaires and interview guide as well as review of documents and articles. The method of analysis employed was survey design while the stratified sampling procedure was adopted in administering the questionnaires. The study revealed that all activities of the College are initiated by the top management. Regarding control activities, the study found that there is clear separation of role in the institutions finance and account department and that superior officer in the College supervised regularly work done by their subordinate. Also, the study found that the institution financial statements are audited annually by external auditors. However, there is a possibility for a single staff to have access to all valuable financial information without the consent of other staff. On the budgetary control, the study revealed that the institution adhere strictly to the provisions of annual departmental budget and that control are in place to exclude incurring expenditure in excess of allocated fund. Also, there is poor security network in the College. The study result further shows that there is no significant relationship between internal control activities and financial performance of Cross River State College of Education (Ejoh & Ejom, 2014).

One of the control activities is the segregation of duties, which is a basic building block of sustainable risk management and internal controls for a business. The principle of segregation of

duties is based on shared responsibilities of a key process that disperses the critical functions of that process to more than one person or department. Without this separation in key processes, fraud and error risks are far less manageable. This is so important that the research into internal controls and external auditor's judgments' has indicated that the assessment of separation of duties is a dominating factor in an auditors' evaluation of internal control structure. No single individual should have control over all phases of transaction; ideally the incompatible functional responsibilities of initiating transaction, custody of assets and record keeping should be responsibility of separate individuals. Duties are considered incompatible if a single person can carry out and conceal errors in the course of day to day activities. Segregation of duties requires a lot of resources such as human resources, space, money and time for it to be successfully implemented (Moeller, 2013).

Gramling, Hermanson, Hermanson, and Ye (2010) reported that one of the fundamental elements of effective control was the segregation of duties. However, while segregation of duties is the norm in bigger organizations, the researchers noted that it is a big challenge in smaller organizations that have limited human resource capacity and resource constraints. The study assessed small companies under the provisions of Sarbanes-Oxley (SOX) on financial reporting. The assessments showed that smaller companies did not comply with the provisions that required an auditor's opinion on the company's internal control activities. Further, these companies had problems with segregation of duties (Gramling, Hermanson, Hermanson, & Ye, 2010).

Amoateng (2017) sought to establish the effectiveness of internal control systems in savings and credit institutions in the Ashanti and Brong Ahafo regions in Ghana. The researcher used simple random and purposive sampling techniques to select respondents from 12 branches of 12 savings and credit institutions. In total, a sample of 174 was drawn for the study and questionnaires administered to collect data. The study identified the control activities such as adequate control over properties, existence of assets register, and purchases by authorized individuals, as important features of this component of internal controls. Further, firms gave adequate and regular training to their employees on internal controls and financial management systems. Access to records were restricted to authorized staff and there was segregation of duties throughout the transaction process (Amoateng, 2017).

Muthusi (2017) indicated that instituting appropriate measures in the accounting and financial management system is crucial in correcting malfeasance. This is done through allowing only authorized personnel to access bank records, limiting accounting records to employees with designated responsibility for such records, segregation of duties to deter fraud in the system, reconciliation of bank accounts on a daily basis to ensure that there are no outstanding items that may result in a bank loss, and setting effective control measures in the system. The respondents also noted the importance of closely monitoring the system, reviewing the operating performance, and providing feedback to junior staff periodically. Overall, the researchers showed that there was a positive and significant relationship between control activities and the financial performance of commercial banks ($\beta=0.923$, $p=0.019$) (Muthusi, 2017).

Magu and Kibati (2016) noted that internal control systems are established to ensure that there is a safe custody assets and that it is possible to detect and prevent fraud. The elements of control activities identified by Magu and Kibati (2018) are clarity in definition of roles, appropriate supervision, need for corrective actions to address weaknesses, training of employees on the accounting and financial system, and proper controls and authorizations. Regression analysis of the influence of control activities on the performance of KFA showed that an increase in control activities can enhance financial performance by a factor of 0.490, and that the relationship was significant at $p =0.039$ (Magu & Kibati, 2016).

Kabue and Aduda (2017) sought to investigate the effect of internal controls on fraud detection and prevention among commercial banks in Kenya. The sample consisted of 43 banks. The study isolated the dimensions of control activities as reconciliation controls, corporate governance control, reporting and budget controls. The findings show that these dimensions are strong predictors of fraud detection and prevention. Regression analysis indicate a negative but significant link between reconciliation control and level of detecting and preventing fraud. Further, there was a negative and significant relationship between financial governance control and level of fraud prevention and detection, but the association between reporting and budget control and level of fraud prevention and detection was positive and significant (Kabue & Aduda, 2017).

2.4. Research Gap

The COSO framework has been utilized by various studies to investigate how the internal control system relates with different aspects of organizational performance. As expected, all the five components included in the COSO framework have been given extensive treatment in research. However, the effects of each of these dimensions of the internal control framework have been found to exert different effects across industries and geographies. There are mixed results on the effect of internal control components.

Nyakarimi and Karwirwa (2015) found out that a sound internal control system can prevent frauds, errors, and minimize wastes, while at the same times strengthening the custody of assets, assuring the management on the dependability of accounting data, and maintaining adequate and reliable accounting records. On the other hand, Kabue and Aduda (2017) note that inefficient and ineffective internal control systems has a negative effect on organizational productivity and increases the likelihood of losses. In many studies such as Kamau (2014), Kinyua (2015), and Magu and Kibati (2016) internal control was found to exert a positive significant effect on financial performance.

Most of the studies on risk assessment and performance did not report similar results. Amposah (2012) sought to determine the place of risk assessment in achieving effective risk management and found out that there were weaknesses in the performance of risk analysis when awarding loans to small and medium sized enterprises. Muraguri (2016) not find a significant effect of risk assessment on performance in state-owned enterprises, hence indicating that risk assessment is not a significant predictor of performance. On the other hand, a majority of studies have concentrated on the effect on financial performance with minimal focus on credit risk management in commercial banks. There is need for research to bridge the gap on the effects of internal control system on credit risk management.

2.5. Conceptual Framework

The conceptual framework shows the relationship between the independent variables (control environment, risk assessment, information and communication, control activities) and independent variable (credit risk management).

