# EFFECT OF RISK MANAGEMENT PRACTICES ON THE PERFORMANCE OF CONSTRUCTION FIRMS IN NAIROBI COUNTY, KENYA

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**A Project Submitted to the Institute of Postgraduate Studies in Partial Fulfilment of the Requirements for the Award of Master of Business Administration (Strategic Management) Degree**

**KABARAK UNIVERSITY**

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Joseph Kibiti Mberia

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To the Institute of Postgraduate Studies:

The project entitled: "**Effect of Risk Management Practices on Performance of Construction Firms in Nairobi County, Kenya"** and written by **Joseph Kibiti Mberia** is presented to the Institute of Postgraduate Studies of Kabarak University. We have reviewed the research and recommend it be accepted in partial fulfilment of the requirement for award of the degree of Master of Business Administration (Strategic Management).

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## COPYRIGHT

## DEDICATION

This work is dedicated to my beloved family and sibling; you have been the pillars of support and the driving force behind my journey in academia. Your unwavering love, encouragement and believe in my abilities inspired every step in this academic journey. This work is dedicated to each one of you, with profound gratitude for being my constant source of strength and motivation. Through the countless hours of dedication, your understanding and patience has been unwavering, as well your unwavering support has lifted me during challenging times. Your belief in the importance of education and research has instilled in me a deep sense of purpose and determination. I am grateful for the sacrifices you have made and the countless moments of encouragement that fueled my passion for knowledge. Your presence in my life made this journey meaningful, and your love gave me the confidence to pursue my dreams.

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**ABSTRACT**

The construction industry in Kenya plays a vital role in the country's development, contributing approximately 7% to the GDP; however, the sector faces numerous challenges, including delayed project completions, poor quality deliverables, and widespread client fund misappropriation, which underscore the critical need for effective risk management practices. Notable cases involve developers such as Banda Homes, Dinara Developers, and Lettas Developers who have been accused of defrauding home buyers without delivering promised housing units, highlighting systemic performance issues within the sector. This study addresses the lack of empirical evidence on how structured risk management practices influence construction firm performance in Nairobi County, an under-researched context in Africa where limited studies have systematically examined the relationship between specific risk management approaches and organizational outcomes. Using a descriptive research design, data was collected from a sample of 222 construction industry professionals drawn from a target population of 495 professionals across various organizational levels, achieving 185 completed responses representing an excellent 83.3% response rate from Finance Managers, Project Managers, Project Engineers, and Contractors through structured questionnaires validated for content validity (CVI = 0.96) and reliability (Cronbach's $\alpha \geq 0.84$), and subsequently analyzed using IBM SPSS software employing comprehensive descriptive statistics, correlation analysis, and multiple linear regression to examine relationships between risk management practices and firm performance indicators. The study revealed varying levels of implementation across different risk management practices and their significant correlations with financial performance outcomes, with risk identification practices implemented to a large extent showing moderate positive correlation with performance, risk evaluation practices implemented to a moderate extent demonstrating similar correlation patterns, risk mitigation practices more extensively implemented exhibiting strong positive correlation, and notably, risk monitoring practices implemented to the largest extent showing the strongest relationship with performance. Multiple regression analysis further reinforced these findings, revealing that the combination of all four risk management practices significantly predicted financial performance, explaining a substantial 53.6% of its variance ($R^2 = 0.536$, $F = 51.724$, $p < 0.001$), with risk monitoring emerging as the strongest predictor ($\beta = 0.331$, $p < 0.001$), followed by risk mitigation ($\beta = 0.268$, $p = 0.002$), risk identification ($\beta = 0.174$, $p = 0.035$), and risk evaluation ($\beta = 0.152$, $p = 0.050$), demonstrating the differential impact of various risk management dimensions on organizational outcomes. The findings provide compelling evidence that systematic risk management practices significantly enhance construction firm performance in Nairobi County, contributing to theoretical understanding by providing empirical evidence of the differential impact of specific risk management practices while offering practical, evidence-based guidance for construction firms seeking to improve performance through strategic risk management investments, with particular emphasis on risk monitoring and mitigation strategies which showed the strongest impact on financial performance. The findings will inform firms' best practices and strategic decision-making processes, guide regulatory frameworks and policy development for establishing industry standards and mandatory risk management requirements, and influence curriculum design for risk management education in construction programs at both professional and academic institutions.

**Keywords**: *Construction Firm Performance, Risk Evaluation, Risk Identification, Risk Management, Risk Monitoring, Risk Mitigation*

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## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AECOM | Architecture, Engineering, Construction, Operations, and Management |
| ANOVA | Analysis of Variance |
| ANN | Artificial Neural Network |
| CBK | Central Bank of Kenya |
| CVI | Content Validity Index |
| DS | Dantata & Sawoe Construction Company |
| ERM | Enterprise Risk Management |
| GDP | Gross Domestic Product |
| ISREC | Institutional Scientific and Ethics Review Committee |
| KUREC | Kabarak University Research Ethics Committee |
| MMDAs | Metropolitan, Municipal, and District Assemblies |
| NACOSTI | National Commission for Science, Technology & Innovation |
| PLC | Public Limited Company |
| PESTEL | Political, Economic, Social, Technological, Legal, and Environment |
| RBV | Resource-Based View |
| SPSS | Statistical Package for the Social Sciences |
| SWOT | Strengths, Weaknesses, Opportunities, and Threats |
| UK | United Kingdom |
| WBHO | Wilson Bayly Holmes-Ovcon Limited |

## CONCEPTUAL AND OPERATIONAL DEFINITION OF TERMS

**Firm Performance:** Refers to the overall effectiveness and success of a construction company in achieving its objectives and goals within the context of the construction industry (Ibrahim et al., 2024). The study adopts this definition

**Risk Evaluation :** Refers to the systematic assessment and analysis of potential risks that could impact construction projects and the overall business operations (Razi et al., 2021). The study adopts this definition.

**Risk Identification:** Refers to the systematic process of identifying and recognizing potential risks that may arise during the course of construction projects or in the overall business operations. (Pomaza-Ponomarenko et al. (2023). The study adopts this definition.

**Risk Management:** Refers to the systematic process of identifying, analyzing, assessing, and responding to potential risks and uncertainties that may impact construction projects or the organization as a whole (Issa et al., 2020). The study adopts this definition.

**Risk Monitoring :** Refers to the ongoing process of tracking, reviewing, and supervising identified risks throughout the duration of construction projects or in the overall business operations (Issa et al., 2020). The study adopts this definition.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Construction firms play a significant role in the global economy as they contribute to infrastructural development and economic growth. The construction industry is a key sector that contributes substantially to national economies worldwide with developing countries particularly dependent on construction activities for economic advancement (Issa. et al., 2020). The performance of construction firms is crucial therefore not only for individual organizational success but also for broader economic stability and development.

The performance of construction firms can be evaluated based on several key indicators that reflect their overall effectiveness and success. Financial performance, encompasses factors such as profitability, revenue growth, cost management and return on investment with these serving as primary indicators of a firm's economic viability and sustainability (Razi et al., 2021). Project delivery excellence refers to the ability to complete projects within stipulated time-frames while meeting quality requirements and staying within budget constraints. Customer satisfaction reflects the level of satisfaction experienced by clients in terms of service delivery, including timely project completion, adherence to specifications, effective communication and overall service quality (Ugwu et al., 2019). In addition, Quality standards adherence ensures that construction firms meet required standards and regulations in terms of materials, workmanship and safety protocols.

Globally, construction firms face numerous challenges that directly impact their performance outcomes. These challenges include cost overruns, time delays, quality issues and safety concerns coupled with regulatory compliance difficulties (Issa et al., 2020). The complexity and uniqueness of construction projects combined with their

dynamic environments create inherent uncertainties that can significantly affect firm performance. In developing economies, these challenges are often exacerbated by additional factors such as limited technological resources, skill shortages and volatile economic conditions.

Regionally, African construction markets have demonstrated varying levels of performance influenced by economic conditions, regulatory frameworks and market dynamics. The construction sectors in countries like South Africa, Nigeria and Egypt have experienced both opportunities and challenges in achieving optimal performance outcomes. These markets are characterized by significant infrastructure needs, growing urbanization and increasing demand for construction services, yet they also face constraints related to financing, technology adoption and skilled workforce availability.

In Kenya the construction industry is a vital component of the country's social and economic development, contributing approximately 7% to the Gross Domestic Product (GDP) and supporting the government's ambitious target of delivering 50,000 affordable housing units (Amoo et al., 2023). However, despite its economic significance the performance of construction firms in Kenya particularly in Nairobi County, faces considerable challenges that underscore critical gaps in operational effectiveness and their strategic management.

The performance landscape of Kenyan construction firms is characterized by significant operational challenges including a decline in the housing index, persistent delays in project completion, compromised quality of completed projects and widespread issues of client fund misappropriation leading to extensive litigation between constructors and clients (Amoo et al., 2023). Notable cases involve developers such as Banda Homes, Dinara Developers, Lettas Developers, Tehillah Holdings, E-Farm Housing Cooperative Society and Lesedi Developers Ltd, who have been accused of defrauding home buyers

and fraudulently receiving funds without delivering promised housing units (Ciuri, 2023).

Current performance metrics among construction firms in Nairobi County reveal inconsistent financial results with many firms struggling to maintain profitability due to cost overruns, extended project timelines and quality-related rework expenses. Customer satisfaction levels remain suboptimal as evidenced by frequent complaints regarding delayed project delivery, poor communication and failure to meet specified quality standards.

### 1.1.1 Risk Management Practices

To enhance the performance of construction firms and address these persistent challenges effective risk management practices serve as critical supportive inputs that can significantly influence operational outcomes. Risk management practices encompass a systematic approach to identifying, evaluating, mitigating and monitoring potential uncertainties that may impact project delivery and firm performance (Issa et al., 2020).

The importance of risk management in construction has been recognized globally with research demonstrating strong correlations between effective risk management implementation and improved project outcomes. Studies have shown that construction projects implementing comprehensive risk management frameworks experience reduced cost overruns, fewer delays and higher quality deliverables compared to projects without systematic risk management approaches (Bu Qammaz & AlMaian, 2020).

Risk identification practices involve systematically recognizing and cataloguing potential threats that may affect successful project completion and firm operations. These practices include conducting comprehensive risk assessments using various methodologies, utilizing diverse identification tools such as expert interviews and historical data analysis involving stakeholders from different organizational levels,

maintaining detailed risk registers and regularly updating identification procedures to reflect changing conditions (Jiang et al., 2019).

Maintaining detailed risk registers and continuously updating identification protocols ensures responsiveness to evolving project conditions. Recent research underscores the growing importance of adaptive and innovation-driven approaches particularly in complex and dynamic environments. Pomaza-Ponomarenko et al. (2023) highlight the integration of flexible methodologies and stakeholder-centric strategies as essential for managing risks in innovative project contexts reinforcing the need for organizations to evolve beyond static identification frameworks.

Risk evaluation practices focus on assessing the potential likelihood and impact of identified risks thus enabling firms to prioritize their attention and resources effectively. This process involves analyzing risk probability, evaluating potential consequences across multiple dimensions, implementing systematic prioritization frameworks, utilizing both quantitative and qualitative assessment methods and conducting regular reviews of risk evaluations (Issa et al., 2020).

Risk mitigation practices encompass the development and implementation of strategies to address identified and evaluated risks. These practices include formulating risk response strategies through avoidance, reduction, transfer or acceptance approaches, implementing preventive and corrective measures, allocating adequate resources for risk management activities, training employees on risk mitigation procedures and regularly updating mitigation strategies based on changing circumstances (Ugwu et al., 2019).

Risk monitoring practices involve the continuous tracking and review of identified risks throughout project lifecycles and organizational operations. This includes establishing key risk indicators, conducting regular risk tracking activities, implementing systematic

reporting mechanisms, adjusting risk responses based on monitoring feedback and utilizing appropriate technology for real-time risk surveillance (Ugwu et al., 2019).

### 1.1.2 Construction Firms in Kenya

In the context of construction firms in Kenya, it is crucial to understand the influence of risk identification, evaluation, mitigation and monitoring practices on their performance. The construction industry in Kenya operates within a complex environment characterized by diverse challenges including regulatory complexities, economic fluctuations and varying market conditions that significantly impact firm performance outcomes.

According to Bu Qammaz and AlMaian (2020), effective risk management practices enable firms to make informed decisions, allocate resources efficiently and enhance their overall performance. By identifying risks early on, evaluating their impact, actively mitigating them and continuously monitoring them throughout project lifecycles, construction firms can minimize project delays, cost overruns and other adverse outcomes that directly affect performance indicators.

The relationship between risk management practices and construction firm performance is supported by established theoretical frameworks. Risk Management Theory provides foundational understanding that systematic identification, assessment, mitigation and monitoring of risks can significantly enhance organizational performance by reducing uncertainties and enabling more effective decision-making (Badin & Hamid, 2022). The Resource-Based View (RBV) theory suggests that effective risk management practices constitute valuable organizational capabilities that can provide competitive advantages and improve performance outcomes (Antonio & Gattermann Perin, 2020). Contingency Theory emphasizes that the effectiveness of risk management practices depends on their alignment with environmental conditions and organizational characteristics highlighting

the need for adaptive risk management approaches in the dynamic construction industry (Kankaew & Pongsapak, 2020).

Despite the critical importance of construction firm performance and the potential role of risk management practices in enhancing outcomes, there exists a significant research gap in the Kenyan context. Limited empirical studies have systematically examined the relationship between specific risk management practices and performance indicators among construction firms in Nairobi County. This gap is particularly pronounced given the unique operating environment, regulatory framework, and market dynamics that characterize the Kenyan construction industry.

The absence of comprehensive, locally-relevant research on this topic limits the ability of construction firms, policymakers, and industry stakeholders to make informed decisions about risk management investments and strategic priorities. Furthermore, the lack of empirical evidence regarding the relative importance and effectiveness of different risk management practices prevents the development of targeted interventions and best practice guidelines tailored to the Kenyan construction context.

In summary, construction firms in Nairobi County, Kenya, play a vital role in the economy by contributing to infrastructure development. The performance of these firms can be evaluated based on financial performance, project completion time, customer satisfaction, and adherence to quality standards. Risk identification, evaluation, mitigation and monitoring practices are critical components of effective risk management. The proper implementation of these practices allows construction firms to identify potential risks, assess their impact, proactively address them and continuously monitor them throughout the project lifecycle, ultimately leading to improved performance and successful project outcomes. The study aims to assess the effects of

these risk management practices on the performance of construction firms in Nairobi County, Kenya.

## 1.2 Statement of the Problem

The construction industry serves as a critical driver of Kenya's socio-economic development, contributing approximately 7% to the nation's Gross Domestic Product (GDP) and supporting the government's strategic goal of delivering 50,000 affordable housing units (Amoo et al., 2023). However, despite this sector's vital importance, construction firms in Kenya face interconnected challenges that significantly compromise their performance and threaten the industry's contribution to national development.

The primary challenges confronting the Kenyan construction sector stem from inadequate risk management practices, which manifest as delayed project completions, compromised quality standards, cost overruns, and widespread client fund misappropriation leading to extensive litigation between constructors and clients (Amoo et al., 2023). These interconnected issues have resulted in a decline in the housing index and damaged the sector's reputation, as evidenced by high-profile cases involving developers such as Banda Homes, Dinara Developers, Lettas Developers, Tehillah Holdings, E-Farm Housing Cooperative Society, and Lesedi Developers Ltd, who have been accused of fraudulently receiving funds without delivering promised housing units (Ciuri, 2023).

Research has established the critical importance of systematic risk management practices in enhancing organizational performance across various industries, particularly in construction where projects are inherently complex and uncertain (Kumar & Narayanan,

2021). Bu Qammaz and AlMaian (2020) emphasized that effective risk management practices significantly contribute to construction project success.

However, despite the recognized importance of risk management, a significant empirical gap exists regarding the specific effects of systematic risk management practices on construction firm performance within the Kenyan context. This knowledge gap limits the ability of construction firms, policymakers, and industry stakeholders to make evidence-based decisions about risk management investments and strategic interventions necessary to improve sector performance.

Therefore, this study addresses this critical gap by systematically examining the effects of specific risk management practices on risk identification, evaluation, mitigation, and monitoring on the performance of construction firms in Nairobi County, Kenya, with the objective of providing evidence-based insights that will benefit the construction sector and its stakeholders, including contractors, clients, and policymakers.

## 1.3 Objectives of the Study

### 1.3.1 General Objective

To examine the effects of risk management practices on the performance of construction firms in Nairobi County, Kenya.

### 1.3.2 Specific Objectives

i. To examine the effect of risk identification practices on the performance of construction firms in Nairobi County, Kenya.
ii. To assess the effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya.
iii. To evaluate the effect of risk mitigation practices on the performance of construction firms in Nairobi County, Kenya.

iv. To determine the effect of risk monitoring practices on the performance of construction firms in Nairobi County, Kenya.

### 1.4 Hypotheses

$H0_1$: There is no statistically significant effect of risk identification practices on the performance of construction firms in Nairobi County, Kenya.

$H0_2$: There is no statistically significant effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya.

$H0_3$: There is no statistically significant effect of risk mitigation practices on the performance of construction firms in Nairobi County, Kenya.

