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School of Commerce

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The EFFECT OF RISK MANAGEMENT PRACTICES ON PROJECT PERFORMANCE IN GRADE ONE CONSTRUCTION COMPANIES: THE MODERATING ROLE OF TEAM COLLABORATION

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A Research Project Submitted to Addis Ababa University School of Commerce in Partial Fulfillment of the Requirements for the

Master of Arts in Project Management (MAPM)

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Addis Ababa, Ethiopia

Statement of Declaration

I declare that the research thesis entitled **"The Effect of Risk Management on Project Performance in Grade One Construction companies in Addis Ababa: The Moderating Role of Team Collaboration"** is my original work and it hasn't been published or submitted for any kind of qualification elsewhere. All sources of material used for the work have been duly acknowledged.

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STATEMENT OF CERTIFICATION

This is to certify that, this project work "**The Effect of Risk Management Practices on Project Performance in Grade One Construction Companies in Addis Ababa: The Moderating Role of Team Collaboration**", undertaken by **Nadiya Alemu Abebe** in partial fulfilment of the requirements for Master of Arts in Project Management at Addis Ababa University School of Commerce, is an original work and not submitted earlier for any Degree either at this university or any other university.

_____

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ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF BUSINESS ADMINISTRATION AND INFORMATION SYSTEM
MASTER OF ARTS IN PROJECT MANAGEMENT

The Effect of Risk Management Practices on Project Performance in Grade one Construction Companies in Addis Ababa: The Moderating Role of Team Collaboration

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List of Abbreviations

- AAU- Addis Ababa University
- **CFA** – Confirmatory Factor Analysis
- **CI** – Confidence Interval
- **CPI**- Cost Performance Index
- **CV**- Cost Variance
- **DF**- Degree of freedom
- **DV** – Dependent Variable
- **EFA** – Exploratory Factor Analysis
- **FALCON**- Falcon Construction
- **HR** – Human Resources
- **HRM** – Human Resource Management
- **IV** – Independent Variable
- **KPI**-Key performance index
- **MV** – Moderating Variable
- **PM** – Project Manager
- **PMBOK** – Project Management Body of Knowledge
- **PP** – Project Performance
- **PMI** – Project Management Institute
- **QQ**- QQ Construction P.L.C
- **RMP** – Risk Management Practices
- **SEM** – Structural Equation Modeling
- **SD**- Standard Deviation
- **SPI**- Schedule Performance Index
- **SPSS** – Statistical Package for the Social Sciences
- **SWOT**- Strengths, Weaknesses, Opportunities, Threats
- **TC** – Team Collaboration
- **WBS**- Work Breakdown Structure
- **YOT**- YOT Construction P.L.C

Abstract

The study examines how risk management methods impact project outcomes in Grade One construction companies based in Addis Ababa while assessing team collaboration as a factor that impacts project results. The research design applied an explanatory approach which used quantitative methods to establish causal links between variables. The research used Yamane's formula to select 114 participants from 158 project staff members through a process that involved stratified sampling. The researcher used a structured questionnaire with closed-ended questions to gather data which was analyzed through descriptive and inferential statistical methods using SPSS version 27. The researcher discovered that risk planning, risk identification, and risk response & monitoring all produced statistically significant positive impacts on project outcomes while risk assessment showed no direct effect on results. The analysis of moderation effects demonstrated that team collaboration enhanced the connection between risk planning and project results together with risk response and monitoring activities and their effect on project outcomes. The presence of collaboration did not create any meaningful impact on how risk identification and risk assessment processes influenced outcomes. The study demonstrates that organizations need to establish formalized risk management systems alongside building team-based environments to improve their ability to handle unexpected challenges while meeting stakeholder needs. The study advances project management theory by presenting a distinction between the technical aspects and the relational aspects of risk management while providing construction companies with practical methods to enhance their project performance. The researcher present both practical recommendations and research directions for upcoming studies.

Keywords: Risk management, team collaboration, project performance, construction industry, Addis Ababa

CHAPTER ONE

1 Introduction

The construction project performance study introduces risk management practices through its research background and context. The study establishes its significance through its research scope, which identifies the research problem and presents research objectives, research questions, and operational definitions of key terms. The chapter concludes with a study structure outline that shows all upcoming research sections.

1.1. Background of the study

Project management has developed into a structured profession that combines technical skills with management abilities and behavioral skills to achieve project goals. Kerzner (2017) emphasizes that modern project management requires structured planning, monitoring, and control mechanisms to manage uncertainties and improve performance.

Risk management exists as a primary element of project management, which helps teams to discover and evaluate risks while developing strategies to address those risks and track their progress toward project goals (Project Management Institute 2021). Project-based environments require risk management to extend beyond its formal protocols by implementing active project coordination methods and communication systems, which enable teams to make collective decisions that achieve successful project results. The construction industry requires this capability because its projects involve multiple complex processes that must be completed within set deadlines while adhering to specific requirements for project time, project costs, project quality, and project safety. The study demonstrated that effective risk management produces a major impact on team coordination ,decision-making speed and project performance across various work environments (Hwang and Ng, 2013, and Turner, 2014).

The construction industry needs risk management because projects require multiple disciplines to work together, while construction activities create increased dangers and unpredictable outcomes. The construction industry requires continuous collaboration among project managers, engineers, foremen, technicians, and other workers to meet strict project requirements, budget limits, safety standards, and quality expectations. Turner (2014) defines project risk management

as a process that combines technical control with the management of personnel and operational procedures and resource allocation to achieve performance objectives.

Studies conducted in different regions throughout the world demonstrate that risk management practices have a major impact on both project team dynamics and the results of their work. The research conducted by Hwang and Ng (2013), Yang et al. (2011), and Jarkas and Bitar (2012) demonstrates that teams achieve better project results through successful risk identification, analysis, and response planning and monitoring activities. The construction industry experiences delays, cost overruns, disputes, and performance decline because of inadequate risk management practices (Toor & Ofori, 2008).

Risk management practices refer to the systematic approaches and methods that project teams use to identify and assess risks while they conduct their risk response planning activities throughout the entire project lifecycle (Project Management Institute, 2021). The construction industry uses these practices to determine how decisions should be made, how tasks should be coordinated, and how conflicts should be resolved. Empirical studies have demonstrated that organizations that implement effective risk management practices experience better project outcomes because these practices decrease project uncertainties and enhance their ability to use resources (Hwang & Ng, 2013; Tabassi et al., 2016).

Team collaboration has emerged as a key factor that moderates the effectiveness of risk management practices. Team collaboration describes how effectively team members interact through communication, information sharing, task coordination, and mutual support to achieve their common objectives (Hoegl & Gemuenden, 2001). The building process requires collaboration to connect design work with procurement activities and execution tasks while minimizing mistakes and managing on-site risks (Baiden & Price, 2011).

The recent research in project management shows that risk management practices affect project performance through both direct effects and their impact on relational and behavioral factors, which include collaboration and trust, and communication. The theory of moderation explains that team collaboration functions as a variable that can either enhance or diminish the link between risk management practices and project performance (Baron & Kenny, 1986). The relationship between risk management practices and project performance needs further study

because previous research lacks empirical evidence that tests team collaboration as a moderating factor in construction projects that takes place in developing countries.

The construction sector in Addis Ababa, Ethiopia, has expanded quickly because of urban growth and infrastructure expansion. The construction industry still faces problems that lead to project delays, budget overruns, quality deficiencies, and ineffective project coordination. Studies conducted in the Ethiopian construction sector indicate that inadequate risk management and poor team coordination are major contributors to poor project performance (Hailemarkos, 2020; Demissew & Abiy, 2023; Girma, 2021). The research about how team collaboration affects the connection between risk management practices and project performance remains limited despite the existing challenges in the field.

The research aims to assess how risk management techniques impact the success of construction projects at specific companies, who are major contractors operating multiple buildings and infrastructure projects in Addis Ababa. The study investigates risk management practices because it wants to achieve specific organizational results through research, which will help construction companies improve their project outcomes.

1.2. Statement of the problem

The construction sector in Addis Ababa has received substantial funding, yet its projects demonstrate inadequate performance through various indicators, such as delays, cost overruns, quality deficiencies, and coordination problems. Traditional explanations for these challenges often focus on technical, financial, or material-related issues. However, growing evidence suggests that inadequate risk management practices and weak team collaboration are major contributors to these challenges (Hailemarkos, 2020; Demissew & Abiy, 2023).

Construction projects often lack effective risk management because teams between different project components either work in independent silos or fail to establish proper team-based risk management systems. The project suffers from two main issues, which include unidentified risks and inadequate response planning and monitoring systems. While risk management studies from previous research investigated their influence on project performance, the research did not examine how risk management mechanisms affect performance outcomes.

The existing research framework currently lacks sufficient empirical evidence to study how team collaboration functions as a moderating factor between risk management practices and project performance in construction projects. The existing research gap becomes more severe in Ethiopia because construction teams encounter distinctive difficulties that stem from their limited resources and insufficient skills, and their complicated interactions with stakeholders.