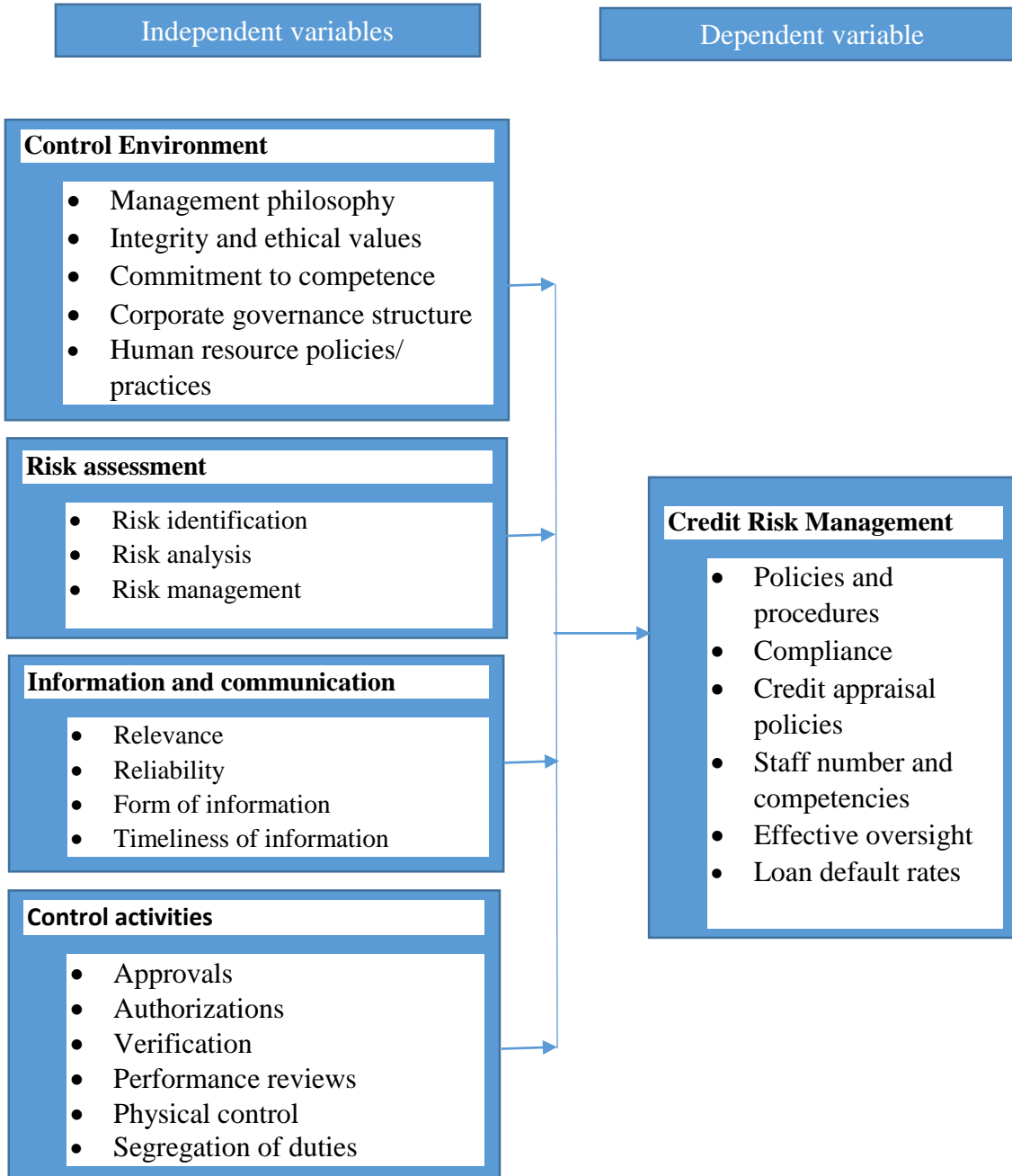


Figure 2.1: Conceptual framework

Table 2.1: Operationalization of Variables

Variable	Variable type	Operationalization	Measurement
Credit risk Management	Dependent	Policies and procedures (Alshatti, 2015) Compliance Credit appraisal policies Staff number and competencies (Mulyani & Arum, 2016) Effective oversight Loan default rates (Direenzo, Hillairet, & Picard, 2004)	Likert scale
Control environment	Independent	Management philosophy Integrity and ethical values Commitment to competence Corporate governance structure Human resource policies/practices (COSO, 2013)	Likert scale
Risk assessment	Independent	Risk identification (IMA, 2017) Risk analysis Risk management (COSO, 2013)	Likert scale
Information and communication	Independent	Communication responsibilities Communication channels (Madhushree, Radhakrishnan, & Aithal, 2019) Communication policies Anti-fraud policies (COSO, 2013)	Likert scale
Control activities	Independent	Approvals Authorizations Verification Performance reviews (COSO, 2013) Physical control Segregation of duties (Ngari, 2017)	Likert scale

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research design, population, sampling procedures, sample size, data collection methods, and data analysis techniques.

3.1. Research Design

Descriptive research design was used in investigating situations where the primary interest is the descriptions and interpretations about questions under study. In descriptive research design, the phenomenon is investigated without artificially manipulating the study by the researcher. It involves the collection quantitative data that can be analyzed and presented in numerical form in order to determine the causal relationships between given variables. Descriptive studies are focused on establishing the “what”, “where” and “how” of the research phenomenon (Golafshani, 2003).

While descriptive research methods describe situations, they are not appropriate for establishing cause and effect relationships (Creswell & Creswell, 2017). In most cases, data is collected using survey instruments such as questionnaires and interviews. The justification for using descriptive research design stems from the fact that it enables the researcher to examine people’s beliefs, opinions, and perceptions on a set of questions under study (Golafshani, 2003).

3.2. Population

The target population is defined as “the population from which we would want to collect data if we were conducting a complete census rather than a sample survey” (Greenm, Camilli, & Elmore, 2006). The target population for the study are employees from the 43 financial institutions (42 commercial banks and 1 mortgage finance bank) in Kenya, a total of 43 respondents.

Table 3.1: Population

Respondents	Population
Internal Audit Manager	43
Total	43

3.3.Sampling and Sample Size

A sample refers to a small portion of a target population selected using some systematic procedure for study. The study used census, in which every unit in the population participated in the study. In this case, that means the 43 respondents from the 43 banks was selected for the study.

3.4.Data Collection

Data is defined as the information gathered for the purposes of the study. Data can either be primary or secondary. Primary data is defined as information that the researcher has obtained directly from the field in real time, while secondary data refers to information collected by other researchers and archived in some form to answer different research questions. Data can either be qualitative or quantitative.

Questionnaires were used to collect primary data in this study. Questionnaires are preferred because they allow the researcher to collect standardized information that is expressed numerically using ranking, such as Likert-type scales. The choice of questionnaires is justified by the fact that they allow respondents to remain anonymous. Another justification is that compared to other data collection methodologies such as interviews, questionnaires are relatively inexpensive to administer, and generate data that is relatively easier to analyze.

The questionnaire had six sections. Section A collected general biographical information, Section B collected information on the control environment, Section C collected information on risk assessment, Section D collected information on information and communication, and Section E collected information on the control activities. Finally, Section F collected information on the effectiveness/performance of credit risk management. All the responses were ranked based on a 5-

point Likert type scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5).

