

**RISK MANAGEMENT STRATEGIES AND PERFORMANCE OF SELECTED
TELECOMMUNICATION FIRMS IN KENYA**

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DECLARATION

This research project report is my original work and has not been presented for a degree in any other university.

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DEDICATION

This research project is dedicated to Kivuva Family

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ABBREVIATIONS AND ACRONYMS

AI	Artificial Intelligence
AML	Anti-Money Laundering
BCM	Business Continuity Management
CAK	Communication Authority of Kenya
CBK	Central Bank of Kenya
CISA	Cybersecurity and Infrastructure Security Agency
ENISA	European Union Agency for Cybersecurity
FATF	Financial Action Task Force
FCC	Federal Communications Commission
GSM	Global System for Mobile Communication
GSMA	Global System for Mobile Communications Association
ICT	Information Communication Technology
ITU	International Telecommunications Union
KPTC	Kenya Posts and Telecommunications Corporation
KYC	Know Your Customer
NHIF	National Hospital Insurance Fund

OPERATIONAL DEFINITION OF TERMS

Anti-Money Laundering Practices: Anti-money laundering practices refer to the policies, procedures, and regulatory compliance measures adopted by telecommunication firms to detect, prevent, and report activities associated with money laundering and illicit financial transactions.

Business Continuity Framework: Business continuity framework encompasses the organizational strategies, plans, and protocols established by telecommunication firms to ensure the seamless continuation of critical business operations in the face of disruptive events such as natural disasters, cyber-attacks, or other emergencies.

Net Promoter Score: is a customer loyalty and satisfaction metric that measures how likely customers are to recommend a company's services to others. It is calculated by categorizing customer responses into promoters, passives, and detractors based on a scale of 0 to 10, with a higher score indicating stronger customer advocacy and satisfaction.

Performance of Telecommunication Firms: Performance of telecommunication firms denotes the measurable outcomes and achievements related to their operational efficiency, financial stability, market competitiveness, and overall success in achieving organizational goals.

Revenue Assurance: Revenue assurance involves the set of measures and controls implemented by telecommunication firms to ensure the accuracy, completeness, and reliability of revenue generation processes, minimizing the risk of revenue leakage and financial losses.

Risk Management Practices: Risk management practices refer to the strategies, processes, and activities implemented by telecommunication firms to identify, assess, mitigate, and monitor risks that could impact their operational, financial, and strategic objectives

Risk Transfer: Risk transfer involves the strategic use of financial instruments, insurance, or contractual agreements by telecommunication firms to shift financial burden of identified risks with external parties.

Telecommunication Firms: Telecommunication firms, in the context of this study, refer to companies or organizations operating in the telecommunications industry.

ABSTRACT

The performance of telecommunication firms is critical to Kenya's economy, marked by their role in connectivity, innovation, and financial inclusion. Nevertheless, their performance is frequently undermined by a multitude of risks, encompassing fraudulent activities, cyber threats, regulatory ambiguities, and infrastructural susceptibilities. These challenges underscore the imperative for comprehensive risk management frameworks to mitigate operational disruptions and optimize organizational outcomes. This study examined the interplay between risk management strategies specifically, revenue assurance protocols, anti-money laundering measures, business continuity planning, and risk transfer methodologies and the operational performance of Kenya's telecommunications industry. The theoretical foundation of this research was anchored in Transaction Cost Economics Theory, Prospect Theory, Contingency Theory, Agency Theory, and the Resource-Based View Theory. Adopting a descriptive survey research design, this research sought to systematically gather and analyze data pertaining to individuals, corporate entities, operational environments, and prevailing phenomena. Data were collected from 154 respondents across Kenya's three leading telecommunication providers Safaricom, Airtel Kenya, and Telkom Kenya using structured, self-administered questionnaires. A stratified sampling technique ensured broad representation across managerial levels. The data were analyzed using Statistical packages for Social Sciences (SPSS v27), applying both descriptive statistics and multiple regression analysis to examine the relationships between the identified risk strategies and organizational performance. The findings revealed that all four risk management strategies have positive and statistically significant effects on the performance of telecommunication firms. Revenue assurance emerged as the most influential predictor, indicating that robust financial monitoring and reconciliation systems substantially enhance profitability and operational control. Anti-Money Laundering practices were also significant, contributing to compliance, customer trust, and service integrity. Business continuity frameworks were found to strengthen resilience and reduce service disruptions, while risk transfer mechanisms such as insurance and strategic partnerships were shown to reduce exposure to adverse operational events and improve overall firm stability. The study concluded that an integrated approach to risk management is essential for enhancing organizational performance in Kenya's telecommunications sector. It recommended that firms invest in advanced revenue assurance tools, automate Anti-Money Laundering systems, regularly update business continuity plans, and formalize risk-sharing arrangements. Moreover, regulators were encouraged to establish cross-sectoral guidelines that reflect the evolving financial and technological roles of telecom providers. This research provided critical insights for industry practitioners, policymakers, and scholars. It contributed to theory and practice by empirically demonstrating the value of strategic risk management in a high-risk, technology-driven industry.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

The telecommunications sector has undergone rapid transformation, driven by technological innovation and globalization. Globally, the industry plays a crucial role in economic development, enabling connectivity, enhancing access to services, and creating employment opportunities (Arvin, et al., 2021). According to the International Telecommunications Union (ITU) there were more than 8.58 billion mobile subscriptions worldwide in 2022 which was more than the global population of 7.95 billion at the time (ITU, 2022). The proliferation of advanced mobile technologies, such as 4G and 5G networks, has further underscored the importance of telecommunications. These advancements facilitate higher data speeds, improved connectivity, and the integration of artificial intelligence (AI) and the Internet of Things (IoT) into everyday life (Thapar & Karmakar, 2019). However, with these developments come risks, such as data breaches, fraud, and infrastructure vulnerabilities, which demand effective risk management strategies to safeguard operations and revenue streams (Yesuf, 2017).

The performance of telecommunication firms in Kenya is a critical factor in the country's economic development, given the sector's role in fostering connectivity, innovation, and financial inclusion. Telecommunication firms in Kenya, such as Safaricom, Airtel Kenya, and Telkom Kenya, have been instrumental in driving the adoption of mobile technologies, which have transformed various sectors of the economy, including banking, agriculture, and healthcare. However, despite their significant contributions, these firms face numerous challenges that impede their performance, including fraud, cyberattacks, regulatory

inconsistencies, and infrastructure vulnerabilities (Communications Authority of Kenya, 2023). These risks have necessitated the adoption of robust risk management strategies to safeguard operations and enhance organizational performance.

The relationship between risk management strategies and the performance of telecommunication firms is well-documented in the literature. For instance, Sharma and Patel (2018) found that robust revenue assurance practices significantly enhance organizational performance by improving financial stability and profitability. Similarly, Ngugi (2022) highlighted the positive impact of AML practices on the financial performance of firms, despite the associated operational costs. However, there is a need for more context-specific studies, particularly in the Kenyan telecommunication sector, to explore how these risk management strategies influence performance indicators such as profitability growth, market share, and customer satisfaction.

Globally, telecommunications firms lose billions annually due to risks such as fraud and cybercrime. In 2023 fraud alone accounted for a \$38.95 billion loss, highlighting the critical need for robust risk management frameworks (Transunion Africa, 2024). Risk mitigation practices, including advanced fraud detection and revenue assurance mechanisms, have become integral to the strategic management of telecommunications firms worldwide. Risk management is a fundamental aspect of the telecommunications industry worldwide, encompassing strategies to identify, assess, and mitigate potential threats that could impact organizational performance (Ochuba et al., 2024). Effective risk management ensures the resilience and sustainability of telecommunication firms by addressing challenges such as technological advancements, regulatory changes, market

competition, and cybersecurity threats.

The increasing frequency and sophistication of cyberattacks have prompted telecommunication firms globally to prioritize cybersecurity within their risk management strategies. The U.S. Cybersecurity and Infrastructure Security Agency (CISA) has issued guidelines emphasizing the need for robust cybersecurity measures to protect critical infrastructure, including telecommunications (CISA, 2023). Similarly, the European Union Agency for Cybersecurity (ENISA) provides recommendations for telecommunication providers to enhance their cybersecurity posture and mitigate potential risks (ENISA, 2022). Moreover, in United States, the Federal Communications Commission (FCC) has implemented stringent regulations to enhance the security and reliability of telecommunications networks. These regulations require companies to adopt comprehensive risk management frameworks to protect against cyber threats and ensure service continuity (FCC, 2021). Similarly, the UK's Ofcom mandates that telecommunication providers establish robust risk management practices to safeguard critical infrastructure and maintain service quality (Ofcom, 2022).

In Africa, telecommunications have emerged as a significant driver of economic and social transformation. The industry has bridged gaps in access to communication, financial services, and information, particularly in underserved rural areas (Agwu, 2021). The region has witnessed a significant increase in mobile penetration rates, with over 50% of its population now using mobile services, a figure expected to rise with continued investment in infrastructure and mobile technologies (GSMA, 2020). However, African telecommunications firms face unique challenges, including limited infrastructure,

regulatory inconsistencies, and financial constraints. Additionally, mobile money services, a hallmark of African telecommunications innovation, have introduced new risks such as identity theft, phishing, and digital fraud (Wanjohi & Omwenga, 2017). For instance, fraud associated with mobile money platforms has resulted in significant financial losses for both consumers and service providers, emphasizing the need for tailored risk management strategies.

In South Africa, telecommunications companies face significant risks related to infrastructure vandalism and theft. Criminal activities targeting batteries and generators at tower base stations have escalated, leading to increased operational costs and service disruptions. To mitigate these risks, industry leaders advocate for classifying fibre optic cables and related infrastructure as 'critical infrastructure,' which would afford them greater legal protection and deter vandalism (Murito, 2024). This classification is expected to attract more investment by ensuring the security of essential assets. Nigeria's telecommunications sector contends with challenges such as regulatory compliance and market competition. Companies are required to adhere to stringent regulations set by the Nigerian Communications Commission (NCC), which mandates robust risk management frameworks to ensure service quality and consumer protection. Firms that effectively implement these frameworks tend to perform better, as they can navigate regulatory landscapes more efficiently and maintain consumer trust (NCC, 2023).

In Egypt, the rapid expansion of telecommunications services has necessitated comprehensive risk management strategies to address issues like cybersecurity threats and infrastructural deficiencies. The Egyptian government has introduced policies to strengthen

cybersecurity measures, urging telecom companies to adopt advanced technologies and protocols. Companies that proactively integrate these measures into their risk management strategies not only comply with regulations but also enhance their performance by safeguarding consumer data and ensuring service reliability (Ministry of Communications and Information Technology, 2023).

In Kenya, the telecommunications sector is a vital economic pillar, contributing significantly to GDP and innovation. The industry's growth has been marked by the liberalization of the market in the late 1990s and the introduction of mobile services by Safaricom and Airtel Kenya. As of 2023, Kenya's mobile penetration rate stood at 130.5%, reflecting widespread adoption and a robust market environment (Communications Authority, 2023). Kenya has also been a global leader in mobile money innovations, with services like M-Pesa revolutionizing financial inclusion and service delivery. However, these innovations have introduced new risks, such as fraud and cyberattacks. Reports indicate that mobile money fraud in Kenya includes SIM card swaps, phishing, and Ponzi schemes, which threaten customer trust and financial stability (Wanjohi & Omwenga, 2017).

Cybersecurity remains a significant concern, with Kenya experiencing a 35% increase in cyber threats in 2023 compared to the previous year (Kenya National Bureau of Statistics, 2023). To combat this, major telcos have enhanced their cybersecurity measures, including a 24/7 Security Operations Centre and adherence to the ISO 27001 Information Security Certification, demonstrating a commitment to protecting customer data and ensuring service integrity (Safaricom, 2024). Safaricom for instance employs the Three Lines of

Defense model to distribute risk management responsibilities, ensuring comprehensive oversight and accountability across all organizational levels (Safaricom, 2024). Regulatory compliance is another critical aspect, as the Communications Authority of Kenya has introduced stringent regulations to enhance service quality and consumer protection. Safaricom proactively engages with regulatory bodies to navigate these complexities, ensuring adherence to legal standards and maintaining operational excellence (Safaricom, 2024).

1.1.1 Risk Management Strategies

Risk management is not merely a component of corporate governance; it is acknowledged as a pivotal element in the strategic management of a successful institution. The imperative for a robust risk management framework, coupled with appropriate practices, is widely endorsed by both academic scholars and industry experts (Olawale et al., 2024). This recognition stems from the acknowledgment that organizations encounter various types of risks in their operational landscapes. By integrating comprehensive risk management practices, organizational management can proactively mitigate unforeseen and costly surprises. This proactive approach not only safeguards the organization but also facilitates the efficient allocation of resources.

As emphasized by Fraser *et al.*, (2021), effective risk management enhances communication within the organization, offering senior management a concise summary of potential threats. This comprehensive understanding of risks equips senior management with the insights necessary for informed decision-making, aligning risk management seamlessly with the broader strategic management objectives of the organization.

Telecommunication firms have implemented various risk management strategies to mitigate operational vulnerabilities. The foundational risk management framework widely recognized in the sector encompasses a systematic process involving risk identification, analysis, measurement, and determination of acceptable risk thresholds through control and transfer mechanisms. Alshurideh et al. (2022) assert that effective risk management necessitates supervisory assurance that telecommunications enterprises and their corporate networks maintain robust risk management protocols. This entails active engagement from both the Board of Directors and senior leadership in systematically identifying, assessing, monitoring, and controlling all significant risks, while concurrently evaluating capital sufficiency relative to the organization's risk exposure. Furthermore, Abdulai, Mahmoud, and Hinson (2018) propose an eight-phase comprehensive risk management model specifically applicable to the telecommunications industry. This structured approach sequentially incorporates: exposure identification, data collection and risk quantification, establishment of management objectives, formulation of product and control parameters, risk management assessment, strategic development, implementation of mitigation measures, and continuous performance monitoring and evaluation. This methodological framework provides telecommunications operators with a systematic approach to risk governance and operational resilience.

The strategies to be utilized in this study based on literature review include revenue assurance, anti-money laundering (AML) practices, business continuity frameworks, and risk transfer mechanisms. Revenue assurance is one of the most critical strategies for telecommunications firms, as it directly impacts financial stability and profitability (Alshurideh et al. 2022). Telecommunications companies generate revenue through

multiple streams, including voice services, data services, mobile money transactions, and value-added services. However, revenue leakages due to billing errors, fraud, system inefficiencies, and regulatory fines can significantly undermine financial performance. Alshurideh et al. (2022) emphasize the importance of revenue assurance in identifying, monitoring, and mitigating such losses. By implementing automated revenue tracking systems, conducting regular audits, and employing fraud detection mechanisms, firms can ensure the accuracy of billing and revenue collection processes. Additionally, integrating artificial intelligence (AI) and machine learning technologies can enhance predictive analytics, allowing firms to proactively identify revenue leakages and optimize their financial operations. Strengthening revenue assurance frameworks not only improves profitability but also enhances customer trust by ensuring transparent and accurate billing practices (Alshurideh et al., 2022).

Anti-money laundering (AML) practices are increasingly crucial for telecommunications firms, particularly those offering mobile money services. With the rapid expansion of digital financial transactions, telecom companies have become key players in the financial ecosystem. However, this expansion has also made them vulnerable to money laundering, fraud, and financial crimes. According to the Financial Action Task Force (FATF), telecommunications firms must comply with stringent regulatory requirements to detect and prevent illicit financial activities (Mahmoud & Hinson, 2018). Implementing AML practices involves customer due diligence (KYC), transaction monitoring, and suspicious activity reporting. Mahmoud and Hinson (2018) suggest that integrating AI-powered transaction monitoring systems can enhance the detection of fraudulent activities, ensuring compliance with regulatory frameworks. Moreover, telecommunications firms must invest

in employee training programs to strengthen their AML compliance culture. Failure to implement robust AML strategies can result in hefty fines, reputational damage, and loss of customer trust (Mahmoud & Hinson, 2018). Therefore, adopting comprehensive AML measures is essential for safeguarding financial integrity and maintaining regulatory compliance in the telecommunications sector.

Business continuity frameworks are vital for ensuring the uninterrupted delivery of telecommunications services, particularly in the face of cyber threats, natural disasters, and technical failures. Given the sector's reliance on network infrastructure, disruptions can significantly impact service quality, customer satisfaction, and revenue generation. Fraser et al. (2021) highlight that an effective business continuity framework involves disaster preparedness, operational recovery planning, and crisis management strategies. Telecommunications firms must establish redundant network systems, backup data centers, and robust cybersecurity measures to mitigate service disruptions. Additionally, scenario-based risk assessments and regular business continuity drills help organizations identify vulnerabilities and enhance their preparedness for potential disruptions (Fraser et al., 2021). The adoption of cloud computing and decentralized network architectures further strengthens business continuity by ensuring seamless data recovery and service restoration. In a sector where reliability is paramount, a well-structured business continuity framework enhances resilience, minimizes downtime, and reinforces consumer confidence in telecom services.

Risk transfer mechanisms play a crucial role in mitigating financial risks associated with unforeseen events and operational uncertainties. Telecommunications firms face a wide

range of risks, including infrastructure damages, cyberattacks, regulatory penalties, and market fluctuations. Szczepański and Światowiec-Szczepańska (2018) argue that risk transfer strategies, such as insurance policies, outsourcing agreements, and financial hedging, allow firms to distribute risks effectively. Insurance coverage for network infrastructure and cyber liabilities provides financial protection against catastrophic losses, while outsourcing non-core functions enables firms to transfer operational risks to specialized service providers. Additionally, financial hedging instruments, such as interest rate swaps and currency derivatives, help telecom companies manage financial exposure in volatile markets. By leveraging risk transfer mechanisms, telecommunications firms can enhance their financial resilience and maintain stability in an increasingly unpredictable business environment.

1.1.2 Organization Performance

Firm performance can be defined as the extent to which a firm achieves its objectives and satisfies stakeholders, reflecting its ability to produce the desired output from a given input (Tantalo & Priem, 2016). This concept encompasses both quantitative and qualitative indicators that demonstrate the firm's progress toward achieving its goals (Santos & Brito, 2018). Scholars have approached firm performance from diverse perspectives, employing numerous parameters to explain its significance in the business context. However, there is no universally accepted definition or standard method for measuring firm performance, with researchers often diverging on how best to conceptualize and evaluate it (Selvam, Gayathri, Vasanth, Lingaraja & Marxioli, 2016; Lin, Yang & Arya, 2019; Gavrea Mihaela, 2017; Ondoro, 2015). Some scholars, such as Cording, Christmann, and Weigelt (2016), argue that mismatches between theoretical frameworks and measurement methods can

undermine the reliability of selected approaches, highlighting the complexity of assessing firm performance.

Salvem, Gayathri, Vasanth, Lingaraja, and Marxioli (2016) proposed a subjective model for measuring performance, identifying nine dimensions as criteria. However, Lin, Yang, and Arya (2019) note that subjective models, which rely on individual perceptions, may yield invalid results if respondents provide inconsistent views of a firm's actual performance. This variability highlights the need for robust methodologies. Santos and Brito (2018) further emphasize that financial indicators, such as earnings per share, should not be conflated with non-financial metrics, like employee satisfaction or social performance, as each reflects distinct dimensions of firm performance. The diverse needs of stakeholders require these measures to be managed and evaluated independently.