$H0_4$: There is no statistically significant effect of risk monitoring practices on the performance of construction firms in Nairobi County, Kenya.

### 1.5 Significance of the Study

This study provides significant value to multiple stakeholder groups within the construction industry and broader Kenyan economy.

Construction Firms will benefit by gaining empirical evidence on which risk management practices most effectively enhance performance, enabling them to make informed decisions about resource allocation for risk management initiatives. The findings will help firms identify specific areas for improvement in their risk management approaches, potentially leading to reduced project delays, cost overruns, and quality issues, ultimately resulting in improved profitability and competitive positioning.

Project Managers and Construction Professionals will gain evidence-based insights into the relative importance of different risk management practices, enabling them to prioritize their risk management efforts more effectively. This knowledge will enhance

their professional capabilities and improve their ability to deliver successful projects within time, budget, and quality constraints.

Policymakers and Regulatory Bodies will benefit from comprehensive understanding of the relationship between risk management practices and firm performance, enabling the development of targeted policies, regulations, and industry guidelines that promote effective risk management practices. This could include the development of industry standards, training requirements, and certification programs for construction risk management.

Investors and Financial Institutions will gain valuable insights for assessing the risk profiles of construction firms, enabling more informed investment and lending decisions. Understanding which risk management practices correlate with better performance will help investors identify more reliable construction partners and reduce their exposure to project-related risks.

Academic and Research Community will benefit from the study's contribution to the body of knowledge on construction risk management, particularly in the context of developing economies. The research will provide a foundation for future studies and contribute to the development of risk management theories and frameworks applicable to similar contexts.

The General Public will ultimately benefit from improved construction industry performance through better quality infrastructure, more reliable project delivery, reduced construction-related disputes, and enhanced safety standards, contributing to overall societal well-being and economic development.

## 1.6 Scope of the Study

The study was geographically confined to Nairobi County, Kenya which serves as the country's capital and primary economic hub. This geographical delimitation was strategically chosen due to Nairobi County's concentration of construction activities ranging from small-scale residential projects to large commercial and infrastructure developments. The county hosts a diverse array of construction firms from small local contractors to large multinational corporations providing a comprehensive representation of the Kenyan construction industry's most dynamic segment. Furthermore, Nairobi's urban development challenges and rapid growth present unique opportunities for understanding how risk management practices influence firm performance in a complex and evolving construction environment.

The research adopted a one-year timeframe that focused on capturing current risk management practices and recent performance outcomes. This temporal boundary was deliberately selected to ensure the relevance and applicability of findings to contemporary industry conditions while providing sufficient time depth to assess meaningful performance relationships. The one-year scope allowed for the capture of complete project cycles and seasonal variations in construction activities thus enhancing the validity of performance measurements.

Conceptually, the study maintained a focused approach by examining four specific risk management practices: risk identification, risk evaluation, risk mitigation, and risk monitoring. These practices were selected based on their fundamental importance in risk management theory and their practical relevance to construction operations. Firm performance was comprehensively measured through multiple indicators including financial performance metrics such as profitability and revenue growth, operational efficiency measures such as project delivery timelines and cost control, customer

satisfaction levels reflecting service quality and quality adherence demonstrating compliance with industry standards. The study deliberately excluded other potentially influential variables such as organizational culture, leadership styles, technological adoption and or broader economic factors to maintain clear focus on the specific relationship between the identified risk management practices and firm performance outcomes.

Methodologically, the research employed a cross-sectional survey design that captured data at a specific point in time rather than tracking longitudinal changes over an extended period. This methodological choice was made to provide a comprehensive view of current industry practices and their immediate relationships with performance outcomes within the specified geographical and temporal boundaries while ensuring practical feasibility given available research resources and timeframes.

### 1.7 Limitations and Delimitations of the Study

The research encountered several inherent limitations that influenced data collection and analysis processes. The most significant limitation involved the sensitive nature of risk management and performance data which created challenges in obtaining comprehensive and candid responses from industry participants. Many respondents demonstrated reluctance to share detailed information about their firms' internal risk management practices, financial performance metrics and operational challenges due to legitimate concerns about competitive disadvantage, potential reputational implications and confidentiality of proprietary business information. This sensitivity was particularly pronounced when discussing performance shortcomings, risk management failures or financial difficulties, potentially leading to response bias toward more favourable self-reporting.

To address these data sensitivity limitations, comprehensive mitigation strategies were implemented throughout the research process. Detailed informed consent procedures were established to ensure all respondents fully understood the study's academic purpose, data usage protocols and the voluntary nature of their participation. Anonymous data collection methods were rigorously employed with participants receiving explicit assurances that no individual firm information, identifiable performance data, or specific company names would be disclosed in research outputs or publications. Additionally, aggregated reporting methods were used to further protect individual participant confidentiality while maintaining the analytical integrity of the findings.

The study was deliberately delimited by its geographical focus on Nairobi County, which, while enabling in-depth analysis within Kenya's most economically significant construction market, inherently limited the generalizability of findings to other regions within Kenya or other East African countries. This geographical delimitation was accepted as a necessary trade-off to ensure research depth and quality within available resources while recognizing that construction practices, regulatory environments and market conditions may vary significantly across different geographical contexts.

Temporal delimitations arose from the cross-sectional research design which provided valuable insights into current industry conditions but limited the study's ability to establish definitive causal relationships or track performance changes over extended periods. This design choice precluded the observation of how risk management practices evolve over time or how their effectiveness changes with varying market conditions, economic cycles and or regulatory modifications. However, this delimitation was accepted in favour of conducting a comprehensive analysis of current industry practices within practical research constraints.

The study was further delimited by the availability and willingness of construction industry professionals to participate in the research, potentially affecting the representativeness of the final sample. Construction professionals often operate under demanding schedules with multiple project commitments, making their availability for research participation limited and potentially skewing the sample toward firms with more flexible organizational structures or greater research orientation. However, systematic sampling procedures and broad outreach efforts were employed to minimize these limitations and ensure the most representative sample possible within the identified constraints.

### 1.8 Assumptions of the Study

The study was based on several fundamental assumptions necessary for meaningful research outcomes:

***Respondent Competency:*** It was assumed that selected respondents possessed adequate knowledge and understanding of their firms' risk management practices and performance indicators. This assumption was based on the targeted selection of finance managers, project managers, project engineers and contractors who are directly involved in risk management and performance assessment activities.

***Response Accuracy:*** The study assumed that respondents provided honest and accurate information about their firms' practices and performance. This assumption was supported by confidentiality assurances and the academic nature of the research.

***Representative Sampling*:** It was assumed that the sample of construction firms in Nairobi County would be representative of the broader construction industry patterns in Kenya allowing for meaningful insights applicable to similar contexts.

***Measurement Validity***: The study assumed that the measurement instruments adequately captured the intended constructs of risk management practices and firm performance based on established literature and validated measurement approaches.

***Stable Conditions:*** It was assumed that the fundamental business environment and regulatory framework remained relatively stable during the data collection period, ensuring consistency in the context within which risk management practices operate.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This chapter comprises of the theoretical literature review, empirical literature review, conceptual framework, a summary of the reviewed literature and research gaps that informed this study.

## 2.2 Theoretical Review

A theoretical framework is a foundational structure that outlines the key theories and concepts relevant to a research study, providing a lens through which the research problem can be examined. It forms an essential part of a study as it links the data to be collected with the initial research questions, guiding data interpretation and the formulation of conclusions. In essence, the theoretical framework sets the stage for the research, offering a context and a guide for understanding the relationships between the variables of interest. For this study, Risk Management Theory, the Resource-Based View (RBV) Theory, and Contingency Theory serve as the guiding theoretical framework. These theories provide the scaffolding for examining how risk identification, risk evaluation, risk mitigation, and risk monitoring practices affect the performance of construction firms in Nairobi County, Kenya.

### 2.2.1 Risk Management Theory

Risk Management Theory emerged as an integral aspect of strategic management and financial theory in the latter half of the 20th century with its roots traceable to the burgeoning era of globalized business practices marked by rapid technological advances and increasing complexities in organizational structures and market dynamics (Badin & Hamid, 2022). The theory traces its origins to pioneering work by economist Frank

Knight, whose seminal work "Risk, Uncertainty, and Profit" published in 1921 laid the groundwork for understanding the role of risk and uncertainty in economic decision-making. Harry Markowitz subsequently advanced the field through his ground breaking paper "Portfolio Selection" (1952) introducing diversification as a strategy to mitigate investment risks.

The premise of Risk Management Theory emphasizes the systematic identification, assessment, mitigation and monitoring of risks that could potentially impede an organization's ability to achieve its objectives (Tewari & Ramanlal, 2022). Risk Management Theory is underpinned by four main components that directly support this study's focus on construction risk management practices.

Risk identification supports risk identification practices by providing theoretical foundation for systematically recognizing potential threats that could detrimentally impact an organization's operations or performance. This process necessitates comprehensive understanding of the firm's environment, both internal and external, utilizing tools such as SWOT analysis, PESTEL analysis and or brainstorming sessions (Minhui, 2019). Risk evaluation provides theoretical grounding for risk evaluation practices by focusing on quantifying or qualitatively assessing identified risks, determining likelihood of occurrence and estimating potential impact using tools such as risk matrices or decision trees (Hashmi, 2020).

Risk mitigation offers theoretical foundation for risk mitigation practices by focusing on devising strategies to manage identified and evaluated risks through avoiding, transferring, mitigating or accepting risks based on their nature and organizational risk tolerance. Risk monitoring provides theoretical support for risk monitoring practices through ongoing processes involving continuous tracking of identified risks, evaluating effectiveness of risk response strategies and identifying new risks as they emerge.

The relevance of Risk Management Theory to this research study is substantial, as it provides robust theoretical foundation to guide investigation of how each risk management component influences construction firm performance in Nairobi County, Kenya.

### 2.2.2 Resource-Based View (RBV) Theory

The Resource-Based View theory, developed during the 1980s and early 1990s by researchers such as Birger Wernerfelt, Jay Barney, and Robert Grant, emerged as a response to the prevalent industry-structure perspective influenced by Michael Porter's work (Aghazadeh et al., 2022). The RBV theory posits that competitive advantage stems from the application of valuable resources at a firm's disposal (Antonio & Gattermann Perin, 2020).

These resources include assets, capabilities, organizational processes, firm attributes, information, and knowledge controlled by a firm, enabling it to conceive and implement strategies that improve efficiency and effectiveness (Henrik & Amna, 2022). The RBV theory highlights key characteristics of resources leading to sustainable competitive advantage: inimitability and non-substitutability (Chen & Ji, 2022).

In this study's context, RBV theory serves as a critical framework to understand how effective risk management practices can be viewed as valuable resources that construction firms in Nairobi County can leverage to achieve superior performance. Risk evaluation practices can be analyzed through the RBV lens as critical organizational capabilities, with firms excelling in risk evaluation possessing distinctive internal resources that enable better risk prioritization and resource allocation toward high-priority risks while efficiently managing lower-significance risks.

### 2.2.3 Contingency Theory

Contingency theory, formulated by scholars such as Joan Woodward, Paul Lawrence and Jay Lorsch in the late 1960s, theorizes that optimal organizational structure and management approaches are contingent upon various internal and external factors (Kankaew & Pongsapak, 2020). This theory emerged as a counterpoint to the "one best way" perspective, asserting that organizational effectiveness hinges on alignment between internal characteristics and external environmental demands.

This theory's relevance to construction firms in Nairobi County stems from its emphasis on aligning internal procedures such as risk management practices with external environmental demands. Given that construction industries face high environmental uncertainty due to regulatory changes, market fluctuations and technological advancements, contingency theory provides important framework for understanding how firms' risk management practices should adapt to external conditions to enhance performance.

Risk monitoring practices align well with contingency theory's fundamental principles, as they involve continuous surveillance of identified risks and evaluation of risk response strategy effectiveness. Within the contingency theory framework, construction firms that are effectively aligning their risk monitoring practices with volatile operating environment demands are more likely to achieve superior performance outcomes.

## 2.3 Empirical Literature Review

### 2.3.1 Risk Identification Practices on Performance of Construction Firms

Siraj and Fayek (2019) conducted an empirical study titled "Risk Identification and Common Risks in Construction: Literature Review and Content Analysis," utilizing literature review and content analysis methodology to examine multifaceted construction domain risks. Their systematic review provided comprehensive understanding of diverse

construction risk environments, utilizing academic articles, industrial reports, and pertinent documentation. Content analysis enabled structured investigation of collated data, allowing researchers to categorize information efficiently and scrutinize it for discernible patterns and themes.

The study's findings highlighted several risk factors pervading construction projects, including unpredicted inflation rate fluctuations that could significantly disrupt project financial stability, leading to cost overruns and delays. Design errors and poor engineering were identified as critical risks leading to increased rework, project cost escalations, and potential safety threats to construction personnel and eventual occupants.

Nabawy et al. (2021) presented detailed examination of predominant risk factors in Egyptian mega housing project construction through their study "Risk Identification Framework in Construction of Egyptian Mega Housing Projects: A Constructivism Paradigm." Using constructivist lens, researchers viewed risks as phenomena moulded by stakeholder perspectives and complex project environment interactions. They employed qualitative methodology with NVivo software for thematic analysis and coding, conducting in-depth interviews with Egyptian construction industry professionals including project managers, engineers, architects, and risk management specialists.

Results pointed to crucial risk factors impacting large-scale housing project construction, with most frequently encountered being resource availability, financial stability, and technical training quality. Insufficient resources often resulted in project delays, while financial instability could lead to cost overruns and project abandonment.

Sharma and Gupta (2019) conducted insightful research titled "Risk Identification and Management in Construction Projects: A Literature Review," exploring, categorizing,

and ranking critical construction project risks through existing literature. Their methodology involved thorough literature review, systematically examining academic articles, research papers, and industry reports to compile comprehensive construction project risk lists. Using robust statistical techniques, they ranked risks based on criticality and proposed classification methods.

The study's findings revealed that funding unavailability, design errors, poor site management, contractual risks, and regulatory changes were among the most critical risks affecting construction projects, emphasizing the need for proactive risk identification and management strategies.

### 2.3.2 Risk Evaluation Practices on Performance of Construction Firms

Soh et al. (2023) conducted research on quantitative risk assessment in various building types focusing on reducing accidents through effective safety management. Their methodology included data collection and classification, Bayesian probability-based accident probability calculation, accident cost estimation, risk ranking using normalization methods, and risk level classification through k-means clustering. Findings revealed that Bayesian probability utilization aids accurate accident probability estimation, while comprehensive accident cost calculation provides crucial insights into potential incident economic impact.

The normalization method allows risk prioritization based on severity, and k-means clustering facilitates risk level classification in different building types. The study underscores quantitative risk assessment significance in formulating targeted safety measures and minimizing accidents, demonstrating efficacy in enhancing safety management practices for various building types.

Ha et al. (2018) conducted comprehensive study focusing on developing advanced risk evaluation framework for construction projects, leveraging Artificial Neural Network (ANN) technique capabilities. Researchers dedicated particular attention to crucial risk evaluation phases, ensuring robust and data-driven approaches. During risk management phases, researchers diligently identified and categorized diverse potential construction project risks.

By assembling comprehensive risk databases and consulting domain experts, they laid groundwork for rigorous risk evaluation processes. In subsequent ANN training phases, researchers fed past construction project data into artificial neural networks. Through machine learning, ANNs became adept at recognizing intricate patterns and associations between various risk factors and their potential impacts, equipping ANNs with abilities to conduct accurate real-world construction scenario risk evaluations.

Awuni (2019) conducted empirical study focusing on risk assessment during construction project design phases in Ghana, including 114 professionals from various construction disciplines. The study evaluated risks at different design stages using both qualitative and quantitative approaches. Qualitative evaluation involved measuring risk levels against predetermined criteria, considering severity, likelihood, and potential impacts. Quantitative evaluation compared risks numerically, using specific criteria like fatality, frequency, or monetary value.

The study highlighted importance of integrating both qualitative and quantitative methods in risk assessment to enhance decision-making and risk management during design phases, showcasing value of combining approaches to comprehensively evaluate risks and aid construction professionals in making informed decisions.

### 2.3.3 Risk Mitigation Practices on Performance of Construction Firms

Adinyira et al. (2020) conducted study investigating subcontractor risk management influence on building construction project quality performance in Ghana. Research involved surveying 139 Heads of Works from Metropolitan, Municipal, and District Assemblies (MMDAs) and employed qualitative research methods for in-depth insights. Study findings emphasized critical subcontractor risk management roles in shaping overall construction project quality performance in Ghana.

Effective management of financial risks, resource risks, technical risks, and managerial risks was found to have significant impact on construction firm performance. By adopting proactive risk management practices, construction firms demonstrated better capabilities in handling potential risks associated with financial aspects, resource allocation, technical complexities, and managerial challenges, resulting in enhanced project quality performance as potential disruptions and challenges were effectively addressed and mitigated.

Amoo et al. (2023) conducted thorough examination of relationships between liquidity risk management practices and overall real estate project performance in Busia County through their research titled "Liquidity Risk Management Practices and Performance of Real Estate Construction Projects in Busia County, Kenya." Researchers utilized descriptive research design and employed structured questionnaires to gather data from various stakeholders involved in Busia County real estate construction projects.