Construction organizations will continue using ineffective risk management methods because they lack an understanding of how team collaboration affects risk management practices and project performance outcomes. The study requires empirical research to explore the interconnected relationship between risk management practices, team collaboration and project performance, specifically in construction projects at selected construction companies in Addis Ababa.

1.3. Research questions

1. Does risk planning influence project performance?
2. Does risk identification influence project performance?
3. Does risk analysis influence project performance?
4. Does risk response and monitoring influence project performance?
5. Does team collaboration moderate the relationship between risk management practices and project performance?

1.4. Objectives of the study

1.4.1. General Objective

- To examine the effect of risk management practices on project performance at selected Grade 1 Construction Companies, with the moderating role of team collaboration.

1.4.2. Specific Objectives

Specific objectives guide the study to examine key practices influencing project performance and assess how contextual factors shape this relationship. These objectives are structured to allow a detailed examination of individual practice components and their respective contributions to performance outcomes.

- To examine the effect of risk planning on project performance.

- To investigate the effect of risk identification on project performance
- To examine the effect of risk analysis/ assessment on project performance
- To examine the effect of risk response and monitoring on project performance
- To evaluate the moderating role of team collaboration on the relationship between risk management practices and project performance.
- To assess the level of risk management practices in the case of grade one construction companies in Addis Ababa.
- To assess the level of project performance in the case of grade one construction companies in Addis Ababa.
- To assess the level of team collaboration in the case of grade one construction companies in Addis Ababa.

1.5. Significance of the study

1. **Practical Significance**- The study will provide construction project managers at selected construction companies with evidence-based insights into the impact of risk management practices on project performance through team collaboration. The training and development initiatives aimed at improving risk handling and collaboration will benefit from this study.

2. **Methodological Significance**-The study's emphasis on risk management approaches that promote collaboration, reduce uncertainties, and improve overall project performance that will prove to be of great help to selected Grade 1 Construction companies.

3. **Academic Significance-** The study will be a considerable scholarly contribution to the literature on project management by empirically verifying the moderating role of team collaboration in construction settings.

4. **Policy Significance-** Findings may benefit professional organizations and regulators in the construction management area by guiding risk management frameworks and setting up professional standards.

5. In the end, the study will serve as a reference for future researchers focusing on risk management, collaboration, and project performance in project-based sectors, particularly in Ethiopian construction companies. which is helpful to them in a way that improves their project performance.

1.6. Scope of the study

The emphasis of this research is on the construction project teams at the selected construction companies projects in Addis Ababa. It looks into risk management practices as an independent variable, team collaboration as a moderating variable, and project performance as a dependent variable. The project managers, site engineers, foremen, and other technical staff who are directly engaged in the project execution across various ongoing projects are the focus of the study.

Rather than concentrating on technical design or financial analysis, the study emphasizes behavioral, managerial, and interpersonal dimensions of project execution. The geographical scope of the study is restricted to Addis Ababa, and the temporal aspect is focused on current or recently completed projects under the selected construction companies to obtain the latest risk management and collaboration practices.

Gender and Age: To understand the workforce composition.

Educational Level: (Diploma, Degree, Master's or Above) to assess technical background.

Professional Role: (Project Manager, Site Engineer, Foreman, etc.) to account roles at the selected companies.

Years of Experience: To account for expertise in the construction sector.

1.7. Operational Definition of Key Terms

Risk Management Practices: Systematic processes for planning, identifying, analyzing, responding to, and monitoring risks throughout the project lifecycle (Project Management Institute, 2021; Zwikael & Ahn, 2011)

Risk Planning: the process of defining how risk management activities will be conducted, including the development of the risk management plan that outlines methodology, roles, timing, risk categories, and reporting formats (Project Management Institute, 2021; Kerzner, 2017).

Risk Identification: The process of recognizing potential risk events affecting project objectives.

Risk Analysis and Assessment: Evaluating the probability and impact of identified

risks.

Risk Response and Monitoring: Continuous tracking and management of risk responses.

Team Collaboration: the extent of coordination, communication, trust, and cooperative behavior among team members working towards common goals that is indicated by information sharing and mutual support (Hoegl & Gemuenden, 2001; Kassa, 2023).

Project Performance: is synonymous with the extent to which projects reach their goals, which are measured in terms of deadlines, costs, quality, stakeholders' happiness, and finally, overall project outcomes. (Shenhar et al. (2001) and Hwang & Ng (2013)

1.8. Limitations of the study

The research study examined Grade One construction companies in Addis Ababa which results in restricted generalization of its findings to different areas and smaller construction firms that work under distinct operational conditions. The research used self- reported questionnaire data which created bias through social desirability and subjectivity while the study design used cross- sectional data to show relationships which stopped the researcher from establishing causal links. The study limited its investigation to four risk management dimensions and one moderating variable team collaboration while excluding other factors that included organizational culture and leadership style and external market impacts which could influence project outcomes.

1.9. Organization of the study

The study consists of five chapters, and each part is to systematically tackle the objectives and research issue.

The first chapter contains a broad introduction to the study. The general and specific objectives are comprehensively listed in this chapter, the subject under examination is defined in precise terms, and the research context is revealed. Besides, the chapter elaborates on the significance and scope of the study.

The second chapter delivers a comprehensive review of the applicable literature. It discusses the theories of risk management practices that are relevant, the concept of teamwork, and the

concept of project performance. Besides forming the conceptual framework and research hypotheses, the chapter also looks into the real research done in similar contexts.

The methodology for the research is described in the third chapter. It portrays the population of interest, the different sampling strategies, the tools for collecting data, the measures for validity and reliability, and the methods for processing data. analysis. Studies

Chapter four presents the core empirical findings, statistical data analysis, and structural interpretations. It documents the response rate profile, evaluates the data diagnostic checks (including reliability, normality, and multi collinearity), and reports the inferential statistical models. Crucially, it details the results of the multiple linear regression and Hayes' PROCESS Macro Model 1 moderation analysis to determine the validation status of the eight research hypotheses.

Chapter five serves as the final phase of the paper, providing a comprehensive summary of the major statistical findings, overarching conclusions tied back to industry theory, and practical, low-cost recommendations for Grade one construction companies in Addis Ababa. It concludes with recommended directions and paths for future academic research.

CHAPTER TWO

2 Review of Related Literature

2.1. Introduction

This chapter presents the findings from the literature review about risk management practices for construction companies. It includes theoretical and empirical reviews. The theoretical review helps to understand the various definitions and the importance of the main concepts and models in the topic of study. Variables are identified, and the conceptual framework of the study is also included. The empirical review part presents previous findings regarding risk management practices from different published sources and adds the researcher's additional reviews on it.

2.2. Theoretical review

Construction projects exist as complex systems that operate for limited durations while involving multiple fields of expertise. The projects require various stakeholders to follow strict contractual obligations while facing uncertain conditions that affect their costs, timelines, and quality standards and safety measures. The project characteristics create multiple risks, which can decrease project performance according to Banaitiene and Banaitis (2012). Projects need effective risk management because it functions as the primary method for handling risk, which enables projects to achieve their objectives and maintain ongoing success.

The Project Management Institute (2021) defines risk management as a systematic procedure that helps project teams to discover, assess and manage, and track project uncertainties throughout their entire development process. Zwikael and Ahn (2011) show that advanced risk management systems enable better project decision-making, which results in higher project success rates.

Researchers now consider project performance to be a multidimensional construct. (Shenhar et al., 2001; Chan & Chan, 2004). According to Baiden and Price (2011), organizations need to develop both their technical skills and their interpersonal skills to achieve excellent project outcomes.

The team works together to share knowledge, solve problems, and perform tasks in a unified

manner. The research of Hoegl and Gemuenden (2001) demonstrates that the quality of teamwork leads to enhanced shared responsibility, which minimizes the dangers to business operations. The weakness of collaboration between project partners creates heightened project risks and operational difficulties in various developing nations, including Ethiopia (Hailemarkos, 2020; Demissew & Abiy, 2023).

2.3. Risk Management

A risk is an unpredictable event or circumstance that, if it materializes, could have a positive or negative impact on a project's aim. It is one of the nine PM knowledge domains (PMI, 2017). A risk is an unforeseen circumstance or incident that, if it materializes, will affect the project's ability to meet its goals. Notably, risk can be better defined as an uncertain effect on project performance in this context as opposed to being the cause of a (uncertain) effect on project performance (APM, 2012).

Risk is commonly understood as the potential for loss or injury (Hillson & Murray-Webster, 2017), encompassing the probability and consequence of not achieving defined project goals (PMI, 2017). It refers to uncertain future events that could impact the attainment of project objectives (APM, 2012) and is defined as the likelihood of something happening that will affect objectives (International Organization for Standardization, 2009).