Firm performance, therefore, is a multifaceted and non-objective concept that can be analyzed through various variables, including strategic goals, core competencies, and balanced scorecard components such as profitability and customer satisfaction (Mihaela, 2017).

Balanced scorecard components, such as communication with employees, rewards, feedback mechanisms, and customer relationship management, also play a significant role in influencing how firm performance is measured (Mihaela, 2017). For instance, exploring the triple bottom line focusing on profits, environmental impact, and social outcomes—has proven effective in assessing performance through both quantitative and qualitative lenses. Mihaela (2017) contends that combining these indicators provides a more comprehensive understanding of a firm's success. On the other hand, Hung and Chi (2017) caution against

relying solely on financial data, as some firms may withhold this information for competitive reasons. Instead, they advocate for subjective measures that can capture performance dynamics even when financial data is inaccessible. This reluctance by firms to disclose sensitive data further complicates the use of quantitative methods, which often depend on complete and reliable financial records. Such limitations necessitate incorporating qualitative approaches to ensure a holistic evaluation.

Given the complexity and multidimensional nature of firm performance, this study will utilize a combination of three key indicators: profitability growth, Net Promoter Score (NPS), and market share. These indicators have been selected because they effectively capture both financial and non-financial aspects of performance. Profitability growth will measure the financial success of telecommunication firms, NPS will provide insights into customer satisfaction and loyalty, and market share will reflect the competitive position of firms within the industry. Together, these metrics offer a holistic approach to understanding firm performance, ensuring that both quantitative and qualitative aspects are adequately addressed.

1.1.3 Telecommunications firms in Kenya

The telecommunication sector plays a critical role in driving Kenya's economic growth, a fact underscored by several scholars (Sharif, 2017; Addae-Korakye & Lade, 2019; Bertschek, Briglauer, Huschelrath, Kauf & Niebel, 2016; Matalqah & Warad, 2017). Over the years, the Kenyan government has implemented various initiatives to enhance the performance of this vital sector. Historically, the telecommunications industry was dominated by the Kenya Posts and Telecommunications Corporation (KPTC), a

government monopoly that both regulated and provided telecommunication services.

This arrangement changed with the establishment of the Communications Authority of Kenya (CA) in 1999, which took over the regulatory mandate and oversaw the liberalization of the sector (Mayaka & Oloko, 2018; Kanyuga, 2019).

The liberalization ushered in private players such as Airtel, initially introduced as Kencell in 2000, rebranded to Zain, and later Airtel Networks Limited in 2004. Similarly, Safaricom, which began as a department of KPTC, transitioned into a publicly traded limited liability company in 2002, quickly becoming the dominant player with the largest market share (CA, 2020). Another significant player, Telkom Kenya, was established in 1999, with its ownership split between Helios Investment Partners and the Kenyan government. Despite the entry of other firms, including Econet Wireless, the sector consolidated, with mergers and acquisitions reducing the number of active players to four: Safaricom, Airtel, Telkom, and Equitel. Strategic responses within the industry have included acquisitions, rebranding, and outsourcing; however, such efforts have sometimes confused consumers, who struggled to follow the frequent branding changes (Kapai & Moronge, 2015).

Recent developments illustrate the sector's dynamism and challenges. For instance, the proposed acquisition of Telkom Kenya by Airtel in 2019 was withdrawn in 2020 due to regulatory non-compliance and objections from stakeholders, including Safaricom and Kenya's Anti-Corruption Agency. This failed acquisition led to a 0.4% market share loss for Telkom after it shuttered nearly 90% of its mobile money agent network in preparation for the deal (CA, 2020). Despite these challenges, the sector has demonstrated resilience.

According to the CA (2019), Kenya recorded 54.5 million active mobile subscriptions, with mobile money services boasting 28.9 million active accounts and 175,959 active mobile money agents. Safaricom's M-PESA commanded 98.6% of this market, leaving minimal shares for Airtel Money and Telkom's T-Kash at approximately 1% and 0.4%, respectively. However, a decline in outgoing mobile voice calls and SMS volumes was also observed, reflecting shifts in consumer behavior.

This study will focus on three major telecommunication firms—Safaricom, Airtel, and Telkom Kenya—which collectively dominate the market. Their significant market share and extensive operational scope make them ideal candidates for examining the impact of risk management strategies on firm performance. The remaining operators were utilized for pilot testing, ensuring the robustness of the research design. This focus is justified by the firms' diverse approaches to managing risks, their varying performance metrics, and their role in shaping Kenya's telecommunications landscape.

1.2 Statement of the Problem

The telecommunication industry faces significant risk management challenges that have the potential to impact its operational efficiency and financial stability. According to the Communications Authority of Kenya (CAK) (2022), cybercrime in the telecommunications sector rose by 104% in the past year, posing a severe threat to service providers. Additionally, Kenya's regulatory environment remains volatile, with frequent changes in policies and licensing requirements creating uncertainties that affect strategic planning and investments (World Bank, 2023). The World Bank's Doing Business 2023 report ranks Kenya 120th out of 190 economies in terms of business regulatory stability,

highlighting the challenges telecommunication firms face in maintaining compliance and operational efficiency (World Bank, 2023). These challenges underscore the necessity for comprehensive risk management strategies to mitigate threats and enhance firm performance. The Central Bank of Kenya (2016) risk management guidelines emphasize key areas such as revenue assurance, anti-money laundering (AML) practices, business continuity planning, and risk transfer as critical for managing industry risks.

Given that telecommunication firms derive revenue from voice, data, mobile money transactions, and value-added services, revenue assurance is essential for maintaining profitability and competitiveness. Fraud, billing errors, and revenue leakages continue to erode earnings, with Safaricom reporting a 22.2 percent decline in net profit for the full year ended March 2023, the third consecutive drop in earnings (Safaricom Annual Report, 2023). The industry also plays a critical role in financial transactions through mobile money services, electronic funds transfers, and prepaid cards. However, this makes them targets for financial crimes, necessitating stringent AML measures. The Financial Action Task Force (FATF) has reported increasing incidences of mobile money fraud, including SIM swap fraud and illicit financial transactions, requiring telecom firms to implement robust AML frameworks to safeguard financial integrity (FATF, 2023).

Infrastructure dependency in the telecommunications sector also means that operational disruptions—whether from cyberattacks, natural disasters, or technical failures—can severely impact service delivery and customer satisfaction. In 2023, Kenya experienced a 35% increase in cyber threats compared to the previous year, underscoring the urgent need for business continuity frameworks (Kenya National Bureau of Statistics, 2023). A well-

structured business continuity plan ensures seamless service delivery, prevents financial losses, and maintains customer trust during crises. Additionally, risk transfer mechanisms such as insurance coverage, hedging contracts, and outsourcing arrangements help mitigate financial losses associated with regulatory fines, infrastructure damage, and other operational risks. These mechanisms allow firms to share risks with third parties, thereby ensuring financial stability in unpredictable environments (Szczepański & Światowicz-Szczepańska, 2018).

Despite the importance of these strategies, empirical studies on risk management practices in the telecommunications sector remain limited. Existing research has often focused on general risk management frameworks rather than specific strategies applicable to telecommunications firms. For instance, Njuguna (2019) explored risk management practices in project performance but did not consider revenue assurance, AML practices, or business continuity planning key factors in telecommunications. Similarly, Yang et al. (2018) studied enterprise risk management and firm performance but did not break down risk management practices into specific, actionable components relevant to the industry. Kaliti (2015) investigated risk management in the hospitality sector, focusing on risk assessment, response, innovation, and quality, which differ significantly from the challenges faced in telecommunications.

Osiemo (2016) examined the effects of risk management practices on the financial performance of non-life insurance firms in Kisii County, Kenya, using variables such as risk identification, mitigation, and monitoring. While relevant to the insurance industry, these variables do not align with telecommunications risk management needs, such as

revenue assurance and AML compliance. Similarly, Harriet and Omwenga (2022) analysed risk management strategies at Jomo Kenyatta International Airport, focusing on risk reduction, mitigation, assessment, and monitoring. While insightful, their study emphasized risk management processes rather than industry-specific practices. Noor (2019) assessed financial risks in transport firms in Mombasa County, analyzing credit risk, liquidity risk, market risk, and foreign exchange risk. Although important, these variables are not directly transferable to the telecommunications sector, where operational risks and regulatory compliance play a more significant role.

Methodologically, previous studies have often used general financial performance indicators, such as return on investment (ROI) and return on assets (ROA), without incorporating telecommunications-specific performance measures such as market share, customer retention rates, and net promoter scores (NPS). Given that customer satisfaction is a critical performance metric in telecommunications, NPS provides a more relevant measure of how well firms manage risks and retain consumer trust (McKinsey & Company, 2023). The lack of studies incorporating such performance indicators creates a methodological gap that this research seeks to address.

Conceptually, there remains a need for an integrated approach that connects risk management practices with firm performance in the telecommunications industry. While prior research has explored individual components of risk management, few studies have examined how revenue assurance, AML practices, business continuity frameworks, and risk transfer strategies collectively influence financial and operational performance. Understanding these interconnections is essential for developing a comprehensive risk

management framework tailored to the sector's unique challenges.

In light of these contextual, empirical, conceptual, and methodological gaps, this study sought to fill the void by focusing on risk management strategies in Kenya's telecommunications sector. Specifically, it examined how revenue assurance, anti-money laundering compliance, business continuity frameworks, and risk transfer mechanisms influence firm performance. By addressing these gaps, this research provided actionable insights for industry stakeholders, policymakers, and regulators seeking to enhance risk management frameworks and improve the overall performance of telecommunications firms in Kenya.

1.3 Research objectives

The study was guided by the following objectives

1.3.1 General Objective

The general objective of this study was to determine the influence of risk management strategies on performance of telecommunication firms in Kenya.

1.3.2 Specific Objectives

- i. To determine the influence of Revenue assurance on performance of telecommunication firms in Kenya
- ii. To establish the influence of anti-money laundering practices on performance of telecommunication firms in Kenya
- iii. To determine the influence of business continuity framework on performance of telecommunication firms in Kenya

- iv. To establish the influence of risk transfer on performance of telecommunication firms in Kenya

1.4 Research questions

- i. What is the influence of Revenue assurance on performance of telecommunication firms in Kenya?
- ii. What is the influence of anti-money laundering practices on performance of telecommunication firms in Kenya?
- iii. What is the influence of business continuity framework on performance of telecommunication firms in Kenya?
- iv. What is the influence of risk transfer on performance of telecommunication firms in Kenya?

1.5 Significance of the Study

The research explored the influence of risk management strategies on the performance of telecommunication firms in Kenya. Consequently, the findings benefited multiple stakeholders. First, telecommunication firms gained insights into the effectiveness of various risk management practices and their direct implications for organizational performance. This will enable them to adopt tailored strategies that optimize efficiency, minimize losses, and enhance profitability. The findings also informed decision-making on which practices prioritizing to achieve sustainable performance improvements.

Other firms in the industry, including those outside the telecommunication sector, benefited by understanding how risk management practices can be applied across industries to

mitigate challenges and enhance performance. These firms can adopt and adapt the strategies discussed in the study, thereby strengthening their operational resilience and competitiveness. Regulatory bodies, such as the Communications Authority of Kenya, may also find the study valuable as it provides data-driven insights into the current risk management landscape. This can guide the formulation of policies that promote better governance and risk mitigation among industry players.

Academics and scholars stand to gain from the findings as the study provides a foundation for further research into risk management practices in different contexts. It will offer a comprehensive review of current practices, gaps, and emerging trends, thus contributing to the broader body of knowledge on risk management. Additionally, consultants and risk management professionals can utilize the findings to develop practical tools and frameworks to assist organizations in implementing effective risk management strategies.

1.6 Scope of the study

This study examined the influence of risk management practices on the performance of telecommunication firms in Kenya, focusing on revenue assurance, anti-money laundering, business continuity frameworks, and risk transfer strategies. The research spans the period from 2000 to the present. This timeframe marks the transformative era when personal mobile phones began penetrating the Kenyan market following the liberalization of the telecommunications sector and the introduction of Safaricom and Airtel. This period witnessed rapid adoption of mobile technology and services, leading to significant changes in the industry's operational landscape and risk exposure (Communications Authority of Kenya, 2023). The evolution of mobile technologies and services necessitates a

comprehensive analysis of risk management practices relevant to this dynamic context. The study targets major players in the industry, specifically Safaricom, Airtel Kenya, and Telkom Kenya. These firms collectively dominate the market and have diverse operational and risk management strategies, making them ideal candidates for investigating the relationship between risk management and organizational performance. The inclusion of these firms ensures that findings are representative of the sector and can inform policy and practice. The study focuses on key performance indicators, including profitability growth, market share, and customer satisfaction, to provide a holistic view of organizational performance.

The geographical scope was Kenya, where the telecommunications sector has been a critical driver of economic growth and innovation. By narrowing the focus to Kenya's leading firms and contextual challenges, this study provided actionable insights into improving performance through tailored risk management strategies.

1.7 Limitation of the study

Several factors were expected to limit the scope of this study. First, obtaining certain information was challenging as some respondents from targeted telecommunication firms were hesitant to share detailed insights due to confidentiality concerns and proprietary restrictions. To address this, official authorization from Kenyatta University was secured to reassure participants that the research is purely academic and that all information collected was used solely for scholarly purposes.

Second, the study was constrained by the demographics of interest and sample size. The

research focused on managerial and operational staff from Safaricom, Airtel Kenya, and Telkom Kenya, the leading firms in Kenya's telecommunication industry. However, this may not fully capture the perspectives of smaller or emerging firms in the sector. To enhance representativeness, efforts were made to include respondents from different management levels. Lastly, the study was specific to Kenya's telecommunications sector, which may limit the applicability of findings to other industries or regions with different operational and regulatory conditions. Despite these limitations, the research sought to generate valuable insights tailored to Kenya's telecommunication environment, contributing to improved risk management strategies in the industry.

1.8 Organization of the Study

The research project comprised five chapters, each contributing to the overall study. Chapter One introduced the background, problem statement, research objectives, questions, scope, significance, and limitations of the study. Chapter Two presented a detailed literature review, covering theoretical foundations, empirical studies, identified gaps, and the conceptual framework guiding the research. Chapter Three outlined the methodology, including the descriptive survey design, target population, sampling procedures, data collection methods, ethical considerations, and validity and reliability measures. Chapter Four focused on data presentation and analysis using descriptive and inferential statistics to examine the relationship between risk management strategies and firm performance. Chapter Five summarized the key findings, drew conclusions aligned with the research objectives, provided practical and policy recommendations, and suggested directions for future research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The present chapter reviews the various existing literatures on risk management practices and how they affect the performance of telecommunication firms. The literature is organized in form of theories, empirical literature and conceptual framework depicting relationship among variables.

2.2 Theoretical Review

A theoretical review denotes the way the researcher develops thoughts on what the possible answers could be and these thought and theories are then clustered into themes that frame the subject.

2.2.1 Resource Based View Theory

The Resource-Based View (RBV) theory posits that firms achieve competitive advantage by developing and managing valuable, rare, inimitable, and non-substitutable internal resources (Barney, 1991). In the telecommunications sector, internal capabilities such as advanced technologies, skilled personnel, and strategic risk management practices contribute significantly to superior performance (Halawi et al., 2005). RBV further explains how firms can leverage unique resources including revenue assurance systems, anti-money laundering (AML) controls, business continuity frameworks, and risk transfer mechanisms to enhance operational efficiency and maintain competitiveness (Poppo & Weigelt, 2000; Bridoux, 2004).

Revenue assurance, AML compliance, and business continuity planning represent critical internal capabilities that strengthen financial stability, customer trust, and service reliability. Effective revenue assurance mechanisms reduce revenue leakage and fraud

(Alshurideh et al., 2022), while AML frameworks help firms comply with regulations and safeguard financial ecosystems (Financial Action Task Force, 2023; Mahmoud & Hinson, 2018). Similarly, strong business continuity structures enable firms to mitigate disruptions and maintain service availability in a dynamic, risk-prone environment (Fraser et al., 2021). These capabilities align with the RBV perspective that well-developed internal resources drive superior performance and long-term competitive advantage (Poppo & Weigelt, 2000; Bridoux, 2004).

Risk transfer mechanisms, such as insurance and outsourcing, further support telecommunications firms by redistributing financial and operational risks (Szczepański & Światowiec-Szczepańska, 2018; Mahmoud & Hinson, 2018). From an RBV standpoint, integrating such strategies strengthens a firm's resource base, allowing it to maintain stability and focus on core competencies (Bridoux, 2004; Olawale et al., 2024). Overall, RBV offers a robust framework for understanding how internal capabilities including technological innovation and risk management strategies enhance firm performance in the telecommunications industry (Barney, 1991). Thus, adopting RBV helps explain how firms can leverage unique resources to achieve financial stability, operational efficiency, and sustained market leadership (Mahmoud & Hinson, 2018; Halawi et al., 2005).

2.2.2 Transaction Cost Economics (TCE) Theory

Transaction Cost Economics (TCE), proposed by Williamson (1975), examines how transaction costs such as search, negotiation, monitoring, and enforcement shape organizational decisions and economic behavior. Unlike neoclassical economics, which emphasizes price and output, TCE focuses on the transaction itself and the costs incurred in acquiring and processing information needed for efficient exchanges (Suematsu, 2014).

By highlighting the importance of minimizing these costs, TCE demonstrates how organizations can strengthen performance and competitiveness in dynamic environments (Vanhaverbeke & Cloudt, 2014).

A key proposition of TCE is that firms must determine whether to internalize or outsource transactions based on the comparative transaction costs involved. According to Williamson (1985), factors such as asset specificity, frequency, and uncertainty influence this decision. Asset specificity including site-specific, physical, and human-specific investments—plays a central role, as highly specialized assets often increase the costs of transferring control and monitoring external partners (Lytvinenko, 2015). In such cases, firms may opt for internal governance, whereas lower transaction costs or specialized external expertise may justify outsourcing (Vanhaverbeke & Cloudt, 2014).

In telecommunications, TCE is highly relevant to revenue assurance, which involves detecting errors, preventing fraud, and reconciling revenue streams (Suematsu, 2014). By evaluating transaction costs associated with internal and external revenue assurance functions, firms can optimize decision-making and balance efficiency with operational risk. For example, complex or asset-specific systems may favor internal management, while specialized vendors may reduce monitoring and enforcement costs (Bertschek et al., 2016; Kanyuga, 2019). This study therefore applies TCE to assess how minimizing transaction costs in revenue assurance enhances profitability and operational efficiency, aligning with the view that site-specific technological investments and human-specific expertise improve firm performance in the telecommunications sector (Lytvinenko, 2015; Suematsu, 2014).

2.2.3 Prospect Theory

Prospect Theory, introduced by Kahneman and Tversky (1979), provides a descriptive framework for understanding how individuals assess potential gains and losses, challenging traditional economic models that assume rational, utility-maximizing behavior. Central to the theory is loss aversion the notion that losses exert a stronger psychological impact than equivalent gains which has been validated across various financial and economic contexts (Barberis, 2013). This departure from expected utility theory reveals that decision-making is heavily influenced by cognitive biases rather than purely rational evaluation.