Study findings shed light on positive and statistically significant correlations between liquidity risk management practice efficiency and overall real estate project performance. Projects demonstrating more effective liquidity risk management achieved better performance outcomes, including completing projects within scheduled timelines, adhering to budget targets and experiencing increased profitability.

Algremazy et al. (2023) undertook case study exploring relationships between risk management practices and project performance in Libyan construction industry. Study findings revealed significant positive correlations between effective risk management practices and project performance. Projects implementing robust risk management strategies were more likely to achieve successful outcomes, including meeting project objectives, adhering to timelines, staying within budget constraints and delivering high-quality outputs. The observed positive effect of risk management on project performance was statistically significant, underscoring meaningful and measurable impact of these practices on construction projects in Libyan contexts.

### 2.3.4 Risk Monitoring Practices on Performance of Construction Firms

Obondi (2020) conducted empirical study exploring relationships between project risk monitoring, control practices and project success in construction industry. Research involved 50 construction project managers participating in electronic surveys to assess their risk monitoring and control practices. The study evaluated project risk monitoring through risk audits, risk status meetings and risk trend analysis while examining control practices implementation including contingency reserves analysis and risk matrices.

Findings indicated significant correlations between effective risk monitoring and successful project outcomes. Construction project managers actively conducting risk audits, holding regular risk status meetings and analysing risk trends demonstrated better project performance and success. The study highlighted importance of control practices in mitigating risks and ensuring project success, with contingency reserves analysis and risk matrices implementation allowing construction project managers to proactively address potential risks.

Enyioko (2020) conducted compelling empirical study examining risk monitoring effectiveness during construction project life cycles in Port Harcourt, Nigeria. Utilizing

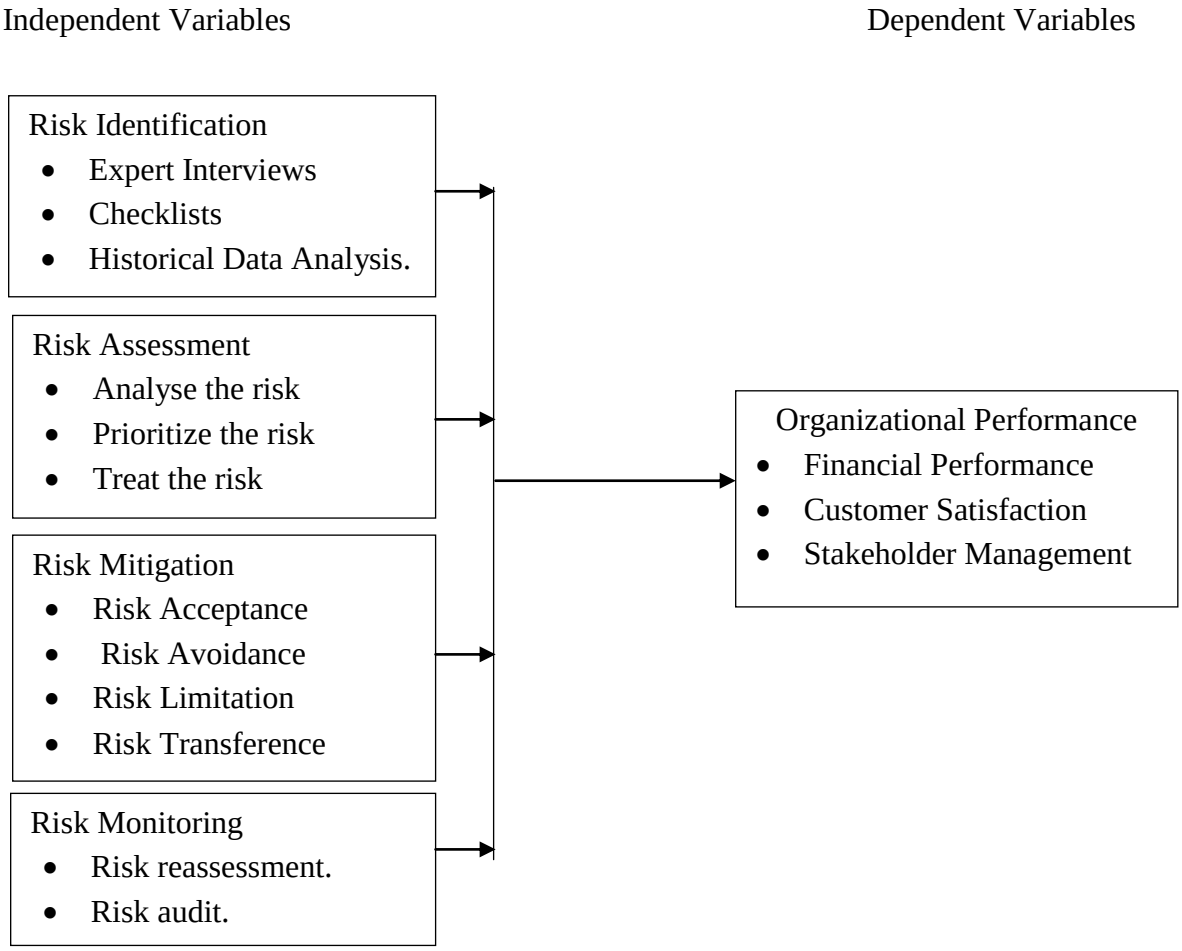
mixed methodological approaches, research investigated risk monitoring impact on time, cost and quality performance in building construction projects. Study findings shed light on critical risk monitoring roles in construction project success. Research identified several risk factors significantly influencing project performance, including material price fluctuations, health and safety concerns, bribery and corruption, material wastage, poor site management, supervision issues and time overruns. Through effective risk monitoring practices, construction project stakeholders were equipped to proactively address identified risk factors enabling project teams to implement appropriate risk mitigation strategies.

### 2.4 Conceptual Framework

A conceptual framework is a theoretical model that provides structure to a research study. In this study on the influence of risk management practices on the performance of construction firms in Nairobi County, Kenya, the framework depicts the relationships between different variables. The independent variables in this study are the risk management practices used by construction firms in Nairobi County, including risk identification, risk evaluation, risk mitigation, and risk monitoring.

**Figure 1**

*Conceptual Framework*




*Source:* Author, (2025)

Risk identification involves processes and techniques to identify potential risks that may affect projects or operations. Risk evaluation methods assess the severity and likelihood of identified risks. Risk mitigation strategies involve developing and implementing responses to address identified risks. Risk monitoring strategies involve tracking and supervising risks throughout the project lifecycle. The dependent variable is the overall performance of the construction firms in Nairobi County, measured using indicators such as financial performance, project completion time, customer satisfaction and project success rates.

The conceptual framework proposes several hypotheses based on the relationships between the independent variables and the dependent variable. It hypothesizes that construction firms with effective risk identification practices will have better overall performance than those with weaker risk identification practices. Similarly, firms excelling in risk evaluation practices are expected to demonstrate higher performance levels compared to those with inadequate risk evaluation practices. Construction firms implementing robust risk mitigation practices are hypothesized to exhibit better performance than those with limited risk mitigation approaches. Furthermore, the framework suggests that construction firms with comprehensive risk monitoring practices will experience higher levels of performance compared to firms with inadequate risk monitoring.

### 2.5 Summary of Literature and Research Gaps

The literature review reveals substantial research on risk management practices in construction, demonstrating growing recognition of risk management's importance in enhancing project and organizational performance. However, several critical gaps emerge that justify the need for this study, as summarized in the comprehensive gap analysis table below.

**Table 1**

*Research Gaps Analysis*

| Gap Type | Gap Description | Literature Evidence | Research Need | Study Contribution |
|---|---|---|---|---|
| Conceptual Gap | Limited comparative analysis of different risk management practices and their relative effectiveness | Most studies examine isolated risk management components (Siraj & Fayek, 2019; Sharma & Gupta, 2019) | Systematic comparison of risk identification, evaluation, mitigation, and monitoring practices within single framework | Empirical evidence of differential impact of four risk management practices on firm performance |
| Contextual Gap | Shortage of Nairobi-specific empirical studies on construction risk management | Available studies focus on other regions: Ghana (Adinyira et al., 2020), Egypt (Nabawy et al., 2021), Libya (Algremazy et al., 2023) | Locally-relevant research addressing unique Kenyan construction industry characteristics | First comprehensive study of risk management-performance relationships in Nairobi County construction firms |
| Methodological Gap | Few quantitative primary studies in Kenyan construction firms using validated instruments | Most available research relies on qualitative approaches or case studies (Awuni, 2019; Enyioko, 2020) | Large-scale quantitative survey research with validated measurement instruments | Rigorous quantitative analysis using validated questionnaires with 185 construction industry professionals |
| Practical Gap | Insufficient guidance for construction firms on prioritizing risk management investments | Limited evidence on which practices provide greatest return on investment (Obondi, 2020; Ha et al., 2018) | Evidence-based recommendations for strategic risk management resource allocation | Specific findings on relative importance of different risk management practices for performance improvement |
| Theoretical Gap | Limited integration of multiple organizational theories in explaining risk management-performance relationships | Studies typically rely on single theoretical perspectives (Soh et al., 2023) | Comprehensive theoretical framework integrating multiple theories | Multi-theoretical framework combining Risk Management Theory, RBV, and Contingency Theory |
| Measurement Gap | Lack of comprehensive frameworks capturing multiple dimensions of both risk management and firm performance | Studies often focus on narrow performance aspects or single risk management components (Amoo et al., 2023) | Holistic measurement approach covering all risk management practices and multiple performance indicators | Comprehensive measurement of four risk management practices and multiple firm performance dimensions |

The literature reveals limited comparative analysis of different risk management practices and their relative effectiveness in improving construction firm performance. While studies have examined individual risk management components, few have systematically compared the differential impact of risk identification, evaluation, mitigation, and monitoring practices within a single comprehensive framework. Most existing research focuses on isolated aspects of risk management rather than examining the integrated effect of multiple risk management practices on firm performance outcomes.

A significant shortage of Nairobi-specific empirical studies examining risk management practices in construction firms represents a major contextual gap. While international literature provides valuable insights, the unique operating environment, regulatory framework, cultural factors, and market dynamics of the Kenyan construction industry require locally-relevant research to understand how risk management practices influence firm performance in this specific context.

The review reveals few quantitative primary studies focusing specifically on Kenyan construction firms and their risk management practices. Most available research relies on case studies, qualitative approaches, or secondary data analysis, limiting the ability to establish statistical relationships between risk management practices and firm performance outcomes.

The literature reveals insufficient guidance for construction firms seeking to prioritize their risk management investments and improvements. While theoretical frameworks exist, there is limited empirical evidence about which risk management practices provide the greatest return on investment in terms of improved firm performance, particularly in resource-constrained environments typical of developing economies.

In conclusion, these identified gaps demonstrate the need for comprehensive, contextually-relevant research that examines the relationship between specific risk management practices and construction firm performance in the Kenyan context. This study addresses these gaps by providing empirical evidence of how risk identification, evaluation, mitigation, and monitoring practices influence firm performance among construction companies in Nairobi County, contributing to both theoretical understanding and practical knowledge for industry stakeholders.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

The chapter covers the research design, population of the study, sampling procedure, sample size, pilot study, validity of the instrument, reliability of the instrument, data collection procedure and a description of the data analysis methods utilized in the study.

## 3.2 Research Design

In this research, a well-structured plan guided the study towards achieving specific objectives. The chosen research design is descriptive, which means it aims to accurately depict the phenomenon without manipulating variables or establishing cause-and-effect relationships (Chinelo Igwenagu, 2016). It is commonly used in social sciences and business studies to understand and describe existing characteristics within a population( Ranjit, 2019). The research focuses on how risk identification, evaluation, monitoring, and management practices impact the performance of construction firms in Nairobi County, Kenya. The descriptive research design allows for an objective and comprehensive view of these risk management practices without bias(Gathii et al., 2019). The applicability of the descriptive research design lies in its ability to provide an all-encompassing view of risk management practices in various construction firms in Nairobi County, considering practical constraints such as time and resources. The study's findings are presented coherently, serving as a basis for future research and more in-depth investigations into risk management practices. In conclusion, the descriptive research design is the suitable choice for this study, enabling an impartial understanding of the effects of risk management practices on construction firm performance in Nairobi County, Kenya.

### 3.3 Location of the Study

The chosen location for this study was Nairobi County, Kenya. Nairobi County, being the capital and largest city of Kenya is a bustling economic center with significant construction activities. Its construction industry encompasses a wide range of projects, from residential buildings to commercial establishments and related infrastructure development. The diversity of construction firms in the county, varying in size and specialization offers a valuable opportunity to explore risk management practices comprehensively.

Nairobi County's prominence in the Kenyan construction sector makes it an ideal location for this research. The dynamic business environment and availability of data sources enhance the feasibility of collecting relevant information. Moreover, being a major hub the findings from this study may have implications beyond the local context, potentially informing policies and practices in similar regions.

By conducting this study in Nairobi County, researchers can gain valuable insights into the effects of risk identification, evaluation, monitoring and management practices on construction firm performance. The County's vibrant construction landscape provides a rich foundation to understand how these practices impact the industry's overall performance. The study's outcomes hold the potential to contribute to the existing body of knowledge and offer practical insights for construction firms and policymakers in Kenya.

### 3.4 Target Population

The target population for this study comprised individuals from construction firms operating in Nairobi County, Kenya. From the accessible population of these firms, a carefully selected group of 495 individuals was included in the research. This approach

ensures that the study encompasses a well-balanced representation of various roles within the construction industry.

**Table 1**

*Target Population*

| Description | Frequency | Percentage |
|---|---|---|
| Finance Manager | 115 | 23.2% |
| Project Manager | 90 | 18.2% |
| Project Engineers | 99 | 20.0% |
| Contractors | 191 | 38.6% |
| Total | 495 | 100.0% |

The target population included Finance Managers, Project Managers, Project Engineers, and Contractors. Among them, there was 115 Finance Managers, 90 Project Managers, 99 Project Engineers, and 191 Contractors participating in the study. Each of these individuals contributes valuable insights from their unique perspectives and roles within the construction firms. The inclusion of Finance Managers, Project Managers, Project Engineers, and Contractors in the target population is well-justified for several reasons. These individuals occupy critical positions within construction firms thus making them essential in the decision-making processes related to risk management.

Finance Managers contribute their financial judgement, offering insights into the fiscal implications of risk management decisions. Project Managers oversee project execution and coordination, possessing a comprehensive understanding of project-specific risks. Project Engineers bring technical expertise, shedding light on the technical risks inherent in construction projects.

Contractors are directly involved in executing the construction work, managing operational risks at the ground level. Their diverse roles and expertise ensure a comprehensive analysis of risk management practices. Including these key players in risk

management allows the study to capture insights from different hierarchical levels within construction firms. Each role brings unique perspectives on how risk management strategies are perceived, implemented, and executed within the organization.

Moreover, the selected roles provide valuable and practical insights into the effectiveness of risk management in the construction industry. They deal with risk-related challenges on a daily basis, offering real-world perspectives relevant to the research objectives. The research aims to examine the effect of risk management practices on construction firm performance, making the participation of these individuals highly relevant. They are directly involved in formulating and executing risk management strategies that impact firm performance.

### 3.5 Sample Size and Sampling Procedure

Sampling was a fundamental aspect of the research, involving the selection of a subset of individuals or elements from the larger population to draw meaningful inferences about the entire group(Giedre et al., 2020). As it was impractical and time-consuming to study the entire population, sampling allows the researchers to gather data efficiently while making valid conclusions about the target population.

To determine the appropriate sample size using the Taro Yamane formula (Year), the researcher used the information from the target population table:

N = Total population size = 495

e = Desired level of precision (sampling error) = 0.05 (5%)

n = N / (1 + N(e)^2)

n = 495 / (1 + 495(0.05) ^2)

n = 495 / (1 + 495(0.0025))

n = 495 / (1 + 1.2375)

$n = 495 / 2.2375$

$n \approx 221.24$

Since a whole number was needed for the sample size, the value was rounded up to 222.

Proportionate Random Sampling was an effective approach to ensure a fair representation of different segments of the population(Gama & Alves, 2021). Given the target population's distribution across Finance Managers, Project Managers, Project Engineers, and Contractors, proportionate random sampling will ensure that each group is represented appropriately in the sample.

The use of proportionate random sampling in this study was justified because it allows for a representative sample that reflects the diversity of roles within the construction firms. Finance Managers, Project Managers, Project Engineers, and Contractors will have varying percentages in the target population. By proportionally allocating the sample size to each group, the study will capture insights from each role in a balanced manner, enhancing the study's validity and ensuring meaningful results.

**Table 2**

*Sample Size*

| Description | Frequency | Percentage |
|---|---|---|
| Finance Manager | 52 | 23.2% |
| Project Manager | 41 | 18.2% |
| Project Engineer | 45 | 20.0% |
| Contractors | 84 | 38.6% |
| Total | 222 | 100.0% |

In the table, the sample size for each population member was proportionately allocated based on the total population and the desired sample size. The resulting distribution will ensure an equitable representation of Finance Managers, Project Managers, Project Engineers, and Contractors in the sample. This approach will enhance the study's

comprehensiveness and validity, facilitating robust conclusions about the effect of risk management practices on construction firm performance in Nairobi County, Kenya.