Risk management is one of the 10 Project Management Knowledge areas that covers an adequate overview of what you need to do to manage risk on the project. Introducing risk management from the start (even before planning) helps the project managers, workers, participants, and all stakeholders. Managing risk means getting the key to project success.

Since the study area is on construction projects, and as we all know and tried to mention before, construction is very risky in terms of the country's economy and the resources used to complete a project; risk management is very important.

Risk management is not started after the risk has happened; it goes in parallel to the project. This means when there is a plan for the project, there should be a plan for risk management alongside. Schieg (2006) emphasized that risk management does not only mean taking measures after the negative effect has happened, but it also involves the establishment of risk consciousness,

integration of basic principles of risk policy, and organizational integration to prepare the project for unsolved negative risks and increased transparency between the responsible organs and other stakeholders and employees. Managing risk is the ongoing process throughout the lifecycle of the project.

Risk management practices constitute a systematic set of managerial processes designed to plan, identify, analyze, respond to, and monitor uncertainties that may affect project objectives (Project Management Institute [PMI], 2021; Kerzner, 2017). In construction projects, these practices are particularly critical due to the high level of technical complexity, financial exposure, regulatory constraints, and stakeholder interdependence.

According to Kerzner (2017), effective risk management enhances managerial foresight and enables proactive decision-making. It transforms uncertainty into manageable variables and reduces the likelihood of unexpected disruptions. Banaitiene and Banaitis (2012) further argue that organizations with mature risk management systems demonstrate superior adaptability and operational resilience. 2006).

2.3.1. Risk Management Practices in Construction Projects

The construction industry faces risks that originate from multiple sources, including design mistakes, contractual conflicts, labor efficiency problems, environmental factors, political unrest, and material availability changes (Jarkas & Bitar, 2012; Hwang & Ng, 2013). The project will experience multiple problems through schedule delays, cost overruns, safety incidents, and quality defects if project risks remain untreated.

The PMI (2021) PMBOK Guide states that projects require ongoing risk management throughout all project development phases. The process begins with risk planning, followed by risk identification and risk assessment, and response planning to handle risks, and ends with risk monitoring and controlling. The system operates through interrelated components that strengthen each other, but any weakness in one component will reduce the system's overall effectiveness.

Ethiopia's developing nation construction projects encounter higher risk levels because their technological capabilities, institutional frameworks, and available resources are not yet fully developed (Hailemarkos, 2020). The main obstacles that Ethiopian road construction projects

encounter, according to Girma (2021), stem from their insufficient risk planning and inadequate documentation practices.

In the context of the construction industry, risk response and monitoring are viewed as a continuous feedback loop where real-time data collection (monitoring) directly informs the execution of mitigation strategies (response).

The success of risk management processes directly impacts construction projects because these processes determine whether projects will meet their expected performance results.

2.3.2. Dimensions of Risk management Practices

Risk management consists of several interrelated dimensions that, when implemented together, strengthen a project's ability to handle uncertainty and achieve its objectives. These dimensions include risk planning, risk identification, risk analysis or assessment, and risk response and monitoring. Through risk planning, organizations establish a structured approach to managing risks; risk identification ensures that potential threats are recognized early; risk analysis evaluates the likelihood and impact of those risks; and risk response with monitoring provides continuous oversight and corrective action. Taken as a whole, these dimensions enable construction companies to anticipate challenges, allocate resources effectively, and improve project performance. This chapter continues to examine the literature in each of these areas.

2.3.2.1. Risk Planning

The process of risk planning, which is officially called the Risk Management plan, serves as the main process that establishes all methods for implementing risk management work on a project (Project Management Institute [PMI], 2021). According to PMI (2021), this process defines all aspects of risk management, which include the approach and tools, methods, roles and responsibilities, and timing and budget management throughout the project life cycle. The main benefit of this system enables organizations to match their risk management efforts with their project needs based on the project's importance to their business. Risk planning establishes the Risk Management Plan, which acts as the main document for all future risk activities, including risk identification and assessment, response planning, and monitoring (Kerzner, 2017; Zwikael & Ahn, 2011).

Projects with established risk management procedures that follow detailed plans experience better resource distribution and fewer unexpected events, which leads to improved project results (Zwikael & Ahn, 2011; Al-Sabah & Al-Sabah, 2024). The lack of proper risk planning together with insufficient risk planning, creates two problems, which include unrecognized risks and ineffective team cooperation, and leads to project budget and timeline violations (Demissew & Abiy, 2023; Girma, 2021).

The construction industry requires risk planning because projects face multiple uncertainties throughout their extended duration, while their activities connect with each other and they face outside threats, which include regulatory changes, weather conditions, labor shortages, and material price fluctuations (Jarkas & Bitar, 2012; Yirga, 2017).

The construction industry in Ethiopia faces ongoing operational difficulties because businesses lack proper risk management procedures, which should be established as formal regulatory frameworks to address these needs (Hailemarkos, 2020; Yirga, 2017). A study by Yirga (2017) stated that most Ethiopian construction companies, including Grade-1 contractors, do not have a comprehensive risk management plan. As a result, these construction companies are making decisions based on their immediate needs, not considering the results of the projects. Improvements to the project's performance are the result of a proper plan for risk management, and this requires the construction company to have proper team cooperation to develop a better connection for the stakeholders, as well as more flexible project implementation methods, as noted by Tabassi et al. (2016) and Baiden & Price (2011). others.

2.3.2.2. Risk Identification

Risk identification entails recognizing all risks that may arise from within and outside the company and establishing how they affect the achievement of project objectives (PMI, 2021). During this stage, it is expected of project teams to scrutinize project documents such as contracts, project plans, designs, and project management plans by brainstorming with stakeholders and using checklists, SWOT analyses, and historical information about past projects (Kerzner, 2017; Banaitiene & Banaitis, 2012).

The key deliverable during this phase is the formulation of a risk register. Organizations need to perform a complete risk assessment at the beginning stage to identify threats before they escalate

into major issues. Construction projects face various risks, which include design modifications, workforce shortages, variations in material costs, detrimental environmental conditions, regulatory delays, and site limitations (Jarkas & Bitar, 2012; Yirga, 2017).

In the context of this study, identification focuses on these critical factors to evaluate their frequency and potential impact on the performance of construction projects in Ethiopia.

2.3.2.3. Risk Assessment/Analysis

The process of risk assessment needs to assess identified risks according to their likelihood of happening and their potential effects on project goals, which include cost, time, and quality (PMI, 2021). This stage is critical for prioritizing risks so that management can focus resources on the most significant threats. Organizations typically employ qualitative methods, which include risk probability-impact matrices and risk ranking, together with quantitative methods that include Monte Carlo simulations, sensitivity analysis, and decision tree analysis (Kerzner, 2017; Banaitiene & Banaitis, 2012).

Demissew and Abiy (2023) and Yirga (2017) conducted research that demonstrates that structured risk assessment methods, which are not present in the Ethiopian construction sector function as a main cause for project delays and cost overruns and reduced quality standards. Hailemarkos (2020) demonstrates that organizations that do not use systematic assessment tools will experience operational problems, which decrease their efficiency. The process of accurate risk evaluation needs a collaborative approach, which requires team members to share their different viewpoints until they achieve agreement about which risks should receive higher priority. The project teams use structured formats to measure their subjective judgments, which enables them to convert unprocessed risk information into operational intelligence that improves their planning and resource distribution capabilities.

2.3.2.4. Risk Response and Monitoring

The active control phase of risk management executes its responsibilities through risk response activities and risk monitoring activities. The phase requires project teams to develop complete plans, which will help them achieve their project objectives through threat reduction according to PMI standards from 2021. The two functions in complex construction environments operate as

one system because monitoring data activates existing response plans.

Strategies for Risk Response and Control

Threat management involves choosing one of four main approaches, which include avoidance (risk elimination), mitigation (reducing risk probability and impact), transfer (outsourcing the risk to third parties through insurance or outsourcing), and acceptance (accepting the risk without any protective measures) (Kerzner, 2017; Zwikael & Ahn, 2011). Organizations must first assess whether they can decrease risk through active control before choosing to avoid or transfer it; indeed, risk reduction emerges as a key area of focus for project professionals.

Project organizations utilize risk transfer to reassign particular obligations through their supply chain networks, which include specific operational limits. Risk avoidance operates separately because it requires changing the fundamental conditions of the project to prevent a risk from occurring, despite most strategies being combinable (Kerzner, 2009).

The Role of Continuous Monitoring and Feedback

Effectively controlling and monitoring requires teams to identify current risks and seek new risks during each project phase (PMI, 2021). Such a process is continuous and ensures that risks remain within acceptable levels. According to Hwang and Ng (2013), there is a need for feedback processes that allow an organization to respond effectively by updating its risk registers. For instance, in construction projects, effective monitoring requires regular risk reviews, progress reports, auditing, and key risk indicators (Kerzner, 2017).