A key principle of Prospect Theory is that individuals judge outcomes relative to a reference point, viewing them as either gains or losses, which shapes their risk preferences. People generally exhibit risk aversion when dealing with gains but become risk-seeking when confronting potential losses (Kahneman & Tversky, 1979). Additionally, probability distortion leads individuals to overweight unlikely events and underweight more probable ones, influencing choices in areas such as insurance and financial planning (Tversky & Kahneman, 1992; Camerer & Kunreuther, 1989). These behavioral tendencies demonstrate how subjective perceptions of probability and outcome values affect real-world decisions.

Within telecommunication firms, Prospect Theory provides a useful lens for understanding managerial decision-making related to anti-money laundering (AML) practices. Although effective AML systems are essential for mitigating financial crimes (FATF, 2010), managers may perceive the upfront costs of implementing these controls as immediate losses, which due to loss aversion can lead to underinvestment. By reframing AML initiatives as strategies that prevent substantial future losses, such as regulatory penalties

and reputational harm, firms can counteract these cognitive biases (Kahneman & Tversky, 1979). This approach aligns with regulatory guidance emphasizing the importance of strong AML frameworks in supporting organizational performance and maintaining market integrity (FCA, 2019).

2.2.4 Contingency Theory

Contingency theory, introduced by Fiedler (1958), argues that leadership effectiveness depends on the interaction between a leader's style, task structure, and relationships within the team. The theory rejects the notion of a universal leadership model, emphasizing instead that success arises from alignment between leadership style and situational demands. Its application has expanded into organizational risk management (RM), where the suitability of RM strategies depends on how well they fit internal and external organizational conditions (Chenhall, 2006). By recognizing the variability and complexity that shape risk exposure, contingency theory underscores the need for context-specific approaches rather than generalized solutions (Donaldson, 1991).

Within risk management, contingency theory proposes that firms must align their RM practices with contextual factors such as industry dynamics, regulatory pressures, organizational size, and risk characteristics. Chenhall (2006) suggests that organizations enhance RM effectiveness by assessing environmental contingencies and adopting tailored frameworks that align with these factors. Structural alignment is also essential; according to Donaldson (1991), firms must design organizational structures that match their operational and environmental challenges. Larger, complex firms may require centralized RM systems, while smaller firms may benefit from flexible, decentralized approaches. Paape et al. (2012) further distinguish between operational RM focused on routine risk

control and strategic RM, which addresses long-term risks affecting financial stability.

In this study, contingency theory supports the link between business continuity frameworks and the performance of telecommunication firms in Kenya. Paape et al. (2012) note that a contingency-based business continuity framework requires tailoring strategies to specific organizational risks, such as technical infrastructure vulnerabilities, market conditions, or regulatory obligations. Developing context-appropriate recovery plans, identifying critical processes, and ensuring resource availability enhance a firm's resilience and operational stability. By achieving a strong "fit" between business continuity practices and organizational contingencies, firms can better withstand disruptions and improve performance under uncertainty (Morton & Hu, 2008), ultimately strengthening long-term competitiveness and risk management outcomes.

2.2.5 Agency Theory

Agency theory, as introduced by Jensen and Meckling (1976), examines the conflicts that arise from the separation of ownership and managerial control, particularly between principals (shareholders) and agents (managers). These tensions occur because principals and agents often have divergent goals and risk preferences. Scholars such as Ross (1973), Arrow (1975), and Fama (1980) expanded the theory by highlighting the need for incentive alignment to minimize agency costs and enhance organizational efficiency. The theory therefore underscores the structural and behavioral challenges that emerge when managers make decisions on behalf of shareholders.

A central concern in agency theory is that managers may act in their own interests rather than maximizing shareholder value. Stulz (1984) argues that managers tend to avoid risk to protect job security, while shareholders typically prefer higher risk-taking that promises

greater long-term returns. Agency conflicts also extend to relationships between shareholders and debt holders, who differ in their tolerance for firm risk. Mayers and Smith (1987) explain that debt holders prefer conservative risk approaches to secure repayment, whereas shareholders may support riskier investments. These divergent preferences can lead to underinvestment or excessive risk-taking, making risk management essential in reconciling stakeholder interests.

In this study, agency theory helps explain how risk management practices particularly risk transfer address agency conflicts. Ndungu and Njeru (2014) show that risk transfer mechanisms such as insurance and hedging reduce the misalignment between managers and shareholders by lowering the uncertainty managers face. By shifting certain risks to third parties, firms reduce the likelihood that managers will avoid potentially profitable but riskier decisions. Consequently, agency theory highlights the value of risk management tools in aligning stakeholder interests and improving firm performance.

2.3 Empirical Literature

Different empirical literature has been conducted on Risk management practices and firms performance. The literature can be divided as per this study's variable which include, Revenue assurance, Anti-money laundering, business continuity framework and risk transfer.

2.3.1 Revenue Assurance and Organizational Performance

A methodological gap exists in the study by Sharma and Patel (2018), which employed a quantitative approach, utilizing financial data and revenue assurance metrics from a sample of telecommunication firms. While the study revealed a positive and statistically significant

relationship between robust revenue assurance practices and enhanced organizational performance, it was limited by its exclusive reliance on financial metrics as the primary performance indicator. By focusing solely on financial stability and profitability, the study overlooked other crucial dimensions of organizational effectiveness, such as customer satisfaction, operational efficiency, and market competitiveness. Additionally, the findings lacked generalizability due to regional variations and industry-specific contexts, highlighting the need for a broader approach that incorporates both financial and non-financial performance indicators.

Li and Wang (2020) attempted to address some of these limitations by adopting a mixed-methods approach, combining financial data analysis with qualitative interviews to assess the impact of revenue assurance on organizational performance. This study uncovered a nuanced relationship, emphasizing that the effectiveness of revenue assurance practices depended on their integration into the broader organizational strategy. However, a methodological gap arises due to the subjectivity of the qualitative component, where interpretation biases in interview responses may have affected the findings. Furthermore, while the study acknowledged the strategic alignment of revenue assurance, it did not extend its analysis to other critical risk management strategies such as anti-money laundering (AML) practices, business continuity frameworks, and risk transfer mechanisms, thereby presenting a conceptual gap in the examination of risk management as a holistic framework.

The methodological limitations in Chen et al.'s (2023) longitudinal study on revenue assurance practices and financial performance in telecommunications firms reveal

significant research gaps. While the study compellingly demonstrates that firms adopting adaptive revenue assurance strategies achieve sustained financial improvements, its design fails to incorporate critical external variables such as macroeconomic fluctuations, evolving regulatory policies, and technological disruptions that may confound performance outcomes over time. Furthermore, the study's narrow focus on revenue assurance creates a conceptual void, as it does not examine how integrated risk management frameworks (e.g., fraud prevention, business continuity planning, and compliance controls) collectively influence organizational performance. Another notable limitation is its exclusive reliance on financial metrics, disregarding vital non-financial indicators including customer retention rates, service quality benchmarks, and market penetration that are equally critical in assessing telecommunications firm success.

Similarly, Ghazieh and Chebana's (2021) cross-continental study on risk management systems in European telecommunications firms exhibits contextual and conceptual gaps. Although their large-scale quantitative analysis (N=320 firms over 2005–2014) establishes a positive correlation between risk control systems and firm performance, its Eurocentric focus limits its applicability to Kenya's distinct regulatory, economic, and competitive environment. The study's emphasis on risk control variables rather than a holistic examination of proactive risk management strategies further restricts its theoretical contribution, as it does not elucidate the underlying mechanisms through which risk mitigation translates into performance gains. Given the divergent market dynamics between Europe and Kenya including disparities in regulatory stringency, financial risk exposure, and technological infrastructure there remains an imperative to contextualize such research within Kenya's telecommunications sector, tailoring risk management

frameworks to address localized operational challenges.

2.3.2 Anti-Money Laundering practices and Organizational Performance

Muriithi's (2013) research provides an empirical examination of the financial implications of anti-money laundering (AML) regulatory compliance within Kenya's banking sector. The study adopted a descriptive survey methodology, incorporating both primary and secondary data sources, with a sample comprising 31 commercial banks that responded to structured questionnaires. Data processing was executed using the Statistical Package for Social Sciences (SPSS), with results presented through descriptive statistics in tabular formats. Key findings revealed that AML compliance exerted substantial operational cost pressures, attributable to enhanced transaction monitoring protocols, elevated reporting obligations, and the administrative burden of regulatory adherence. Furthermore, the study identified that employee training initiatives aimed at improving suspicious transaction recognition capabilities contributed to escalated operational expenditures, which subsequently exerted downward pressure on overall institutional profitability. While these insights offer valuable contributions to the discourse on regulatory compliance economics, the study's exclusive focus on commercial banking institutions establishes a significant contextual limitation. This limitation becomes particularly salient when considering the telecommunications sector, where AML frameworks assume critical importance due to the proliferation of mobile money platforms and digital financial services, yet remain substantially under-researched in comparative contexts.

Expanding upon this line of inquiry, Mohamud (2017) conducted a longitudinal investigation into AML risk management efficacy across Kenya's commercial banking landscape. The research employed a descriptive analytical framework, incorporating a 12-

year dataset (2005-2016) encompassing all licensed banking institutions. Methodologically, the study utilized multiple regression techniques to examine variable relationships, supplemented by multicollinearity diagnostics to ensure analytical robustness. The correlation analysis yielded a statistically significant positive association between suspicious transaction volume and financial performance ($r=0.150$, $p=0.042$), though subsequent regression modeling produced counterintuitive inverse relationships. Most notably, the research established a negative correlation between AML implementation costs and profitability metrics ($r=-0.305$; $p=0.035$), suggesting that compliance expenditures may function as a drag on financial performance. Despite these contributions, the study's confinement to the banking sector represents a notable research gap, particularly given the parallel AML compliance challenges faced by telecommunications providers in Kenya's rapidly evolving digital payments ecosystem.

Transitioning to international contexts, Nunes et al. (2014) applied rational choice theory to examine money laundering motivations within China's financial system. Through an innovative methodological approach combining in-depth interviews with documentary analysis of judicial proceedings, the research uncovered that economic incentives constituted the primary driver of money laundering behaviors across both individual and corporate entities. While these findings provide valuable insights into offender decision-making processes, the study's exclusive focus on Chinese regulatory environments creates significant transferability constraints. The unique characteristics of Kenya's financial oversight mechanisms, economic conditions, and law enforcement capabilities suggest that direct application of these findings would be methodologically unsound, thereby underscoring the need for context-specific research within East African markets.

Shifting geographical focus, Hayble-Gomes (2016) investigated AML program deficiencies within the northeastern United States banking sector. Utilizing qualitative methodologies centered on compliance officer interviews, the study identified three critical success factors for effective AML implementation: technological modernization, comprehensive employee training regimens, and strengthened managerial oversight structures. While these findings contribute to operational best practice literature, the study's failure to establish empirical linkages between AML practices and organizational performance metrics represents a significant conceptual shortcoming. Additionally, the research's banking sector focus limits its applicability to telecommunications organizations, where AML challenges manifest through distinct operational vectors such as mobile money float management and airtime credit systems.

Diversifying sectoral focus, Noor (2019) examined financial risk exposures within Mombasa County's transport sector, incorporating money laundering as a component risk factor. The study's methodological framework employed triangulation techniques, combining questionnaire data from senior management with documentary analysis of institutional records from the Kenya Transporters Association, county transport departments, and regulatory authorities. Analytical outcomes demonstrated positive correlations between composite financial risks (encompassing credit, liquidity, market, and foreign exchange exposures) and performance indicators (ROI/ROA). However, the study's narrow conceptualization of money laundering as merely one element within financial risk spectrum, rather than examining AML as part of an integrated risk management paradigm, constrains its theoretical contribution. Furthermore, the transport sector focus creates contextual limitations regarding applicability to telecommunications

firms, which face unique AML challenges stemming from their dual roles as financial service intermediaries and technology providers.

Collectively, these studies reveal three critical research lacunae requiring scholarly attention. First, a persistent sectoral bias toward banking institutions has created significant knowledge gaps regarding AML implementation in telecommunications. Second, the predominant focus on financial risk metrics has come at the expense of more holistic risk management frameworks that integrate AML with other strategic controls. Third, geographical limitations in existing research restrict the development of contextually appropriate AML models for emerging markets like Kenya. The current study seeks to address these gaps through a comprehensive examination of how AML practices, when integrated with revenue assurance protocols, business continuity planning, and risk transfer mechanisms, collectively influence organizational outcomes within Kenya's dynamic telecommunications sector. By adopting an integrated risk management perspective and focusing specifically on telecommunications providers, this research aims to generate both theoretical advancements and practical insights for regulators and industry stakeholders operating in similar emerging market contexts.

2.3.3 Business Continuity Framework and Organizational Performance

Bakar, Yaacob, and Udin (2015) conducted a seminal study examining the relationship between business continuity management (BCM) implementation and organizational performance outcomes. Through an extensive review of existing literature encompassing BCM critical success factors, international BCM standards, and organizational performance metrics, the researchers developed a conceptual framework analyzing performance across dual dimensions: financial indicators and non-financial operational

metrics. Their comprehensive analysis underscored BCM's pivotal role in enhancing organizational resilience, particularly in safeguarding critical business operations during disruptive events while maintaining competitive positioning. However, the investigation also identified significant implementation barriers, including budgetary constraints for BCM initiatives and organizational challenges in enterprise-wide BCM adoption. While establishing a positive correlation between business continuity frameworks and enhanced organizational performance, the study's exclusive reliance on secondary data sources constituted a notable methodological limitation. This approach created an empirical research gap, suggesting the necessity for future studies incorporating primary data collection to validate these findings through direct organizational observation and measurement.

Complementing this research, Sakura (2018) executed an empirical investigation into business continuity management practices within Nairobi County's security sector. Employing a quantitative research design, the study collected primary data through structured questionnaires administered to managerial personnel across various functional domains, including human resources, operations, and information technology. Utilizing SPSS Version 20 for statistical analysis, the research employed both descriptive and inferential statistical techniques to examine BCM-performance relationships. The analytical results confirmed a statistically significant positive association between implemented BCM practices and organizational performance metrics. Despite these valuable insights, the study's exclusive focus on security firms introduced a contextual research gap, as findings may not directly translate to the telecommunications industry. This sector faces distinct operational challenges including large-scale network

infrastructure vulnerabilities, sophisticated cyber threats, and stringent service continuity requirements that differentiate its BCM needs from physical security operations.

Expanding the risk management discourse, Yang et al. (2018) investigated enterprise risk management (ERM) frameworks within Pakistan's small and medium enterprise (SME) sector, incorporating competitive advantage as a mediating variable and financial literacy as a moderating factor. The study gathered primary data from 304 Pakistani SMEs through structured questionnaires, employing advanced structural equation modeling (SEM) techniques via AMOS software for hypothesis testing. Research findings demonstrated that ERM implementation significantly enhanced both competitive positioning and overall firm performance, with competitive advantage serving as a partial mediator in this relationship. Additionally, the study revealed that financial literacy levels positively moderated the ERM-competitive advantage relationship. However, multiple research limitations emerged from this investigation. The Pakistani context created geographical applicability concerns for other developing markets like Kenya due to differing economic structures and regulatory regimes. The SME focus limited generalizability to Kenya's telecommunications sector dominated by large multinational corporations with substantially greater risk management resources. The aggregated treatment of ERM practices obscured understanding of specific components like business continuity planning or revenue assurance. Furthermore, the dual focus on performance and competitive advantage created conceptual ambiguity regarding ERM's direct performance impacts.

Further contributing to ERM scholarship, Madushanki and Ekanayake (2023) examined risk management practices within Sri Lanka's Food, Beverage, and Tobacco industry, incorporating business continuity as an ERM sub-component. The quantitative study

analyzed secondary financial data from 24 publicly listed companies, utilizing firm value and return on assets (ROA) as performance metrics while controlling for firm size, revenue, and leverage through fixed effects modeling. Findings indicated increasing ERM adoption among Sri Lankan firms and confirmed ERM's positive performance impacts. However, several research gaps limit the study's applicability to Kenya's telecommunications sector. The Sri Lankan economic context differs substantially from Kenya's emerging market environment in terms of regulatory frameworks and industry dynamics. The food and beverage industry focus presents fundamentally different risk profiles compared to telecommunications, particularly regarding technological risks and service continuity requirements. Most significantly, the study's holistic treatment of ERM failed to isolate and measure the individual contributions of specific risk management strategies like business continuity planning, risk transfer mechanisms, or anti-money laundering protocols, creating a critical conceptual gap in understanding how discrete risk management components differentially influence organizational outcome.

2.3.4 Risk Transfer and Organizational Performance

Machari and Caleb (2018) research into risk transfer strategies within public secondary school construction projects in Murang'a County, Kenya, provides valuable insights into project risk management. The study employed a descriptive research design, utilizing purposive sampling to select participating institutions. Primary data collection was conducted through structured questionnaires, with subsequent analysis incorporating both descriptive statistics (including frequency distributions, mean values, and standard deviation calculations) and inferential statistical techniques, notably regression analysis. The research outcomes revealed a modest influence of risk transfer strategies on project

performance, as evidenced by a beta coefficient of 0.265. Correlation analysis confirmed a positive relationship between risk transfer implementation and project success metrics, leading researchers to conclude that while risk transfer constitutes a statistically significant factor in project performance, it does not represent the most dominant determinant of successful outcomes. However, the study's exclusive focus on construction projects within an educational infrastructure context creates notable limitations regarding generalizability. The project-based nature of the research and its specific sectoral focus introduce significant contextual gaps when considering applications to organizational risk management frameworks, particularly within the telecommunications industry where risk profiles and transfer mechanisms differ substantially.

Building upon this foundation, Aduma and Kimutai (2018) conducted a comprehensive examination of risk management strategies at Kenya's National Hospital Insurance Fund (NHIF), incorporating risk transfer as one component of their analytical framework. The study was theoretically grounded in multiple conceptual models, including the Resource-Based View (RBV) theory, transaction cost economics, contingency theory, agency theory, and uncertainty theory. Methodologically, the research adopted a descriptive design, employing stratified proportionate random sampling to select 241 participants from a target population of 651 management staff. Data collection utilized self-administered questionnaires, with analytical techniques encompassing Pearson correlation coefficients and multiple regression analysis. Findings demonstrated a hierarchical impact of various risk management strategies, with risk prevention exhibiting the strongest influence on project performance, followed by risk control and risk acceptance, while risk transfer demonstrated the most modest effect. Despite these valuable contributions, the healthcare

project context of this research creates significant applicability constraints for other industries. The distinctive risk environment and operational characteristics of telecommunications firms suggest that similar investigations within this sector might yield substantially different results, highlighting the need for industry-specific research.