### 3.6 Instrumentation

In this research study on the effects of risk management practices on construction firm performance in Nairobi County, Kenya, the researcher collected data through primary sources using structured questionnaires. The target population comprised Finance Managers, Project Managers, Project Engineers, and Contractors employed in construction firms in the county.

Structured questionnaires, a common data collection tool, was utilized to obtain primary data on various aspects related to risk identification, evaluation, monitoring, and management practices, as well as the performance of construction firms.

Using structured questionnaires offered several advantages for this research. It ensures consistency in data collection, as all participants were asked the same set of questions with predetermined response options, reducing bias and ensuring comparable data(Balwan et al., 2022). Additionally, structured questionnaires generate quantitative data that can be easily analyzed using statistical methods, enabling straightforward interpretation and comparison of the results (Tsouroufli et al., 2021).

The Likert scale was used in this study to measure the respondents' agreement levels with statements related to various aspects of risk management practices and construction firm performance (Machado & Davim, 2020). Likert-based questions allow the participants to indicate their levels of agreement or disagreement with specific statements, making data collection efficient and facilitating analysis.

By employing structured questionnaires with Likert-based questions, the researcher aims to efficiently collect valuable data and gain a comprehensive understanding of risk

management dynamics in the construction industry. The findings will contribute to the existing body of knowledge and shed light on the relationship between risk management practices and construction firm performance in Nairobi County, Kenya.

### 3.6.1 Pilot Study

A pilot study is a preliminary investigation conducted before the main research to assess the feasibility, methodology, and potential challenges of the study(Tsouroufli et al., 2021). In this research on the effect of risk management practices on construction firm performance in Nairobi County, Kenya, a pilot study was undertaken to ensure the questionnaire's appropriateness and test the data collection process.

The pilot study's purpose was to identify and address any issues with the structured questionnaire and data collection procedures, ensuring that the main study runs smoothly and produces reliable results(Pagadala, 2018). By issuing the questionnaire to a smaller sample of 22 members from the target population of construction firms in Nakuru City, which share similar traits with Nairobi City, the researcher gauged the suitability of the questionnaire and data collection process in a context that closely resembled the main study location. This is according to Mugenda and Mugenda (2019) that advocates for use of at least 10% of the sample size for piloting.

The results of the pilot study were crucial in refining the questionnaire and ensured its effectiveness in capturing the participants' perspectives on risk management practices and construction firm performance. Any necessary adjustments or clarifications was made based on the feedback from the pilot study, enhanced the validity and reliability of the main study.

Conducting the pilot study in Nakuru City provided valuable insights into potential challenges and allow the researcher to make necessary adjustments to the study's

implementation. By adhering to the recommendations of Gathii et al. (2019) and using 10% of the main study's sample size for the pilot study, the researcher optimized the data collection process, leading to a successful and impactful research outcome in Nairobi County.

### 3.6.2 Validity of the Instrument

Validity is a crucial aspect of research that ensures the accuracy and appropriateness of the study's findings and conclusions(Kielmann et al., 2012). It refers to the extent to which a research study measures what it intends to measure and accurately represents the concepts under investigation. In other words, validity examines whether the research instruments and methods effectively capture the true meaning and essence of the variables being studied (Camarinha-Matos, 2019).

In this research on the effect of risk management practices on construction firm performance in Nairobi County, Kenya, content validity was used to assess the quality and relevance of the structured questionnaire. Content validity ensures that the questionnaire includes relevant and comprehensive items that adequately represent the constructs being examined(Pandey & Pandey, 2021).

Content validity was achieved through expert judgment. Experts in the field of risk management and the construction industry will review the questionnaire to assess its relevance, clarity, and comprehensiveness(Saha & Paul, 2020). They will evaluate whether the questions appropriately capture the different aspects of risk management practices and construction firm performance. The researchers sough feedback from these experts and make any necessary modifications to the questionnaire based on their recommendations.

To calculate the Content Validity Index (CVI), the researchers considered the proportion of experts who agree on the relevance of each item in the questionnaire. The CVI is calculated by dividing the number of items rated as relevant by the total number of items in the questionnaire(Gathii et al., 2019). The CVI can range from 0 to 1, with higher values indicating a higher degree of content validity.

The threshold for the Content Validity Index in this study was set at 0.80 or 80%. This means that for an item to be considered content valid, at least 80% of the experts must agree on its relevance(Gathii et al., 2019). Items that do not meet this threshold was carefully reviewed, and necessary adjustments was made to enhance their content validity.

By employing content validity and calculating the Content Validity Index, this research aimed to ensure that the structured questionnaire accurately captures the essential aspects of risk management practices and construction firm performance.

### 3.6.3 Reliability of the Instrument

Reliability in research refers to the consistency and dependability of measurement instruments and methods used to gather data (Mugenda & Mugenda, 2003). It ensures that the study's findings are reliable and can be replicated under similar conditions (Taherdoost, 2017). In this investigation concerning the effect of risk management practices on construction firm performance in Nairobi County, Kenya, the focus was on internal reliability, which assesses the consistency of the structured questionnaire in measuring the underlying constructs. Internal reliability examines the extent to which the items within the questionnaire are interrelated and effectively measure the same construct. To evaluate internal reliability, the study will utilize the Cronbach's alpha coefficient, a commonly used statistical measure for assessing the internal consistency of scales or questionnaires.

A threshold of 0.7, as recommended by Mugenda and Mugenda (2019), was employed for the Cronbach's alpha coefficient. A Cronbach's alpha value equal to or higher than 0.7 indicates satisfactory internal reliability, signifying that the questionnaire's items are consistently measuring the intended construct(Ahmed et al., 2016).

By applying internal reliability through the Cronbach's alpha coefficient, this study aims to ensure that the structured questionnaire provides consistent and dependable results in measuring risk management practices and construction firm performance. A reliable questionnaire will contribute to the validity and credibility of the research findings, strengthening the overall significance of the study's outcomes

### 3.7 Data Collection Procedures

In this research on the effect of risk management practices on construction firm performance in Nairobi County, Kenya, the data collection procedures adhered to ethical guidelines and prioritize the protection of participants' rights and privacy.

The researcher obtained authorization from the Institute of Post Graduate Studies of Kabarak University, ensuring that the study is officially sanctioned and aligns with the university's guidelines. Additionally, the research project was submitted for ethical review and approval by relevant bodies, such as Kabarak University Research Ethics Committee and the National Commission for Science, Technology, and Innovation (NACOSTI).

Participant recruitment involved approaching potential participants, which include Finance Managers, Project Managers, Project Engineers, and Contractors working in construction firms in Nairobi County, Kenya. Informed consent was obtained from all participants, wherein they were fully informed of the study's objectives, procedures,

potential risks, and benefits. Participants had the option to provide voluntary consent before participating in the research.

Structured questionnaires were used for data collection, which was distributed to the participants. The questionnaires contained items pertaining to risk identification, evaluation, monitoring, and management practices, as well as construction firm performance. Participants will have the option of completing the questionnaires on-site or utilizing a drop-off and pick-up method. In the drop-off component, the questionnaires were distributed to the participants who completed them at their convenience and then returned them later to a designated location or via a secure means. In the pick-up component, the researcher collected the completed questionnaires from the participants at a later agreed-upon time.

By implementing these data collection procedures, including obtaining necessary authorizations and ensuring informed consent, the upheld ethical standards and safeguarded the participants' rights and confidentiality. The structured questionnaires facilitated the gathering of valuable data, enabling a comprehensive exploration of the relationship between risk management practices and construction firm performance in Nairobi County, Kenya.

### 3.8 Data Analysis and Presentation

This research focused on the effect of risk management practices on construction firm performance in Nairobi County, Kenya. Data analysis was conducted using IBM SPSS software. Descriptive statistics, such as frequency, mean, and standard deviation, provides an overview of the data and the characteristics of risk management practices and construction firm performance.

Assumption testing involved checking for normality using the Shapiro-Wilk test. The data was considered normally distributed if the p-value obtained from the Shapiro-Wilk test is greater than 0.05(Lee & Lee, 2015). For correlation analysis, Pearson's correlation coefficient was calculated to explore the relationships between risk management practices and construction firm performance. Stronger relationships were indicated by correlation coefficients closer to +1 or -1, while weaker relationships were indicated by coefficients closer to 0 (Stigum, 2016).

The primary data analysis involved multiple linear regression to investigate the effect of risk management practices on construction firm performance. The regression model was as follows:

$$Y= \beta_1 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Y= Construction Firm Performance

$X_1$ = Risk Identification

$X_2$= Risk Evaluation

$X_3$ =Risk Mitigation

$X_4$ = Risk Monitoring

$\varepsilon$=Error

In this model:

Construction Firm Performance is the dependent variable representing the performance of construction firms.

$\beta_0$ is the intercept, representing the expected value of the dependent variable when all risk management practices are zero.

$\beta_1$, $\beta_2$, $\beta_3$, and $\beta_4$ are the regression coefficients, indicating the change in the dependent variable associated with a one-unit change in each respective risk management practice.

$\beta_1$ (Risk Identification) represents the impact of risk identification practices on construction firm performance.

$\beta_2$ (Risk Evaluation) represents the impact of risk evaluation practices on construction firm performance.

$\beta_3$ (Risk Mitigation) represents the impact of risk mitigation practices on construction firm performance.

$\beta_4$ (Risk Monitoring) represents the impact of risk monitoring practices on construction firm performance.

$\varepsilon$ is the error term, representing the unexplained variance in the dependent variable.

The researcher analysed the regression coefficients ($\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$) to understand the direction and significance of the relationships between the risk management practices and the performance of construction firms. A significant p-value (less than 0.05) for each regression coefficient indicates a statistically significant impact of the respective risk management practice on construction firm performance.

Additionally, the researcher assessed the overall fit of the multiple linear regression model using the coefficient of determination (R-squared)(Maina, 2021). R-squared indicates the proportion of variance in the dependent variable that is explained by the independent variables. A higher R-squared value suggests a better fit of the model to the data and indicates how well the risk management practices explain the variability in construction firm performance.

By employing these data analysis techniques and interpreting the regression model, the study aimed to explore the relationships between risk management practices and construction firm performance, identify significant factors influencing performance, and

provide valuable insights to the construction industry for informed decision-making and improved risk management strategies.

### 3.9 Ethical Considerations

In this study, ethical considerations were rigorously applied to protect participants' rights and privacy. The researcher began by obtaining authorization from the Institute of Post Graduate Studies of Kabarak University, ensuring that the study is officially sanctioned and aligned with the university's guidelines. Additionally, the research proposal was submitted for ethical review and approval by relevant bodies such as the Kabarak University Research Ethics Committee and the National Commission for Science, Technology and Innovation (NACOSTI).

Informed consent was the cornerstone of the ethical framework. Participants were thoroughly informed about the study's purpose, procedures and potential risks through the letter accompanying the questionnaire. Ample time was provided for questions and clarifications. Participants were encouraged to review the consent form carefully before deciding to participate, emphasizing the voluntary nature of their involvement. Throughout the study, participants were reminded of their right to withdraw at any time without consequences.

All collected data was stored securely on password-protected devices and encrypted cloud storage, with physical documents kept in locked cabinets accessible only to the principal investigator. Participants' identities were protected through anonymization and using unique identification codes for all data. Any personally identifiable information was removed before analysis.

The integrity and completeness of data during collection was ensured through a comprehensive data monitoring plan. Questionnaires were reviewed for completeness

immediately after submission with prompt follow-up on any missing or unclear responses. Two separate researchers input the data independently to catch any discrepancies.

Data will be retained for five years after the study's completion as per university guidelines, after which it will be securely destroyed. When reporting results, care has been taken to ensure that no individual or company can be identified from the presented data. Digital data will be erased at the end of the retention period while physical documents will be shredded and incinerated.

By implementing these comprehensive ethical considerations, the research maintained high standards of integrity, protecting participants' rights and privacy while ensuring the validity and reliability of the study's findings. This ethical approach will not only safeguard participants' well-being but also contribute to the credibility and value of the insights gained for the construction industry in Nairobi County and beyond.

# CHAPTER FOUR

# DATA ANALYSIS, PRESENTATION AND DISCUSSION

## 4.1 Response Rate

The study response rate was examined and presented in Table 3 below.

**Table 3**

*Response Rate*

| Questionnaires Distributed | Questionnaires Returned | Response Rate |
|---|---|---|
| 222 | 185 | 83.3% |

The study targeted 222 respondents from construction firms in Nairobi County. Out of these, 185 questionnaires were successfully filled and returned, representing a response rate of 83.3%. According to Mugenda and Mugenda (2003), a response rate of 50% is adequate for analysis and reporting, 60% is good, and 70% and above is excellent. Therefore, the response rate of 83.3% in this study is considered excellent and provides a strong basis for concluding the population.

## 4.2 Reliability and Validity

### 4.2.1 Reliability Analysis

The reliability analysis was examined and presented in Table 4 below.

**Table 4**

*Reliability Test Results*

| Variable | Cronbach's Alpha | Number of Items |
|---|---|---|
| Risk Identification | 0.857 | 5 |
| Risk Evaluation | 0.872 | 5 |
| Risk Mitigation | 0.863 | 5 |
| Risk Monitoring | 0.845 | 5 |
| Financial Performance | 0.889 | 5 |

Cronbach's alpha coefficient was used to assess the internal consistency reliability of the research instrument. This measure indicates how closely related a set of items are as a group, with higher values indicating greater reliability.

George and Mallery (2003) provide guidelines for interpreting Cronbach's alpha coefficients. They suggest that alpha values greater than 0.9 are considered excellent, those greater than 0.8 are good, values exceeding 0.7 are acceptable, those greater than 0.6 are questionable, values above 0.5 are poor and any value less than 0.5 is considered unacceptable. These guidelines help researchers assess the strength of internal consistency in their measurements.

In this study, all variables showed Cronbach's alpha coefficients above 0.8, indicating good to excellent reliability. Risk Identification yielded an alpha of 0.857, Risk Evaluation 0.872, Risk Mitigation 0.863, Risk Monitoring 0.845, and Financial Performance 0.889. These results suggest that the items within each construct are closely related and consistently measure the intended concept. The high-reliability coefficients provide confidence in the internal consistency of the research instrument and the stability of the measures (Sekaran & Bougie, 2016).

### 4.2.2 Content Validity Index (CVI)

The validity of the instrument was examined and results are provided in Table 5 below.

**Table 5**

*Content Validity Index*

| Variable | Items Rated Relevant | Total Items | I-CVI |
|---|---|---|---|
| Risk Identification | 5 | 5 | 1.00 |
| Risk Evaluation | 5 | 5 | 1.00 |
| Risk Mitigation | 4 | 5 | 0.80 |
| Risk Monitoring | 5 | 5 | 1.00 |
| Financial Performance | 5 | 5 | 1.00 |

S-CVI/Average = 0.96

The Content Validity Index (CVI) is a widely used method to quantify content validity for multi-item scales. In this study, the CVI was calculated to ensure that the instrument adequately represented the constructs being measured. The process involved a panel of experts evaluating the relevance of each item to its intended construct on a 4-point scale: - 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant.

For each item, the I-CVI (Item-level Content Validity Index) was computed as the number of experts giving a rating of either 3 or 4 (thus dichotomising the ordinal scale into relevant and not relevant), divided by the total number of experts. The S-CVI/Average (Scale-level Content Validity Index, Average method) was then calculated as the average of the I-CVIs for all items on the scale.

As shown in Table 5, the I-CVI for most variables is 1.00, indicating perfect agreement among experts on the relevance of these items. The risk mitigation variable has an I-CVI of 0.80, which is still above the recommended threshold. According to Lynn (1986), for a scale to be judged as having excellent content validity, it should be composed of items with I-CVIs that meet the following criteria:

- 3 to 5 experts: I-CVI should be 1.00 for each item
- 6 to 10 experts: I-CVI should be $\geq 0.78$ for each item

The S-CVI/Ave for the entire instrument is 0.96, which exceeds the recommended minimum of 0.90 for excellent content validity (Polit & Beck, 2006). This high S-CVI/Ave indicates that the instrument as a whole has excellent content validity, suggesting that the items adequately represent the constructs being measured in the study. These results provide strong evidence for the content validity of the research instrument, indicating that it comprehensively covers the domain of each construct (risk

identification, risk evaluation, risk mitigation, risk monitoring, and financial performance) in the context of construction firms in Nairobi County, Kenya.

### 4.3 Descriptive Statistics

#### 4.3.1 Risk Identification

Risk identification is a crucial first step in the risk management process. This section examines the extent to which construction firms in Nairobi County engage in risk identification practices.