According to research, projects that implement tests of response plans and put in place good monitoring systems achieve better outcomes compared to projects without good monitoring systems since they do not suffer many disruptions (Tabassi et al., 2016; Yirga, 2017). Monitoring allows effective governance of risks through creating accountability and good decision-making systems (Banaitiene & Banaitis, 2012).

Risk Response and Monitoring in the Ethiopian Construction Context

The construction industry in Ethiopia experiences productivity loss and increased project risks

because its response plans treat problems as emerging threats instead of preparing for them through active defense systems (Girma, 2021; Demissew & Abiy, 2023). The project delays and budget overruns occur because the current system lacks proper monitoring and effective follow-up procedures (Hailemarkos, 2020).

The Ethiopian project performance needs an integrated solution that requires continuous risk monitoring together with systematic response planning. The integrated practice enables teams to work together efficiently while they reduce project risks and achieve successful outcomes (Demissew & Abiy, 2023).

2.4. Project Performance

Project performance is the degree to which a project achieves its established goals regarding time, cost, quality, safety, and stakeholder contentment. (Project Management Institute, 2021; Shenhar et al., 2001). The initial studies in project management research concentrated too much on objective performance measurements, which included both schedule adherence and budget compliance (Chan & Chan, 2004). The current project management research shows that performance exists as a multidimensional framework because it includes efficiency and effectiveness together with technical, operational and relational results (Shenhar et al., 2001; Hwang & Ng, 2013).

Hwang and Ng (2013) define project performance as the assessment of resource use and team collaboration which enables projects to achieve their objectives. The success of construction projects depends on how construction teams manage activities between their various stakeholders because they must control risks while maintaining efficient teamwork (Baiden & Price, 2011; Tabassi et al., 2016). Organizations reduce performance threats by handling risks effectively while their teams work together to carry out tasks and solve problems (Hoegl & Gemuenden, 2001; Al-Sabah & Al-Sabah, 2024)

2.5. Team Collaboration

Team collaboration describes how team members collaborate through their communication efforts which help them coordinate their work while sharing information and providing support to achieve shared project objectives (Hoegl & Gemuenden, 2001). The inherent task interdependence, combined with unpredictable elements and the requirement for integrated

design procurement execution and stakeholder management in construction projects, makes collaboration an essential element (Baiden & Price, 2011).

Organizations that fail to establish proper collaboration systems experience various negative effects which include work delays, project rework and interparty disputes and budget excess and worksite safety violations (Hwang & Ng, 2013; Tabassi et al., 2016). The presence of effective collaboration enables organizations to achieve operational integration while solving problems and sharing knowledge, and maintaining protection against potential risks (Azmy, 2012). Teams use collaboration as their primary approach to risk management because it helps them perform risk identification and impact assessment, risk response, and monitoring activities throughout the entire project process (Zwikael & Ahn, 2011; Kerzner, 2017).

The construction projects in Addis Ababa face challenges because contractors and consultants and clients and other stakeholders fail to work together effectively. Researchers attribute low productivity, conflicts, and slow project delivery to insufficient collaboration (Demissew & Abiy, 2023; Girma, 2021; Hailemarkos, 2020). The challenges demonstrate that organizations need to treat team collaboration as an essential element which affects how effectively risk management procedures will lead to better project results (Tabassi et al., 2016; Yirga, 2017.

2.6. Empirical Review of Related Literature

2.6.1. Effect of Risk Management Dimensions on Project Performance

The various dimensions of risk management practices in construction projects create diverse effects on project performance because they operate through separate mechanisms, which create different impact paths. The implementation of risk management in project-based environments leads to direct effects on performance outcomes, which include time, cost, and stakeholder satisfaction and it also creates indirect effects through team processes that involve team collaboration. The interdependent nature of tasks and decision-making processes and execution workflows in construction projects leads to major project performance results because risk management practices determine how effectively teams work together.

The present section uses the PMBOK framework (PMI, 2021) together with empirical evidence (Hwang & Ng, 2013; Tabassi et al., 2016; Yirga, 2017) to study how different risk management

dimensions affect project performance. The performance indicators that are going to frame the discussion are the following: the timeliness of the project, the management of the budget, the level of quality, the productivity, and the total success of the project.

2.6.1.1. Effect of Risk Planning on Project Performance:

The process of Risk Planning defines all risk management activities that will be performed throughout the project (PMI, 2021). The main purpose of the organization, according to PMI (2021) is to establish proper risk management methods that match the project's risk level and organizational importance. The Risk Management Plan establishes the methodology and roles and responsibilities, timing and risk categories and probability/impact scales and stakeholder tolerance and reporting formats and tracking mechanisms (Kerzner, 2017; Zwikael & Ahn, 2011).

Effective risk planning directly contributes to project performance by providing a structured foundation for identifying, assessing, responding to, and monitoring risks, thereby reducing surprises, improving resource allocation, and enhancing schedule and cost adherence (Hwang & Ng, 2013; Al-Sabah & Al-Sabah, 2024). Projects with formal risk planning experience better overall performance outcomes, including fewer delays and cost overruns (Zwikael & Ahn, 2011; Tabassi et al., 2016)

The risk management plan achieves its complete understanding and implementation through open communication and shared ownership and collective commitment to risk activities according to Hoegl and Gemuenden and Baiden and Price. The process of risk planning shows better results when the level of collaboration among team members increases because this leads to better results in project work. The team will not execute a well-developed plan properly when they lack collaboration according to Tabassi et al. and Yirga.

Ethiopian construction projects. show that construction firms need to establish formal risk planning procedures because their current informal approach creates performance difficulties according to Hailemarkos and Girma.

2.6.1.2. Effect of Risk Identification on Project Performance:

The process of risk identification involves finding all possible risks which could impact project goals. Research studies demonstrate that organizations which implement effective risk identification methods experience better project results because they can manage their projects more efficiently. Jarkas and Bitar (2012) show that risk identification enables organizations to enhance project outcomes by identifying risks early and developing preventive strategies. Banaitiene and Banaitis (2012) proved that construction companies which identify risks early can finish their projects on time while achieving better overall performance.

Risk identification from a project performance point of view supports; early detection of potential delays and cost overruns, improved resource allocation and planning and reduced rework and quality defects.

The research study demonstrates that team collaboration acts as a control mechanism which impacts the success of risk identification processes. The research of Tabassi et al. (2016) demonstrated that risk identification benefits organizations by increasing their operational efficiency while their overall project results require teamwork and knowledge sharing to achieve success. The practice of relying on one person to identify problems creates obstacles which make it difficult for people to communicate, work together to solve problems, and adjust their scheduling plans.

The construction industry uses effective risk identification methods to help teams find potential problems before they happen which decreases unexpected events.

Ethiopia's government construction projects use risk identification methods which depend on bureaucratic regulations. The implementation of these procedures creates an environment that only permits temporary adherence to rules while executing tasks which fails to resolve coordination issues and innovation needs which are essential for sustaining project success (Aga et al., 2016).

2.6.1.3. Effect of Risk Assessment on Project Performance

Risk assessment is acknowledged by many as a main factor that leads to a significant project performance, especially in problematic and uncertain situations that are typical of the construction sector. The assessment method requires teams to operate at above average

performance levels because it consists of probability assessment, impact measurement, qualitative assessment methods, and quantitative assessment methods together with their importance assessment procedures (Banaitiene & Banaitis, 2012).

The combination of theory and practice demonstrates that proper risk assessment implementation produces positive results for all project performance domains which include productivity, quality, innovation, and stakeholder approval. Hwang and Ng (2013) established that risk assessment improves project performance through its ability to create trust and teamwork and shared dedication among project workers. The same findings were made by Tabassi et al. (2016) that assessment enhances performance but indirectly through better collaboration and collective problem-solving.

From the perspective of project performance, risk assessment brings the following benefits: better coordination and integration among cross-disciplinary teams, quality outcomes through the unifying vision and dedication, greater flexibility in dealing with changes in scope, design, and site conditions and more robust stakeholder alignment and uplifted team spirit.

The process of effective risk assessment extends beyond its direct benefits to enhance team collaboration which serves as the main link between risk management practices and project performance results. Teams establish interdependencies through open communication and mutual support and joint decision-making which helps them handle interdependencies effectively while reducing performance risks.

Demissew and Abiy (2023) conducted a study on Ethiopian construction and development projects, which showed that effective risk assessment through building and motivating teams under resource-poor conditions directly impacts project performance. Researchers advise that organizations must modify their risk assessment processes according to their specific situational requirements. Jarkas and Bitar (2012) discovered that excessive assessment pressure without proper assessment structure leads to project implementation challenges. poorly.

2.6.1.4. Effect of Risk Response and Monitoring on Project Performance:

The active execution phase of the risk management cycle is characterized by the synergy between risk response planning and continuous monitoring. Risk response involves the

development of targeted methods to capitalize on opportunities while reducing threats to project objectives, a process that requires teams to select and document suitable strategies such as mitigation, transfer, or avoidance. However, these strategies do not exist in a vacuum; they must be supported by risk monitoring and control, which involves the continuous tracking of identified risks and the identification of new threats throughout the project lifecycle.