Njuguna (2019) exploration of risk management practices in Nairobi City County projects further contributes to this discourse by examining four key strategies: risk retention, prevention, control, and transfer. The descriptive research design incorporated data collection through semi-structured questionnaires administered to 135 professionals including project managers, supervisors, risk management specialists, construction firm representatives, and financial officers. Statistical analysis conducted via SPSS software revealed significant positive correlations between implemented risk management practices and enhanced project performance metrics. While these findings reinforce the value of systematic risk management approaches, the study's exclusive focus on temporary project environments rather than ongoing organizational operations creates a contextual discontinuity when considering applications to telecommunications enterprises. The permanent, infrastructure-intensive nature of telecom operations, coupled with their continuous service delivery requirements, suggests that risk management frameworks may require substantially different implementation approaches compared to finite-duration projects.

Transitioning to the financial services sector, Amaya and Memba (2015) investigated risk management practices within Kenya's life assurance industry, with particular attention to risk transfer mechanisms. The study engaged 118 respondents through questionnaire-based

data collection, employing descriptive statistical methods (including percentage distributions, frequency tables) complemented by regression analysis. Key recommendations emphasized the adoption of refined premium valuation methodologies to enhance financial performance. However, the insurance industry's specialized risk management focus on underwriting practices and actuarial calculations creates substantial conceptual and contextual gaps when considering applications to telecommunications. The fundamentally different risk profiles between these sectors – particularly regarding technological risks, service continuity requirements, and regulatory frameworks – underscore the limitations of direct knowledge transfer and highlight the necessity for telecom-specific risk management research.

Expanding the sectoral perspective further, Harriet and Omwenga (2022) examination of risk management strategies at Jomo Kenyatta International Airport (JKIA) analyzed four key approaches: risk reduction, mitigation, assessment, and transfer. The study employed random sampling to select 120 respondents from a population of 400 employees across various operational departments. Questionnaire-based data collection and subsequent analysis revealed positive correlations between all examined risk management strategies and improved financial performance indicators. However, the research's predominant focus on the risk management process rather than specific strategy implementation creates conceptual limitations. Additionally, the aviation industry context – with its unique operational risks, safety-critical systems, and international regulatory requirements – differs substantially from telecommunications environments. These contextual disparities limit the direct applicability of findings to telecom firms, particularly regarding technological risks, cyber threats, and service continuity challenges inherent to digital

infrastructure operations.

2.4 Summary of the Research Gaps

Table 2.1 presents a summary of the empirical studies reviewed and present evidence of research gaps that form a basis for further research in this study.

Table 2. 1. Summary of literature and gaps

Author	Study Topic	Findings	Research Gap	Focus of the Proposed Study
Sharma and Patel (2018)	Relationship between revenue assurance and organizational performance	Robust revenue assurance practices improve financial stability and profitability.	Methodological Gap: Over-reliance on financial metrics without considering non-financial performance indicators.	Explore non-financial metrics and assess revenue assurance in Kenya's telecommunication industry.
Li and Wang (2020)	Revenue assurance and its integration into organizational strategy	Effectiveness of revenue assurance depends on alignment with broader organizational strategy.	Methodological Gap: Subjectivity in qualitative interviews affecting result interpretation.	Focus on revenue assurance practices using an objective approach in Kenya's telecommunication industry.
Bakar et al. (2015)	BCM factors and organizational performance	Effective BCM enhances survivability and competitiveness.	Methodological Gap: Relied on secondary data without primary empirical analysis.	Conduct an empirical study on BCM and performance in Kenya's telecommunication sector.
Chen et al. (2023)	Longitudinal impact of revenue assurance practices on firm performance	Sustained implementation strengthens financial performance over time.	Methodological Gap: Limited exploration of non-financial performance indicators and external influences.	Incorporate non-financial indicators and assess external influences on performance in Kenyan telecommunication firms.
Mohamud (2017)	AML risk management and financial performance of Kenyan banks	Positive relationship between AML risks and financial performance but with varying regression outcomes.	Methodological Gap: Conflicting regression results create ambiguity. Contextual Gap: Focus on banking sector rather than telecommunications.	Investigate AML risk management practices in Kenya's telecommunication industry.
Njuguna (2019)	Risk management practices in Nairobi's projects	Positive effect of risk management practices on project performance.	Methodological Gap: Study focused on project management rather than organizational risk management.	Adapt risk management insights to telecommunication organizations.

Nunes et al. (2014)	Money laundering and rational choice theory in China	Collusion motivated by financial incentives at individual and institutional levels.	Contextual Gap: Conducted outside Kenya; lacks linkage between money laundering and firm performance.	Explore money laundering dynamics and their impact on performance in Kenyan telecommunication firms.
Ghazieh and Chebana (2021)	Risk management systems and firm performance in Europe	Risk management improves management efficiency and value creation.	Contextual Gap: Study conducted in Europe; focused on risk control rather than specific risk strategies.	Replicate in Kenya's telecommunication industry, emphasizing risk management strategies.
Muriithi (2013)	AML regulation and financial performance of Kenyan banks	AML reporting increases transactional and operational costs.	Contextual Gap: Focused on the banking sector, not telecommunications.	Assess AML implementation's impact on financial performance in Kenyan telecommunication firms.
Amaya and Memba (2015)	Risk management in Kenya's life assurance firms	Risk management improves financial performance, emphasizing premium valuation methods.	Contextual Gap: Focused on the insurance industry with sector-specific variables.	Study risk management strategies and their effects on telecommunication firm performance.
Noor (2019)	Financial risk and performance of transport firms in Kenya	Financial risks positively affect performance (ROI and ROA).	Contextual Gap: Focused on transport firms; findings may not apply to telecommunications.	Adapt financial risk management findings to Kenya's telecommunication industry.
Sakura (2018)	BCM practices and performance of security firms in Nairobi	Positive relationship between BCM practices and organizational performance.	Contextual Gap: Limited to security firms; does not address telecommunication sector needs.	Evaluate BCM frameworks in Kenya's telecommunication industry.
Madushanki and Ekanayake (2023)	ERM in Sri Lanka's food, beverage, and tobacco sector	ERM positively influences firm value and ROA.	Contextual Gap: Conducted outside Kenya in an unrelated industry. Conceptual Gap: Focused on ERM rather than distinct risk management strategies.	Focus on BCM and risk management strategies for Kenyan telecommunication firms.

Harriet and Omwenga (2022)	Risk management strategies at JKIA	Risk reduction, mitigation, assessment, and transfer positively affect financial performance.	Contextual Gap: Focused on aviation; findings not directly applicable to telecommunications.	Evaluate risk management strategies' role in Kenyan telecommunication firms.
Yang et al. (2018)	Enterprise risk management and SME performance	ERM improves competitive advantage and performance with financial literacy as a moderator.	Conceptual Gap: Conducted in Pakistan on SMEs, which differ from large telecommunication firms. Conceptual Gap: Did not isolate risk management practices as individual components.	Investigate specific risk management strategies in Kenya's telecommunication sector.
Machari and Caleb (2018)	Risk transfer strategy in public secondary school construction projects	Risk transfer has a weak influence on project performance.	Conceptual Gap: Focused on a project-based study rather than organizational risk management. Contextual Gap: Different industry from telecommunications.	Examine risk transfer strategies in organizational settings within telecommunications.
Aduma and Kimutai (2018)	Project risk management strategies at NHIF	Risk transfer has the least effect on project performance compared to other strategies.	Conceptual Gap: Focused on project-based risk management rather than organizational risk management. Contextual Gap: Did not focus on telecommunications industry.	Investigate risk transfer within Kenyan telecommunication firms.
Hayble-Gomes (2016)	AML program deficiencies in multinational banks	Technology, training, and oversight improve AML effectiveness.	Conceptual Gap: Focused on improving AML programs rather than linking AML to performance. Contextual Gap: Conducted in the banking sector, not telecommunications.	Link AML strategies to organizational performance in Kenyan telecommunications firms.

2.5 Conceptual Framework

A conceptual framework is very important in research, as it helps in making the conceptual distinction and organizing ideas. In this study, the independent variables include revenue assurance, anti-money laundering practices, business continuity framework and risk transfer while the dependent variable is organization performance.

The relationship is depicted in the figure 2.1 below.

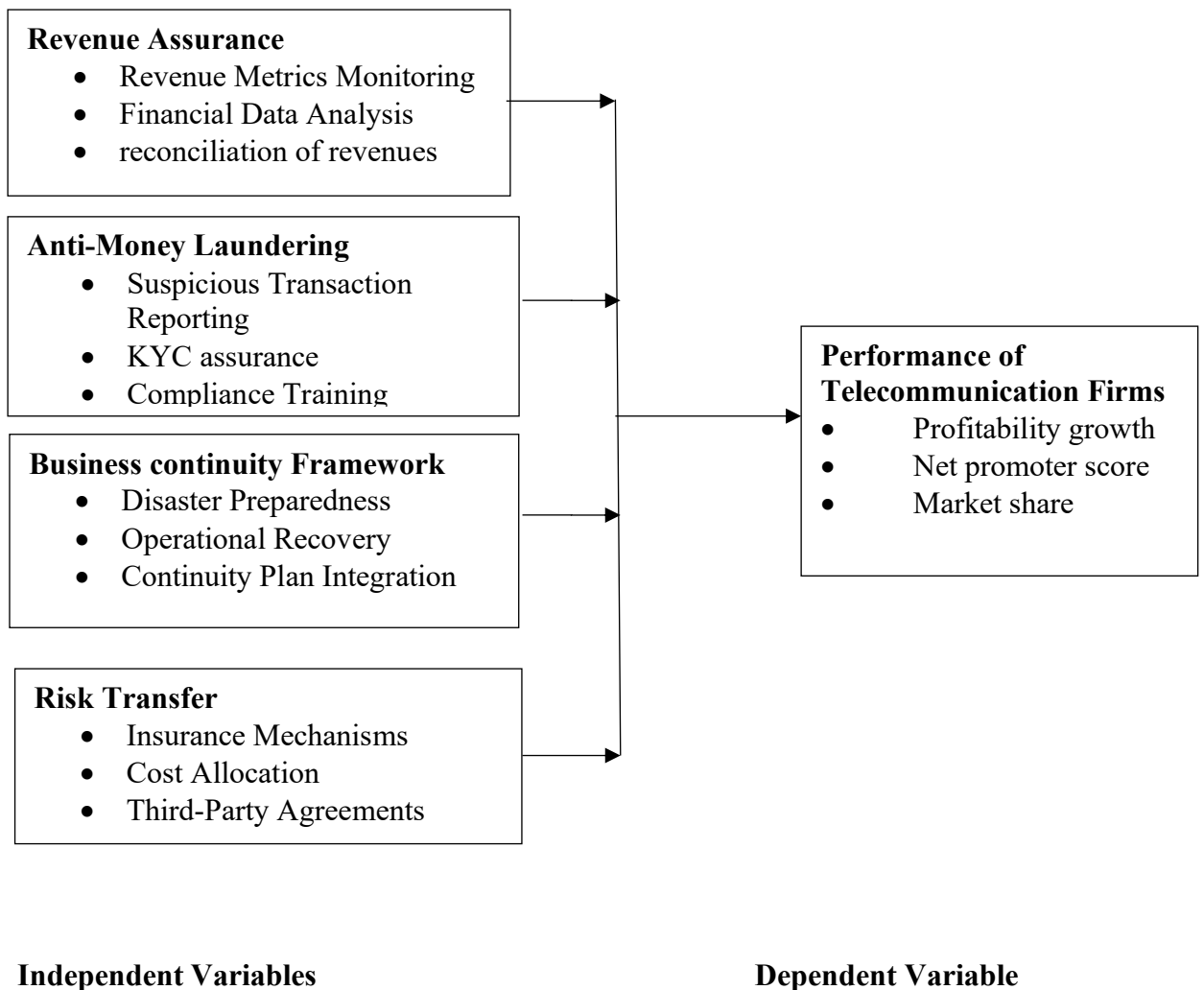


Figure 2. 1: Conceptual Framework

Source: Author (2025)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology adopted for the study. It details the chosen research design, the instruments and procedures for data collection, and the identified participants along with the sample size. Additionally, it discusses the methods and tools that were utilized for data analysis in the study.

3.2 Research design

This research adopted a descriptive survey design, a quantitative methodology involving systematic data collection from representative samples to analyze attitudes, behaviors, and characteristics (Morgan, 2014). The approach utilizes structured questionnaires to gather numerical data, enabling comprehensive analysis of response patterns and hypothesis testing. As a well-established research method, descriptive surveys facilitate reliable conclusions through standardized data collection from large, diverse respondent groups, ensuring robust findings while minimizing bias. The design's strength lies in its ability to efficiently capture measurable phenomena across populations, making it particularly suitable for examining relationships between variables in organizational settings. According to Orodho (2012), survey research allows for both the collection and analysis of data related to a specific phenomenon, aiding in its explanation. As a quantitative approach, surveys are considered a valuable tool for inquiry in research and evaluation (Mugenda & Mugenda, 2009). Descriptive design is ideal for systematically capturing and describing the characteristics of revenue assurance, anti-money laundering strategies, business continuity frameworks, and risk transfer practices within the telecommunications industry. This design enabled the researcher to identify and present the existing conditions without manipulating variables, which aligns with the study's goal of assessing the relationship between these

strategies and organizational performance.

3.3 Target population

In research methodology, the target population refers to the entire group of individuals, events, or objects that the researcher seeks to investigate and draw conclusions about (Babbie, 2020; Creswell, 2018). It represents the larger group from which a sample is drawn and is chosen based on the specific characteristics relevant to the research objectives. In descriptive studies, the target population is critical as it ensures the findings are representative and generalizable to the context being studied. This selection requires precision to identify individuals or groups with the necessary information to address the research problem effectively. For this study, the target population comprised all licensed telecommunication firms operating in Kenya. These firms are regulated by the Communications Authority of Kenya (CAK) and the full list is presented in the appendix 4.

However, purposive sampling of three major firms was done and hence targeting Safaricom, Airtel Kenya, and Telkom Kenya. The choice of Safaricom, Airtel Kenya, and Telkom Kenya as the focus of this study was justified by their dominance in Kenya's telecommunications industry. Together, these three firms account for the largest market share, infrastructure investments, and service coverage in the country, making them representative of the industry's dynamics. Safaricom leads in market penetration and innovation, Airtel Kenya is notable for its competitive strategies and affordability, while Telkom Kenya has a significant presence in infrastructure and government partnerships. These firms provide a comprehensive view of the varying risk management strategies within diverse operational contexts. The study will aim to generalize findings from these three firms to the entire telecommunications sector

The unit of analysis refers to the entity being analyzed to draw conclusions. In this study, the unit of analysis was organization, specifically the three telecommunication firms. The focus is on assessing the strategies employed by these organizations, such as revenue assurance practices, anti-money laundering measures, business continuity frameworks, and risk transfer strategies, and their effect on organizational performance. By analyzing the firms as units, the study seeks to identify patterns and insights applicable to the broader industry.

The unit of observation refers to the entities from which data is collected. In this study, the unit of observation was the individual employees at management levels within Safaricom, Airtel Kenya, and Telkom Kenya. These employees are presumed to possess relevant knowledge and expertise regarding the implementation of risk management strategies and their implications on performance. According to the Communications Authority of Kenya (CAK, 2019), these three firms collectively employ approximately 1,200 management-level employees. These individuals represent a critical segment of the population due to their direct involvement in strategy formulation and execution, making their perspectives and experiences integral to achieving the study's objectives.

3.4 Sample Size and Sample Technique

This study uses Nassiuma formula (2000) to come with a sample from the target population as shown below

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

Where;

n = Sample size

N = Total population

C = Coefficient of variation

e = Margin of error

For this study, a sample size of 190 respondents were selected from a total population (N) of 1,200, based on a coefficient of variation (C) of 0.3 and a standard error (e) of 0.02. The study employed a stratified sampling technique to identify and select eligible participants and organizations. In this approach, respondents were categorized into strata corresponding to their respective firms. As highlighted by Kothari (2012), stratified sampling is particularly useful when the population is heterogeneous, ensuring that the sample accurately represents different subgroups. By dividing the population into relevant strata, this method enhanced the representativeness of the sample and improved the reliability of the findings. In the present study, management employees of the three major telecom firms were sampled based on the market share of the firms as shown in Table 3.1 below.

Table 3.1. Sample distribution

Firm	Market share (%)	Population size	Sample size	Sample percent
Safaricom	67.4	550	128	67.4
Airtel Kenya	22.4	430	43	22.4
Telkom Kenya	10.2	220	19	10.2
Total	100	1200	190	100

Source: CAK (2019)

3.5 Data Collection Instruments

This study employed semi-structured questionnaires incorporating a five-point Likert scale (1=strongly disagree to 5=strongly agree) to quantitatively assess all research variables, enabling differentiation between negative and positive respondent perceptions. To complement these quantitative measures, open-ended questions were integrated to capture nuanced qualitative insights and enhance response validity. The questionnaire methodology offered distinct advantages, including immediate data collection upon completion and the capacity to provide respondents with necessary clarifications (Kothari, 2012). Prior to data collection, the researcher secured all required ethical approvals from relevant institutional review bodies. Following protocol compliance, potential participants were approached through purposive sampling, with administration conducted through face-to-face distribution to ensure proper completion and immediate retrieval of instruments, thereby optimizing response rates and data quality.

3.6 Data Collection Procedure

To facilitate the data collection process, the researcher first obtained an official identification letter from Kenyatta University, serving as proof of affiliation and legitimacy. This letter was then presented to the management of the three targeted telecommunication firms—Safaricom, Airtel Kenya, and Telkom Kenya—to secure the necessary research permits and access to their management-level employees. The identification letter ensured that the study adheres to institutional and corporate ethical standards while providing the researcher with the authority to conduct research within these organizations.

Additionally, a transmittal letter was issued alongside the questionnaires. This letter

will served as an introduction to the study, explaining its purpose, significance, and confidentiality assurances. It will also emphasize that participation is voluntary and that the data collected will only be used for academic purposes. The transmittal letter is crucial for establishing rapport with respondents and ensuring their cooperation.

The questionnaires were self-administered to allow respondents the flexibility to complete them at their convenience, reducing interruptions to their professional schedules. To optimize response rates, the researcher will employ a "drop and collect" strategy. Under this approach, questionnaires were physically delivered to the identified respondents, and arrangements were made to collect the completed questionnaires after an agreed-upon period. This method ensures that respondents have adequate time to thoughtfully answer the questions, while the researcher maintains regular contact to address any questions, provide clarifications, and encourage timely responses.

3.7 Pilot Study

Pilot studies play a crucial role in research by allowing investigators to identify and address potential issues before the main study is conducted. They help uncover areas where the primary research could encounter problems, such as non-adherence to research protocols or the use of methods and instruments that are either too simplistic or overly complex (Baskarada, 2014). By conducting a preliminary test, researchers can assess the performance of their research tools and make necessary adjustments to enhance the study's overall design and methodology. In this study, a pilot was done in telcos that did participate in the final study. The sample size were 19 respondents derived from the smaller telcos that will not take part in the final study. The 19 respondents represent 10% of the sample population as recommended by Saunders et al., (2018).

3.7.1 Validity of Research Instrument

Validity constitutes a fundamental methodological consideration that determines the degree to which a research instrument accurately captures the intended theoretical constructs, thereby ensuring the collected data authentically reflects the investigated phenomena (Creswell & Creswell, 2018; Babbie, 2020). As the cornerstone of rigorous empirical research, validity directly influences the credibility of findings and the robustness of subsequent conclusions. This study incorporated a multifaceted validation approach encompassing four principal validity dimensions content, construct, face, and criterion validity each addressing distinct aspects of measurement accuracy, as elaborated below.