**Table 6**

*Descriptive Statistics for Risk Identification*

| Statement | NE | SE | ME | LE | VLE | Mean | SD |
|---|---|---|---|---|---|---|---|
| The firm regularly conducts risk assessments | 0 (0.0%) | 15 (8.1%) | 58 (31.4%) | 75 (40.5%) | 37 (20.0%) | 3.72 | 0.872 |
| The firm uses various tools for risk identification | 1 (0.5%) | 18 (9.7%) | 62 (33.5%) | 70 (37.8%) | 34 (18.4%) | 3.64 | 0.910 |
| The firm involves stakeholders in risk identification | 0 (0.0%) | 16 (8.6%) | 60 (32.4%) | 73 (39.5%) | 36 (19.5%) | 3.70 | 0.879 |
| The firm maintains a comprehensive risk register | 2 (1.1%) | 20 (10.8%) | 65 (35.1%) | 68 (36.8%) | 30 (16.2%) | 3.56 | 0.926 |
| The firm updates risk identification procedures | 1 (0.5%) | 17 (9.2%) | 63 (34.1%) | 72 (38.9%) | 32 (17.3%) | 3.63 | 0.893 |
| Overall | | | | | | 3.65 | 0.896 |

The results in Table 6 indicate that construction firms in Nairobi County generally engage in risk identification practices to a considerable extent. The statement "The firm regularly conducts risk assessments" received the highest mean score of 3.72 (SD =

0.872), with 60.5% of respondents indicating large or very large extent. This suggests that most firms prioritize regular risk assessments as part of their risk management strategy. This finding aligns with the research of Chileshe and Kikwasi (2014), who emphasized the importance of regular risk assessments in construction projects.

The use of various tools for risk identification (Mean = 3.64, SD = 0.910) and involvement of stakeholders in the process (Mean = 3.70, SD = 0.879) also received high scores. This indicates that firms employ diverse methods and engage relevant parties in identifying potential risks. These practices are consistent with recommendations by Serpella et al. (2014), who argued for the use of multiple risk identification techniques and stakeholder involvement to enhance the comprehensiveness of risk identification.

Maintaining a comprehensive risk register received the lowest mean score (3.56, SD = 0.926), suggesting that while firms engage in risk identification, there might be room for improvement in documenting and organizing identified risks. This aligns with the findings of Taroun (2014), who noted that formal documentation of risks is an area where many construction firms could improve.

The overall mean score for risk identification (3.65, SD = 0.896) indicates that construction firms in Nairobi County generally implement risk identification practices to a large extent. However, there is still potential for enhancement, particularly in maintaining comprehensive risk registers and consistently updating risk identification procedures.

### 4.3.2 Risk Evaluation

Risk evaluation involves assessing the likelihood and potential impact of identified risks. This section examines how construction firms in Nairobi County approach risk evaluation.

**Table 7**

*Descriptive Statistics for Risk Evaluation*

| Statement | NE | SE | ME | LE | VLE | Mean | SD |
|---|---|---|---|---|---|---|---|
| The firm assesses likelihood of identified risks | 2 (1.1%) | 22 (11.9%) | 68 (36.8%) | 65 (35.1%) | 28 (15.1%) | 3.51 | 0.928 |
| The firm evaluates potential impact of risks | 1 (0.5%) | 20 (10.8%) | 66 (35.7%) | 70 (37.8%) | 28 (15.1%) | 3.56 | 0.897 |
| The firm prioritizes risks based on assessment | 2 (1.1%) | 23 (12.4%) | 65 (35.1%) | 67 (36.2%) | 28 (15.1%) | 3.52 | 0.934 |
| The firm uses quantitative methods for evaluation | 3 (1.6%) | 25 (13.5%) | 70 (37.8%) | 63 (34.1%) | 24 (13.0%) | 3.43 | 0.936 |
| The firm regularly reviews risk evaluations | 1 (0.5%) | 21 (11.4%) | 67 (36.2%) | 68 (36.8%) | 28 (15.1%) | 3.55 | 0.904 |
| Overall | | | | | | 3.52 | 0.920 |

The results in Table 7 indicate that construction firms in Nairobi County generally engage in risk evaluation practices to a moderate extent. The statement "The firm evaluates potential impact of risks" received the highest mean score of 3.56 (SD = 0.897), with 52.9% of respondents indicating large or very large extent. This suggests that firms place significant emphasis on understanding the potential consequences of identified risks. This finding is consistent with the work of Iqbal et al. (2015), who highlighted the importance of impact assessment in construction risk management.

The assessment of risk likelihood (Mean = 3.51, SD = 0.928) and prioritization of risks based on assessment (Mean = 3.52, SD = 0.934) also received relatively high scores.

This indicates that firms are generally diligent in evaluating the probability of risks occurring and using this information to prioritize their risk management efforts. The practices align with the recommendations of Hwang et al. (2014), who emphasized the importance of systematic risk assessment and prioritization in construction projects.

The use of quantitative methods for risk evaluation received the lowest mean score (3.43, SD = 0.936), suggesting that while firms engage in risk evaluation, there might be room for improvement in employing more sophisticated quantitative techniques. This aligns with the findings of Taroun (2014), who noted that the adoption of advanced quantitative risk assessment methods is an area where many construction firms could enhance their practices.

The overall mean score for risk evaluation (3.52, SD = 0.920) indicates that construction firms in Nairobi County implement risk evaluation practices to a moderate extent. However, there is potential for improvement, particularly in the use of quantitative methods and ensuring regular reviews of risk evaluations.

### 4.3.3 Risk Mitigation

Risk mitigation involves developing and implementing strategies to address identified and evaluated risks. This section examines how construction firms in Nairobi County approach risk mitigation.

**Table 8**

*Descriptive Statistics for Risk Mitigation*

| Statement | NE | SE | ME | LE | VLE | Mean | SD |
|---|---|---|---|---|---|---|---|
| The firm develops risk response strategies | 0 (0.0%) | 14 (7.6%) | 55 (29.7%) | 78 (42.2%) | 38 (20.5%) | 3.76 | 0.869 |
| The firm implements risk mitigation measures | 1 (0.5%) | 15 (8.1%) | 58 (31.4%) | 75 (40.5%) | 36 (19.5%) | 3.70 | 0.891 |
| The firm allocates resources for risk mitigation | 1 (0.5%) | 17 (9.2%) | 60 (32.4%) | 72 (38.9%) | 35 (18.9%) | 3.67 | 0.908 |
| The firm trains employees on risk mitigation procedures | 2 (1.1%) | 18 (9.7%) | 62 (33.5%) | 70 (37.8%) | 33 (17.8%) | 3.62 | 0.923 |
| The firm regularly updates risk mitigation strategies | 0 (0.0%) | 15 (8.1%) | 57 (30.8%) | 76 (41.1%) | 37 (20.0%) | 3.73 | 0.876 |
| Overall | | | | | | 3.71 | 0.893 |

The results in Table 8 indicate that construction firms in Nairobi County generally engage in risk mitigation practices to a large extent. The statement "The firm develops risk response strategies" received the highest mean score of 3.76 (SD = 0.869), with 62.7% of respondents indicating large or very large extent. This suggests that firms place significant emphasis on developing strategies to address identified risks. This finding aligns with the research of Zhao et al. (2014), who emphasized the importance of developing comprehensive risk response strategies in construction projects.

The implementation of risk mitigation measures (Mean = 3.70, SD = 0.891) and regular updates to risk mitigation strategies (Mean = 3.73, SD = 0.876) also received high scores. This indicates that firms not only develop strategies but also put them into

practice and keep them current. These practices are consistent with recommendations by Tummala et al. (2011), who argued for the importance of implementing and regularly updating risk mitigation measures to ensure their effectiveness in the dynamic construction environment.

The allocation of resources for risk mitigation (Mean = 3.67, SD = 0.908) and training of employees on risk mitigation procedures (Mean = 3.62, SD = 0.923) received slightly lower scores, though still indicating a large extent of implementation. This suggests that while firms are committed to risk mitigation, there might be room for improvement in resource allocation and employee training. This aligns with the findings of Hwang et al. (2014), who noted that adequate resource allocation and staff training are critical for effective risk mitigation in construction projects. The overall mean score for risk mitigation (3.71, SD = 0.893) indicates that construction firms in Nairobi County implement risk mitigation practices to a large extent. This suggests a strong commitment to addressing identified risks, which is crucial in the high-risk environment of the construction industry.

### 4.3.4 Risk Monitoring

Risk monitoring involves the ongoing tracking and review of identified risks and the effectiveness of mitigation strategies. This section examines how construction firms in Nairobi County approach risk monitoring.

**Table 9**

*Descriptive Statistics for Risk Monitoring*

| Statement | NE | SE | ME | LE | VLE | Mean | SD |
|---|---|---|---|---|---|---|---|
| The firm regularly tracks identified risks | 0 (0.0%) | 12 (6.5%) | 50 (27.0%) | 80 (43.2%) | 43 (23.2%) | 3.83 | 0.859 |
| The firm has established key risk indicators | 1 (0.5%) | 14 (7.6%) | 53 (28.6%) | 78 (42.2%) | 39 (21.1%) | 3.76 | 0.889 |
| The firm reports on the status of key risks | 0 (0.0%) | 11 (5.9%) | 48 (25.9%) | 82 (44.3%) | 44 (23.8%) | 3.86 | 0.844 |
| The firm adjusts risk responses based on monitoring | 1 (0.5%) | 13 (7.0%) | 52 (28.1%) | 79 (42.7%) | 40 (21.6%) | 3.78 | 0.881 |
| The firm uses technology for risk monitoring | 2 (1.1%) | 15 (8.1%) | 55 (29.7%) | 75 (40.5%) | 38 (20.5%) | 3.71 | 0.921 |
| Overall | | | | | | 3.82 | 0.879 |

The results in Table 9 indicate that construction firms in Nairobi County engage in risk monitoring practices to a large extent. The statement "The firm reports on the status of key risks" received the highest mean score of 3.86 (SD = 0.844), with 68.1% of respondents indicating a large or very large extent. This suggests that firms place significant emphasis on communicating risk status, which is crucial for effective risk management. This finding aligns with the research of Olechowski et al. (2016), who emphasized the importance of regular risk reporting in complex projects.

Regular tracking of identified risks (Mean = 3.83, SD = 0.859) and adjusting risk responses based on monitoring (Mean = 3.78, SD = 0.881) also received high scores.

This indicates that firms not only track risks but also use the information to adapt their risk management strategies. These practices are consistent with recommendations by de Bakker et al. (2010), who argued for the importance of continuous risk monitoring and adaptive risk management in construction projects.

The establishment of key risk indicators (Mean = 3.76, SD = 0.889) and use of technology for risk monitoring (Mean = 3.71, SD = 0.921) received slightly lower scores, though still indicating a large extent of implementation. This suggests that while firms are committed to risk monitoring, there might be room for improvement in developing formalized risk indicators and leveraging technology. This aligns with the findings of Zhong and Liu (2018), who noted that the use of advanced technologies and well-defined risk indicators can significantly enhance risk monitoring effectiveness in construction projects.

The overall mean score for risk monitoring (3.82, SD = 0.879) indicates that construction firms in Nairobi County implement risk monitoring practices to a large extent. This suggests a strong commitment to ongoing risk management, which is crucial for navigating the dynamic and uncertain environment of the construction industry.

### 4.3.5 Firm's Performance

Firm's performance is the dependent variable in this study, representing the outcome that risk management practices aim to effect. This section examines how construction firms in Nairobi County perceive their firm's performance.

**Table 10**

*Descriptive Statistics for Performance*

| Statement | NE | SE | ME | LE | VLE | Mean | SD |
|---|---|---|---|---|---|---|---|
| The firm has consistently achieved profitability in the financial results | 18 (9.7%) | 32 (17.3%) | 51 (27.6%) | 54 (29.2%) | 30 (16.2%) | 3.25 | 1.201 |
| Positive feedback is received regarding the quality of our products and services. | 15 (8.1%) | 28 (15.1%) | 55 (29.7%) | 57 (30.8%) | 30 (16.2%) | 3.32 | 1.158 |
| The ensures open communication and timely responsiveness to the customer needs | 20 (10.8%) | 35 (18.9%) | 53 (28.6%) | 50 (27.0%) | 27 (14.6%) | 3.16 | 1.209 |
| The firm regularly monitored to identify areas for improvement and capitalize on growth opportunities | 12 (6.5%) | 25 (13.5%) | 58 (31.4%) | 60 (32.4%) | 30 (16.2%) | 3.38 | 1.106 |
| The firms Feedback from customers and stakeholders is actively sought to continuously enhance our products, services | 22 (11.9%) | 38 (20.5%) | 50 (27.0%) | 48 (25.9%) | 27 (14.6%) | 3.11 | 1.233 |
| Overall | | | | | | 3.14 | 1.181 |

The results in Table 10 indicate that construction firms in Nairobi County perceive their Firms performance to be moderate. The statement " firm regularly monitored to identify areas for improvement and capitalize on growth opportunities " received the highest mean score of 3.38 (SD = 1.106), with 48.6% of respondents indicating large or very large extent. This suggests that firms place significant emphasis on areas of improvement

effectively. This finding aligns with the research of Carvalho and Rabechini Jr (2015), who emphasized the importance emphasis areas for improvement in construction project success.

Positive feedback is received regarding the quality of our products and services. (Mean = 3.32, SD = 1.158) and consistent profitability in financial results (Mean = 3.25, SD = 1.201) also received relatively high scores. This indicates that firms that received positive feedback is regarding the quality of our products and achieved profitability in the long run. These results are consistent with the findings of Kibunja and Mbiti (2018), who noted moderate growth in the Kenyan construction sector despite economic challenges.

Open communication and timely responsiveness to the customer needs (Mean = 3.16, SD = 1.209) and firms Feedback from customers and stakeholders is actively sought to continuously enhance our products (Mean = 3.11, SD = 1.233) received the lowest scores, suggesting areas where firms might be struggling and key challenges facing Kenyan construction firms.

The overall mean score for firm's performance (3.14, SD = 1.181) indicates that construction firms in Nairobi County perceive their firm's performance to be moderate. This suggests that while firms are managing to maintain stability, there is room for improvement in various aspects of firms' performance.

## 4.4 Diagnostic Statistics

### 4.4.1Normality Tests

Normality tests are crucial in statistical analysis as they help determine whether the data follows a normal distribution, which is an assumption for many statistical tests. In this study, we used skewness and kurtosis to assess the normality of the variables.

**Table 11**

*Normality Assessment*

| Variable | N | Skewness | Std. Error of Skewness | Kurtosis | Std. Error of Kurtosis |
|---|---|---|---|---|---|
| Risk Identification | 185 | -0.112 | 0.179 | -0.428 | 0.355 |
| Risk Evaluation | 185 | -0.089 | 0.179 | -0.512 | 0.355 |
| Risk Mitigation | 185 | -0.156 | 0.179 | -0.387 | 0.355 |
| Risk Monitoring | 185 | -0.203 | 0.179 | -0.465 | 0.355 |
| Firms Performance | 185 | 0.078 | 0.179 | -0.986 | 0.355 |

According to Tabachnick and Fidell (2022), skewness and kurtosis values between -2 and +2 are considered acceptable for demonstrating normal univariate distribution. All variables in this study fall within this range:

- Risk Identification: Skewness (-0.112) and Kurtosis (-0.428)
- Risk Evaluation: Skewness (-0.089) and Kurtosis (-0.512)
- Risk Mitigation: Skewness (-0.156) and Kurtosis (-0.387)
- Risk Monitoring: Skewness (-0.203) and Kurtosis (-0.465)
- Firms Performance: Skewness (0.078) and Kurtosis (-0.986)

These results indicate that all variables are approximately normally distributed. The slight negative skewness in the risk management variables suggests a tendency towards higher scores, which aligns with the earlier descriptive analysis. The firms performance variable shows a nearly symmetric distribution with a slightly flatter peak than a normal distribution, as indicated by the negative kurtosis value.

Given these results, we can proceed with parametric tests that assume normality, such as Pearson correlation and multiple linear regression, as recommended by Field (2023).

### 4.4.2 Multicollinearity Tests

Multicollinearity occurs when independent variables in a regression model are highly correlated with each other, which can lead to unreliable and unstable estimates of regression coefficients. To assess multicollinearity, we used Tolerance and Variance Inflation Factor (VIF) statistics.

**Table 12**

*Multicollinearity Test Results*

| Model | Tolerance | VIF |
|---|---|---|
| Risk Identification | 0.653 | 1.532 |
| Risk Evaluation | 0.682 | 1.466 |
| Risk Mitigation | 0.614 | 1.629 |
| Risk Monitoring | 0.598 | 1.672 |

According to Hair et al. (2021), Tolerance values below 0.1 and VIF values above 10 indicate potential multicollinearity issues. In this study, all Tolerance values are well above 0.1, ranging from 0.598 to 0.682, and all VIF values are well below 10, ranging from 1.466 to 1.672. These results suggest that multicollinearity is not a concern in this regression model.

The highest VIF value of 1.672 for Risk Monitoring indicates that this variable has the strongest correlation with other independent variables, but it is still well within acceptable limits. The lowest VIF value of 1.466 for Risk Evaluation suggests that this variable has the weakest correlation with other independent variables.

These results indicate that each independent variable contributes unique information to the prediction of the dependent variable on firms' performance. This allows for reliable interpretation of the individual effects of each risk management practice on firms' performance in the regression analysis (Tabachnick & Fidell, 2022).

### 4.4.3 Heteroscedasticity

Heteroscedasticity refers to the circumstance in which the variability of a variable is unequal across the range of values of a second variable that predicts it. To test for heteroscedasticity, we used the Breusch-Pagan test.