3.5. Research Procedures

3.5.1. Pilot Study

A pilot study was carried out to test the validity and reliability of the data collection instrument, as well as determine the logistics of collecting data. A 10% sample of the sampling size of 43 respondents was used in the pilot study. The pilot sample were 4 respondents. The instrument was administered at the place of work. The information was entered in an Excel sheet and analyzed using SPSS statistics.

3.5.2. Validity Tests

Validity refers to the degree to which a data collection instrument measures what it is expected to measure. The test instrument used in this study was questionnaire. A questionnaire is said to be valid if it collects the information the researcher intends to obtain from the respondents. To ensure the validity of the survey instrument, it was pilot tested before use in actual data collection. The survey instrument was pilot tested and the results used in removing ambiguities, refining, and improving the data collection instruments in order to increase the level of instrument validity.

3.5.3. Reliability Tests

Reliability is the degree to which the results obtained using a data collection instrument are consistent over time and can accurately represent the total population being studied. The reliability of the research instrument was tested by determining random error. This method is commonly referred to as the split half method and involves dividing the solved items into two groups using odd and even numbers. The total scores from subjects from two groups of items were correlated using Pearson product moment correlation coefficient. An instrument with a coefficient value of 0.7 was considered reliable.

3.5.4. Ethical Considerations

Ethical considerations are important in preventing harm to respondents participating in the research. The researcher took into account ethical considerations to ensure that all respondents were protected. The researcher obtained informed consent by explaining to the respondents the purpose of the study and how affected them before asking them whether they desire to participate or not. The researcher kept the privacy and confidentiality of participants, collected no private/personally identifiable information about respondents, and stored data under secure conditions to prevent unauthorized access to research materials. Additionally, the researcher obtained authorization from the University Ethical Committee.

3.5.5. Administration of Questionnaires

The questionnaires were self-administered to the respondents, by handing them personally to the sampled respondents at their places of work. Questionnaires that are completed were handed out by the researcher. Those participants who were unable to complete the questionnaire were given 7 days to complete, upon which the researcher went to their offices to pick the questionnaires. Respondents who did not have complete the questionnaire in 7 days were reminded using phone calls and SMS. Respondents who did submit completed after 14 days were deemed to be unresponsive. All the questionnaires collected were stored securely in wait for data analysis.

3.6.Data Analysis

All the data collected were entered into an Excel sheet, organized and cleaned for any inconsistencies. The Excel data sheet was uploaded in Statistical Packages in Social Sciences software (SPSS 23) for descriptive and inferential analysis. Descriptive statistics summarize responses on the components of internal control system and credit risk management into as means, modes, medians, and standard deviations, which are presented in tables, charts, and graphs. The relationship between the independent variables and the dependent variables was determined using multiple regression.

3.6.1. Model Specification

This model helped to establish the relationship between the independent variables and the dependent variable. The researcher used multiple regressions to help determine the relationship

between the variables under study. The model was used to study the effects of internal control on credit risk management of commercial banks. The model took the form of:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where;

Y = the dependent variable (Performance of credit business)

β_0 = is constant

β_n = Coefficients to be determined.

X_1 = Control environment

X_2 = Risk management

X_3 = Information and communication

X_4 = Control activities

ε = Error term for the model

3.6.2. Diagnostic Tests

The study took into account diagnostic tests to validate the regression equation and reduce the probability of type I and type II. The diagnostics included multicollinearity and heteroscedasticity.

3.6.2.1. Multicollinearity

The multicollinearity is an encountered statistical phenomenon when two or more independent variables in a multiple regression model are highly correlated. If the correlation is 1 or -1, in its most severe case this makes the estimation of the regression coefficients impossible or unreliable. Multicollinearity may not be problematic. However, severe multicollinearity is a problem because it can increase the variance of the coefficient estimates and make the estimates very sensitive to minor changes in the model. The result is that the coefficient estimates are unstable and difficult to interpret. Multicollinearity was conducted to test the presence of the relationship between values of the independent variables based on the repeated patterns in the regression analysis process. Variance inflation factors (VIF) measured the level of the collinearity between the variables. When the VIFs values are greater than 10, collinearity is problematic. However, if VIFs values are less than 10, collinearity is not problematic and therefore there is no significant collinearity in the data set that can hinder regression analysis.

3.6.2.2.Heteroscedasticity

One of the main assumptions of regression is that the variance of the errors is constant across observations. If the errors have constant variance, the errors are called homoscedastic. Typically, residuals are plotted to assess this assumption. In statistics, a collection of random variables is Heteroscedasticity. Standard estimation methods are inefficient when the errors are heteroscedasticity or have non-constant variance. In this study, the Breusch–Pagan test was used to test for Heteroscedasticity in the linear regression model. It was applied to test whether the estimated variance of the residuals from a regression are dependent on the values of the independent variables.

Heteroscedasticity is a violation of one of the requirements of ordinary least squares (OLS) in which the error variance is not constant. The consequences of heteroscedasticity are that the estimated coefficients are unbiased and inefficient. The variances are either too small or too large, leading to Type I error where the Null hypothesis is rejected when it is true or Type II error where one fails to reject a false Null hypothesis. Heteroscedasticity is mainly prevalent in cross-sectional data set such as the one used in this study.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1. Introduction

This section presents the findings of the study. It presents and describes the findings from descriptive statistical analysis and inferential statistical analysis. The descriptive analysis cover the response rate, demographic variables and responses on variables. The inferential analysis captures the relationship between the independent variables and the dependent variable in the study.

4.2. General Information

4.2.1. Reliability Statistics

Reliability test results indicate that the Cronbach's alpha coefficients for all the variables were above the recommended threshold of 0.7: control environment (0.876), risk assessment (0.780), information and communication (0.707), control activities (0.762), and credit risk management (0.801). The coefficient for the instrument was computed at 0.785, which is satisfactory for the study.

Table 4.1: Reliability Statistics

Variable	Number of items	Cronbach's Alpha
Control environment	5	.876
Risk assessment	5	.780
Information and communication	5	.707
Control activities	5	.762
Credit risk management	5	.801
Overall	25	.785

4.2.2. Response Rate

The study administered questionnaires to 43 internal auditors in commercial banks in the country. Out of these, 42 completed and returned the questionnaires which proceeded to analysis, representing a response rate of 97.7%, which is satisfactory for the study.

4.2.3. Gender

The findings indicate that male employees constituted 54.8% of internal auditors surveyed, with female internal auditors accounting for 45.2%. This represents a ratio that is nearly 1:1 in gender distribution at the workplace.