Content validity fundamentally concerns the instrument's capacity to comprehensively represent the conceptual domain under investigation (Polit & Beck, 2017). This dimension evaluates whether questionnaire items sufficiently cover all relevant facets of the measured variables. For the present research, content validity was systematically established through a dual-phase process: first, by grounding questionnaire development in an exhaustive review of scholarly literature examining risk management frameworks (including revenue assurance protocols, anti-money laundering systems, business continuity planning, and risk transfer mechanisms) and their organizational performance implications; second, through rigorous evaluation by an expert panel comprising both academic researchers specializing in risk management and telecommunications industry practitioners with operational expertise in these domains.

Construct validity represents a more sophisticated validation tier, assessing the instrument's alignment with underlying theoretical frameworks (Trochim & Donnelly,

2016). This validation ensures that operationalized measures genuinely reflect abstract theoretical constructs. In this investigation, construct validity was methodically achieved by developing questionnaire items that precisely correspond to the study's conceptual definitions of key variables—particularly the operational parameters of various risk management strategies and the multidimensional indicators of organizational performance (encompassing both financial metrics and operational effectiveness measures).

Face validity, while more subjective in nature, provides essential preliminary assurance that the instrument appears appropriate for its stated purposes (Babbie, 2020). This surface-level validation confirms that items seem relevant and comprehensible to potential respondents. The current study established face validity through an extensive pilot testing phase, where preliminary respondents from the telecommunications sector will evaluate question clarity, relevance, and overall instrument appropriateness, with subsequent refinements made based on their feedback.

Criterion validity examines the instrument's predictive and concurrent relationships with established external benchmarks (Creswell & Creswell, 2018). This study implemented criterion validation through systematic comparison of primary questionnaire data with two independent secondary data sources: (1) internal performance metrics obtained from participating telecommunications firms, and (2) standardized industry performance indicators published by Kenya's Communications Authority (CAK). This triangulation approach verified whether questionnaire responses demonstrate meaningful correspondence with objective organizational performance measures, thereby strengthening the overall validity framework.

3.7.2 Reliability of Research Instrument

Reliability refers to the consistency and dependability of results produced by a research instrument. A reliable instrument yields the same outcomes under similar conditions, regardless of the time or location of data collection (Creswell & Creswell, 2018). In this study, reliability was evaluated using the Cronbach Alpha Coefficient, a widely recognized measure of internal consistency for multi-item scales. The coefficient ranges from 0 to 1, with higher values indicating stronger reliability (Tavakol & Dennick, 2011). A Cronbach Alpha value of 0.7 or above is generally considered an acceptable standard for reliability (Kothari, 2012). Consequently, statements with values above 0.7 were retained, while those falling below this threshold were revised or excluded.

3.8 Data Analysis and Presentation

After all the questionnaires are completed and collected, the data underwent a structured analysis process with the aid of SPSS (Version 27). The analysis involved both descriptive and inferential statistical methods to ensure a comprehensive understanding of the data.

Descriptive statistics were used to summarize and describe the basic features of the data, providing an overview of the respondents' demographic characteristics and their responses to the research questions. Measures such as means, frequencies, percentages, and standard deviations were calculated. For instance, frequencies and percentages were used to analyze categorical data, such as respondents' roles or experience levels, while means and standard deviations will summarize responses to Likert-scale items related to the study's objectives. These descriptive results helped identify trends, patterns, and distributions within the data.

Inferential statistics were applied to test the hypotheses and examine the relationships between variables. Analytical methods such as regression analysis and correlation were employed to determine the influence of risk management strategies on organizational performance. Regression analysis aided in assessing the predictive power of the independent variables (risk management strategies) on the dependent variable (organizational performance). Correlation analysis measured the strength and direction of relationships between variables. Hypothesis testing will use a significance level of 0.05 to determine statistical validity.

The results were presented in a clear and concise manner to enhance interpretation and understanding. Descriptive statistics were summarized in tables, charts, and graphs for visual representation, making it easier to identify trends and key findings. Inferential statistics, such as regression outputs and correlation matrices, were presented in tables with corresponding interpretations and explanations. Additionally, narrative descriptions will accompany all tables and figures to provide context and insight into the findings. A multiple regression equation was fitted as follows:

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

Where Y= Performance of telecommunication firms

X₁= Revenue assurance

X₂= anti-money laundering practices

X₃= business continuity framework

X₄ = risk transfer

β₀ –Constant value

β₁ - coefficient for Revenue assurance

β₂ - coefficient for anti-money laundering practices

β_3 - coefficient for business continuity framework

β_4 : Coefficient for risk transfer

ε - Error term

3.9 Ethical Consideration

Given the involvement of human participants, this study rigorously adheres to established ethical protocols to safeguard participant rights and welfare. Foremost among these considerations is the principle of informed consent, which were operationalized through structured pre-participation briefings. During these sessions, the researcher will comprehensively disclose the study's objectives, procedures, and potential implications, while explicitly affirming participants' autonomous right to decline or withdraw participation without penalty or justification (World Medical Association, 2013). Written consent was formally documented using standardized forms (see appendices), ensuring explicit participant agreement. Data confidentiality constitutes a paramount ethical obligation. The researcher implemented stringent data protection measures, including secure storage protocols and restricted access, to guarantee that collected information is utilized exclusively for this academic investigation. Participants received explicit assurances of anonymity in all research outputs, with all identifiers removed during data analysis and reporting phases. Furthermore, the study design incorporates psychological and physical safeguarding protocols. Interview environments was carefully controlled to minimize participant discomfort, with particular attention to creating non-coercive, respectful atmospheres conducive to voluntary participation. These measures collectively fulfill the ethical imperatives of beneficence and non-maleficence (National Commission for the Protection of Human Subjects, 1979), ensuring alignment with international standards for ethical research conduct.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis, presentation, and interpretation of data on how risk management strategies affect the performance of telecommunication firms in Kenya. The analysis is based on field research that targeted senior management staff from Safaricom, Airtel Kenya, and Telkom Kenya. Respondents included managers, departmental heads, and compliance officers with a clear understanding of their firms' risk management strategies and performance indicators. The data collection was done using semi-structured questionnaires. Descriptive statistics were used to summarize demographic characteristics and response patterns, while multiple regression and correlation analysis were employed to answer the study's four research questions. The findings are presented in alignment with each research objective and hypothesis, offering insights into how effectively risk management strategies are embedded within Kenya's telecommunication sector and their subsequent impact on organizational performance.

4.2 Response Rate

The researcher distributed 190 questionnaires to target respondents across Safaricom, Airtel Kenya, and Telkom Kenya. Out of these, 154 were successfully completed and returned, resulting in a response rate of 81.05%, as illustrated in Figure 4.1. This high response rate reflects strong engagement from the selected participants and enhances the reliability of the findings. According to Mohajan (2020), a response rate exceeding 70% is considered significantly sufficient for conducting statistical analysis, ensuring that the data collected is both valid and representative of the study population.

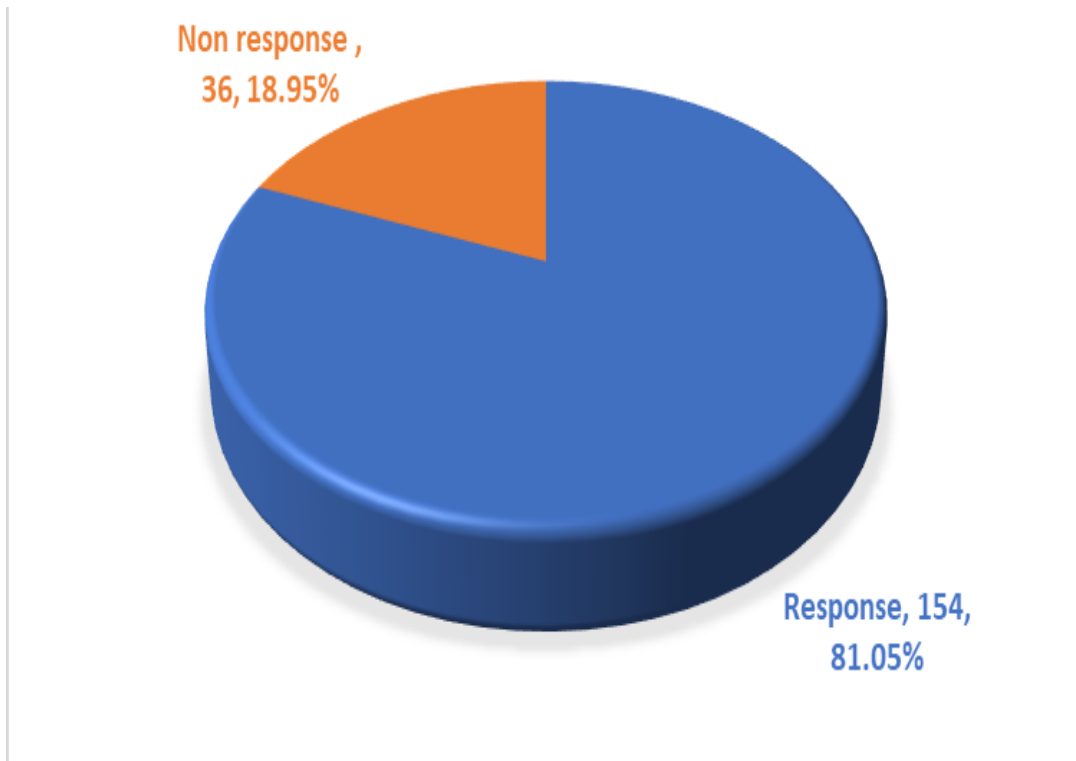


Figure 4.1: Response Rate
Source: Research data (2025)

4.3 Pilot study Results

A pilot study was conducted prior to the main data collection to test the reliability of the research instrument. Cronbach’s Alpha was used to assess the internal consistency of the questionnaire items. As shown in Table 4.1, all the study variables recorded alpha values above 0.7, indicating acceptable reliability. The values ranged from 0.798 to 0.839, confirming that the constructs were consistent and dependable for further analysis. These findings align with Taherdoost (2017), who argued that questionnaire constructs are deemed reliable when their Cronbach Alpha values exceed the recommended threshold of 0.7.

Table 4.1: Reliability results

Variables	No of items	Cronbach Alpha	Comment
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Revenue Assurance	6	0.839	Accepted
Anti-Money Laundering	5	0.825	Accepted
Business Continuity Framework	5	0.798	Accepted
Risk Transfer	5	0.829	Accepted
Performance of Telco Firms	5	0.833	Accepted

Source: Research data (2025)

Pertaining to validity, Content validity was established through a comprehensive literature review and expert evaluation by academics and telecommunications industry practitioners to ensure that all relevant dimensions of risk management and organizational performance were adequately covered. Construct validity was achieved by developing questionnaire items closely aligned with the study's theoretical framework, ensuring they operationalized key concepts like revenue assurance, anti-money laundering, business continuity, and risk transfer strategies. Face validity was ensured through pilot testing with telecommunications management staff, who reviewed the questionnaire for clarity, relevance, and comprehensibility, leading to minor refinements. Criterion validity was assessed by triangulating primary data with independent secondary sources, namely internal firm performance reports and standardized indicators from the Communications Authority of Kenya (CAK). The strong alignment between questionnaire responses and external benchmarks confirmed the instrument's validity, reinforcing the credibility and reliability of the study's findings.

4.4 Demographic Characteristics of Respondents

This section presents the demographic characteristics of the respondents, which are essential for understanding the context of the data and ensuring the relevance of the responses to the study objectives. The information collected included the organization where the respondent works, their current level of management, and the duration they have served in their current position. This data helps in assessing the diversity and experience of the respondents involved in the study.

4.4.1 Current Organization

The respondents were drawn from the three major telecommunication firms in Kenya. As shown in figure 4.2, the majority—108 respondents (70.1%)—were from Safaricom, followed by 34 respondents (22.1%) from Airtel Kenya, and 12 respondents (7.8%) from Telkom Kenya. This distribution reflects the market dominance of Safaricom and ensures that the study captures perspectives from all key players in the industry.

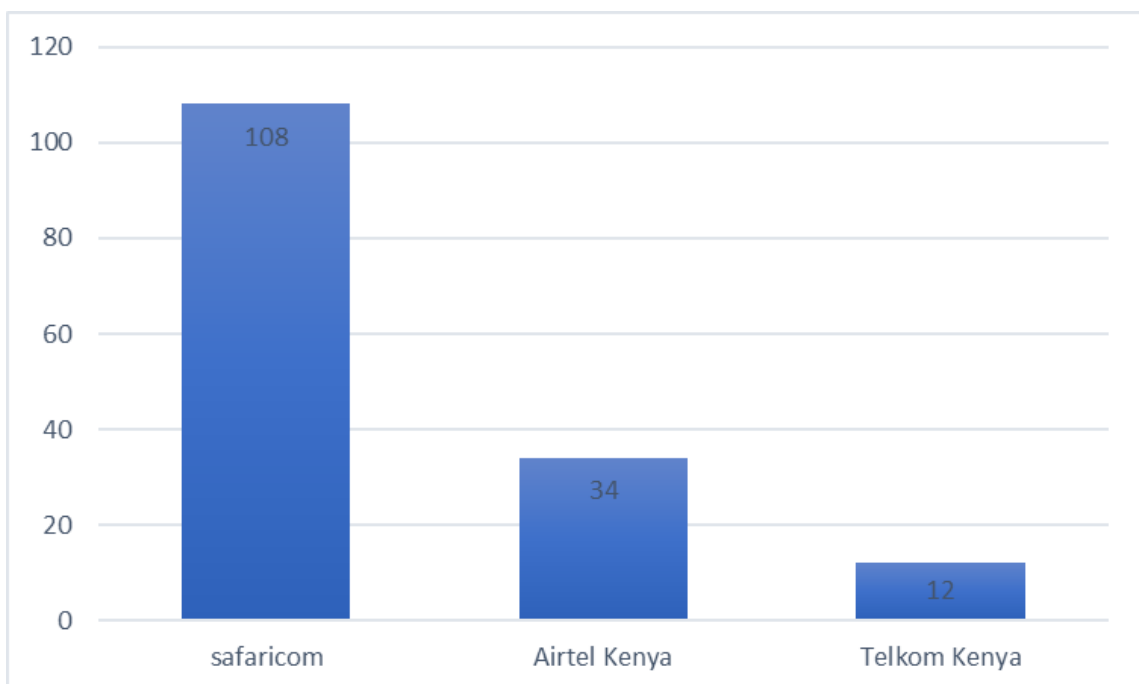


Figure 4.2: Current Organization
Source: Research data (2025)

4.4.2 Level of Management

Respondents were asked to indicate their current level of management. As shown in Figure 4.3, 35 respondents (22.7%) were from top-level management, 67 respondents (43.5%) were from middle-level management, while 52 respondents (33.8%) served at the lower management level. This distribution ensures a balanced representation across various organizational hierarchies, providing diverse insights into how risk management strategies are implemented and perceived at different management tiers within the telecommunications sector.

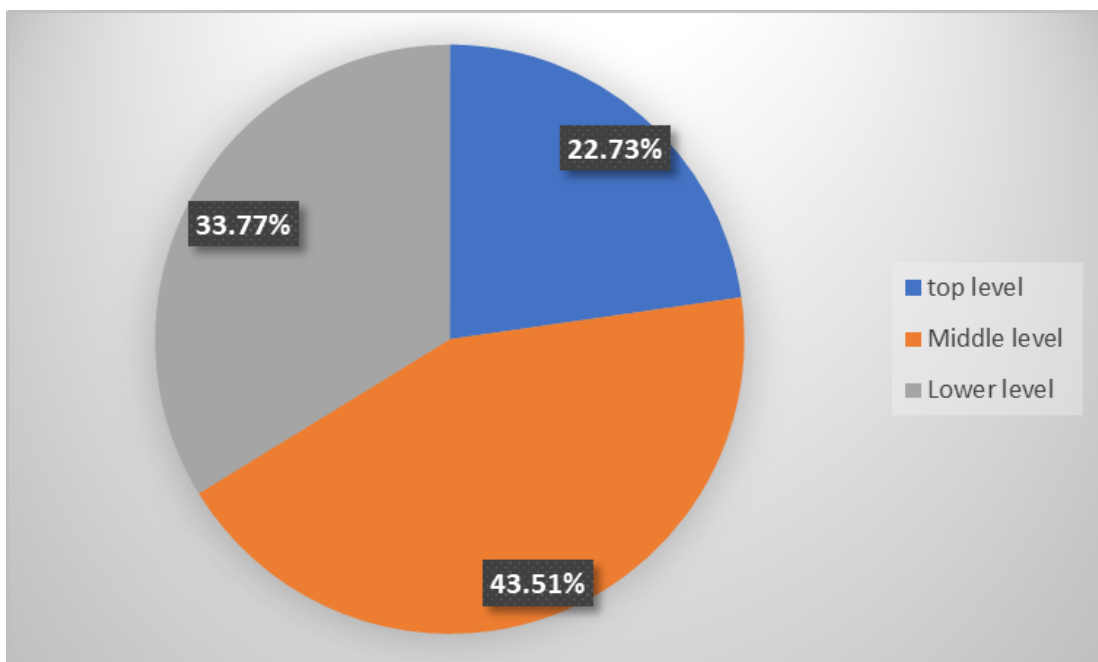


Figure 4.3: Level of management
Source: Research Data (2025)

4.4.3 Duration in the present Management Level

Respondents were asked to indicate how long they had served in their current management level. As illustrated in Figure 4.4, 41 respondents (26.6%) had worked for

0–5 years, 44 respondents (28.6%) for 6–10 years, 38 respondents (24.7%) for 11–15 years, and 31 respondents (20.1%) for 16 years and above. These results show that the majority of participants had substantial managerial experience, enhancing the credibility and depth of their input to the study.