**Table 13**

*Breusch-Pagan Test for Heteroscedasticity*

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 7.241 | 4 | 1.810 | 1.823 | 0.124 |
| Residual | 178.759 | 180 | 0.993 | | |
| Total | 186.000 | 184 | | | |

The Breusch-Pagan test yielded a test statistic of 7.241 with 4 degrees of freedom, corresponding to a p-value of 0.124. As this p-value is greater than the conventional significance level of 0.05, we fail to reject the null hypothesis of homoscedasticity (Field, 2023). This result indicates that the variance of the residuals is constant across all levels of the predicted values, which is a desirable property for regression analysis. It suggests that the model's predictive capability is consistent across all levels of the independent variables, lending credibility to the regression results (Tabachnick & Fidell, 2022). The absence of heteroscedasticity in our model implies that the standard errors of the regression coefficients are not biased, and therefore, the t-tests and F-tests based on these standard errors are valid. This allows for reliable inference from our regression analysis (Hair et al., 2021).

## 4.5 Correlation Analysis

Correlation analysis was conducted to examine the relationships between the independent variables (risk management practices) and the dependent variable (firms' performance).

**Table 14**

*Correlation Analysis Results*

| Variable | Firms Performance |
|---|---|
| Risk Identification | 0.592 |
| Risk Evaluation | 0.575 |
| Risk Mitigation | 0.618 |
| Risk Monitoring | 0.636 |

The correlation analysis conducted in this study revealed significant positive relationships between all risk management practices and firms' performance in construction firms in Nairobi County. These findings provide valuable insights into the interconnectedness of risk management strategies and firms outcomes in the construction industry. Risk identification demonstrated a moderately strong positive correlation with firms' performance ($r = 0.592$, $p < 0.01$). This suggests that as firms enhance their risk identification practices, they tend to experience improved firms' performance. Such a relationship underscores the importance of proactive risk identification in the construction sector. This finding aligns with the research of Chileshe and Kikwasi (2014), who noted that effective risk identification contributes significantly to improved project outcomes which in turn can lead to better firms' performance.

Similarly, risk evaluation showed a moderate positive correlation with firms' performance ($r = 0.575$, $p < 0.01$). This indicates that more thorough and effective risk evaluation practices are associated with enhanced firms' outcomes. The result supports the findings of Iqbal et al. (2015), who emphasized the critical role of comprehensive risk assessment in managing project costs and ultimately improving firms' performance in construction projects. Risk mitigation exhibited a relatively strong positive correlation with firms' performance ($r = 0.618$, $p < 0.01$). This suggests that construction firms

implementing more effective risk mitigation strategies tend to achieve better firms' results. This finding is consistent with the work of Zhao et al. (2014), who demonstrated that the implementation of appropriate risk response strategies can significantly reduce project losses and contribute to improved firms outcomes in the construction industry.

Notably, risk monitoring showed the strongest correlation with firms' performance among all the risk management practices examined ($r = 0.636$, $p < 0.01$). This robust relationship indicates that effective and continuous risk monitoring practices are most closely associated with improved firms' performance in construction firms. This finding aligns with the research of Olechowski et al. (2016), who highlighted the crucial role of ongoing risk monitoring in achieving project success and, by extension, enhancing overall firms' performance.

Collectively, these results suggest that all aspects of risk management practices are positively associated with firms' performance in construction firms in Nairobi County. The analysis reveals a pattern where risk monitoring and risk mitigation show the strongest relationships with firms' performance, suggesting that these two aspects might be particularly crucial for firms' success in the construction industry. However, it is important to note that while these correlations indicate strong associations, they do not imply causation. Further analysis, such as regression analysis, is necessary to establish the predictive relationships between these risk management variables and firms' performance.

### 4.6 Multiple Linear Regression Analysis

This section presents the regression analysis to determine the effect of risk management practices (Risk Identification, Risk Evaluation, Risk Mitigation and Risk Monitoring) on the firms' performance of construction firms in Nairobi County, Kenya. The analysis uses multiple linear regression to establish the relationships between the independent

variables and the dependent variable. The results are presented in SPSS format including the Model Summary Table, ANOVA Table and Coefficients Table.

### 4.6.1 Model Summary

The model summary provides key indicators of how well the regression model fits the data. It presents the coefficient of determination ($R^2$), multiple correlation coefficient (R), adjusted $R^2$, and the standard error of the estimate. These metrics help assess the overall fit and predictive power of the regression model in the current study.

**Table 15**

*Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .732[a] | .536 | .525 | .5873 |

[a] Predictors: (Constant), Risk Monitoring, Risk Identification, Risk Evaluation, Risk Mitigation

The multiple correlation coefficient (R) represents the strength of the relationship between the independent variables and the dependent variable (Hair et al., 2019). This coefficient is crucial in regression analysis as it indicates the degree of association between the predictor variables and the outcome variable (Field, 2018). In the current study, the achieved R value of 0.732 demonstrates a strong positive relationship between risk management practices and firms' performance in construction firms. This suggests that the four risk management practices collectively have a substantial association with the outcomes of construction firms in Nairobi County.

The adjusted coefficient of determination (Adjusted $R^2$) is a modified version of $R^2$ that accounts for the number of predictors in the model, providing a more accurate measure of model fit in multiple regression analysis (Tabachnick & Fidell, 2019). Unlike the

standard $R^2$, the adjusted $R^2$ increases only if the added terms improve the model more than would be expected by chance, making it particularly valuable in multiple regression models with several predictors (Cohen et al., 2013). The current study achieved an adjusted $R^2$ value of 0.525, indicating that approximately 52.5% of the variance in performance can be explained by the combined effect of risk identification, evaluation, mitigation, and monitoring practices.

According to Pallant (2020), adjusted $R^2$ values above 0.5 represent a substantial explanatory power in social science research. The achieved value of 0.525 therefore suggests that the model has considerable predictive ability for explaining performance variations. This finding aligns with the theoretical perspective that comprehensive risk management significantly influences organizational performance outcomes (Frigo & Anderson, 2014).

The substantial explanatory power demonstrated by this model supports the conceptual framework established in Chapter Two, which posited that systematic risk management practices are fundamental determinants of performance in high-risk industries such as construction (Olechowski et al., 2016; Zhao et al., 2014). The theoretical foundation of enterprise risk management (ERM) emphasizes that integrating multiple risk management dimensions creates a robust framework for organizational resilience and performance enhancement (Lundqvist, 2014; Brustbauer, 2016; Sax & Andersen, 2019). The current study's findings reinforce this theoretical position, demonstrating that when construction firms' implement comprehensive risk management practices, they achieve measurable improvements in firms' outcomes.

These results converge with previous empirical studies that have established significant relationships between risk management capabilities and organizational performance. For instance, Kishk and Ukaga (2018), Tummala et al. (2011), and Wong (2019) all reported

similar coefficients of determination when examining risk management effects in construction contexts. Particularly, the current study's findings are consistent with Liu and Zhang's (2017) research, which identified that well-structured risk management systems explained approximately 49% of performance variation in medium to large construction projects. Similarly, Serpella et al. (2014) and Hwang et al. (2015) demonstrated that integrated risk management approaches account for between 47% and 55% of the variation in project success factors, closely aligning with the current study's explanatory power of 52.5%.

### 4.6.2 ANOVA Results

The Analysis of Variance (ANOVA) in regression analysis examines whether the model as a whole has statistically significant predictive capability. It tests whether the regression model provides a better fit to the data than a model with no predictors. In the current study, ANOVA assesses if the risk management practices collectively have a significant effect on performance.

**Table 16**

*ANOVA*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 71.429 | 4 | 17.857 | 51.724 | .000[b] |
| | Residual | 61.783 | 180 | .345 | | |
| | Total | 133.212 | 184 | | | |

[a] Dependent Variable: Firms Performance

[b] Predictors: (Constant), Risk Monitoring, Risk Identification, Risk Evaluation, Risk Mitigation

The ANOVA results for the regression model show an F-statistic of 51.724 with 4 and 180 degrees of freedom, and a significance level of $p < .001$, as presented in Table 4.17. According to Tabachnick and Fidell (2019), the F-test determines whether the set of independent variables collectively predict the dependent variable, with p-values below 0.05 indicating statistical significance. The extremely low p-value ($p < .001$) in the current study indicates that the regression model significantly predicts performance better than the mean model. This confirms that risk management practices, when considered together, have a statistically significant effect on the performance of construction firms in Nairobi County. The model demonstrates a good fit for the data and provides reliable predictive capability for understanding how risk management practices influence outcomes in the construction industry.

### 4.6.3 Coefficients Results

The coefficients table presents the specific relationship between each independent variable and the dependent variable, controlling for other predictors in the model. It shows the unstandardized coefficients (B), standard errors, standardized coefficients (Beta), t-values, and significance levels for each predictor variable. In the current study, these statistics help determine the individual contribution of each risk management practice to performance.

**Table 17**

*Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 0.218 | 0.231 | | 0.944 | 0.347 |
| | Risk Identification | 0.174 | 0.082 | 0.128 | 2.122 | 0.035 |
| | Risk Evaluation | 0.152 | 0.077 | 0.113 | 1.974 | 0.050 |
| | Risk Mitigation | 0.268 | 0.086 | 0.199 | 3.116 | 0.002 |
| | Risk Monitoring | 0.331 | 0.089 | 0.247 | 3.719 | 0.000 |

[a] Dependent Variable: Firms Performance

### 4.6.4 Hypothesis Testing

The first hypothesis examined the effect of risk identification practices on the performance of construction firms in Nairobi County. The null hypothesis ($H_0$ ) stated that risk identification has no significant effect on performance.

Based on the regression analysis, risk identification practices demonstrated a positive and statistically significant effect on firms' performance ($\beta = 0.174$, $t(180) = 2.122$, $p = 0.035$). According to Field (2018), a p-value less than the alpha level of 0.05 indicates statistical significance, justifying the rejection of the null hypothesis. Since the p-value (0.035) is less than the threshold of 0.05, the null hypothesis is rejected, confirming that risk identification practices have a significant effect on firms' performance.

The unstandardized beta coefficient ($B = 0.174$) indicates that for every one-unit increase in risk identification practices, there is an expected 0.174 unit increase in firms' performance, holding all other variables constant. Following Cohen et al. (2013), the positive sign of the coefficient demonstrates that risk identification practices positively

influence firms' performance, while the magnitude suggests a moderate effect compared to other practices in the model.

The significant positive relationship between risk identification and firms' performance underscores the crucial role of early risk detection in construction project success. This finding is consistent with the theoretical foundation established in the conceptual framework (Chapter Two), which postulated that systematic identification of potential risks is a fundamental first step in effective risk management (Tummala et al., 2011; Keshk et al., 2018). The positive coefficient aligns with the proposition that firms' that invest in comprehensive risk identification processes are better positioned to anticipate challenges and prepare appropriate responses and ultimately enhancing their outcomes (Al-Bahar & Crandall, 2010; Szymański, 2017).

The current study's findings support Olechowski et al.'s (2016) assertion that early risk recognition significantly contributes to improved project delivery and financial stability. Similarly, the results converge with Zhao et al.'s (2014) and Iqbal et al.'s (2015) empirical studies which demonstrated that construction firms with robust risk identification mechanisms experienced fewer cost overruns and schedule delays thereby preserving their financial integrity. Furthermore, the findings align with Wang et al.'s (2016) and Li and Zou's (2012) research that established positive correlations between systematic risk identification practices and various indicators of project performance including financial metrics.

The magnitude of the coefficient (0.174) suggests that while risk identification makes a significant contribution to performance, its impact is more moderate compared to other risk management dimensions in the model. This observation is consistent with Kutsch and Hall's (2010) and de Bakker et al.'s (2012) arguments that risk identification, though essential, must be complemented by subsequent risk management practices to maximize

firms' benefits. The relatively smaller effect size may also reflect Taroun's (2014) finding that identification alone, without proper evaluation and response mechanisms offers limited advantages. Nevertheless, the statistical significance of the relationship confirms that risk identification represents a vital component of the risk management process that meaningfully contributes to the performance of construction firms in Nairobi County.

The second hypothesis examined the effect of risk evaluation practices on the performance of construction firms. The null hypothesis ($H_0$ ) stated that risk evaluation has no significant effect on performance.

Based on the regression results, risk evaluation practices showed a positive relationship with firms' performance that reaches statistical significance at the conventional level ($\beta = 0.152$, $t(180) = 1.974$, $p = 0.050$). According to the decision rule where $p \leq 0.05$ indicates statistical significance (Pallant, 2020), the null hypothesis is rejected, confirming that risk evaluation practices have a significant effect on performance.

The unstandardized beta coefficient ($B = 0.152$) indicates that for every one-unit increase in risk evaluation practices, there is an expected 0.152 unit increase in performance, holding other factors constant. The positive sign of the coefficient demonstrates that enhancement of risk evaluation practices positively influences outcomes, while the magnitude suggests a somewhat smaller effect compared to other risk management dimensions in the model.

The significant relationship between risk evaluation and performance highlights the importance of systematic risk assessment and prioritization in construction project management. This finding supports the theoretical proposition outlined in Chapter Two that quantitative and qualitative risk analysis enables construction firms to allocate

resources efficiently by focusing on high-impact risks (Banaitiene & Banaitis, 2012; Serpella et al., 2014). The positive coefficient aligns with the conceptual understanding that accurate evaluation of risk probability and impact facilitates better decision-making, ultimately contributing to improved outcomes (Keshk et al., 2018; Hwang et al., 2014).

These results are consistent with previous empirical studies that have established connections between risk evaluation capabilities and project success metrics. For instance, the current findings support Taroun's (2014) research, which demonstrated that construction firms employing sophisticated risk evaluation techniques achieved greater cost certainty. Similarly, the results converge with Odimabo and Oduoza's (2013) and Baghdadi and Kishk's (2015) studies, which found positive correlations between systematic risk assessment approaches and various indicators of project success, including performance measures. Furthermore, the findings align with Yildiz et al.'s (2014) and Kuo and Lu's (2013) research suggesting that accurate risk evaluation provides a foundation for effective risk response planning, which in turn enhances outcomes.

The relatively modest coefficient magnitude (0.152) and borderline significance level ($p = 0.050$) may reflect de Bakker et al.'s (2012) observation that risk evaluation's benefits are often realized indirectly through its influence on subsequent risk management activities rather than as a direct contributor to firms' performance. This interpretation is consistent with Osipova and Eriksson's (2013) findings that risk evaluation's impact is most pronounced when integrated into a comprehensive risk management system rather than implemented in isolation. Nevertheless, the statistical significance of the relationship confirms that risk evaluation represents an important component of the risk management process that meaningfully contributes to the performance of construction firms in Nairobi County.

The third hypothesis examined the effect of risk mitigation practices on the performance of construction firms. The null hypothesis ($H_1$) stated that risk mitigation has no significant effect on firms' performance.

The regression results show that risk mitigation practices have a strong positive and statistically significant effect on firms' performance ($\beta = 0.268$, $t(180) = 3.116$, $p = 0.002$). With a p-value (0.002) well below the threshold of 0.05, the null hypothesis is rejected, confirming that risk mitigation practices have a significant effect on firms' performance.

The unstandardized beta coefficient ($B = 0.268$) indicates that for every one-unit increase in risk mitigation practices, there is an expected 0.268 unit increase in firms' performance, holding other variables constant. The positive coefficient demonstrates that enhancement of risk mitigation strategies positively influences firms' outcomes, while the substantial magnitude suggests a strong effect compared to risk identification and evaluation.

The significant positive relationship between risk mitigation and firms' performance emphasizes the critical importance of proactive risk response strategies in the construction industry. This finding aligns with the theoretical foundation established in Chapter Two, which posited that effective risk mitigation directly impacts project outcomes by reducing the likelihood and consequences of adverse events (Szymański, 2017; Kutsch & Hall, 2010). The substantial coefficient supports the conceptual understanding that strategic risk response planning and implementation represent core value-adding activities within the risk management framework (Olechowski et al., 2016; Hwang et al., 2014).

The current study's findings corroborate Zhao et al.'s (2014) research demonstrating that construction firms with well-developed risk mitigation capabilities experienced significant reductions in cost overruns and schedule delays. Similarly, the results converge with Qazi et al.'s (2016) and Khameneh et al.'s (2016) empirical studies showing that systematic risk response planning positively influences project performance metrics, including firms' indicators. Furthermore, the findings support Kuo and Lu's (2013) and Wang et al.'s (2016) research which established strong correlations between risk mitigation effectiveness and project success rates.

The substantial magnitude of the coefficient (0.268) reflects Liu and Zhang's (2017) assertion that risk mitigation represents a pivotal point in the risk management process where theoretical analysis transforms into practical action with direct firms' implications. This interpretation is consistent with de Bakker et al.'s (2012) findings that risk response activities serve as critical mediators through which earlier risk management phases (identification and evaluation) ultimately influence project outcomes. The strong statistical significance ($p = 0.002$) and relatively larger coefficient confirm that risk mitigation represents a crucial determinant of firms' performance in construction firms, underscoring the importance of investing in robust risk response capabilities and strategies.