Empirical research consistently indicates that the integration of these two practices serves as a powerful driver for project success. Studies show that when organizations establish response plans with clear budget allocations and then use monitoring systems to track adherence, they experience a measurable reduction in schedule delays and cost overruns. For instance, research conducted by Zwikael and Ahn (2011) suggests that organizations with mature processes for both planning and control achieve higher performance levels because they are better prepared to adapt to changing circumstances. Without this integrated approach, projects often fall into a reactive mode, where the lack of structured monitoring leads to unexpected expenses and significant timeline slippage.

In the specific context of the construction industry, the relationship between these practices and performance is even more pronounced. Effective monitoring allows for proactive decision-making and timely corrective actions, which directly improves cost performance and ensures that the quality of workmanship meets established standards. Conversely, a reliance on handling problems only after they arise—a common challenge in the Ethiopian construction sector—results in coordination breakdowns and decreased efficiency.

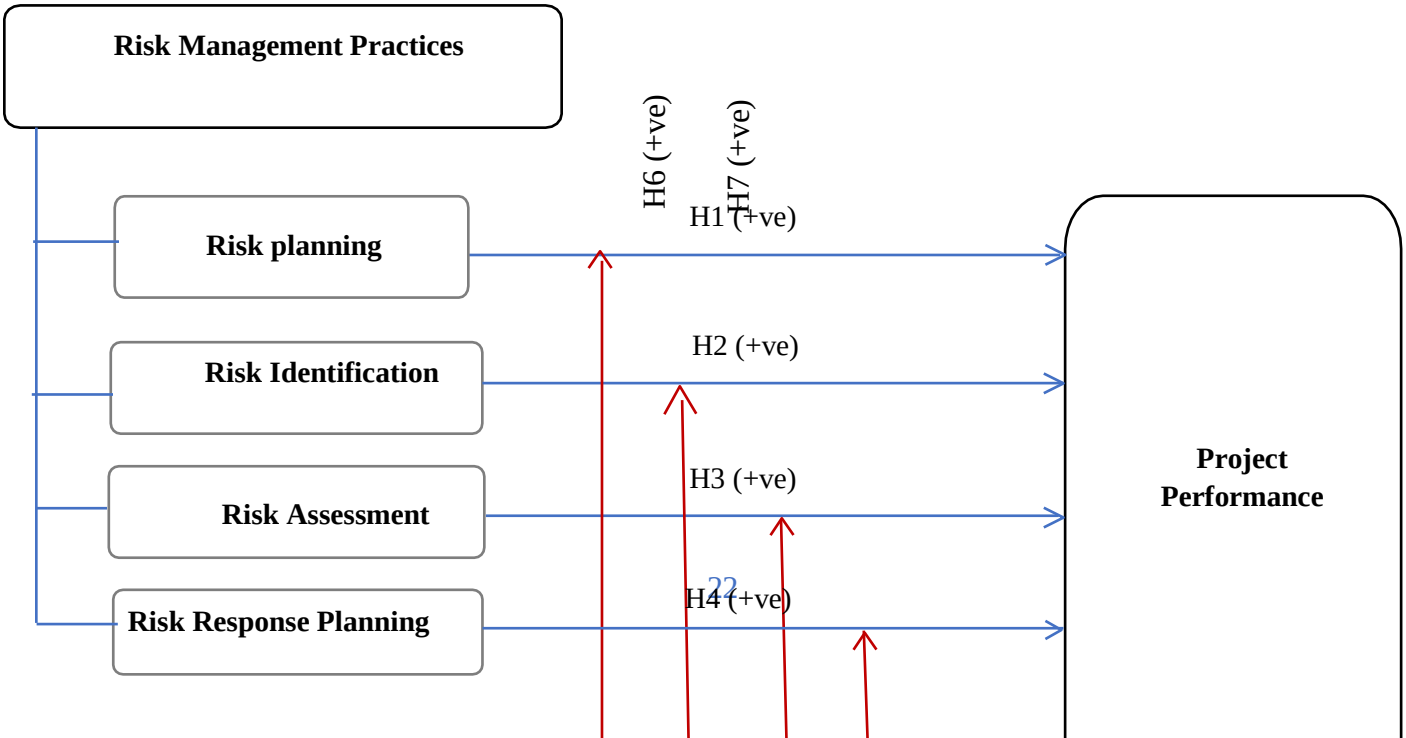
Furthermore, the implementation of systematic monitoring and control mechanisms fosters an environment of accountability and clear communication. By tracking current risks and assessing the effectiveness of chosen responses, project teams can ensure that risk management practices remain tightly linked to the overall goals of the project. Research in developing nations highlights that while skilled teams may require less intervention, major construction projects involve highly interdependent activities that necessitate robust, integrated control systems to prevent budget overruns and maintain project momentum. Ultimately, the literature suggests that the combination of thorough response planning and rigorous monitoring creates a comprehensive risk control framework that is essential for delivering successful project outcomes.

2.7. Gaps in Existing Literature

Existing literature extensively acknowledges the influence of risk management practices on organizational outcomes, yet existing research continues to demonstrate both generalization and technicality. In construction management, studies frequently prioritize objective factors such as material availability, technology, and scheduling, which results in researchers neglecting essential human behavioral elements that determine site performance. The study identifies team collaboration as an effective managerial practice, yet it remains unexplored as the moderating element that connects risk management practices to organizational performance. The research gap stems from the absence of empirical studies that show how risk management practices lead to performance outcomes through their impact on team trust and coordination and mutual support.

The research originates from developed countries, which creates a major problem for studying the African construction industry. The Ethiopian construction industry in Addis Ababa faces research gaps because it faces special challenges that come from its complex stakeholder relationships and coordination difficulties. The study examines existing research gaps through its evaluation of multiple risk management methods and assessment of team collaboration as a moderating factor. The system develops a complete model that connects risk management theory and actual activities in the construction industry of Addis Ababa to assist evidence-based management methods.

2.8. Conceptual framework



2.9. Hypotheses

These hypotheses result from the theoretical and empirical literature reviews which are presented in this paper

H1: There is a statistically significant and positive effect of risk planning on project performance at construction companies.

H2: There is a statistically significant and positive effect of risk identification on project performance at construction companies.

H3: There is a statistically significant and positive effect of risk assessment on project performance at construction companies.

H4: There is a statistically significant and positive effect of risk response and monitoring on project performance at construction companies.

H5: The effect of risk planning on project performance when moderated by team collaboration is greater than the direct effect alone.

H6: The effect of risk identification on project performance is stronger when moderated by team collaboration than the direct effect alone.

H7: The effect of risk assessment on project performance is stronger when moderated by team collaboration than the direct effect alone.

H8: The effect of risk response and monitoring on project performance is stronger when moderated by team collaboration than the direct effect alone.

CHAPTER THREE

3 Research Methodology

3.1 Introduction

The research methodology used to study how risk management practices impact project performance in construction projects, with team collaboration acting as a moderation variable, is explained in this chapter. The research design, together with population and sampling methods, data collection tools and their implementation, data analysis techniques, and procedures for verifying validity and reliability, and upholding ethical standards, are described in this document. The methodology provides a structured approach that enables researcher to assess their defined relationships within actual construction environments.

3.2 Description of the Study Area

This research is conducted in Addis Ababa, which serves as both Ethiopia's capital and primary location for Grade One construction companies. The construction industry uses the city as its main base because it provides essential infrastructure work and government buildings and private construction activities which require high-quality project delivery. The rapid urban growth of Addis Ababa has created building opportunities for large construction companies who work on housing projects and road development and commercial infrastructure but this growth also leads to major financial losses and building delays and safety risks and product quality problems.

The construction companies operating in the city encounter problems such as resource constraints, fluctuating prices for materials, and coordinating efforts from various parties involved in a construction project. The study of risk management and collaboration processes between teams on construction projects' performance is the main reason why Addis Ababa is an ideal place for conducting the research. The study was carried out in Grade One construction companies to provide information that would enhance risk management and teamwork.

3.3 Research Design

The research design utilized a combination of descriptive and explanatory research designs. The design used in this study allows for an empirical analysis of the research objectives.

Descriptive design seeks to explore and articulate the current state of risk management practices

as well as project performance levels within the construction companies. Detailed background information is gained from descriptive research which helps to understand existing conditions (Bryman, 2016).

The design's explanatory nature enables researcher to test their hypotheses about team collaboration as a moderating factor through statistical methods, which involve regression and moderation analysis (Tabassi et al., 2016; Yirga, 2017).

3.4 Description of study variables

Independent Variable (IV): Risk management practices. This is evaluated via five dimensions: Risk Planning, Risk Identification, Risk Assessment, Risk Response, and Monitoring.