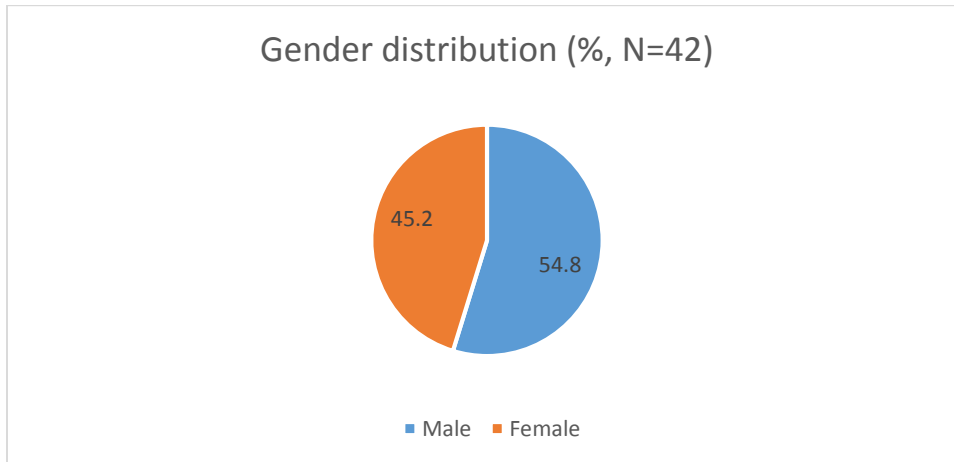


Figure 4.1: Gender distribution

4.2.4. Age

In terms of age distribution, a majority of the respondents were aged between 41-50 years old (57.1%), followed by those aged between 31-40 years old (26.1%). Those aged between 21-30 years old accounted for 9.1%, while those aged over 51% accounted for 7.1% of the number of internal auditors in the study.

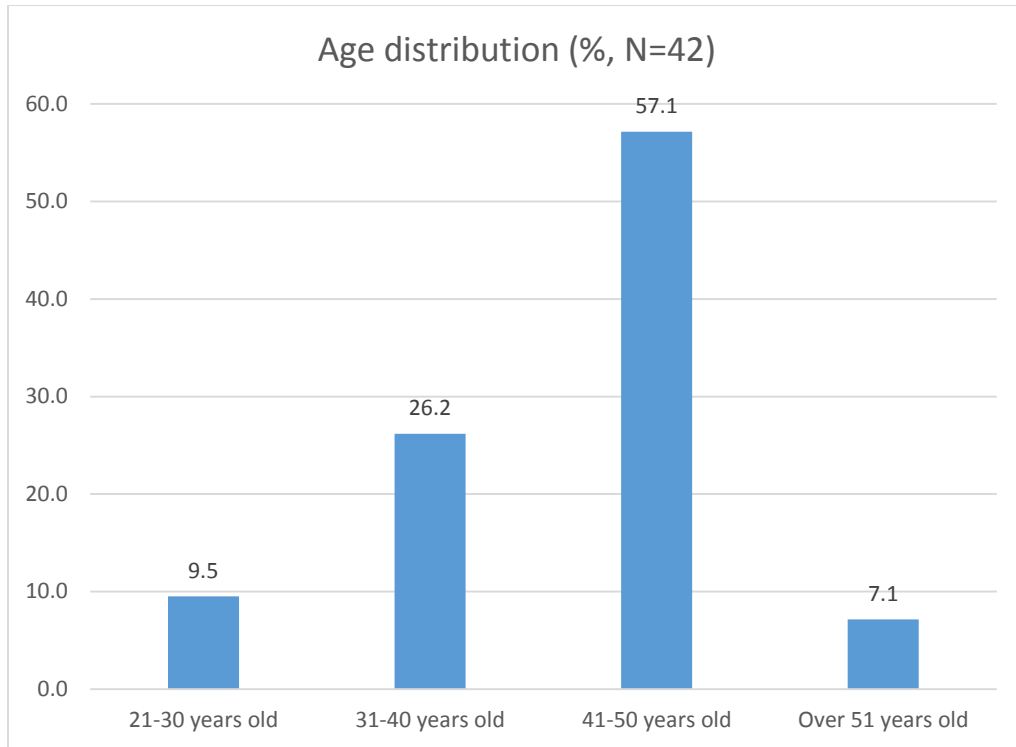


Figure 4.2: Age distribution

4.2.5. Duration at the Bank

In the same vein, in terms of how many years the internal auditors had been working with the bank at the time of the survey, the results showed that 33.3% had worked with the bank for 3- 4 years, 28.6% had worked with the bank for more than 4 years, 23.8% had worked with the bank for 2-3 years, 11.9% had worked for 1-3 years, and 2.4% had been with the commercial bank as an internal auditor for less than 1 year.

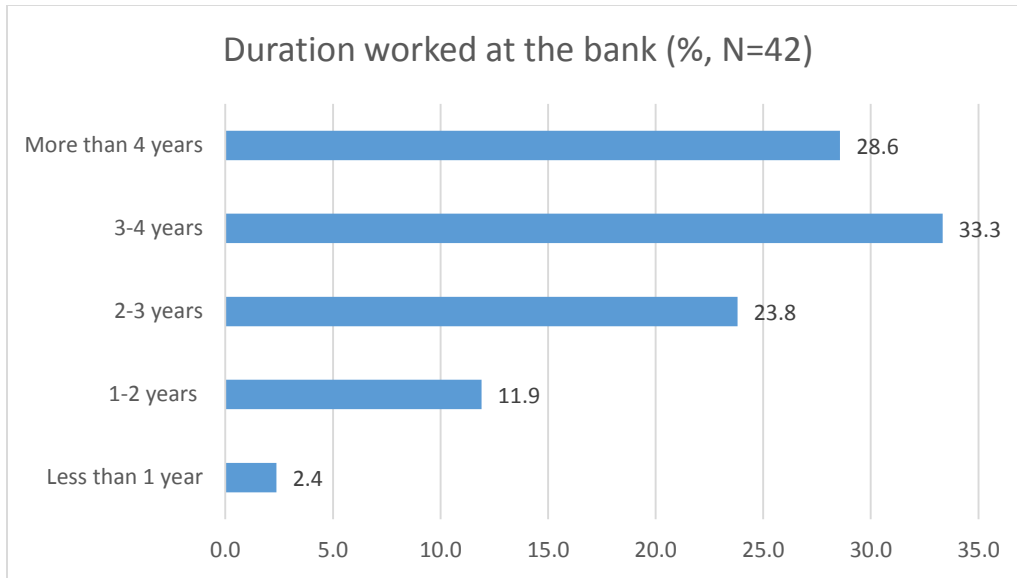


Figure 4.3: Duration at the bank

4.2.6. Level of Education

In the analysis, a majority were Bachelor's degree holders (61.9%), 23.8% had a Masters as the highest level of education, and 14.3% had a bachelor's. There was no internal auditor with a PhD level of education as showed in Figure 4.4.