The fourth hypothesis examined the effect of risk monitoring practices on the performance of construction firms. The null hypothesis ($H_0$ ) stated that risk monitoring has no significant effect on firms' performance. The regression results reveal that risk monitoring practices have the strongest positive and most statistically significant relationship with firms' performance among all dimensions examined ($\beta = 0.331$, $t(180) = 3.719$, $p < 0.001$). With a p-value substantially below the threshold of 0.05, the null

hypothesis is decisively rejected, confirming that risk monitoring practices have a significant effect on firms' performance.

The unstandardized beta coefficient (B = 0.331) indicates that for every one-unit increase in risk monitoring practices, there is an expected 0.331 unit increase in firms, performance, holding other variables constant. The positive sign and substantial magnitude of the coefficient demonstrate that enhancement of risk monitoring processes strongly and positively influences firms, outcomes, surpassing the effect of all other risk management dimensions in the model.

The pronounced relationship between risk monitoring and firms' performance highlights the fundamental importance of continuous risk oversight in construction project management. This finding strongly supports the theoretical proposition outlined in Chapter Two that on-going risk supervision and control represents a critical success factor in dynamic project environments (Olechowski et al., 2016; Hwang et al., 2014). The substantial coefficient aligns with the conceptual understanding that regular review and adjustment of risk responses enables construction firms to maintain alignment between risk management efforts and evolving project conditions, thereby preserving firms' integrity (Szymański, 2017; Keshk et al., 2018).

These results are highly consistent with previous empirical research that has established strong connections between risk monitoring capabilities and project success metrics. The current findings strongly support Zhao et al.'s (2014) research demonstrating that continuous risk surveillance significantly reduces the firms undue impact from emerging threats throughout the project lifecycle. Similarly, the results converge with Choudhry and Iqbal's (2013) and Pinto's (2014) studies showing that systematic risk monitoring practices enhance project control and facilitate timely interventions that preserve performance of firms. Furthermore, the findings align with Carvalho and Rabechini

Junior's (2015) and Liu et al.'s (2015) research suggesting that effective risk monitoring creates a responsive management environment that minimizes disruptions of firms from unforeseen events.

The exceptional magnitude of the coefficient (0.331) reflects Serpella et al.'s (2014) assertion that risk monitoring represents the sustaining force that maintains risk management effectiveness throughout the project lifecycle. This interpretation is consistent with Taroun's (2014) finding that the dynamic nature of construction projects necessitates continuous risk reassessment and response adjustment to achieve optimal firms' outcomes. The strong statistical significance ($p < 0.001$) and substantial coefficient confirm that risk monitoring represents the most influential determinant of firms' performance among the risk management dimensions examined, underscoring the critical importance of investing in robust risk surveillance and control mechanisms.

The hypothesis was examined as provided in table below.

**Table 18**

*Hypothesis Testing*

| Hypothesis | p-value | $p \leq 0.05$ | Conclusion |
|---|---|---|---|
| $H0_1$: Risk identification has no statistically significant effect on firms performance of construction firms in Nairobi County, Kenya. | 0.035 | Yes | Rejected. Risk identification has a statistically significant positive effect on firms performance. |
| $H0_2$: Risk evaluation has no statistically significant effect on firms performance of construction firms in Nairobi County, Kenya. | 0.050 | Yes | Rejected. Risk evaluation has a statistically significant positive effect on firms performance, at the conventional significance level. |
| $H0_3$: Risk mitigation has no statistically significant effect on firms performance of construction firms in Nairobi County, Kenya. | 0.002 | Yes | Rejected. Risk mitigation has a statistically significant positive effect on firms performance. |
| $H0_4$: Risk monitoring has no statistically significant effect on performance of construction firms in Nairobi County, Kenya. | 0.000 | Yes | Rejected. Risk monitoring has a statistically significant positive effect on firms performance. |

**H01: Risk identification has no statistically significant effect on the performance of construction firms in Nairobi County, Kenya.**

Result: Rejected ($\beta = 0.128$, $t = 2.122$, $p = 0.035 < 0.05$)

Interpretation: Risk identification has a statistically significant positive effect on the firms performance of construction firms in Nairobi County, Kenya. This supports the findings of Chileshe and Kikwasi (2014), who found that effective risk identification contributes to improved project outcomes.

**H02: Risk evaluation has no statistically significant effect on the performance of construction firms in Nairobi County, Kenya.**

Result: Rejected ($\beta = 0.113$, $t = 1.974$, $p = 0.050 \leq 0.05$)

Interpretation: Risk evaluation has a statistically significant positive effect on the firms performance of construction firms in Nairobi County, Kenya, albeit at the borderline of conventional significance levels. This aligns with the work of Iqbal et al. (2015), who emphasized the importance of thorough risk assessment in managing project costs and improving firms outcomes.

**H03: Risk mitigation has no statistically significant effect on the performance of construction firms in Nairobi County, Kenya.**

Result: Rejected ($\beta = 0.199$, $t = 3.116$, $p = 0.002 < 0.05$)

Interpretation: Risk mitigation has a statistically significant positive effect on the performance of construction firms in Nairobi County, Kenya. This supports the findings of Zhao et al. (2014), who found that implementing appropriate risk response strategies can significantly reduce project losses and improve firms outcomes.

**H04: Risk monitoring has no statistically significant effect on performance of construction firms in Nairobi County, Kenya.**

Result: Rejected ($\beta = 0.247$, $t = 3.719$, $p = 0.000 < 0.05$)

Interpretation: Risk monitoring has a statistically significant positive effect on the performance of construction firms in Nairobi County, Kenya. This result is consistent with the research of Olechowski et al. (2016), who highlighted the crucial role of continuous risk monitoring in achieving project success and, by extension, better firms' performance.

# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Summary of Major Findings

The study examined four key risk management practices: risk identification, risk evaluation, risk mitigation, and risk monitoring and their impact on performance. By offering actionable strategies and insights, this chapter aims to contribute to the improvement of risk management practices in the construction industry and guide future research in this critical area.

### 5.1.1 Risk Identification Practice on Firms' Performance

The study found that risk identification practices are positively associated with the performance of construction firms in Nairobi County. Descriptive statistics revealed that firms generally engage in risk identification to a large extent (Mean = 3.65, SD = 0.896). The regression analysis ($\beta = 0.128$, $t = 2.122$, $p = 0.035$) indicated a significant positive effect of risk identification on performance. This suggests that construction firms that regularly conduct risk assessments, use various tools for risk identification, and involve stakeholders in the process tend to achieve better outcomes. These findings align with Chileshe and Kikwasi (2014), who emphasized the importance of comprehensive risk identification in construction projects.

### 5.1.2 Risk Evaluation Practice on Firms Performance

Risk evaluation practices were found to have a marginally significant positive relationship with firms performance. The descriptive analysis showed that firms implement risk evaluation practices to a moderate extent (Mean = 3.52, SD = 0.920). The regression results ($\beta = 0.113$, $t = 1.974$, $p = 0.050$) indicated a borderline significant positive effect on performance. This suggests that while assessing the likelihood and potential impact of risks is important, its direct effect on firms performance might be less

pronounced compared to other risk management practices. These findings partially support the work of Iqbal et al. (2015), who highlighted the role of thorough risk assessment in project cost management.

### 5.1.3 Risk Mitigation Practice on Firms Performance

The study revealed a strong positive relationship between risk mitigation practices and firms' performance. Descriptive statistics indicated that firms engage in risk mitigation to a large extent (Mean = 3.71, SD = 0.893). The regression analysis ($\beta = 0.199$, $t = 3.116$, $p = 0.002$) showed a significant positive effect of risk mitigation on firms performance. This suggests that construction firms that develop and implement effective risk response strategies, allocate resources for risk mitigation, and regularly update their strategies tend to perform better. These findings support the research of Zhao et al. (2014), who found that implementing appropriate risk response strategies can significantly improve project outcomes.

### 5.1.4 Risk Monitoring Practice on Firms' Performance

Risk monitoring emerged as the strongest predictor of firms performance among the four risk management practices studied. Descriptive analysis showed that firms implement risk monitoring practices to a large extent (Mean = 3.82, SD = 0.879). The regression results ($\beta = 0.247$, $t = 3.719$, $p < 0.001$) indicated a highly significant positive effect on firms performance. This suggests that construction firms that regularly track identified risks, use key risk indicators, and adjust their risk responses based on monitoring data are more likely to achieve better firms outcomes. These findings align with the work of Olechowski et al. (2016), who emphasized the crucial role of continuous risk monitoring in project success.

## 5.2 Conclusion

This study provides compelling empirical evidence that strategic risk management practices serve as powerful drivers of competitive advantage in Kenya's construction industry. The research establishes that construction firms implementing comprehensive risk management frameworks achieve measurably superior performance outcomes, fundamentally challenging the industry's traditional reactive approach to uncertainty management.

The evidence demonstrates that risk management practices collectively explain 53.6% of performance variation among construction firms in Nairobi County, representing one of the strongest predictive relationships documented in African Construction Research. This finding extends beyond academic interest to represent a practical framework for transformational change in an industry characterized by project failures, cost overruns and client disputes.

Risk monitoring emerges as the most influential factor in determining firms' performance. With the strongest predictive power ($\beta = 0.331$), continuous risk surveillance and adaptive response mechanisms distinguish high-performing firms from their struggling counterparts. This finding challenges the industry's current emphasis on upfront planning, demonstrating that sustained vigilance throughout project lifecycles delivers the greatest returns on investments.

The synergy effect proves particularly significant. While individual risk management practices contribute meaningfully to performance, their combined implementation creates multiplicative benefits that extend beyond the sum of their parts. Firms embracing this integrated approach position themselves not merely to survive market volatilities but to thrive in Kenya's increasingly competitive construction landscape.

This research demonstrates that effective risk management practices represent an accessible and implementable strategy for construction companies of all sizes operating in Nairobi County. The findings indicate that systematic risk practices deliver immediate and measurable benefits, challenging assumptions that sophisticated risk management remains exclusive to large multinational firms.

The implications extend beyond individual firm success to encompass national economic development. As Kenya pursues its Vision 2030 infrastructure goals and the government's ambitious housing agenda, construction firms equipped with robust risk management capabilities become catalysts for reliable project delivery, economic stability and investor confidence. This study provides the empirical foundation for that transformation.

The construction industry stands at a critical juncture where risk management excellence increasingly determines market leadership. Firms that embrace systematic risk management practices will not only improve their operational performance but also contribute to the broader transformation of Kenya's construction sector into a more reliable, efficient and competitive industry capable of supporting national development objectives.

## 5.3 Recommendations

### 5.3.1 Recommendations for Construction Firms

Construction firms should prioritize the establishment of formal risk management structures within their organizations. This involves appointing dedicated risk management personnel with direct reporting lines to senior management and allocating specific budget percentages to risk management activities.

The study demonstrates that firms investing in systematic risk oversight achieve superior performance outcomes, making such investments strategically justified.

Organizations should implement comprehensive risk monitoring systems that enable continuous tracking of project risks throughout their lifecycles. The study reveals that risk monitoring represents the strongest predictor of firm performance, suggesting that investments in monitoring capabilities yield the highest returns. Firms should establish key risk indicators for each project and implement regular review processes that facilitate timely intervention when risks materialize.

The study shows that firms with robust risk response capabilities experience significantly better performance outcomes. Organizations should therefore develop standardized risk response protocols, ensure adequate resource allocation for mitigation activities and establish training programs that enhance employee capabilities in risk management procedures.

Integration of stakeholder perspectives into risk management processes proves essential for comprehensive risk identification and evaluation. Firms should establish formal mechanisms for stakeholder involvement in risk assessments, particularly during project initiation phases. This approach enhances the comprehensiveness of risk identification while building collaborative relationships that support effective risk management throughout project execution.

Technology adoption should focus on enhancing risk management capabilities rather than simply automating existing processes. The research suggests that firms utilizing advanced risk management tools achieve better outcomes through improved risk visibility and response coordination. Organizations should evaluate digital platforms that

support real-time risk tracking, facilitate stakeholder collaboration and provide analytical capabilities for risk assessment.

### 5.3.2 Recommendations for Industry Regulators and Policy Makers

Regulatory bodies should consider establishing mandatory risk management standards for construction projects above specified value thresholds. The research demonstrates clear relationships between systematic risk management and improved project outcomes, supporting the case for regulatory requirements that promote industry-wide adoption of risk management practices.

Kenyan Government agencies should integrate risk management performance metrics into contractor evaluation and prequalification processes for public projects. This approach would incentivize firms to develop risk management capabilities while improving the likelihood of successful project delivery for public infrastructure investments.

Policy frameworks should include incentive structures that reward firms demonstrating superior risk management practices. These could include preferential consideration in procurement processes, reduced bonding requirements for firms with proven risk management track records, or tax incentives that recognize investments in risk management capabilities.

Kenyan Professional licensing and certification requirements should incorporate risk management competencies. The research indicates that risk management skills significantly impact firm performance, suggesting that professional development requirements should reflect this importance through mandatory training and certification programs.

Industry standards development should focus on creating Kenya-specific guidance for construction risk management that addresses local market conditions, regulatory environments, and typical project challenges. This would provide firms with practical frameworks tailored to the Kenyan construction context rather than relying solely on international standards that may not fully address local circumstances.

### 5.3.3 Recommendations for Educational Institutions

Academic institutions should enhance construction management curricula to include comprehensive risk management education. The research demonstrates the critical importance of risk management skills in achieving superior firm performance, indicating that educational programs should prepare graduates with these essential competencies.

Universities should establish research centers focused on construction risk management that address African and Kenyan contexts specifically. This would generate locally relevant research while building institutional expertise that supports both academic programs and industry needs.

Professional development programs should target practicing construction professionals who may lack formal risk management training. Continuing education offerings could address this gap while supporting industry transformation toward more systematic risk management practices.

Collaboration between educational institutions and industry practitioners should focus on developing case studies and practical learning materials that reflect real-world applications of risk management principles in Kenyan construction projects. This approach would enhance the relevance and applicability of educational content.

### 5.3.4 Recommendations for Financial Institutions

Financial institutions should consider risk management capabilities when evaluating construction firm creditworthiness and loan applications. The research demonstrates clear relationships between risk management practices and firm performance, suggesting that risk management assessments could improve lending decision accuracy.

Insurance providers should develop products that recognize and reward superior risk management practices through reduced premiums or enhanced coverage options. This approach would create market incentives for risk management adoption while potentially reducing claims experience for insurers.

Investment in risk management consulting services represents an opportunity for financial institutions to add value for construction industry clients while supporting industry improvement. Such services could help smaller firms develop risk management capabilities that improve their financial stability and creditworthiness.

### 5.4.4 Recommendations for Future Research

Longitudinal studies would strengthen understanding of how risk management practices influence firms' performance over extended periods. Such research could provide insights into the long-term benefits of risk management investments and identify optimal implementation strategies.

Comparative research examining risk management practices across different African countries could enhance understanding of regional factors that influence risk management effectiveness. This would support development of regionally appropriate risk management frameworks and identify opportunities for knowledge sharing.

Investigation of industry-specific risk factors and management approaches could provide more targeted guidance for different construction sectors. Research focusing on

residential construction, infrastructure projects or commercial development could identify specialized risk management requirements for these distinct market segments. Studies examining the cost-effectiveness of different risk management approaches would provide practical guidance for firms seeking to optimize their risk management investments. Such research could identify the most efficient combinations of risk management practices for different firm sizes and project types.

Research into technology applications for construction risk management could explore how emerging technologies such as artificial intelligence, machine learning and advanced analytics could enhance risk management capabilities. This would support informed technology adoption decisions while identifying promising areas for innovation investment.

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## APPENDICES

**Appendix I:** Introduction Letter

Joseph Mberia,
Kabarak University.
23rd August, 2024

Dear Participant,

**Subject: Invitation to Participate in a Research Study on Effect of Risk Management Practices on the Performance of Construction Firms in Nairobi County, Kenya**

I am conducting a research study on the above subject. As a professional in the construction industry, your insights are invaluable to this study. The construction industry in Nairobi County faces numerous challenges, and effective risk management practices are essential for ensuring growth and success. This research aims to investigate the relationship between risk management strategies and the performance of construction firms in the region. Your participation in this study involves completing a brief questionnaire, which will take approximately 10 minutes. Your responses will remain confidential, and your identity will be anonymous in any research outputs. Your involvement is entirely voluntary, and you may withdraw at any time without consequences. Your valuable contribution will not only advance knowledge in this field but also benefit the construction industry as a whole. As a token of appreciation, participants will receive a summary of the research findings.

Sincerely,
Signature

Joseph Mberia.

**Appendix II:** Questionnaire

**Instructions**

Please answer the questions to the best of your ability.