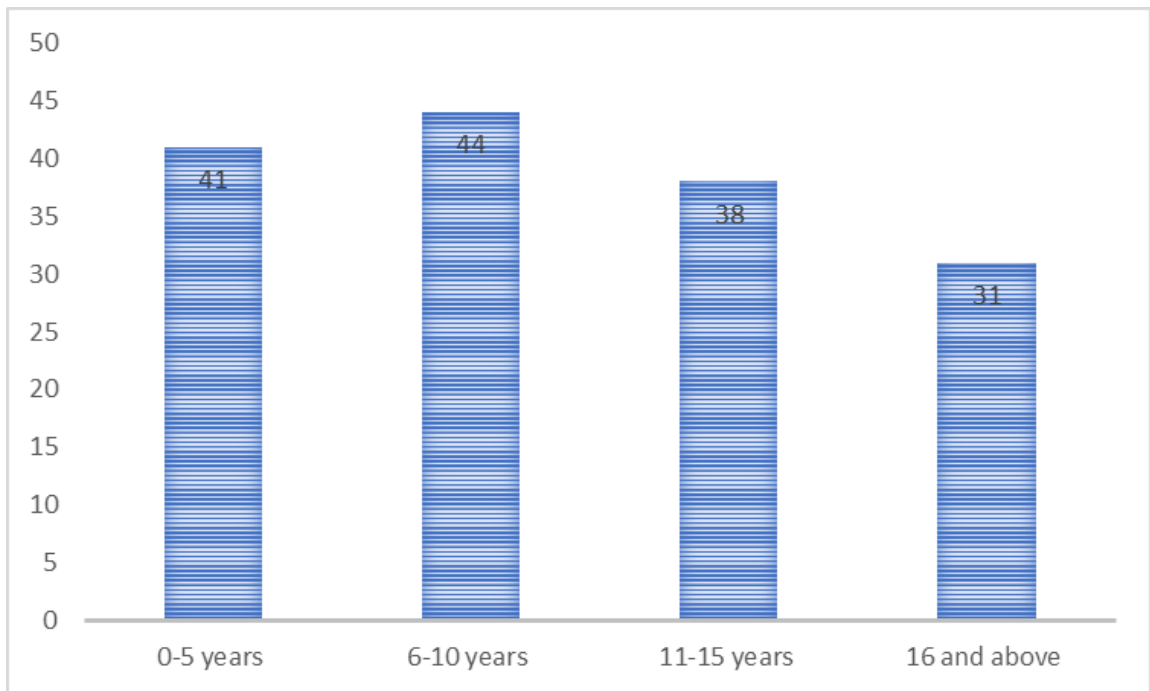


Figure 4.4: Years worked in the current management level
Source: Research data (2025)

4.5 Descriptive Statistics

This section presents the descriptive statistics of the study variables to provide an overview of respondents' perceptions regarding the influence of risk management strategies on the performance of telecommunication firms in Kenya. The analysis focused on the four independent variables revenue assurance, anti-money laundering practices, business continuity frameworks, and risk transfer mechanisms as well as the dependent variable, organizational performance. Responses were measured using a five-point Likert scale, where 1 = Not at all, 2 = Small Extent, 3 = Moderate Extent, 4

= Large Extent, and 5 = Very Large Extent. The findings are presented using, percentages, means and standard deviations.

4.5.1 Revenue Assurance

The researcher sought to determine the revenue assurance adoption in the organization as part of risk management and how they influence performance of telcos. The responses were measured on a five-point Likert scale ranging from 1 (Not at all) to 5 (Very Large Extent). The results presented in table 4.2 indicate the general consensus among respondents regarding their organization's application of revenue assurance practices to enhance financial performance.

Table 4.2: Descriptive Statistics for Revenue Assurance

Statement	Not at All	Small Extent	Moderate Extent	Large Extent	Very Large extent	Mean	SD
Our organization monitors all forms of financial services usage and reconciles with expected or normalized usage	1.3%	0.0%	0.0%	51.9%	46.8%	4.43	.64
Our organization examines the services contracted and supplied to ensure consistency	0.0%	1.3%	3.2%	41.6%	53.9%	4.48	.63
We ensure the management of business assets and related costs are aligned with performance goals	1.9%	0.6%	13.0%	27.3%	57.1%	4.37	.88
Our organization has strategies to optimize timely and cost-effective management of receivables to enhance cash flow	1.3%	10.4%	13.0%	31.2%	44.2%	4.06	1.05
We have developed robust strategies to ensure network integrity and minimize revenue leakage	3.9%	3.9%	15.6%	33.8%	42.9%	4.08	1.04
We perform reconciliation of various streams, ensuring all revenue channels are tracked and verified	1.3%	0.6%	12.3%	40.3%	45.5%	4.28	.80

Source: Research data (2025)

As summarized in the table, the descriptive statistics reveal that revenue assurance practices are extensively implemented across the surveyed telecommunication firms in Kenya, with most items recording high mean scores exceeding 4.0. This suggests widespread agreement that revenue assurance constitutes a critical strategic focus in organizational risk management.

The highest-rated item was the statement that "our organization examines the services contracted and supplied to ensure consistency," which recorded a mean of 4.48 and a standard deviation of 0.63. A notable 53.9% of the respondents indicated a very large extent of implementation, while 41.6% reported a large extent. The extremely small proportion of respondents selecting moderate extent (3.2%) or small extent (1.3%) underscores the uniform recognition across firms of the importance of consistency between contracted and delivered services. This consistency serves as a key internal control mechanism, safeguarding revenue flows and ensuring contractual compliance.

Closely following was the statement that "our organization monitors all forms of financial services usage and reconciles with expected or normalized usage," which achieved a mean score of 4.43 and a standard deviation of 0.64. Here, 46.8% of respondents indicated a very large extent of practice, and 51.9% indicated a large extent. No respondent reported implementation at a small or moderate extent, reflecting a unanimous consensus that continuous monitoring and reconciliation of service usage is vital to mitigate revenue leakages and detect anomalies early.

Similarly, the statement on "management of business assets and related costs aligned with performance goals" recorded a mean of 4.37 with a standard deviation of 0.88. A total of 57.1% of respondents affirmed implementation to a very large extent, and 27.3% to a large extent, highlighting a sector-wide effort to ensure that resource allocation supports strategic performance outcomes. Only a small minority (13.0%) indicated a moderate extent of application, suggesting that while asset management is widely prioritized, there remains some room for maturity in optimizing alignment with strategic goals.

The practice of "reconciliation of various revenue streams" was also highly rated, achieving a mean score of 4.28 and a standard deviation of 0.80. 45.5% of respondents indicated that they perform such reconciliation to a very large extent, while 40.3% indicated a large extent. This demonstrates a substantial emphasis on ensuring that revenue channels including voice, data, SMS, and mobile money services—are adequately tracked, reconciled, and verified to maintain revenue integrity and enhance financial reporting accuracy.

Statements addressing "optimization of timely and cost-effective management of receivables" and "ensuring network integrity to minimize revenue leakage" received slightly lower, yet still robust, ratings, with mean scores of 4.06 and 4.08 respectively, and standard deviations of 1.05 and 1.04. For receivables management, 44.2% of respondents reported implementation to a very large extent, and 31.2% to a large extent, while 13.0% indicated only a moderate extent. For network integrity, 42.9% reported a very large extent and 33.8% a large extent, though 15.6% indicated only moderate extent and 3.9% a small extent. The slightly higher standard deviations for these two items suggest greater variability in implementation sophistication across firms, likely reflecting differences in technological investment, operational scale, or organizational prioritization of these strategies.

Overall, the high mean values across all revenue assurance dimensions, combined with the dominance of large and very large extent responses (frequently exceeding 85% of respondents), illustrate a pervasive institutional commitment to strengthening revenue assurance functions. These practices—spanning usage monitoring, asset-cost alignment, revenue reconciliation, receivables management, and network integrity—form an integrated framework aimed at minimizing revenue leakage, enhancing cash

flow reliability, and ensuring that revenue-generating activities are closely tied to strategic performance objectives.

Nonetheless, the slightly higher dispersion observed in receivables management and network integrity suggests that while the foundation of revenue assurance is strong, opportunities exist for further standardization and enhancement across firms. Harmonizing these practices, especially in areas with greater variability, could further bolster sectoral resilience against revenue-related risks, thereby supporting improved financial stability and competitive advantage in Kenya's increasingly dynamic telecommunications industry.

These findings align with existing empirical literature, notably Sharma and Patel (2018), who found a significant positive relationship between robust revenue assurance practices and enhanced organizational performance, particularly in terms of financial stability and profitability. The high mean scores in this study reinforce their conclusions, suggesting that when telecommunication firms rigorously monitor revenue streams and align service delivery with financial controls, they are more likely to achieve strong performance outcomes. Similarly, Li and Wang (2020) emphasized the effectiveness of revenue assurance when integrated into broader organizational strategies. The current study reflects this integration, as firms not only apply revenue assurance tools but also embed them within core performance goals, such as receivables management and asset alignment.

4.5.2 Anti-Money Laundering Practices

The researcher also sought to explore the extent to which anti-money laundering (AML) practices are implemented by telecommunication firms in Kenya. The statements

focused on key compliance mechanisms, including Know Your Customer (KYC) procedures, transaction monitoring, watch lists, client verification, and employee reporting systems. Responses were measured on a five-point Likert scale, ranging from 1 (Not at all) to 5 (Very Large Extent), to evaluate how deeply these practices are embedded within organizational operations.

Table 4.3: Descriptive statistics on Anti-money laundering practices

Statement	Not at All	Small Extent	Moderate Extent	Large Extent	Very Large extent	Mean	SD
We have a KYC assurance system where we identify and verify all our clients to comply with regulatory standards	0.0%	0.6%	13.6%	18.8%	66.9%	4.52	.75
Our systems effectively monitor all transactions with clients and raise an alarm for suspicious activities	0.6%	8.4%	7.8%	31.2%	51.9%	4.25	.97
The systems and employees regularly update a watch list for suspicious clients and transactions	6.5%	3.2%	3.2%	28.6%	58.4%	4.29	1.12
We conduct thorough verification of clients before registration with money services to ensure legitimacy	2.6%	1.9%	14.3%	30.5%	50.6%	4.25	.95
We have a suspicious activity reporting system that encourages employees to report red flags promptly	1.3%	3.2%	6.5%	31.2%	57.8%	4.41	.85

Source: Research Data (2025)

The descriptive results illustrate that anti-money laundering (AML) practices are

extensively institutionalized across the sampled telecommunication firms in Kenya, with most items recording high mean scores ranging between 4.25 and 4.52, indicating implementation to a large or very large extent.

The highest-rated statement was the existence of a Know Your Customer (KYC) assurance system, which achieved a mean score of 4.52 and a standard deviation of 0.75. Notably, 66.9% of respondents indicated that KYC measures were implemented to a very large extent, while an additional 18.8% cited a large extent. No respondents selected not at all, and only 0.6% indicated a small extent. These findings demonstrate that client identification and verification processes are deeply embedded within organizational compliance frameworks, a key prerequisite for mitigating identity fraud and ensuring adherence to regulatory standards.

The second-highest rated item was the presence of a suspicious activity reporting system, with a mean of 4.41 and a standard deviation of 0.85. Here, 57.8% of respondents reported a very large extent of application, and 31.2% reported a large extent. This reflects a strong organizational culture that promotes proactive internal surveillance, whereby employees are encouraged to report anomalies promptly. Such measures are critical for the early detection of illicit financial behavior, particularly in sectors like telecommunications where mobile money and digital transactions are prevalent.

Monitoring of client transactions for suspicious activities and the practice of client verification before registration each recorded mean scores of 4.25, accompanied by standard deviations of 0.97 and 0.95 respectively. For transaction monitoring, 51.9% of respondents indicated implementation to a very large extent and 31.2% to a large

extent, suggesting that firms have invested in real-time monitoring systems capable of identifying abnormal transaction patterns. Similarly, client verification practices before access to money services were reported at a very large extent by 50.6% of respondents and a large extent by 30.5%, confirming the emphasis on ensuring that service access is granted only to legitimate users, thereby preventing misuse of telecommunications platforms for money laundering purposes.

The updating of watch lists for suspicious clients and transactions also demonstrated strong adoption, with a mean score of 4.29 and a standard deviation of 1.12. While 58.4% of respondents indicated application to a very large extent and 28.6% to a large extent, the slightly higher standard deviation suggests modest variability across firms in the regularity or rigor of maintaining these critical monitoring lists. This variability may be attributable to differences in institutional resources or operational scale among the firms surveyed. Collectively, the results reveal that AML practices are not only well-entrenched but also systematically operationalized across Kenya's major telecommunication firms. The clustering of mean scores between 4.25 and 4.52, with consistently high proportions of respondents selecting large or very large extent, affirms a sector-wide commitment to financial compliance and risk mitigation. Such practices are pivotal in safeguarding the integrity of digital financial ecosystems, enhancing consumer trust, and ensuring continued regulatory alignment amid the growing convergence of telecommunications and financial services.. These findings resonate with the empirical literature. Mohamud (2017), for instance, found a positive correlation between suspicious transaction monitoring and financial performance in Kenya's banking sector, though also noted the drag of AML compliance costs on profitability. While Mohamud's study was banking-focused, the current findings show that Kenyan telecom firms have adopted similarly strong AML controls, but likely with

more digitally integrated and scalable solutions that reduce operational burden. Hayble-Gomes (2016) emphasized the need for technological modernization and training—both of which are implied in the respondents’ strong agreement on systems and employee-driven AML roles. Furthermore, while Noor (2019) and Nunes et al. (2014) identified conceptual limitations in applying AML models across sectors and geographies, the present study fills this gap by providing context-specific insights into how AML practices operate within Kenya’s telecommunications industry. The results confirm that AML is not only a regulatory obligation but also a strategic tool contributing to operational integrity and performance.

4.5.3 Business Continuity Framework

The third objective sought to examine the extent to which telecommunication firms in Kenya have adopted business continuity frameworks to safeguard operations during disruptions. Business continuity planning (BCP) is critical for managing risks related to cyber threats, infrastructure failures, and service interruptions. The analysis draws on responses measured on a five-point Likert scale, ranging from 1 (Not at all) to 5 (Very Large Extent).

Table 4: Descriptive statistics for Business Continuity framework

Not at all	Not at All	Small Extent	Moderate Extent	Large Extent	Very Large extent	Mean	SD
Our organization has a clear strategy for business continuity to maintain operations during disruptions	4.5%	2.6%	6.5%	29.2%	57.1%	4.32	1.03
We have an effective disaster recovery mechanism in place to ensure minimal downtime	2.6%	0.6%	5.8%	39.6%	51.3%	4.36	.84
We conduct regular site risk assessments to identify potential vulnerabilities	0.6%	6.5%	7.1%	29.2%	56.5%	4.34	.92
We have an active and updated Business Continuity Plan (BCP) program in place	9.1%	8.4%	6.5%	30.5%	45.5%	3.95	1.30
We offer regular training and education for staff on emergency response protocols	5.2%	1.9%	13.0%	33.8%	46.1%	4.14	1.06

Source: Research Data (2025)

The descriptive statistics as shown in the table indicate a strong overall adoption of business continuity frameworks among the surveyed telecommunication firms in Kenya. Most statements recorded mean scores above 4.0, suggesting that business continuity practices are generally implemented to a large or very large extent, with some variation across specific dimensions.

The highest-rated item was the presence of an effective disaster recovery mechanism, which recorded a mean of 4.36 and a standard deviation of 0.84. Notably, 51.3% of respondents indicated that disaster recovery was implemented to a very large extent, and 39.6% to a large extent. Only 2.6% and 0.6% of respondents selected not at all and small extent respectively. These results suggest that firms have invested significantly in systems designed to minimize operational downtime during disruptions, a vital capacity in the highly time-sensitive telecommunications sector.

Closely following was the statement that "regular site risk assessments are conducted to identify vulnerabilities," which achieved a mean score of 4.34 and a standard deviation of 0.92. Here, 56.5% of respondents confirmed application to a very large extent, and 29.2% to a large extent. Only a marginal 0.6% of participants indicated not at all, reflecting that proactive risk identification practices are widely embedded across firms. These findings underscore the emphasis placed on anticipating potential threats to operational stability and continuity.

The existence of a clear strategy for business continuity was also highly rated, with a mean score of 4.32 and a standard deviation of 1.03. 57.1% of respondents reported that such strategies were implemented to a very large extent, while 29.2% reported a large extent. Nevertheless, a small minority (4.5% not at all and 2.6% small extent) suggests slight gaps in formalizing continuity strategies within a few firms or departments. Overall, the findings reflect widespread prioritization of strategic planning for resilience among Kenyan telecommunications companies.

In contrast, two other dimensions namely the maintenance of an active and updated Business Continuity Plan (BCP) and regular staff training on emergency response

protocols recorded slightly lower mean scores. The BCP item achieved a mean of 3.95 with a relatively higher standard deviation of 1.30, indicating greater variation in responses. 45.5% of respondents agreed to a very large extent and 30.5% to a large extent, yet 9.1% selected not at all and 8.4% small extent, suggesting that while most firms maintain BCPs, there are inconsistencies in updating and institutionalizing these plans regularly across all departments.

Similarly, the staff training item recorded a mean score of 4.14 and a standard deviation of 1.06. 46.1% of respondents indicated that training was conducted to a very large extent, and 33.8% to a large extent. However, 5.2% selected not at all and 1.9% small extent, implying that staff training, while generally recognized as important, may not be uniformly executed across all units or firms.

Thus, the results demonstrate that business continuity planning is deeply embedded within the Kenyan telecommunications sector. Core practices such as disaster recovery, risk assessments, and strategy formulation are robustly implemented, as evidenced by the high mean scores and strong majority agreement. However, the higher variability in business continuity plan updates and emergency training activities suggests areas for improvement. Firms could enhance resilience further by institutionalizing periodic BCP reviews and ensuring consistent, organization-wide emergency preparedness programs..

These findings are consistent with the empirical work of Sakura (2018), who found a statistically significant relationship between BCM practices and organizational performance in Nairobi's security sector. However, unlike Sakura's study, which focused on physical security operations, this research confirms the applicability of such

strategies within a technologically-driven environment like telecommunications. The results also extend the insights from Yang et al. (2018), who highlighted the positive impact of ERM frameworks on firm performance, though their aggregated approach masked the specific contributions of business continuity. Likewise, Madushanki and Ekanayake (2023) acknowledged the role of business continuity within ERM but did not isolate its effects. This study fills that conceptual gap by focusing directly on BCP components and demonstrating their strategic importance in maintaining operational efficiency and customer trust in Kenya's telecommunications sector.

4.5.4 Risk Transfer

The researcher sought to examine the extent to which risk transfer mechanisms are adopted by telecommunication firms in Kenya as part of their risk management strategy. Risk transfer involves shifting potential losses to third parties through mechanisms such as insurance, outsourcing, partnerships, and contingency planning. Using a five-point Likert scale ranging from 1 (Not at all) to 5 (Very Large Extent), respondents evaluated their organization's use of various risk transfer strategies aimed at enhancing resilience and minimizing operational disruptions.

Table 4.5: Descriptive Statistics for Risk transfer

	Not at All	Small Extent	Moderate Extent	Large Extent	Very Large extent	Mean	SD
Our organization has insured its business against different types of risks to minimize exposure	0.6%	11.0%	11.0%	42.9%	34.4%	3.99	.98
We partner with external risk agencies to enhance our risk response capabilities	0.0%	1.3%	3.9%	39.0%	55.8%	4.49	.64
We share certain risks with our partners to reduce potential financial burdens	0.0%	5.2%	9.7%	22.7%	62.3%	4.42	.87
We maintain an up-to-date contact list of internal and external emergency resources for quick coordination	1.9%	3.9%	10.4%	26.6%	57.1%	4.33	.95
We have well-established and regularly updated evacuation procedures in place for crisis situations	2.6%	3.2%	11.0%	31.8%	51.3%	4.26	.96

Source: Research data (2025)

The results reveal a strong commitment among the firms to incorporating risk transfer as a core component of their overall risk management framework. The highest-rated item was the practice of partnering with external risk agencies to enhance risk response capabilities, which recorded a mean of 4.49 and a standard deviation of 0.64. A significant 55.8% of respondents indicated a very large extent of practice, while an

additional 39.0% reported a large extent. No respondent selected not at all, and only 1.3% reported a small extent. This indicates that many firms recognize the value of leveraging external expertise and support in managing emerging and complex risks, particularly in high-threat environments like telecommunications.