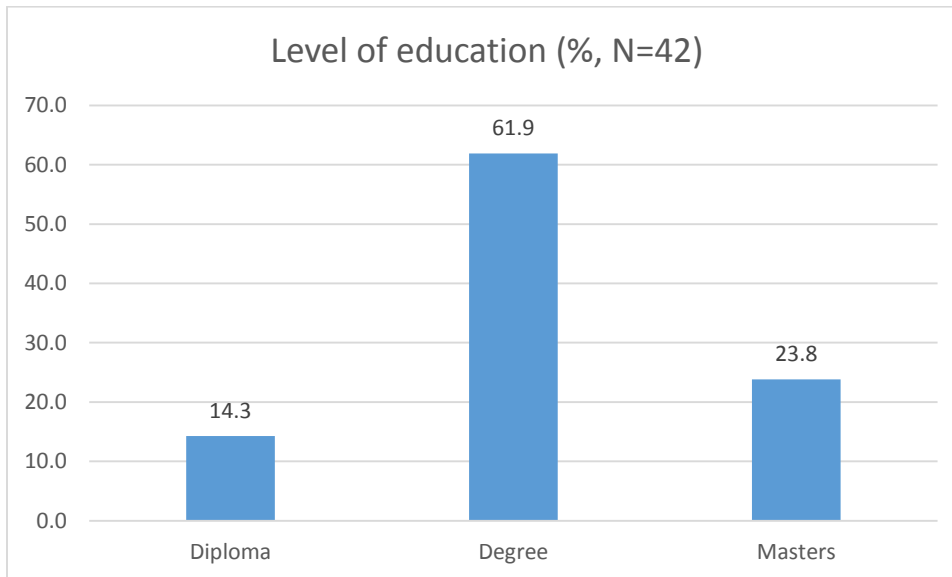


Figure 4.4: Level of education

4.3. Descriptive Statistical Analysis

4.3.1. Control Environment and Credit Risk Management

The study evaluated the degree of agreement with a set of indicators of control environment in the banks. In general, the internal auditors agreed, to a large extent, that the commercial banks had instituted the foundation necessary for implementing internal control systems. More than three quarters, that is 38.1% agreed and another 38.1% strongly agreed, that the bank had established an organizational philosophy to guide behavior, operational activities and decisions (M=4.071, SD=0.921). In the same vein, 45.2% agreed and 42.9% strongly agreed with the position that the bank management was committed to high levels of ethical values and integrity (M=4.286, SD=0.742). There were also high standards guiding audits and audit-related functions (agreed, 35.7%; strongly agreed, 33.3%; M=3.905; SD=1.031). The board, management and employees were committed to high standards of integrity (agreed, 50.0% strongly agreed, 38.1%; M=4.214; SD=0.782). Finally, 33.3% agreed and 38.1% strongly agreed that the board of directors was independent and free from the influence of the management (M=3.952, SD=1.058).

Table 4.2: Control environment

	SD	D	N	A	SA	Mean	Std. Deviation
Presence of organizational philosophy	0%	7.1%	16.7%	38.1%	38.1%	4.071	0.921
Management commitment to the ethical values in commercial banks	0%	2.4%	9.5%	45.2%	42.9%	4.286	0.742
Existence of standards to guide audits and audit-related functions	2.4%	7.1%	21.4%	35.7%	33.3%	3.905	1.031
Commitment to competence and integrity by the Board, management and employees	0%	4.8%	7.1%	50.0%	38.1%	4.214	0.782
Independence of the board of directors	0%	14.3%	14.3%	33.3%	38.1%	3.952	1.058

4.3.2. Risk Assessment and Credit Risk Management

With regard to risk assessment processes, the findings indicate that the bank frequently experienced credit risks, with 42.9% agreeing and 35.7% strongly agreeing with the statement (M=4.047, SD=0.961). To counteract these risks, 31.0% agreed and 54.8% strongly agreed that the bank had defined appropriate risk assessment objectives to guide its response (M=4.357, SD=0.899). The banks had also identified risks that affected the achievement of its core objectives (agreed, 38.1%; strongly agreed, 35.7%; M=4.023; SD=0.949). In addition, they had established a criteria for identifying critical risks to the credit business (M=4.285, SD=0.918) and instituted mechanisms for mitigating critical risks (M=3.881, SD=1.173). The findings are presented in Table 4.2.

Table 4.3: Risk Assessment

	SD	D	N	A	SA	Mean	Std. Deviation
The bank frequently experiences credit risks in its daily business	2.4%	4.8%	14.3%	42.9%	35.7%	4.047	.961
The bank has defined appropriate risk assessment objectives for the organization	2.4%	0%	11.9%	31.0%	54.8%	4.357	.899
The bank identifies risks that affect achievement of the objectives in a timely manner	2.4%	2.4%	21.4%	38.1%	35.7%	4.023	.949
The bank has a criteria for identifying critical risks to the credit business	2.4%	2.4%	9.5%	35.7%	50.0%	4.285	.918
The bank has in place mechanisms of mitigating critical risks that may arise during the course doing business	2.4%	14.3%	16.7%	26.2%	40.5%	3.881	1.173

4.3.3. Information and Communication and Credit Risk Management

Information and communication is a core aspect of internal control framework. These results indicate that respondents greatly agreed with the importance of information and communication in internal control, and by extension credit risk management. When asked whether the bank had identified personnel and charged them with the responsibility of conducting appropriate communication, 35.7% agreed and 42.9% strongly agreed (M=4.143, SD=0.926). The employees were aware of the importance of internal controls (M=4.238, SD=0.726). Additionally, the bank had established effective communication channels (M=4.119, SD =0.993) and clear reporting structure that spelled out the responsibilities for every section/unit in the bank (M=4.143, SD=0.926). When asked whether the bank had put in place anti-fraud policies and fraud mitigation measures, 35.7% were in agreement and 45.2% were in strong agreement, representing; M=4.143, SD=1.002.