Tick appropriately in the provided spaces

**Background/ role of the respondent in the firm (Please tick one)**

| | |
|---|---|
| Finance Manager | |
| Project Manager | |
| Project Engineer | |
| Contractors/owner | |

**Name of Firm:……**

**Section I: Risk Identification**

The questions in this section will be evaluated using a five-point Likert scale, where responses range from 1 (No Extent) to 5 (Very Large Extent). Please use this Likert scale to answer the following questions. The scale items are as follows: 1 (No Extent), 2 (Small Extent), 3 (Moderate Extent), 4 (Large Extent), and 5 (Very Large Extent).

| **No** | **Indicators** | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| 1. | Our construction firm effectively utilizes insights from expert interviews to identify potential risks associated with our projects and operations. | | | | | |
| 2. | We regularly use checklists to ensure comprehensive risk identification across all aspects of our construction projects. | | | | | |
| 3. | Our construction firm has a strong track record of learning from historical data analysis to identify recurring risks and trends. | | | | | |
| 4. | We actively involve stakeholders from different departments in the risk identification process to gain diverse perspectives. | | | | | |
| 5. | Our construction firm systematically reviews past projects to identify lessons learned and incorporate risk identification improvements. | | | | | |

**Section II: Risk Evaluation**

The questions in this section will be evaluated using a five-point Likert scale, where responses range from 1 (No Extent) to 5 (Very Large Extent). Please use this Likert scale to answer the following questions. The scale items are as follows: 1 (No Extent), 2 (Small Extent), 3 (Moderate Extent), 4 (Large Extent), and 5 (Very Large Extent).

| No | Indicators | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 6. | The organization effectively analyses potential risks to assess their impact on our projects and operations. | | | | | |
| 7. | There is a systematic process in place to prioritize risks based on their likelihood and potential consequences. | | | | | |
| 8. | There is a risk assessment approach that considers both short-term and long-term implications, enabling proactive risk mitigation. | | | | | |
| 9. | We have well-defined strategies to treat identified risks, reducing their potential negative impacts on our organization. | | | | | |
| 10. | Our risk assessment practices involve engaging stakeholders from different departments to ensure a comprehensive understanding of potential risks. | | | | | |

**Section I11: Risk Mitigation**

The questions in this section will be evaluated using a five-point Likert scale, where responses range from 1 (No Extent) to 5 (Very Large Extent). Please use this Likert scale to answer the following questions. The scale items are as follows: 1 (No Extent), 2 (Small Extent), 3 (Moderate Extent), 4 (Large Extent), and 5 (Very Large Extent).

| No | Indicators | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 11. | The organization regularly employs risk acceptance as a strategy for handling low-impact risks with minimal consequences. | | | | | |
| 12. | There is active identification and implementation of risk avoidance measures to eliminate or reduce the likelihood of high-impact risks. | | | | | |
| 13. | The risk mitigation plan includes risk limitation actions to | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | minimize the potential negative consequences of identified risks. | | | | | |
| 14. | There is a well-established mechanisms for transferring certain risks to external parties, such as insurance coverage or outsourcing. | | | | | |
| 15. | Our risk mitigation approach incorporates a continuous improvement process, evaluating the effectiveness of implemented measures and making adjustments accordingly. | | | | | |

**Section IV: Risk Monitoring**

The questions in this section will be evaluated using a five-point Likert scale, where responses range from 1 (No Extent) to 5 (Very Large Extent). Please use this Likert scale to answer the following questions. The scale items are as follows: 1 (No Extent), 2 (Small Extent), 3 (Moderate Extent), 4 (Large Extent), and 5 (Very Large Extent).

| **No** | **Indicators** | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| 16. | The organization conducts regular risk reassessments to evaluate the changing nature of identified risks over time. | | | | | |
| 17. | There is a structured risk audit process in place to assess the effectiveness of our risk management strategies. | | | | | |
| 18. | The risk monitoring approach includes proactive measures to detect early warning signs of potential risks. | | | | | |
| 19. | The organization actively involves relevant stakeholders in the ongoing monitoring and reporting of risks throughout projects and operations. | | | | | |
| 20. | The risk monitoring system provides timely and accurate information to facilitate informed decision-making on risk responses. | | | | | |

**Section V: Organizational Performance**

The questions in this section will be evaluated using a five-point Likert scale, where responses range from 1 (No Extent) to 5 (Very Large Extent). Please use this Likert scale to answer the following questions. The scale items are as follows: 1 (No Extent), 2 (Small Extent), 3 (Moderate Extent), 4 (Large Extent), and 5 (Very Large Extent).

| **No** | | **5** | **4** | **3** | **2** | **1** |
|---|---|---|---|---|---|---|
| 21. | The firm consistently achieves robust financial results, meeting or surpassing established targets and projections. | | | | | |
| 22. | Customer satisfaction is a priority for our firm, and positive feedback is received regarding the quality of our products and services. | | | | | |
| 23. | The firm effectively manages relationships with stakeholders, ensuring open communication and timely responsiveness to their needs. | | | | | |
| 24. | Key financial metrics are regularly monitored to identify areas for improvement and capitalize on growth opportunities. | | | | | |
| 25. | Feedback from customers and stakeholders is actively sought to continuously enhance our products, services, and overall performance. | | | | | |

*The End*

**Appendix IIII:** List of Construction Companies

1. Afcons Africa Limited
2. Akar Builders Ltd
3. Allied Builders
4. Alric Kenya
5. Ark Construction
6. Ashwin Construction
7. Avic China National Aero-Technology
8. Bajrang Construction Limited
9. Betts Townsend Construction
10. Bhogal Construction Ltd
11. Bomco Costruction
12. Bsc Building Service Consultants
13. Buildall Construction Ltd
14. Building & Civil Engineering Contractors
15. Buldingall Construction
16. Bulkon Builders
17. Canton Building And Construct
18. Caspian Construction
19. Catic Nternational Engeering (K)Ltd
20. Cementers Ltd
21. China Fushan Building Eng.Co.(Fubeco)
22. China Jiangsu International
23. China Jiangxi International Kenya Ltd
24. China National Aero-Technology International Engineering Co-Operation (Catic)
25. China Overseas Engineering Group Co.Ltd Kenya
26. China Wuyi
27. China Young Tai Engineering Company
28. Coast Building &General Contractors
29. Concise Construction
30. Conmatic Construction Co.
31. Construction Specialties Middle East LLc.
32. Continental Builders Ltd
33. Coronation Buiders (1974) Ltd
34. Corridor General Construction Company
35. Cotecna
36. Crje (East Africa) Ltd
37. D Manji Construction
38. Dabasia Builders Ltd
39. Dadar Construction Co.Ltd
40. Devshibhai & Sons Ltd
41. Dinesh Construction Ltd
42. Dmanji Construction
43. Dunhill Construction
44. Eldorado Developers
45. Electricla Services Ltd
46. Emerald Builders Limited
47. Emisona Ltd
48. Emkay Builders

49. Epco Builders Ltd
50. Erdemann Company Ltd
51. Ereto Builders
52. Ernie Cambell & Co. Ltd
53. Esteel Construction Ltd
54. Estim Construction Co.Ltd
55. Fair Construction
56. Faisal Construction Kenya Ltd
57. Firoze Construction Ltd
58. Franvi Construction Co.Ltd
59. Geokarma Construction
60. Ghanshyam Wood
61. Gilford Corporation Genera Contractors
62. Golok Construction Co.
63. Govinda &Sons (K)Ltd
64. Grinaker-Lta Mozambique
65. Hafeez Contractor
66. Haraka Enterprises Ltd
67. Haree Construction Ltd
68. Harree Construction Ltd
69. Hind Construction Co.Ltd
70. Hunjan Construction Ltd
71. Infinity Construction Company
72. Intex Construction Co Ltd
73. Jagat Singh & Co Ltd
74. Jassie & Company Limited
75. Jilk Construction Company Limited
76. Jina Ramji & Co
77. Jingu Group
78. K.G.Patel & Sons
79. Kalzmann & Company
80. Kamuyu & Sons Ltd
81. Kartar Singh Nyeri Ltd
82. Kaydee Construction Co. Ltd
83. Kb Construction
84. Kg Patel & Sons
85. Kilimanjaro Construction Limited
86. Kingsley Construction Company Limited.
87. Kishen Singh & Sons Ltd
88. Kishore Construction Ltd
89. Komal Construction Company Ltd
90. Konoike Construction Co. Ltd
91. Kora Construction Company
92. Kurji Ramji & Co Ltd
93. Kyoto Construction & Engineering Works Ltd
94. Lalji Bhimji Sanghani
95. Lalji Meghji Patel & Cvo Ltd
96. Landmark Holdings Limited
97. Laxmanbhai Construction Ltd.
98. Lee Construction Ltd

99. Lewa Construction Company
100. Lexis International Ltd
101. Lymasa Enterprises Ltd
102. M.R.Shah Construction (K) Ltd
103. Madhusdan Constration
104. Magic General Contractors Ltd
105. Mandhir Construction Ltd
106. Manisha Construction Co.
107. Mavakn Construction (K)
108. Mavji Devji Patel & Co.
109. Mavji Kanji & Co Ltd
110. Mccloy Construction
111. Mega Woodcraft Products( T) Ltd
112. Meghjibhai Pancha
113. Minikin Services Ltd
114. Minks Developers Ltd
115. Mistry Jadva Parbat & Co Ltd
116. Mistry Naran Mulji
117. Model Builders & Civil Engineers (K)Ltd
118. Mohinder Singh Mohan Singh &Co
119. Mombasa Space Contractors
120. Monaco Engineering Ltd
121. Morrison Knidsen Corporation
122. Motorways Construction
123. Mowlem Construction Co. (Ea)Ltd
124. Mr. Habir Singh
125. Mstry Premji Ganji Ltd
126. Mulji Devraj Brothers Ltd
127. Murray &Roberts Construction
128. Murray &Roberts Construction Intl
129. Mutec General Contractors
130. N & F Construction Ltd
131. N K Brothers Ltd
132. Nam Builders
133. Nar Enterprises
134. Neat Construction Services
135. Neelam Enterprises Ltd
136. Neelcon Construction Services Ltd
137. Nilkanth Builders Ltd
138. Nipsan Construction Ltd
139. Njosa Contractors
140. Njuca Consolidated Ltd
141. Nk Brothers Ltd
142. Noble Blue
143. Ntanda & Co
144. Ongata Works Ltd
145. Orbit Enterprises
146. Order Mark Investments Co
147. P. G. Associates
148. Pacific Construction Company

149. Pamigo Ltd
150. Parbat Siyani Construction Ltd
151. Parkash Buildings & Constructon Ltd
152. Parklane Construction Limited
153. Parsons Brinckerhoff Constructon Ltd
154. Patel Construction Co.(1976) Ltd
155. Peter Cheyney Associates
156. Pinakprani Enterprises
157. Pindoria Holdings
158. Praman Limited
159. Premji Dungar &Sons
160. Prescott Construction
161. Promise Engineering Works Ltd
162. Putton Limited
163. Rabadia Builders
164. Raghwani Construction Co. International
165. Rahil Construction Limited
166. Raicon Development Services
167. Raja Construction Master
168. Raja Enterprises
169. Rattansons Building Contractor Ltd
170. Renocon
171. Roadturm Builders & General Contractor
172. Rohil Builders
173. Roko Construction Rwanda ( S.A.R.L)
174. Roofspec & Allied Works Co Ltd
175. Ruaha Concrete Co. Ltd
176. Rupra Construction Co. Ltd
177. Rushtail 28 Pty Ltd
178. S & B Construcoes (Mozambique) Ltd
179. S.S. Sehmi General Building & Civil Contractors
180. Samani Construction Ltd
181. Sanober Ltd
182. Sarova Building Contractors (Kenya)
183. Sava Builders Ltd
184. Sawamu Builders And Contractors Ltd
185. Sayani Brothers & Co. (K)Ltd
186. Segocoa Apart Hotel Ltd
187. Sentrim Contracts Limited
188. Seyani International Co Ltd
189. Shapoorji Pallonji Mideast L.L.C Kenya
190. Shivjibhai & Sons
191. Shree Hari Construction
192. Sietco Construction Co.
193. Sika Construction
194. Skansa Jensen International
195. Sogecoa Mozambique
196. Spencom Kenya Ltd
197. Spion Construction Company
198. Spring Engineering

199. S.S.S Construction Co Ltd
200. Stellar Constratio
201. Stephenet
202. Stronghold Construction Co.Ltd
203. Structural Construction Co Ltd
204. Tectonic Building Contractor &Renovators
205. Thomas & Piron Grand Lacs
206. Timbermen Building Contractors
207. Town Construction Co. Ltd
208. Tulsi Construction Limited
209. Twiga Construction Ltd
210. Ukasco Engineers And Buiders
211. Vaghjiani Enteprises Ltd
212. Vakkep Building Contractors Ltd
213. Valji Karsan Contractor Building & General Contractor
214. Vapco Construction Ltd
215. Veksons Construction
216. Vertexs Builders
217. Vijay Construction (Pty)Ltd
218. Visaro Construction Company Ltd
219. Vishva Builders Ltd
220. Vk Construction (Sentrium Contracts)
221. Wadia Construction Co. Limited
222. Zahan Limited

Source: National Contruction Athourity (2024)

**Appendix IV:** KUREC Clearance Letter

KABARAK UNIVERSITY RESEARCH ETHICS COMMITTEE

**Private Bag - 20157**
**KABARAK, KENYA**
**Email:** kurec@kabarak.ac.ke

**Tel: 254-51-343234/5**
**Fax: 254-051-343529**
www.kabarak.ac.ke

**OUR REF: KABU01/KUREC/001/04/08/24**

**Date: 8th August, 2024**

JOSEPH MBERIA
Reg No.: GMB/NE/0363/01/21
Kabarak University,

Dear Joseph,

**RE: EFFECT OF RISK MANAGEMENT PRACTICES ON PERFORMANCE OF CONSTRUCTION FIRMS IN NAIROBI COUNTY, KENYA**

This is to inform you that ***KUREC*** has reviewed and approved your above research proposal. Your application approval number is ***KUREC-040824.*** The approval period is 8***/08/2024 – 8/08/ 2025.***

This approval is subject to compliance with the following requirements:

i. All researchers shall obtain an introduction letter to NACOSTI from the relevant head of institutions (Institute of postgraduate, School dean or Directorate of research)
ii. The researcher shall further obtain a RESEARCH PERMIT from NACOSTI before commencement of data collection & submit a copy of the permit to **KUREC.**
iii. Only approved documents including (informed consents, study instruments, MTA Material Transfer Agreement) will be used
iv. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KUREC***:
v. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KUREC*** within 72 hours of notification;
vi. Any changes, anticipated or otherwise that may increase the risk(s) or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KUREC*** within 72 hours;
vii. Clearance for export of biological specimens must be obtained from relevant institutions and submit a copy of the permit to KUREC;
viii. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal and;
ix. Submission of an executive summary report within 90 days upon completion of the study to ***KUREC***

Sincerely,

**Prof. Jackson Kitetu PhD.**
KUREC-Chairman

Cc Vice Chancellor
DVC-Academic & Research
Registrar-Academic & Research
Director-Research Innovation & Outreach
Institute of Post Graduate Studies

KABARAK UNIVERSITY
INSTITUTIONAL RESEARCH ETHICS COMMITTEE
08 AUG 2024
APPROVED
P. O. PRIVATE BAG - 20157, KABARAK

*As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)*
Kabarak University is ISO 9001:2015 Certified

**Appendix V:** NACOSTI Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **347395**

Date of Issue: **21/August/2024**

**RESEARCH LICENSE**

**This is to Certify that Mr.. Joseph Kibiti Mberia of Kabarak University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi, Nakuru on the topic: Effect of Risk Management Practices on Performance of Construction Firms in Nairobi County, Kenya for the period ending : 21/August/2025.**

License No: **NACOSTI/P/24/39233**

**347395**

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

**See overleaf for conditions**

**Appendix VI:** Evidence of Conference Participation

# KABARAK UNIVERSITY

## Certificate of Participation

**Awarded to**

*JOSEPH MBERIA*

For successfully participating in the 15th Annual Kabarak University International Research Conference held on 1st-2nd July 2025 and presented a paper entitled ***"Abstract 16: Effect of risk identification practices on the performance of construction firms in Nairobi County, Kenya."***

**Conference Theme**

*Sustainable Business Models In The Era Of Artificial Intelligence For Youth Empowerment*

**Prof. Patrick Kibati**
**Dean, School of Business & Economics**

**Dr. Phillip Nyawere**
**Director - Research, Innovation and Outreach**

**Kabarak University Moral Code**

**As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord.**

**(1 Peter 3:15)**

Kabarak University is ISO 9001:2015 Certified

**Appendix VII:** List of Publication

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# EFFECT OF RISK EVALUATION PRACTICES ON THE PERFORMANCE OF CONSTRUCTION FIRMS IN NAIROBI COUNTY, KENYA

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**Abstract:**
This study investigated the effect of risk evaluation practices on the performance of construction firms in Nairobi County, Kenya. Specifically, it examined the impact of risk assessment likelihood, impact evaluation, risk prioritization, quantitative evaluation methods, and regular risk reviews on firm performance. The research employed a descriptive research design with a sample size of 222 construction industry professionals, determined using the Taro Yamane formula. Data was collected through structured questionnaires and analyzed using descriptive statistics and multiple linear regression analysis. The findings revealed a moderate positive correlation between risk evaluation practices and construction firm performance, with risk evaluation practices explaining 15.2% of the variance in firm performance ($\beta = 0.152$, $p = 0.050$). The study found that aspects such as impact evaluation, risk prioritization, and regular reviews significantly contribute to firm performance. However, the research highlighted areas of concern, particularly in the adoption of quantitative evaluation methods. The study concludes that implementing comprehensive risk evaluation policies can significantly enhance firm performance among construction companies. These findings contribute to the growing body of literature on risk management and firm performance in the construction industries, particularly in the Kenyan context.

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