Similarly, a large majority of respondents agreed that their organizations share certain risks with partners to reduce financial burdens, reflected by a mean score of 4.42 and a standard deviation of 0.87. 62.3% of the participants indicated a very large extent of risk-sharing implementation, and 22.7% selected large extent. This suggests that strategic partnerships such as outsourcing non-core operations or entering joint risk-sharing agreements are actively pursued to limit financial exposure and ensure business continuity.

The item on maintaining updated contact lists of internal and external emergency resources for quick coordination also scored highly, with a mean of 4.33 and a standard deviation of 0.95. Here, 57.1% of respondents reported implementation to a very large extent, and 26.6% to a large extent. Only 1.9% selected not at all, highlighting that organizations prioritize operational readiness and rapid crisis coordination. This capability is particularly relevant in the telecom sector, where immediate responses to infrastructure failures, security breaches, or service outages are critical for sustaining service delivery.

Well-established and regularly updated evacuation procedures were also strongly affirmed, with a mean of 4.26 and a standard deviation of 0.96. 51.3% of respondents indicated a very large extent of implementation, and 31.8% indicated a large extent. Although this item scored slightly lower compared to others, it still suggests that firms

invest substantially in staff safety and crisis preparedness as part of their broader risk transfer approach. A small proportion (2.6% not at all and 3.2% small extent) indicates minor gaps that could be further addressed to standardize emergency readiness across all firms.

The item with the comparatively lowest score—but still notably high—was on insuring the business against different types of risks to minimize exposure, which received a mean of 3.99 and a standard deviation of 0.98. While 34.4% of respondents indicated very large extent and 42.9% indicated large extent of implementation, 11.0% reported small extent and another 11.0% moderate extent. This slightly broader distribution suggests variance in the scope, depth, or adequacy of insurance coverage strategies across firms. Overall, the findings demonstrate that risk transfer mechanisms are actively and broadly applied by Kenya’s telecommunications firms. These strategies go beyond traditional insurance to encompass partnerships, emergency planning, and external coordination, all of which collectively contribute to stronger resilience, reduced operational vulnerability, and sustained organizational performance in a dynamic and risk-prone environment..

These results are partially aligned with findings from Machari and Caleb (2018), who identified a positive but modest impact of risk transfer on project performance in the construction sector. While their study emphasized limited influence, the present research—focused on an infrastructure-intensive and continuously operating industry reveals stronger and more strategic application of risk transfer mechanisms. Similarly, Aduma and Kimutai (2018) found risk transfer to have the weakest impact compared to other strategies at the NHIF. However, the nature of the telecom industry with its exposure to cyber threats, service outages, and large-scale investments—likely

amplifies the relevance of risk transfer more than in healthcare or insurance contexts. The present study also contrasts with Njuguna (2019) and Amaya and Memba (2015), whose research in project-based and insurance sectors, respectively, showed limited applicability of risk transfer strategies to ongoing operations. In contrast, telecommunications firms operate in dynamic, always-on environments that demand robust, multi-layered risk transfer models.

4.5.5 Performance of Telecommunication Firms

To measure the performance of telecommunication firms, this study examined both financial and non-financial indicators influenced by risk management strategies. The focus was on customer satisfaction, market share, internal process efficiency, and overall service delivery. Respondents were asked to rate statements on a five-point Likert scale, ranging from 1 (Not at all) to 5 (Very Large Extent), indicating the degree to which performance outcomes are attributed to risk management practices.

Table 4.6: Descriptive Statistics on performance of Telecommunication Firms

	Not at All	Small Extent	Moderate Extent	Large Extent	Very Large extent	Mean	SD
Our organization’s net promoter score (NPS) is consistently improving	2.6%	1.3%	16.2%	27.3%	52.6%	4.26	.96
Our market share has shown positive growth in recent years due to risk management strategies	1.3%	3.2%	6.5%	33.8%	55.2%	4.38	.85
Customer satisfaction levels, as indicated in recent surveys, have improved due to our organization’s risk mitigation measures.	1.9%	3.9%	5.2%	37.7%	51.3%	4.32	.89
We receive referrals from existing customers, indicating high levels of satisfaction	5.8%	5.8%	13.0%	28.6%	46.8%	4.05	1.17
Our internal processes are effective and efficient in meeting customer needs	3.9%	6.5%	7.1%	37.0%	45.5%	4.14	1.06

Source: Research data (2025)

The findings suggest that telecommunication firms in Kenya are experiencing positive performance outcomes linked to the adoption of structured risk management strategies.

The highest-rated item was the statement that market share has shown positive growth due to risk management strategies, with a mean of 4.38 and a standard deviation of 0.85. This underscores the role of proactive risk mitigation in enabling firms to sustain competitiveness and expand their customer base in a rapidly evolving industry. This

was followed by the statement that customer satisfaction levels have improved as a result of risk mitigation measures, which had a mean score of 4.32. This suggests that risk management not only protects the firm from operational and financial threats but also contributes to customer experience—likely by reducing service interruptions, billing errors, or data breaches that would otherwise diminish user trust.

The item concerning consistent improvement in Net Promoter Score (NPS) also received a high rating, with a mean of 4.26, indicating that customers are more willing to recommend the firm's services. This result implies that customer perception and loyalty are being positively shaped by the organizations' ability to manage risks and deliver stable, reliable services. Statements reflecting internal operations also showed strong responses. The item "Our internal processes are effective and efficient in meeting customer needs" recorded a mean of 4.14, suggesting that risk management contributes to streamlined operations and organizational efficiency. This could be linked to improved coordination, faster incident response, and better resource planning due to structured risk handling.

The lowest-rated item, though still relatively high, was receiving referrals from satisfied customers, with a mean of 4.05 and a higher standard deviation (1.17) than other items. While this still reflects a positive outlook, the higher variation may imply that word-of-mouth referrals differ across regions or firms, possibly due to customer service consistency or localized market challenges. Overall, the findings confirm that risk management strategies such as revenue assurance, AML practices, business continuity planning, and risk transfer are having a measurable and positive impact on firm performance. These strategies appear to contribute not only to financial growth (as indicated by market share and referrals) but also to intangible performance drivers like

customer satisfaction and operational efficiency.

4.6 Diagnostic Tests

Before conducting inferential analysis and particularly the regression analysis, diagnostic tests were conducted so as to provide appropriate analysis, meaningful and robust conclusions. The tests ensured the regression model is fit for analysis. The test conducted included normality and multi-collinearity.

4.6.1 Normality test

Normality tests are used to determine if a data set follows a normal distribution and to assess the likelihood that the underlying random variable is normally distributed (Ghasemi & Zahediasl, 2012). These tests evaluate whether the sample data comes from a population that is normally distributed, which can be checked through graphical or numerical methods. Among the numerical methods, the Kolmogorov-Smirnov test is appropriate for sample sizes over 2,000, while the Shapiro-Wilk test is best for sample sizes between 40 and 2,000. Since this study had a sample size of 154, the Shapiro-Wilk test was chosen, as it is particularly effective in detecting normality deviations caused by skewness, kurtosis, or both (Razali & Wah, 2011). The Shapiro-Wilk test operates under the following hypothesis:

H₀: The sample follows a normal distribution.

The null hypothesis is rejected if the p-value is less than 0.05, indicating non-normality.

However, as shown in Table 4.5, the p-values for revenue assurance ($0.522 > 0.05$), AML Practices ($0.314 > 0.05$), BCF ($0.537 > 0.05$), risk transfer ($0.143 > 0.05$), and Performance of telecommunication firms ($0.451 > 0.05$) all exceed 0.05. Since all

variables have p-values greater than 0.05, we fail to reject the null hypothesis and conclude that the sample data is normally distributed.

Table 4.7: Normality Tests

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
Revenue assurance	0.317	47	0.522
Anti-Money laundering practices	0.526	47	0.314
Business Continuity practices	0.265	47	0.537
Risk Transfer	0.708	47	0.143
Performance of Telecommunication firms	0.907	47	0.451

Source: Research data (2025)

4.6.2 multi-collinearity test results

In multiple regression analysis, as the correlation between independent variables increases, the estimated regression coefficients become more variable and less dependable (Kothari, 2004). This leads to sample coefficients that differ substantially from the true population parameters. When these coefficients are tested, the t-statistics decrease, potentially resulting in a false conclusion that no linear relationship exists between the correlated independent variables and the dependent variable (Cooper & Schindler, 2011). Furthermore, multicollinearity inflates the standard errors of the β coefficients, increasing variability across samples, which complicates the task of identifying the individual impact of each predictor.

To detect multicollinearity, this study used the Tolerance and Variance Inflation Factor (VIF) method (Cooper & Schindler, 2011). O'Brien (2007) suggests that a tolerance value below 0.20 and a VIF of 5 or higher signal a multicollinearity issue. As shown in Table 4.8, all variables in this study had VIF values lower than 5. Since none of the VIF

values exceeded the threshold, no significant multicollinearity was found among the independent variables, confirming that they could remain in the regression model.

Table 4.8: Test for Multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
Revenue assurance	0.606	1.614
AML practices	0.497	1.963
Business Continuity Framework	0.641	1.526
Risk Transfer	0.538	1.815
Performance of telecommunication firms	0.644	1.520

Source: Research data (2025)

4.7 Inferential Statistics

To reach conclusions regarding the study’s objectives guided by descriptive survey design inferential analysis was carried out on the collected data. The analysis aimed to provide empirical answers to the study’s core research questions and test the relationship between risk management strategies and the performance of telecommunication firms in Kenya. The main objective of this study was to assess how risk management strategies influence the performance of telecommunication firms in Kenya. In line with this objective, the researcher examined the effect of four specific risk management components: revenue assurance, anti-money laundering (AML) practices, business continuity frameworks, and risk transfer mechanisms. These components were tested as independent variables against the dependent variable performance of telecommunication firms. To determine the strength and direction of the relationships, as well as the predictive power of the independent variables on organizational performance, the study employed correlation analysis and multiple regression analysis. These analyses were conducted using IBM SPSS Version 27, a

statistical software widely used for social science research. The inferential results provide the basis for hypothesis testing and offer deeper insights into how Risk Management Strategies affect the Performance Of Telecommunication Firms in Kenya.

4.7.1 Correlation Analysis

Correlation analysis is a statistical technique used to determine the strength and direction of the linear relationship between two variables (Mugenda & Mugenda, 2003). It helps identify whether an increase or decrease in one variable corresponds with an increase or decrease in another. In this study, Pearson's correlation coefficient (r) was employed to assess the degree of linear association between each risk management strategies (independent variables) and the performance of telecommunication firms (dependent variable). Pearson correlation values range from -1 to +1, where values closer to +1 indicate a strong positive relationship, values closer to -1 indicate a strong negative relationship, and values near 0 imply no linear relationship (Kothari, 2014). The results are shown on table 4.7 below.

Table 4.9: Correlation Analysis

		Revenue Assurance	Anti-money laundering	Business continuity framework	Risk Transfer	Performance of Telecommunication Firms
Revenue Assurance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	154				
Anti-money laundering	Pearson Correlation	.523**	1			
	Sig. (2-tailed)	.000				
	N	154	154			
Business continuity framework	Pearson Correlation	.383*	.428**	1		
	Sig. (2-tailed)	.000	.000			
	N	154	154	154		
Risk Transfer	Pearson Correlation	.309**	.416**	.264**	1	
	Sig. (2-tailed)	.000	.000	.001		
	N	154	154	154	154	
Performance of Telecommunication Firms	Pearson Correlation	.287**	.396**	.285**	.443**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	154	154	154	154	154

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

Source: Field Data (2025).

The analysis focused primarily on the correlation between each of the four independent variables Revenue Assurance, Anti-Money Laundering, Business Continuity Framework, and Risk Transfer and the dependent variable, Performance of Telecommunication Firms. However, the relationship among independent variables themselves was also evident. Revenue Assurance shows a moderate positive correlation with Anti-money laundering ($r = 0.523$), indicating that higher engagement in revenue assurance practices is related to stronger anti-money laundering efforts. Similarly, Revenue Assurance is positively correlated with Business Continuity Framework ($r = 0.383$), suggesting that companies focusing on revenue assurance also tend to invest in more robust business continuity strategies. Additionally, the relationship between Revenue Assurance and Risk Transfer ($r = 0.309$) suggests that firms adopting revenue assurance practices also show a tendency to engage in risk transfer mechanisms, albeit with a somewhat weaker correlation. These findings reflect how these practices are interconnected within firms' overall operational strategies.

Furthermore, Anti-money laundering practices exhibit notable positive correlations with both Business Continuity Framework ($r = 0.428$) and Risk Transfer ($r = 0.416$), suggesting that firms that focus on anti-money laundering are also more likely to prioritize continuity frameworks and engage in risk transfer. The Business Continuity Framework itself shows moderate positive correlations with Risk Transfer ($r = 0.264$), indicating that firms with structured plans for business continuity are more likely to engage in risk management strategies such as transferring risks. These correlations highlight the interconnectedness of these strategies in the context of telecommunication firms, where investments in one area often correspond with efforts in others to ensure operational resilience and regulatory compliance. The findings emphasize the collaborative nature of these frameworks and their importance in the broader business

strategy of these organizations.

The findings show a positive significant correlation between Revenue Assurance and Performance of Telecommunication Firms, with a Pearson correlation coefficient of $r = .287$, and a p -value < 0.05 . This indicates that enhanced revenue assurance practices, such as monitoring revenue streams and reconciling financial records, are associated with improved firm performance.

Similarly, Anti-Money Laundering (AML) practices demonstrated a positive significant correlation with performance ($r = .396$, $p < 0.05$), suggesting that the implementation of compliance mechanisms—such as KYC processes and suspicious activity monitoring—contributes to improved customer trust and operational reliability, which are reflected in better performance outcomes.

The Business Continuity Framework also showed a positive significant relationship with firm performance ($r = .285$, $p < 0.05$). This means that firms with well-defined continuity plans, disaster recovery protocols, and emergency preparedness are more likely to maintain stability during disruptions, thus enhancing performance.

Notably, Risk Transfer exhibited the strongest relationship with performance among all independent variables, with a Pearson correlation coefficient of $r = .443$ and a p -value < 0.05 . This strong positive significant correlation suggests that leveraging insurance, external partnerships, and emergency coordination plays a substantial role in protecting firms from risk impacts and improving overall performance. In summary, all four risk management strategies under investigation show positive and statistically significant correlations with the performance of telecommunication firms in Kenya. These results affirm the hypothesis that robust risk management practices are critical enablers of

superior organizational outcomes in the sector.

4.7.2 Regression Analysis

Regression analysis is a statistical method used to examine the relationship between a dependent variable and one or more independent variables, allowing researchers to determine the extent to which the independent variables predict the outcome of the dependent variable (Field, 2013). In this study, multiple linear regression was conducted to assess how the four risk management strategies—Revenue Assurance, Anti-Money Laundering practices, Business Continuity Framework, and Risk Transfer collectively influence the performance of telecommunication firms in Kenya. The regression analysis was performed using IBM SPSS Version 27, and three key output tables were generated: Table 4.8: Model Summary, Table 4.9: ANOVA Results and Table 4.10: Regression Coefficients.

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874 ^a	.764	.757	2.52055

a. Predictors: (Constant), Revenue Assurance, Anti-Money Laundering practices, Business continuity framework, Risk Transfer

Source: Research data (2025)

The model summary in Table 4.8 indicates that the regression model effectively explains the relationship between the independent variables (risk management

strategies) and the performance of telecommunication firms. The R-value of 0.874 shows a strong positive correlation between the combination of the four predictors and firm performance. The R Square value of 0.764 suggests that 76.4% of the variation in performance can be explained by the combined effect of Revenue Assurance, Anti-Money Laundering practices, Business Continuity Framework, and Risk Transfer. This means the model has strong explanatory power. The remaining 23.6% could be explained by other factors not included in the study. Additionally, the Adjusted R Square value of 0.757 confirms the model’s reliability by adjusting for potential bias that could result from the inclusion of multiple predictors.

The Analysis of Variance (ANOVA) results presented in Table 4.9 were used to determine whether the regression model as a whole is statistically significant.

Table 4.11: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3056.940	4	764.235	120.292	.000 ^b
	Residual	946.625	149	6.353		
	Total	4003.565	153			

a. Dependent Variable: Performance of Telecommunication Firms

b. Predictors: (Constant), Revenue Assurance, Anti-Money Laundering practices, Business continuity framework, Risk Transfer

Source: Research Data (2025)

From the table, The F-statistic value of 120.292 and the corresponding p-value of .000

($p < 0.05$) indicate that the regression model is statistically significant. This confirms that the risk management strategies Revenue Assurance, Anti-Money Laundering practices, Business Continuity Framework, or Risk Transfer have a meaningful predictive relationship with the performance of telecommunication firms. Furthermore, the large F value suggests a strong overall model fit, meaning the independent variables jointly explain a significant portion of the variation in the dependent variable. The significance level (Sig.) of .000 affirms that the results are not due to chance, and the model provides reliable estimates for decision-making and inference.

The regression coefficients are presented in table 4.10 below. All the independent variables are regressed against the dependent variable.

Table 4.12: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.868	2.611		1.098	.001
Revenue Assurance	.486	.078	.398	6.242	.000
Anti-money laundering practices	.346	.083	.267	4.162	.000
Business Continuity Framework	.291	.094	.213	3.103	.002
Risk Transfer	.370	.088	.326	4.220	.000

a. Dependent Variable: Performance of Telecommunication firms

Source: Research Data (2025)

The resulting table 4.10 above gives the results for the regression coefficient for the multiple linear equation model used; ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$).

Substituting the values from the table gives;

$$Y = 2.868 + 0.486 X_1 + 0.346X_2 + 0.291X_3 + 0.370X_4 + \varepsilon$$

Where;

Where Y= Performance of telecommunication firms

X₁= Revenue assurance

X₂= anti-money laundering practices

X₃= business continuity framework

X₄ = risk transfer

ϵ = Error term

This equation indicates that, holding all other factors constant, each unit increase in any of the four risk management strategies results in a positive change in the performance of telecommunication firms, with varying degrees of impact as described below.

Revenue Assurance recorded a regression coefficient (B) of 0.486, a t-value of 6.242, and a p-value of .000, indicating a positive and statistically significant relationship with firm performance. The standardized beta coefficient ($\beta = 0.398$) also reflects that revenue assurance had the strongest individual effect among the four predictors. This finding suggests that strategies such as reconciling revenue streams, ensuring billing accuracy, and minimizing leakages have a profound effect on financial and operational outcomes in the telecommunication sector. These results are consistent with Sharma and Patel (2018), who identified revenue assurance as a key driver of profitability and efficiency in utility and telecom-based firms, where revenue complexity and service diversity require robust assurance frameworks.