Table 4.4: Information and Communication

	SD	D	N	A	SA	Mean	Std. Deviation
Personnel charged with the responsibility of coordinating activities to ensure appropriate communication on internal controls	0%	7.1%	14.3%	35.7%	42.9%	4.143	0.926
The bank's employees are aware of the importance of internal controls	0%	%	16.7%	42.9%	40.5%	4.238	0.726
Effective communication channels that supports the implementation of various activities at the bank	2.4%	7.1%	7.1%	42.9%	40.5%	4.119	0.993
clear reporting structures spelling out the responsibilities for every section/unit in the bank	2.4%	2.4%	14.3%	40.5%	40.5%	4.143	0.926
Presence of anti-fraud policies and effective communication of procedures	0%	11.9%	7.1%	35.7%	45.2%	4.143	1.002

4.3.4. Control Activities and Credit Risk Management

Of those surveyed, 28.6% agreed and 35.7% strongly agreed that the banking internal control system was designed to allow only authorized personnel to access it; however, there was also a sizeable proportion, 26.2%, who could not positively or negatively assess the design of the banking system (M=3.905, SD=1.008). In the same vein, 24.9% agreed and 40.5% strongly agreed that the accounting system only allowed employees with designated responsibility to access banking records (M=4.167; SD=0.908). There were strong controls regarding recording, record checking, and record verification (M=3.833, SD=1.057). The banks had also put in place special limits set for different levels of risk (M=4.286, SD=0.774). Finally, banks carried out reconciliation of accounts on a daily basis to ensure that no outstanding issues are transferred to the next day of business (M=4.048, SD=0.962).

Table 4.5: Control Activities

	SD	D	N	A	SA	Mean	Std. Deviation
The banking system is designed to allow only authorized personnel	0%	9.5%	26.2%	28.6%	35.7%	3.905	1.008
The bank's accounting system allows only employees with designated responsibility to access records	2.4%	2.4%	11.9%	24.9%	40.5%	4.167	0.908
The bank has control measures for making entries, checking records and verifying records	2.4%	9.5%	21.4%	35.7%	31.0%	3.833	1.057
Special limits are set for different levels of risk in different categories	0%	4.8%	4.8%	47.6%	42.9%	4.286	0.774
The bank has measures for reconciliation of banks' accounts on a daily basis to ensure that there is no outstanding items that can lead to losses	0%	9.5%	14.3%	38.1%	38.1%	4.048	0.962

4.4. Inferential Statistical Analysis

To establish the relationship between internal control system variables and credit risk management, the study carried out correlation and regression analysis, the results of which are presented in the next section.

4.4.1. Correlation Analysis

Pearson correlation analysis was performed to determine the association between the variables. The results indicate that the control environment had a positive and significant association with risk assessment ($r=0.347$, $p=0.024$) and information and communication ($r=0.332$, $p=0.032$) at 0.05 significance level. The association between the control environment and control activities ($r=0.424$, $p=0.005$) and credit risk management ($r=0.588$, $p=0.000$) was positive and significant at a 0.001 significance level.

Risk assessment has a positive and significant association with control environment ($r=0.347$, $p=0.024$) and control activities ($r=0.326$, $p=0.035$) at 0.05 significance level. However, even though the association with information and communication ($r=0.163$, $p=0.302$) and credit risk management ($r=0.258$, $p=0.099$) was positive, it was not statistically significant.

Information and communication was positively and statistically significantly associated with control environment ($r=0.332$, $p=0.032$), control activities ($r=0.341$, $p=0.027$), and credit risk management ($r=0.327$, $p=0.035$). The link with risk assessment was positive but not significant ($r=0.163$, $p=0.302$).

Control activities has a positive and statistically significant association with all the other variables. At 0.05 significance level, it was positively and significantly associated with risk assessment ($r=0.326$, $p=0.035$) and information and communication ($r=0.341$, $p=0.027$). While at 0.01 significant level, positive association was reported for control environment ($r=0.5424$, $p=0.000$) and credit risk management ($r=0.717$, $p=0.000$).

There was a positive and significant association between credit risk management and the control environment ($r=0.588$, $p=0.000$) and control activities ($r=0.717$, $p=0.000$) at 0.01 significance level, and with information and communication ($r=0.327$, $p=0.035$) at 0.05 level. The link with risk assessment was positive but not significant ($r=0.258$, $p=0.099$).

Table 4.6: Correlation Analysis on the Relationship between Internal Control System and Credit Risk Management

		Control environment	Risk assessment	Information and communication	Control activities	Credit risk management
Control environment	Pearson Correlation	1	.347*	.332*	.424**	.588**
	Sig. (2-tailed)		.024	.032	.005	.000
	N	42	42	42	42	42
Risk assessment	Pearson Correlation	.347*	1	.163	.326*	.258
	Sig. (2-tailed)	.024		.302	.035	.099
	N	42	42	42	42	42
Information and communication	Pearson Correlation	.332*	.163	1	.341*	.327*
	Sig. (2-tailed)	.032	.302		.027	.035
	N	42	42	42	42	42
Control activities	Pearson Correlation	.424**	.326*	.341*	1	.717**
	Sig. (2-tailed)	.005	.035	.027		.000
	N	42	42	42	42	42
Credit risk management	Pearson Correlation	.588**	.258	.327*	.717**	1
	Sig. (2-tailed)	.000	.099	.035	.000	
	N	42	42	42	42	42

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

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

4.4.2. Regression Analysis

Based on the regression model presented in Chapter 3, the study computed the relationship between internal control system indicators and credit risk management. The results presented in Table 4.6 report an R Square value of 0.616. This means that the independent variables: control

environment, risk assessment, information and communication and control activities, are responsible for a 61.6% change in the dependent variable: credit risk management. The results imply that the internal control system is a strong predictor of credit risk management.

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.785 ^a	.616	.574	.319

a. Predictors: (Constant), control activities, risk assessment, information and communication, control environment

Before computing the regression coefficients, the researcher performed ANOVA analysis to test the regression model. The findings, $F(4,37)=14.836$, $p=0.000$ show that the model is statistically significant and can be used to predict the independent variable, as reported in Table 4.7.

Table 4.8: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.032	4	1.508	14.836	.000 ^b
	Residual	3.761	37	.102		
	Total	9.793	41			

a. Dependent Variable: credit risk management

b. Predictors: (Constant), control activities, risk assessment, information and communication, control environment

The regression coefficients, reported in Table 4.8, indicate that there is a positive and statistically significant relationship between the control environment and credit risk management in commercial banks in Kenya ($\beta = 0.255$, $p = 0.005$), implying that a unit increase in the effectiveness of the control environment leads to an increase in credit risk management by a factor of 0.255.

There was also a positive and statistically significant effect of control activities on credit risk management in commercial banks ($\beta = 0.356$, $p = 0.000$). This implies that a unit increase in the effectiveness of control activities leads to an increase in credit risk management by a factor of 0.356.

Information and communication had a positive influence on credit risk management ($\beta = 0.013$, $p = 0.856$). However, this relationship was not statistically significant at a 0.05 significance level (95% confidence level). On the other hand, there was a negative influence of the risk assessment framework on credit risk management in commercial banks in Kenya. Even though the negative influence was not statistically significant at 0.05 significance level ($\beta = -0.044$, $p = 0.611$), the findings show that the risk assessment framework has a negative drag on credit risk management.