Dependent Variable (DV): Project Performance

Moderating Variable (MV): Team Collaboration

3.5 Research Approach

The research employed a quantitative research method to assess statistical connections between different research variables. The researcher selected quantitative methods because they enable researcher to use established measurement scales for collecting numerical data about risk management practices, team collaboration, and project performance, which they then analyze through statistical methods to determine direct impacts and their moderation effects (Bryman 2016; Creswell 2014). This research method serves as a common approach for studying variable interactions and moderation effects in construction and project management research (Yirga 2017; Tabassi et al. 2016). The quantitative method enables the researcher to obtain precise measurements through structured surveys and statistical tools which they use to test hypotheses and produce results that can be applied beyond the construction projects study area.

3.6 Target Population, Sample size, and Sampling technique

Target Population

The study group included construction professionals who work at the selected construction companies in Addis Ababa. The selected construction companies operate as Grade-1 contractors that execute multiple construction and infrastructure projects throughout Addis Ababa, making it an optimal environment to investigate risk management and team collaboration within Ethiopian

construction projects. The total number of permanent technical and managerial staff members at selected construction companies amounts to 158, according to the company profiles and industry estimates.

Sample size

The sample size for this study was determined using Yamane's formula. A statistically representative selection of employees from the target population is essential (Yamane, 1967):

Cochran's Sample Size Formula (Finite Population)

Formula:

$$n_0 = \frac{N}{1 + N(e)^2}$$

Where:

- n_0= required sample size
- N= Population size
- e= margin of error
  - Commonly **0.05**

Calculation $n_0 = \frac{158}{(1+158(0.05)^2}$

$$n_0 = \frac{158}{1.385} = 114.0$$

The sample size is rounded to 114 respondents for practicality. Approximately 114-120 questionnaires will be distributed across major project sites and headquarters to achieve the target, anticipating a 95% response rate common in organizational surveys (Bryman, 2016).

	N	Role	N	Sample size	
FALCON CONSTRUCTION	63	Project managers	23	10	45
		Project staff	40	35	
YOT CONSTRUCTION P.L.C	68	Project Managers	22	16	48
		Project staff	46	32	
QQ CONSTRUCTION P.L.C	27	Project Managers	9	5	19
		Project staff	18	14	
Total	158	158			109

Source: Survey Data, 2026

Table 3. 1 Target population and sample size for the study

Sampling technique

Sampling is basically the act of choosing a group that is representative of the population and that will allow for the whole population to be validly inferred from (Kothari, 2012). The research needs informed answers from experienced people; therefore, researcher used purposive sampling. The researcher used purposive sampling to choose people who have direct experience with risk management and team collaboration at selected construction companies. This process guarantees that essential project execution personnel provide accurate information for their responsibilities.

In the second stage, a stratified random sampling technique was used to select employees within the chosen construction companies. Employees were first categorized into strata based on their roles in the organization, which are project managers and other staff members. This ensured representation across different job levels was achieved, which enables the capture of diverse perspectives on risk management practices and team collaboration, as well as the project performance of their organization.

The researcher used the simple random sampling method through the lottery method to choose their final sampling units after they had divided the population into different strata. The sampling method enhances sample representativeness because it provides equal selection chances to all units within the complete population. The case companies had 155 total population members, but Table 3.1 shows that the sample size needed for research purposes was 109.

3.7 Data Type and Sources

The research used both primary data sources and secondary data sources for its investigation.

Professionals at the selected construction companies will participate in a primary data collection process that uses structured questionnaires as the data collection method.

The secondary data will consist of organizational records that document both project and company performance, risk management practices, and collaboration efforts. The data will establish a conceptual framework that will help create research instruments and enables the researcher to interpret findings from the study. Secondary data will be obtained from company

performance reports and project records, and professionals' and engineers' documented experiences. The study will achieve its methodological strength through data use, which enables the researcher to verify information from multiple sources.

3.8 Data Collection Instrument

The current research will use a structured questionnaire that the researcher developed for their data collection needs. A pilot study will be conducted at the research site with a total of 20 for the selected companies, which represents about 18% of the study sample. The pilot test assesses three aspects of the instrument, which include clarity, contextual relevance, and internal consistency. The reliability assessment will use Cronbach's alpha method, which establishes $\alpha \geq 0.70$ as the acceptable threshold.

Demographic and professional information, such as position within the project team, experience in years, and organization type, are captured in the first part. This information contributes to the understanding of the answers and makes subgroup analysis possible.

The second section assesses Risk Management Practices (Independent Variable) adapted from Tewodros Adefris 31 items covering identification, analysis, response planning and monitoring (Cronbach's alpha 0.7 in project studies; validated in construction by Tewodros, 2024.

Each item is evaluated on a five-point Likert scale, which goes from strongly disagree to strongly agree. The survey is evaluated and selected by a group of professors and is then tested on a few construction workers to verify its understandability, importance, and place in the situation.

The third part assesses (Moderator) adapted from Hoegl and Gemuenden (2001) Teamwork Quality (TWQ) scale – selected items on communication, coordination, balance of member contribution (Cronbach's alpha 0.9).

The fourth section presents Project performance, which had time performance, cost performance, quality achievement, resource efficiency, and overall project effectiveness as its main aspects, all taken from the main studies on construction performance (Shenhar et al., 2001; Hwang & Ng, 2013). (Cronbach’s alpha>0.80).

3.9 Data Collection Procedure

After obtaining ethical clearance from Addis Ababa University and permission from the selected companies' management, questionnaires will be distributed to selected respondents across project

sites. The team will select appropriate times for distribution, which include breaks and meetings to reduce interruption. The team will use printed and electronic materials according to the accessible areas of the site. The respondents will take the survey without help from others because this method decreases bias. The team will conduct follow-up contact to achieve high response rates. The data collection process will extend over a duration of 4 to 6 weeks.

3.10 Validity and Reliability of Instruments

Validity Test

Validity is understood as the extent to which a measure accurately reflects the concept in question, thus permitting the results to be interpreted correctly and meaningfully (Ghauri & Grønhaug, 2005). In this research, Content validity is ensured by adapting items from validated scales (Zwikael & Ahn, 2011; Hoegl & Gemuenden, 2001; Shenhar et al., 2001). Expert review by PM academics and both company managers, plus pilot testing, will confirm relevance. Construct validity will be assessed via exploratory/confirmatory factor analysis (Field, 2018).

Reliability test

Reliability relates to an instrument's performance when it is administered several times under almost the same conditions (Leedy & Ormrod, 2010).

This study will evaluate reliability using Cronbach's alpha (expected to be at least 0.70 according to Nunnally & Bernstein, 1994). The results of the pilot will provide directions for the refinement of items. There will be an increase in consistency due to the application of standardized procedures.

Variable	Cronbach’s alpha
Risk Planning	0.769
Risk Identification	0.721
Risk Analysis	0.774
Risk Response and Monitoring	0.782
Team Collaboration	0.810

Project performance	0.885

Source: Survey Data, 2026

Table 3. 2 Cronbach's alpha value

3.11 Data Analysis

SPSS (Version 27 or above) was used as the tool for carrying out the analysis of quantitative data. The characteristics of the respondents and the distributions of the variables are represented using descriptive statistics (frequencies, percentages, means, and standard deviations).

The inferential analysis consists of the following:

- Pearson correlation analysis to determine the degree of the association among risk management practices, team collaboration, and project performance.
- Multiple regression analysis to determine the direct impact of risk management practices on project performance.
- **Moderation analysis** using **Hayes' PROCESS macro (Model 4)** to test the moderating role of team collaboration between risk management practices and project performance.

Bootstrapping methods are used to indicate the magnitude of indirect effects along with their confidence intervals. Before the analysis, normality, multicollinearity, and homoscedasticity will be examined as assumptions. The results are displayed in a way that is easy to follow through tables and figures (Field, 2018).

Power analysis

A power analysis was conducted to determine appropriate sample size requirements which would enable them to identify their expected findings. The researcher conducted multiple regression testing by using Daniel Soper's online power calculator to determine testing requirements through their a priori power analysis. The researcher established their testing criteria according to Cohen's 1988 guidelines which required them to use a medium effect size of $f2$=0.15 and a significance threshold of α=0.05 and a statistical power target of 0.80. The regression model used nine predictors which included four risk management dimensions and one team collaboration moderating variable and four interaction terms that combined each risk management dimension with team collaboration. The study determined that a sample size of 113

participants would constitute the minimum necessary requirement according to these specified parameters. The relationship between project performance and risk management dimensions together with team collaboration emerges as a linear model that combines various predictors alongside an error term. The multiple regression model according to Greene 2003 should be presented as follows:

$$\mathbf{Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_1x_5 + b_6x_2x_5 + b_7x_3x_5 + b_8x_4x_5 + \varepsilon}$$

Where y is the measured value of project performance or the value of the dependent variable.