Anti-Money Laundering (AML) Practices also showed a significant positive

effect, with a coefficient of 0.346, t-value of 4.162, and p-value of .000. The standardized beta of 0.267 underscores a meaningful contribution to performance, though less pronounced than revenue assurance. These findings indicate that compliance mechanisms—such as Know Your Customer (KYC) procedures, suspicious activity monitoring, and internal reporting systems—enhance firm credibility, customer trust, and regulatory alignment, all of which indirectly contribute to performance outcomes. This aligns with Mohamud (2017), who found that while AML systems incur upfront costs, their presence correlates positively with long-term performance by reducing regulatory penalties and enhancing customer confidence. Although Mohamud's study focused on the banking sector, the growing integration of financial services in telecom (e.g., mobile money) makes AML just as relevant in this context.

The Business Continuity Framework posted a coefficient of 0.291, a t-value of 3.103, and a p-value of .002, confirming a positive and statistically significant impact on performance. The standardized beta of 0.213 indicates that while its contribution is lower than revenue assurance and AML practices, it is still a critical component of organizational resilience. Firms that have well-defined disaster recovery protocols, continuity plans, and regular risk assessments are better positioned to maintain service delivery during crises, which in turn supports performance stability. This corroborates the findings of Sakura (2018), who showed a strong link between continuity practices and operational performance in Kenya's security sector. While Sakura's study did not focus on telecommunications, the parallels in risk exposure—especially regarding service disruption make the conclusions broadly applicable.

Risk Transfer, with a coefficient of 0.370, a t-value of 4.220, and a p-value of .000, was also found to have a positive and statistically significant effect on firm performance. Its standardized beta of 0.326 places it second in impact after revenue assurance. This suggests that the use of insurance, outsourcing, and risk-sharing partnerships substantially contributes to reducing the adverse effects of operational uncertainties. These findings echo the conclusions of Harriet and Omwenga (2022), who found that risk transfer strategies improved financial performance metrics at Jomo Kenyatta International Airport. Although the context differs, both sectors involve continuous service delivery and face similar exposure to physical, financial, and technological risks—making these risk-sharing strategies critical.

Thus, the regression results confirm that all four risk management strategies have a positive and statistically significant influence on the performance of telecommunication firms in Kenya. These results validate the study's hypothesis that structured and strategic risk management enhances not only organizational stability and compliance but also financial and customer-facing outcomes. Moreover, they extend the insights from earlier sector-specific studies, confirming the relevance and adaptability of risk management theory within the context of Kenya's telecommunications industry.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Based on the findings on how risk management strategies influence the performance of telecommunication firms in Kenya, this chapter provides a summary of key results, conclusions, and practical recommendations. The conclusions are drawn by aligning the study outcomes with the four research objectives and the questions posed at the beginning of the study. The chapter also outlines the study's contributions to theory, methodology, policy, and practice in relation to the role of risk management in enhancing organizational performance within the telecommunications sector. Lastly, it proposes potential areas for future research.

5.2 Summary of Findings

This section presents a comprehensive summary of the key findings of the study, structured according to the four research objectives. The goal was to evaluate the effect of specific risk management strategies on the performance of telecommunication firms in Kenya. The findings were derived from both descriptive and inferential statistical analyses, including correlation and multiple regression, conducted using IBM SPSS Version 27.

The first objective of the study sought to examine the effect of Revenue Assurance on the performance of telecommunication firms in Kenya. The findings revealed that revenue assurance had a strong and statistically significant influence on firm performance. Descriptive statistics showed that respondents largely agreed that their organizations had implemented robust revenue monitoring and reconciliation systems, consistency checks, and asset management strategies aligned with performance goals.

These practices were perceived to reduce revenue leakage and optimize financial flows. Correlation analysis confirmed a positive significant relationship between revenue assurance and performance. Further, regression analysis revealed that revenue assurance had the highest standardized beta coefficient indicating it was the most impactful predictor of performance among the four variables examined. These findings suggest that when firms apply systematic revenue assurance mechanisms, they are better positioned to improve profitability, efficiency, and customer satisfaction.

The second objective of the study sought to assess the effect of Anti-Money Laundering (AML) practices on the performance of telecommunication firms in Kenya. The study found that AML practices significantly contributed to organizational performance. Descriptively, high agreement was observed among respondents regarding the implementation of KYC systems, transaction monitoring, internal watchlists, and employee reporting channels. These mechanisms were seen as essential not only for regulatory compliance but also for building customer trust and operational integrity. Pearson correlation showed a positive significant relationship between AML practices and firm performance. The regression coefficient further confirmed that AML practices exerted a meaningful influence on performance outcomes. These findings support the notion that robust AML systems help reduce reputational risk, enhance compliance efficiency, and improve customer loyalty—all of which contribute to performance growth.

The third objective of the study sought to determine the effect of Business Continuity Frameworks on the performance of telecommunication firms in Kenya. The analysis revealed that business continuity planning plays a significant role in supporting firm performance. From a descriptive standpoint, respondents indicated that their

organizations maintained active continuity strategies, disaster recovery plans, regular risk assessments, and staff emergency training. These preparedness measures were considered essential for service stability and customer assurance during operational disruptions. Statistical analysis supported these perceptions. Correlation results indicated a positive significant relationship between business continuity and performance. Regression analysis showed that the variable had a significant standardized beta. This suggests that organizations with stronger continuity frameworks are more capable of mitigating the negative effects of crises, reducing downtime, and maintaining customer trust—thus enhancing overall performance.

The fourth objective of the study sought to evaluate the effect of Risk Transfer mechanisms on the performance of telecommunication firms in Kenya. The study found that risk transfer—through strategies like insurance, outsourcing, and strategic partnerships—was positively associated with firm performance. Descriptive analysis revealed that respondents perceived these strategies as effective, particularly partnering with external agencies and maintaining emergency coordination protocols. However, there was slightly more variation in responses related to insurance use. Correlation analysis showed a positive significant relationship between risk transfer and firm performance—the strongest among all independent variables. Regression results confirmed this with a standardized beta, making risk transfer the second most influential predictor of performance after revenue assurance. This indicates that risk transfer strategies not only reduce the direct burden of risk but also enable firms to maintain operational stability and focus on core competencies.

Consequently, all four risk management strategies examined—Revenue Assurance, Anti-Money Laundering, Business Continuity Frameworks, and Risk Transfer—

showed statistically significant and positive effects on the performance of telecommunication firms in Kenya. The findings underscore the importance of adopting a holistic and strategic approach to risk management to enhance organizational resilience, customer satisfaction, and competitive advantage in the dynamic telecommunications landscape.

5.3 Conclusions

This study set out to examine the effect of risk management strategies on the performance of telecommunication firms in Kenya. Specifically, it evaluated how revenue assurance, anti-money laundering practices, business continuity frameworks, and risk transfer mechanisms influence organizational performance. Based on the analysis of data collected from 154 respondents across leading telecom firms—namely Safaricom, Airtel Kenya, and Telkom Kenya—the study drew several key conclusions.

Firstly, revenue assurance emerged influential risk management strategy in enhancing firm performance. The study found that firms which actively implement revenue monitoring, service reconciliation, and asset alignment strategies experience better financial performance and customer satisfaction. These findings confirm that in the telecommunications sector—where revenue is derived from diverse services like voice, data, and mobile money—effective revenue assurance systems are crucial for minimizing leakage and optimizing profitability. The significance of revenue assurance underscores its central role in ensuring financial integrity and operational efficiency.

Secondly, the study concluded that anti-money laundering (AML) practices have a meaningful and statistically significant impact on performance. Telecom firms that have invested in KYC systems, transaction monitoring, and employee reporting

protocols are better positioned to maintain regulatory compliance, reduce exposure to financial crime, and build customer trust. This conclusion is especially relevant given the increasing integration of mobile financial services in telecommunications. AML practices not only protect firms from regulatory penalties but also support customer retention and service reliability.

Thirdly, the study demonstrated that a well-established business continuity framework is vital for sustaining operations and performance, particularly during times of disruption. Firms that regularly conduct risk assessments, maintain disaster recovery plans, and train employees in emergency response are better equipped to maintain uninterrupted services. This conclusion is particularly important in the context of telecommunications, where service disruptions can result in substantial revenue loss and customer churn. Business continuity planning enhances organizational resilience and safeguards long-term sustainability.

Fourth, the findings confirmed that risk transfer mechanisms—such as insurance, outsourcing, and strategic partnerships—positively influence performance by reducing the firm's exposure to major financial or operational risks. Among the four risk strategies, risk transfer showed the second highest predictive strength on performance. This highlights the value of sharing risk through external parties to enhance stability and focus internal resources on core strategic functions.

In summary, the study concludes that all four risk management strategies—when strategically designed and effectively implemented—contribute significantly to the improved performance of telecommunication firms in Kenya. These strategies do not operate in isolation but rather complement each other to create a holistic risk

management framework that enhances resilience, efficiency, and competitive advantage. The findings validate the study's theoretical model and demonstrate the practical importance of embedding risk management into organizational processes at all levels. Collectively, the conclusions reinforce the need for Kenyan telecommunication firms to continuously invest in and update their risk management systems. In an industry characterized by rapid technological changes, regulatory shifts, and increasing customer expectations, risk management is not merely a compliance tool but a strategic driver of performance and sustainability.

5.4 Recommendations

Based on the findings and conclusions of this study, several recommendations are made to help telecommunication firms in Kenya enhance their performance through more strategic and integrated risk management practices. The recommendations are directed toward industry practitioners, policymakers, and organizational leadership teams who play a central role in designing and executing risk mitigation strategies.

5.4.1 Revenue assurance

To begin with, telecommunication firms should prioritize the strengthening of their revenue assurance frameworks. The study revealed that revenue assurance had the highest positive influence on firm performance, indicating that it is a critical determinant of financial stability. Companies should invest in advanced digital tools and real-time monitoring systems to track and reconcile all revenue streams—especially those from complex services like mobile money, voice, data, and digital content. Further, firms should ensure the continuous alignment of asset utilization with revenue goals, eliminate system inefficiencies, and institutionalize periodic audits. These steps will minimize revenue leakage, enhance profitability, and ensure long-term

sustainability.

5.4.2 Anti-Money Laundering practices

Moreover, firms should intensify their focus on Anti-Money Laundering (AML) compliance, particularly as they continue to operate in financial service spaces through mobile payments, airtime credit, and digital wallets. The results showed that AML practices significantly contribute to improved performance by reducing regulatory risks and building consumer trust. Telecommunication companies should therefore ensure that their Know Your Customer (KYC) procedures are up-to-date, automated, and linked to national identity systems. Transaction monitoring systems should be designed to flag unusual behavior in real-time, while employee training on AML reporting protocols should be routine and comprehensive. Importantly, companies must foster a strong ethical culture that promotes accountability and regulatory compliance across all departments.

5.4.3 Business Continuity Framework

Additionally, business continuity frameworks should be institutionalized and updated regularly to enhance operational resilience. The study showed that organizations with proactive continuity plans, disaster recovery protocols, and emergency preparedness training perform better during times of disruption. Telecommunications firms should ensure that their business continuity plans (BCPs) are not static documents but living frameworks that are reviewed and tested regularly. These should cover not only physical infrastructure risks but also cyber threats, data breaches, supply chain disruptions, and system failures. Business continuity must be integrated into strategic planning, with simulation drills conducted periodically to prepare employees for real-world crisis scenarios. Emphasis should also be placed on developing robust IT

recovery solutions to minimize downtime and safeguard customer trust.

5.4.4 Risk Transfer

Another recommendation is for telecommunication firms to expand and formalize their risk transfer strategies. The research highlighted that risk transfer had a strong and significant influence on performance, second only to revenue assurance. To capitalize on this, firms should diversify their insurance portfolios to include coverage for cyber risk, infrastructure damage, and operational liabilities. In addition, partnerships with third-party providers such as cloud service vendors, cybersecurity consultants, and emergency response firms should be based on well-structured service level agreements that clearly define risk-sharing terms. This allows organizations to focus on their core functions while transferring specialized risks to more capable partners.

5.4.5 Policy Recommendations

Moreover, regulatory bodies such as the Communications Authority of Kenya (CAK) and the Central Bank of Kenya (CBK) should provide clearer guidelines on risk management expectations in the telecom-finance intersection. With the growing convergence of telecommunications and digital financial services, there is a need for integrated oversight that ensures telecom operators meet the same AML, risk assurance, and service continuity standards expected of traditional financial institutions. Joint policy frameworks and cross-sector collaborations will promote consistency, accountability, and innovation in risk management.

Internally, telecommunication firms should adopt a more centralized and data-driven approach to risk management. Risk functions should be elevated to strategic roles within the organizational hierarchy, reporting directly to executive leadership.

Integrated dashboards and key performance indicators (KPIs) should be developed to continuously measure the effectiveness of risk strategies and link them directly to performance metrics such as Net Promoter Score (NPS), revenue growth, and service uptime. Risk management should no longer be treated as a support function but rather as a value-creating process embedded within every department—from IT and finance to operations and customer service.

Finally, industry-wide knowledge sharing and benchmarking initiatives should be encouraged. Forums, workshops, and consortiums involving telecom operators, regulators, and technology partners can facilitate the exchange of best practices and emerging risks. These platforms will allow companies to learn from one another, identify common vulnerabilities, and develop sector-wide strategies to mitigate systemic risks. In conclusion, risk management should be viewed not just as a compliance requirement but as a strategic asset that enhances competitiveness, resilience, and customer satisfaction. By embedding effective revenue assurance, AML, business continuity, and risk transfer mechanisms into their core operations, telecommunication firms in Kenya can better position themselves for sustainable growth in an increasingly volatile and digital business environment.

5.5 Areas for Further Research

While this study has provided valuable insights into how risk management strategies influence the performance of telecommunication firms in Kenya, it also opens avenues for further academic inquiry. Several areas remain underexplored and would benefit from additional research to deepen understanding and enhance practical applications.

Future studies should consider expanding the geographical scope to include other

countries within the East African region or across Sub-Saharan Africa. This would allow for comparative analysis and help establish whether the relationships observed in Kenya's telecommunications sector hold true in other regulatory, economic, and technological environments.

Moreover, research could be conducted to examine the long-term effects of risk management strategies on firm performance. This study focused on a cross-sectional perspective, which captures data at a single point in time. A longitudinal design would enable researchers to assess how these strategies influence performance over several years, accounting for external shocks such as technological disruptions, regulatory changes, or macroeconomic shifts.

In addition, further research should be done on the mediating and moderating variables that influence the relationship between risk management and performance. For example, organizational culture, leadership style, employee competence, or digital infrastructure could act as mediators or moderators. Understanding these dynamics could help firms design more tailored and context-sensitive risk frameworks.

Conversely, while this study analyzed four key strategies—revenue assurance, anti-money laundering, business continuity, and risk transfer—other risk management components such as cyber risk governance, data privacy controls, and regulatory compliance audits could be explored in more depth. As telecommunications firms become more digitally integrated, these emerging risk areas were increasingly relevant to firm performance.

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APPENDICES

Appendix 1: Questionnaire

Dear respondent,

Kindly answer the following questions to the best of your knowledge either by ticking in the provided spaces or answering in the blank spaces. The responses will only be used for research purposes.

Section A: Demographic Information

1. Which organization do you work in?

Safaricom () Airtel () Telkom ()

2. At what level of management do you work?

Top Level Management () Middle Level Management () Lower Level Management ()

3. For how long have you worked in the present management level?

0 – 5years () 6 – 10years () 11 – 15 Years () 16 years and above () Section

Section B: Revenue Assurance

Please indicate the extent you agree with the following statements by marking in the appropriate boxes. Use a scale of 1-5, where: 1 - Not at all, 2 - Small Extent, 3 - Moderate Extent, 4 - Large Extent, 5 - Very Large Extent

Statements on Revenue Assurance	1	2	3	4	5
Our organization monitors all forms of financial services usage and reconciles with expected or normalized usage					
Our organization examines the services contracted and supplied to ensure consistency					
We ensure the management of business assets and related costs are aligned with performance goals					
Our organization has strategies to optimize timely and cost-effective management of receivables to enhance cash flow					
We have developed robust strategies to ensure network integrity and minimize revenue leakage					
We perform reconciliation of various streams, ensuring all revenue channels are tracked and verified					

Section C: Anti-Money Laundering

Please indicate the extent you agree with the following statements by marking in the appropriate boxes. Use a scale of 1-5, where: 1 - Not at all, 2 - Small Extent, 3 - Moderate Extent, 4 - Large Extent, 5 - Very Large Extent

Statements on Anti-Money Laundering	1	2	3	4	5
We have a KYC assurance system where we identify and verify all our clients to comply with regulatory standards					
Our systems effectively monitor all transactions with clients and raise an alarm for suspicious activities					
The systems and employees regularly update a watch list for suspicious clients and transactions					
We conduct thorough verification of clients before registration with money services to ensure legitimacy					
We have a suspicious activity reporting system that encourages employees to report red flags promptly					

Section D: Business Continuity Framework

Please indicate the extent you agree with the following statements by marking in the appropriate boxes. Use a scale of 1-5, where: 1 - Not at all, 2 - Small Extent, 3 - Moderate Extent, 4 - Large Extent, 5 - Very Large Extent

Statements on Business Continuity Framework	1	2	3	4	5
Our organization has a clear strategy for business continuity to maintain operations during disruptions					
We have an effective disaster recovery mechanism in place to ensure minimal downtime					
We conduct regular site risk assessments to identify potential vulnerabilities					
We have an active and updated Business Continuity Plan (BCP) program in place					
We offer regular training and education for staff on emergency response protocols					

Section E: Risk Transfer

Please indicate the extent you agree with the following statements by marking in the appropriate boxes. Use a scale of 1-5, where: 1 - Not at all, 2 - Small Extent, 3 - Moderate Extent, 4 - Large Extent, 5 - Very Large Extent

Statements on Risk Transfer	1	2	3	4	5
Our organization has insured its business against different types of risks to minimize exposure					
We partner with external risk agencies to enhance our risk response capabilities					
We share certain risks with our partners to reduce potential					

financial burdens					
We maintain an up-to-date contact list of internal and external emergency resources for quick coordination					
We have well-established and regularly updated evacuation procedures in place for crisis situations					

Section F: Performance of Telco Firms

Please indicate the extent you agree with the following statements by marking in the appropriate boxes. Use a scale of 1-5, where: 1 - Not at all, 2 - Small Extent, 3 - Moderate Extent, 4 - Large Extent, 5 - Very Large Extent

Statements on Telco Firms Performance	1	2	3	4	5
Our organization's net promoter score (NPS) is consistently improving					
Our market share has shown positive growth in recent years due to risk management strategies					
Customer satisfaction levels, as indicated in recent surveys, have improved due to our organization's risk mitigation measures.					
We receive referrals from existing customers, indicating high levels of satisfaction					
Our internal processes are effective and efficient in meeting customer needs					

Appendix III: The Study Budget

REQUIREMENTS	AMOUNT (KShs)
Proposal preparation (printing)	5,000
Questionnaires printing	5,000
Transport costs	10,000
Research project (printing)	5,000
Data analysis software	10,000
Other expenses	15,000
Reconnaissance and testing of questionnaires	5,000
Contingencies	10,000
TOTAL	55,000

Appendix IV: List of Telcos in Kenya

1. Telkom Kenya.
2. Safaricom PLC.
3. Airtel Kenya Ltd.
4. Finserve Africa Limited (Equitel)
5. Liquid Home.
6. Wananchi Group (Zuku)
7. Jamii Telecommunications Limited (Faiba)