Table 4.9: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.804	.426		4.236	.000
	Control environment	.255	.085	.356	3.002	.005
	Risk assessment	-.044	.087	-.057	-.513	.611
	Information and communication	.013	.073	.020	.183	.856
	Control activities	.356	.073	.578	4.888	.000

a. Dependent Variable: Credit risk management

Replacing for the variables in the regression model presented in Chapter 3:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where; Y was the dependent variable, β_0 was the constant, β_n were the coefficients to be determined and X_1 , X_2 , X_3 , X_4 were control environment, risk management, information and communication, and control activities, and ε was the error term; the equation can be rewritten as:

$$\text{Credit Risk Management} = 1.804 + 0.255(\text{Control environment}) - 0.044 (\text{Risk assessment}) + 0.013 (\text{Information and communication}) + 0.356 (\text{Control activities}) + 0.426.$$

4.5. Discussion of Findings

This study demonstrates that there is a positive and significant effect of control environment and control activities on credit risk management. Information and communication has a positive effect but the relationship was not significant. Risk assessment had a negative effect and the information was not significant. There are findings that corroborate these results. Magu and Kibati (2016), in

a study of internal control systems at Kenya Farmers Association found out that there was a positive effect of control environment on the performance. Micheni (2016), investigating fraud in the Kenyan financial system reported that financial institutions have instituted internal controls, and that the control environment had a positive effect on fraud detection and prevention (Micheni, 2016).

In the same vein, a study focusing on the effect of internal control systems on the credit business performance at the Mombasa Teachers Sacco Limited also established a positive link. In another study focusing on commercial banks, Muthusi (2017) investigated the effect of internal controls on the financial performance of the banks. Regression statistics revealed that the control environment had a positive and significant effect on the performance of commercial banks. Similar findings were established by Muhunyo and Jagongo (2018) on the effect of the control environment on the financial performance of institutions of higher learning in Nairobi County.

The findings of the present study indicate that risk assessment had a negative effect on credit risk management. Risk management is an integral aspect of the internal control system. In the absence of an effective risk management system, shareholders can suffer losses or lose their investments. A study by Amposah (2012) established a positive link between internal control system and risk management. A different study by Nyakarimi and Karwirwa (2015), which recruited respondents from deposit taking savings and credit cooperative societies, found out that risk assessment had a positive and significant relationship with fraud control.

Mwazo, Weda, Omondi, and Njenga (2017) investigated how internal controls affected service delivery at the Taita-Taveta Treasury. The findings which were generated from data collected from finance employees in the County reported a positive association between risk management systems and service delivery. In Kajiado County, Ogetange (2017) studying the link between risk assessment processes in the bank found a positive association with risk management. On the contrary, Muraguri (2016) did not find a significant effect of risk assessment on performance in state-owned enterprises.

With respect to information and communication, various studies have also reported a positive association between the component and measures of performance. Mwazo et al (2017) reiterated the importance of information and communication in internal control systems. The correlation

analysis demonstrated that information and communication had a positive effect on service delivery. In a study based on deposit taking SACCOs, Kiyieka and Muturi (2018) were able to demonstrate that a positive relationship exists between information and communication system and financial performance of SACCOs operating in Kisii County. Nyakarimi and Karwirwa (2015) reported similar findings on SACCOs in Imenti North Sub-County. On the contrary, a study focusing on Commercial Bank of Africa showed that poor IT structures are associated with high cases of fraud cases and that there was a negative correlation between IT structures and fraud prevention and control (Wanjohi, 2014).

The findings in this present study indicate a positive and significant effect of control activities on credit risk management. In a study carried out in Ghana, Amoateng (2017) showed that internal control systems were adopted by savings and credit institutions. These systems instituted some of the measures of credit controls such as access restrictions and segregation of duties. Similar findings have been reported in this research.

In the same way, Muthusi (2017) showed that control activities such as authorized personnel to access bank records, limitations on accounting records to employees with designated responsibility, segregation of duties and reconciliation of accounts on a daily basis were effective in fraud control and prevention. The researcher demonstrated a positive and significant effect of control activities on the financial performance of commercial banks. Similar findings were reported by Magu and Kibati (2018) who established that control activities have a positive effect on financial performance. Further, Kabue and Aduda (2017) showed that control activities played a positive role in preventing and controlling fraud.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1.Introduction

This section presents the conclusions and recommendations of the study. The section presents a summary of the findings, the conclusions for each objective and the limitations of the study. The section also recommends that can be drawn from the findings and suggestions for further research.

5.2.Summary of Major Findings

The first objective was to establish the effect of the control environment on credit risk management. The findings showed that commercial banks in Kenya had instituted the indicators of control environment. These banks had established an organizational philosophy to guide behavior, operational activities and decisions; the management was committed to high levels of ethical values and integrity; there were high standards guiding audits and audit-related functions; the board, management and employees were committed to high standards of integrity; and finally board of directors was independent and free from the influence of the management. Regression findings demonstrated that the control environment and credit risk management in commercial banks in Kenya.

The second objective was to establish the effect of risk assessment on credit risk management. The descriptive analysis revealed that there was a high frequency of credit risks in the commercial banks. As part of the countermeasures against the rising number of fraud cases, the banks had clearly defined appropriate risk assessment objectives. The banks had also identified risks that affected the achievement of its core objectives; established a criteria for identifying critical risks to the credit business; and instituted mechanisms for mitigating critical risks. However, because of the high frequency of fraud cases, there was a negative relationship between risk assessment and credit risk management, implying that the risk assessment framework was inadequate in achieving the desired performance objectives in credit risk management.

The third objective sought to establish the effect of information and communication on credit risk management. The findings showed that the bank had invested in the right personnel and

appropriately allocated responsibility. Employees were also aware of the importance of internal controls and were committed to using effective communication channels. The banks had also put in place anti-fraud policies and fraud mitigation measures. Overall, the findings showed that information and communication had a positive influence on credit risk management, but the relationship was not statistically significant.

The fourth objective was to investigate the effect of control activities on credit risk management. The findings indicate that the design of the internal control system had inbuilt restrictions on access. Personnel had to be authorized to access specific information in the system. There were also restrictions in making records, checking records and verifying records. Daily reconciliations ensured that all outstanding issues were dealt with appropriately. The regression results indicate that there was a positive and significant effect of control activities on credit risk management.

5.3. Conclusions

On the effect of control environment, the study established that commercial banks have instituted measures such as strategic objectives, organizational philosophy, ethical values, commitment to integrity, policies and regulations regarding audits, and ensured that the board of directors were independent so as to offer sound oversight. The study concludes that the control environment has a positive and significant effect on credit risk management.

On the effect of risk assessment, the study reported that banks were experiencing high levels of fraud. To tackle these challenges, they had established clear risk assessment objectives and criteria to identify critical credit risks and mitigate credit risks. Nonetheless, fraud continues to increase. In conclusion, the study notes that risk assessment had a negative effect on credit risk management; however, the effect was not statistically significant.’