Where:

Y= Project Performance (dependent variable)

b_0= Constant term (intercept)

b_1–b_8= Regression coefficients for predictors and interaction terms

X_1= Risk Planning

X_2= Risk Identification

X_3= Risk Assessment

X_4= Risk Response & Monitoring

X_5= Team Collaboration (moderator)

ε= Error term

This specification captures both the direct effects of risk management practices on project performance and the moderating effects of team collaboration.

3.12 Ethical Considerations

The research strictly adheres to the ethical principles of respect, beneficence, and justice as they are defined in international academic standards (Creswell, 2014). The participants were asked to take part in the research only if they want to, and before the actual data collection starts, the participants received detailed information about the research goals, methods, and how much time they are expected to give. Approval was sought from the participants in a manner that does not

involve any kind of pressure, thus recognizing the participants' rights and their freedom to leave the study at any time without suffering any negative consequences.

Confidentiality and anonymity were strictly safeguarded at all times. In the reporting last, no respondent was recognized by either their name, organizational position, or place of employment.

Data is used strictly for academic purposes and reported with complete honesty, without any distortion or selective representation. The researcher avoided personal bias and admit to the limitations openly. Considering that construction sites in Addis Ababa work under tight schedules and high productivity demands, the survey was organized in a way that it does not interfere with the regular duties, thus maintaining professional respect and good relations. Ethical approval has been secured from the relevant institutional review board at Addis Ababa University.

CHAPTER FOUR

4 Data presentation, Analysis, and Interpretation

4.1 Introduction

This chapter presents information gathered from the data collected in a study on the effect of risk management practices on project performance at selected construction companies in Addis Ababa, and the moderating role of team collaboration. A questionnaire was employed to gather primary data. The statistical analysis was conducted using IBM SPSS version 27. After a close look at the data based on the objectives of the study, the findings were documented and presented in tables. Relationship between the variables was tested using correlation, inferential analysis, and multiple regression.

4.2 Response rate

The researcher distributed 114 questionnaires to project professionals who worked at three Grade One construction companies located in Addis Ababa. Out of these, 109 were returned and deemed usable for analysis, representing a response rate of 95%. The high response rate of the study permits researcher to make findings which accurately reflect risk management practices used by the selected firms.

4.3 Demographic Profile of Respondents

The researcher attempted to study the personal data of demographic information to characterize the sample and provide readers with a better understanding of the results in this subsection. The demographic study looks at the background data of the respondents, including their gender, work experience, and position. Structured answers to the questionnaire were collected and presented in the table.

	Frequency	Percent
Male	62	56.9
Female	47	43.1
Total	109	100.0

Source: Survey data, 2025

Table 4. 1Respondents' gender distribution

As shown in the table above, the majority of the respondents were Male, accounting for 56.0% (n=61) of the total sample, while Female respondents represented 44.0% (n=48). The construction industry in Ethiopia has traditionally been male-dominated, but this study shows that women now work in project management and technical roles, which leads to better gender balance in this industry.

Experience level	Frequency	Percent
Less than 5 years	15	13.8
6- 10 years	51	46.8
11-15 years	29	26.6
Above 15 years	14	12.8
Total	109	100

Source: Survey data, 2026

Table 4. 2 Respondents Work Experience level

The experience level of the respondents is well-distributed, with the highest percentage falling in the 6-10 years category (39.4%). A total of 27.5% of participants hold more than 10 years of professional experience in their respective fields. The study requires respondents to have this level of professional experience because it demonstrates their practical knowledge of project risk assessment and mitigation strategy evaluation throughout different stages of project development.

	Frequency	Percent
Project staff	71	65.1
Admin Staff	10	9.2
Management	28	25.7
Total	109	100.0

Source: Survey data, 2026

Table 4. 3 Respondents' role in the organization

The table above illustrates the functional roles of the respondents within the sampled construction firms (Falcon, Yot, and QQ). Project Staff members make up the largest group of participants, which constitutes 59.6% of the total sample with 65 members. This group consists of site engineers and office engineers and architects who work on projects through their daily execution and technical project supervision activities.

The remaining portion of the sample is equally split between Admin Staff (20.2%, n=22) and Management (20.2%, n=22). The admin group includes professionals in finance, HR, and logistics, while the Management category comprises project managers and general managers responsible for high-level decision-making.

The study on Risk Management requires this distribution since approximately 60% of data originates from technical staff members who work on the front lines and experience operational risks every day, while 20% originates from management personnel who present strategic insights about risk assessment and mitigation procedures. The research study includes different organizational roles, which enables the researcher to obtain a complete understanding of how the organization manages its risks.

4.4 Descriptive Statistics

The section presents the summary statistics which describe the variables under investigation. The variables explained in the descriptive statistics part are Risk Planning, Risk Identification, Risk Analysis, Risk Response, and Monitoring. The research uses mean values together with standard deviation to obtain its results. The survey uses a scale which provides specific value ranges to help respondents understand their answers. A mean value between 1.00 and 1.80 is interpreted to mean Strongly Disagree, 1.81 to 2.60 as Disagree, 2.61 to 3.40 as Neutral, 3.41 to 4.20 as Agree, and 4.20 to 5.00 as Strongly Agree (Sözen & Güven, 2019). The tables that follow this section display the summary statistics of the data.

Risk Planning

	N	Mean	SD
The organization’s risk management objectives have been clearly set out and have a project risk management planning	109	3.73	0.715

process for all projects			
There are planning meetings to develop the risk management plan.	109	3.73	0.676
In your organization RBS is developed to define risk categories for projects.	109	3.79	0.654
There is an estimation of resources and costs needed for risk management activities, and they should be included in the project budget.	109	3.74	0.699
Risk management activities are defined and included in the project schedule.	109	3.93	0.603
Your organization uses standard and useful tools and techniques to plan.	109	3.79	0.639
Risk Planning Grand Mean	109	3.75	0.49

Source: Survey data, 2026
Table 4. 4 Descriptive statistics for Risk Planning

The grand mean score of 3.75 (SD = 0.49) indicates that, overall, employees moderately agree that their organizations apply structured risk planning practices. This shows that all items receive positive implementation ratings because respondents perceive risk planning methods to operate with defined goals and assigned duties and systematic execution methods. The standard deviation shows a small value which indicates that most employees at the organization hold similar opinions about the existence of risk planning processes in their work environment.

Risk Identification

	N	Mean	SD
A common definition of risk is used throughout the organization, and it uses standard and useful tools and techniques to identify risks.	109	3.72	0.705
The organization identifies the main potential risks related to each of its declared aims and objectives of the project.	109	3.61	0.622
Changes in risks are recognized and identified when the organization's roles and responsibilities change.	109	3.90	0.691
The organization assesses the likelihood of risk occurring and its potential impact, prioritizes its main risk, and prepares a risk register for each project.	109	3.69	0.703

All key project participants/stakeholders are involved in risk identification	109	3.61	0.781
Your organization uses a scope statement, milestones, WBS, and deliverables to identify risks.	109	3.62	0.704
Risk Identification Grand Mean	109	3.64	0.622

Source: Survey data, 2025
Table 4. 5 Descriptive statistics for Risk Identification

The above Table 4.5 shows that employees generally agree that their organizations apply structured risk identification practices. The grand mean of 3.64 (SD = 0.622) demonstrates that, overall, respondents perceive risk identification methods as moderately established, with organizations making efforts to define risks, involve stakeholders, and use systematic approaches. The response consistency shows that employees hold similar opinions about risk identification processes which exist in their workplace.

Risk Analysis/ Assessment

	N	Mean	SD
Your organization uses standard and useful tools and techniques to analyze risks.	109	3.83	0.621
There are established qualitative and quantitative risk analysis methods and tools.	109	3.84	0.696
Your organization uses risk matrix that defines probability and impact levels.	109	3.98	0.638
Overall risk ranking is practiced in your organization.	109	3.94	0.628
Quantification of the possible outcomes for the project and their probabilities is practiced in your organization.	109	3.98	0.652
Your organization does assessment of the probability of achieving specific project objectives.	109	3.89	0.643
Your organization identifies realistic and achievable cost, schedule, or scope targets, given the project risks.	109	3.81	0.645
Risk Analysis Grand Mean	109	3.89	0.57

Source: Survey data, 2026

Table 4. 6 Descriptive statistics for Risk Analysis/Assessment

The findings from Table 4.6 show that workers think their companies use standard methods to conduct risk analysis and assessment procedures. The grand mean of 3.89 (SD = 0.57) demonstrates that, overall, respondents perceive risk analysis methods as being well established, with organizations making consistent use of tools, probability assessments, and ranking techniques to evaluate risks. The standard deviation score remains low because employees demonstrate common understanding about how their workplace implements risk analysis procedures.