On the effect of information and communication, commercial banks had recruited adequate and competent personnel to management information and communication, created awareness on the importance of internal controls, and encouraged the use of effective communication channels. The banks also designed anti-fraud policies and established mitigation measures. The study concludes that information and communication has a positive effect on credit risk management, even though the relationship was not statistically significant.

On the effect of control activities, commercial banks in Kenya have designed internal control systems that only allow authorized access. The accounting system only allowed employees with designated responsibility to access banking records, and there were strong controls regarding recording, record checking, and record verification. Commercial banks also ensured that reconciliations were done every day before closing to deal with outstanding issues. The study concludes that there is a positive and significant effect of control activities on credit risk management.

5.4.Recommendations

The study recommends that the commercial banks should uphold the highest level of compliance with regard to the requirements of the control environment. Since this is the foundational component of the internal control system, the commercial banks should routinely carry out evaluations and continually improve its strategic objectives, inspire belief in its philosophy and values, and maintain a strong independent oversight.

Commercial banks in Kenya continue to suffer from losses associated with fraud cases. With findings showing that the current risk assessment framework has failed to enhance credit risk performance, there is need for a robust assessment model, specifically focused on identifying credit risks such as fraud and instituting mitigation measures to reduce losses.

Information and information flow is central to the smooth running of an internal control system. Effective communication between personnel and flow of information across organizational hierarchies should be continuously improved. Anti-fraud policies should be updated regularly in line with the changing nature of risks and risk exposure.

Control activities provide safeguards in the system against breaches of security and unauthorized access of information by persons not given the express authority. Changing enterprise security frameworks means that banks must always be on the lookout for the best technological solutions in the market. The study recommends routine security tests, updates and upgrades in line with industry standards.

5.5.Suggestions for Further Research

There are five components of the COSO framework of internal control system. Out of the five, only four components were examined in this study; notably, control environment, risk assessment, information and communication, and control activities. The fifth component; monitoring and evaluation, was not captured in this study. Further research can also examine the relationship between monitoring and evaluation and credit risk management.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

This project will collect information internal control system and credit risk management among commercial banks in Kenya. The survey will take 10-15 minutes of your time. The survey is voluntary and you do not have to complete the questionnaire. You are also not required to provide your name. The information you give will only be used for academic purposes.

Put a tick in the box next to the appropriate answer.

PART ONE: BACKGROUND INFORMATION

1. Gender
 - Male
 - Female
2. What is your age?
 - Under 20 years old
 - 21- 30 years old
 - 31-40 years old
 - 41-50 years old
 - Over 51 years old
3. How long have you worked at the institution?
 - Less than 1 year
 - Between 1-2 years
 - Over 2-3 years
 - Between 3-4 years
 - 4 years and above
4. Level of Education
 - Certificate/Diploma
 - Degree
 - Masters
 - PhD

PART TWO: CONTROL ENVIRONMENT

5. To what extent do you agree with the following statements?

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA
The bank has an organizational philosophy to guide behavior, activities and decision- making.					
The bank management is committed to the ethical values in commercial banks					
The bank has standards to guide audits and audit-related functions					
The Board, the Management and Employees are all committed to competence and integrity					
The Board of Directors and its Committee are independent of Management.					

PART THREE: RISK ASSESSMENT

6. To what extent do you agree with the following statements?

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA
The bank frequently experiences credit risks in its daily business					
The bank has defined appropriate risk assessment objectives for the organization					
The bank identifies risks that affect achievement of the objectives in a timely manner					
The bank has a criteria for identifying critical risks to the credit business					
The bank has in place mechanisms of mitigating critical risks that may arise during the course doing business					

PART FOUR: INFORMATION AND COMMUNICATION

7. To what extent do you agree with the following statements?

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA
The bank has identified individuals charged with the responsibility of coordinating activities to ensure appropriate communication on internal controls					
The bank’s employees are aware of the importance of internal controls					
The bank has an effective communication channels that supports the implementation of various activities at the bank					
The bank has a clear reporting structure spelling out the responsibilities for every section/unit in the bank					
The bank has anti-fraud policies and procedures are effectively communicated					

PART FIVE: CONTROL ACTIVITIES

8. To what extent do you agree with the following statements?

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA
The banking system is designed to allow only authorized personnel					
The bank’s accounting system allows only employees with designated responsibility to access records					
The bank has control measures for making entries, checking records and verifying records					
Special limits are set for different levels of risk in different categories					
The bank has measures for reconciliation of banks’ accounts on a daily basis to ensure that there is no outstanding items that can lead to losses					

PART SIX: CREDIT MANAGEMENT


9. To what extent do you agree with the following statements on the performance of credit management at the bank?

SD = Strongly Disagree D = Disagree N = Neutral A = Agree SA = Strongly Agree

	SD	D	N	A	SA

The bank has comprehensive policies and procedures for managing credit risk					
The bank is fully compliant with the Central Bank credit risk guidelines					
The bank has sound processes for carrying out due diligence on customers and transactions that present a high likelihood of default					
The bank has an efficient administration, measurement and monitoring system					
The bank has sufficient employees in the credit/risk department with appropriate knowledge, skills and competencies					
The bank has effective oversight of the credit risk management strategy					
The bank is experiencing a consistent reduction of loan default rates					

APPENDIX 2: RESEARCH AUTHORIZATION

	<p>Thika Road, Ruaraka P.O. Box 56808-00200 Nairobi Kenya Pilot Line: +254 20 8070408/9</p> <p>Tel: +254 20 3537842 Fax: +254 20 8561077 Mobile: +254 734 888022, 710 888022 Email: kca@kca.ac.ke Website: www.kca.ac.ke</p>
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KCAU/SGS/MSc/July. 19/14

July 26, 2019

To whom it may concern,

Dear Sir/Madam,

RE: ESTHER GITHUI REG NO: 18/00958

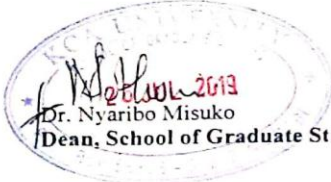
It is my distinct pleasure to introduce to you Ms. Esther Githui who is a student in our institution pursuing a Master of Science in Commerce at the School of Business and Public Management.

Esther is conducting a research on a topic titled: "*Effect of Internal Control System on Credit Risk Management in Commercial Banks in Kenya*" which is part of the requirements of the program she is pursuing. The research as well as the data procured thereof shall be used for academic purposes only.

Any assistance accorded to her is highly appreciated.

In case of further inquiry, do not hesitate to contact the undersigned.

Yours faithfully,



Dr. Nyaribo Misuko
Dean, School of Graduate Studies & Research

Scanned with