Risk Response and Monitoring

	N	Mean	SD
The organization implements a comprehensive process that integrates both risk response planning and continuous monitoring.	109	3.84	0.580
Risk response strategies are proactively established before project execution rather than reacting to risks as they occur.	109	3.87	0.595
The organization assigns one or more responsible entities for each agreed-upon risk response.	109	3.78	0.658
Analytical techniques (e.g., decision tree analysis) are used to evaluate and choose the most appropriate response and monitoring path.	109	3.93	0.602
The response plan includes both primary actions and contingency strategies to be triggered during monitoring if needed.	109	3.80	0.664
Time and cost contingency reserves are systematically allocated and tracked as part of the risk monitoring process.	109	3.82	0.626
There is a formal mechanism to track the effectiveness of risk responses throughout the project lifecycle.	109	3.81	0.659
Project risks are regularly reviewed and audited to ensure they remain aligned with the overall project objectives.	109	3.80	0.620
Changes in risk profiles are identified and reported on an ongoing basis to ensure the response plan remains relevant.	109	3.81	0.659

Lessons learned from past projects are systematically incorporated into current risk response monitoring practices to improve effectiveness.	109	3.69	0.676
Stakeholders are regularly informed of risk response outcomes through structured reporting mechanisms.	109	3.84	0.626
Key performance indicators (KPIs) are established and tracked to measure the success of risk response and monitoring activities.	109	3.72	0.591
Risk Response and Monitoring Grand Mean	109	3.80	0.564

Source: Survey data, 2026

Table 4. 7 *Descriptive statistics for Risk Response planning*

The above Table 4.7 shows that employees generally agree that their organizations apply structured risk response and monitoring practices. The grand mean of 3.80 (SD = 0.564) demonstrates that, overall, respondents perceive risk response and monitoring methods as moderately established, with organizations making consistent efforts to track effectiveness, inform stakeholders, and align risk responses with project objectives. Employees demonstrate common understanding about their workplace presence and usage of risk response and monitoring processes because of the low standard deviation which shows their shared perspective.

Team Collaboration

	N	**Mean**	**SD**
The team members communicate mostly directly and personally with each other.	109	3.69	0.662
There are moderators through whom much communication is conducted.	109	3.75	0.611
Project-Relevant ideas and information relating to the teamwork is shared by all team members	109	3.81	0.673
Important information is kept away from other team members in certain situations. ®	109	3.75	0.626
In the team there are conflicts regarding the openness of the	109	3.70	0.646

information flow. ®			
The team members are happy with the precision of the information received from other team members.	109	3.65	0.614
The work done on subtasks within the project is closely harmonized.	109	3.72	0.563
There were clear and fully comprehended goals for subtasks within our team.	109	3.72	0.610
All team members accept the goals for subtasks.	109	3.72	0.595
There were conflicting interests in our team regarding subtasks/subgoals. ®	109	3.79	0.625
The team recognizes the specific potentials (strengths and weaknesses) of individual team members.	109	3.71	0.549
The team members contribute to the achievement of the team's goals in accordance with their specific potential.	109	3.72	0.607
Team Collaboration Grand Mean	109	3.72	0.514

Source: Survey Data, 2026

Table 4. 8 Descriptive Statistics for Team Collaboration

The above table 4.8 shows that the average team collaboration score which reached 3.72 with a standard deviation of 0.514 indicates positive teamwork assessment by organization members. The team demonstrates strength through its members who show mutual sympathy and take responsibility for their duties while working together and sharing information. The team needs to enhance its operations through better methods of evaluating individual strengths and establishing consensus-based decisions and implementing fair work distribution. The research results demonstrate that team collaboration functions as a moderating factor which helps to strengthen the connection between risk management practices and project outcomes. Effective risk management develops through strong interpersonal relationships and clear communication but organizations need to solve existing imbalances while they enhance their inclusive practices to achieve better teamwork results which will drive their projects toward success.

Project Performance

	N	Mean	SD
We achieve the scope and objectives of a project	109	3.72	0.607
We usually achieve the quality deliverables of a project	109	3.83	0.687

We frequently fail to complete projects within budget. ®	109	3.88	0.703
We typically complete projects within the planned timescale	109	3.88	0.663
Our stakeholders are satisfied with the project outcomes.	109	3.86	0.659
Our projects frequently fail to contribute to long term development objectives	109	3.82	0.669
Our projects successfully produce the intended impacts ®	109	3.88	0.717
The projects have attained sustainability in the community	109	3.92	0.687
Project Performance Grand Mean	109	3.83	0.54

Source: Survey Data, 2026

Table 4. 9 Descriptive Statistics for Project Performance

The above Table 4.9 shows that employees generally agree that their organizations achieve satisfactory project performance outcomes. The grand mean of 3.83 (SD = 0.54) demonstrates that, overall, respondents perceive project performance as being consistently maintained, with organizations meeting scope, quality, budget, timescale, and stakeholder satisfaction requirements. The standard deviation value shows low results because employees maintain similar opinions about their workplace project performance practices.

4.5 Correlation analysis

In this research, a correlation was performed to establish the existence of a relationship between Risk Management dimensions (risk planning, risk identification, risk assessment, and risk response and monitoring) and project performance. The relationships between the variables are described with a figure from the range of -1.00 to +1.00. According to the Pearson correlation coefficients interpretation, a positive sign points to a positive correlation, while a negative sign to a negative one.

Correlations						
		RP	RI	RA	RRM	PRP
RP	Pearson Correlation	1	.678**	.719**	.665**	.658**
	N	109	109	109	109	109
RI	Pearson Correlation	.678**	1	.816**	.720**	.647**

	N	109	109	109	109	109
RA	Pearson Correlation	.719**	.816**	1	.733**	.662**
	N	109	109	109	109	109
RM	Pearson Correlation	.665**	.720**	.733**	1	.693**
	N	109	109	109	109	109
PP	Pearson Correlation	**.658****	**.647****	**.662****	**.693****	1
	N	109	109	109	109	109
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Survey Data, 2026

Table 4. 10 Correlation analysis result

The analysis of correlations reveals that Risk Planning (RP) brings about a positive effect on project performance which can be measured through the value of (r = 0.658, p = 0.000). The Risk Identification (RI) process establishes a significant positive relationship with project performance (r = 0.647, p = 0.000). The correlation between Risk Analysis (RA) and project performance shows both statistical significance and positive strength (r = 0.662, p = 0.000).

The correlation between Risk Analysis (RA) and project performance shows both statistical significance and positive strength (r = 0.662, p = 0.000). Risk Response and Monitoring (RR) establish a connection that shows both statistical significance and positive strength to project performance (r = 0.693, p = 000). All dimensions which we studied show strong positive connections to project performance. The p-value (p = 0.000) proves that these relationships reach statistical significance because their observed associations exist beyond random occurrence.

Organizations will improve their project performance when they develop stronger risk planning and identification and analysis and response/monitoring processes. Key Interpretation: The dimensions of risk management link with project performance through strong positive correlations and Risk Response and Monitoring (RR) shows the highest connection. Organizations which establish their risk management processes through planning and identification and analysis and monitoring will achieve superior results in their project performance.

4.6 Regression Analysis

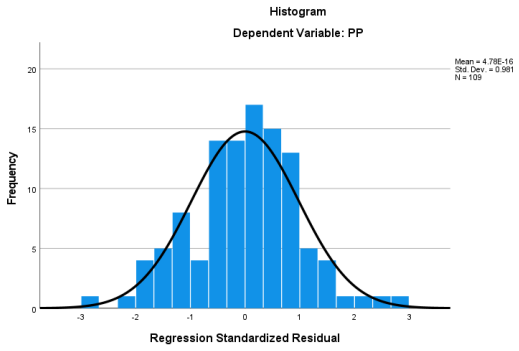
A multiple regression analysis was used to test the strength and direction of the relationship identified by the correlation analysis. In this study, a multiple regression model was used in which the cause-and-effect relationship between Risk Management practice dimensions and project performance was examined. The regression analysis tested for the existence of a significant effect of Risk management practices dimensions on project performance and the direction of effect between these variables. To test the moderation effect of Team collaboration, the Hayes Process macro in SPSS version 4.2 was utilized. In the analysis, the effect of the moderator in strengthening the cause-and-effect relationship between risk management practices and project performance was tested. tested.

4.6.1. Assumptions and result

Normality test

For the analysis to be valid, normal and linear assumptions must be properly established during the analysis. The next section discusses these assumptions in detail:

The histogram and the Shapiro-Wilk test method were used in this study to see if the data were normally distributed. The normal distribution of data may be examined graphically by reviewing the histogram graph, or Q-Q plots and statistically by referring to the Shapiro-Wilk test. The bell- shaped histogram visual that is obtained gives an indication that the residuals, i.e., errors or disturbances, are normally distributed. The goodness of fit for regression analysis requires normally distributed residuals about predicted dependent variable values. As illustrated in Figure 4.1, the dependent variable, project performance, shows a normal distribution for each value of the independent variables, which are the risk management dimensions.



Source: Survey Data, 2026
Figure 4. 1 Histogram

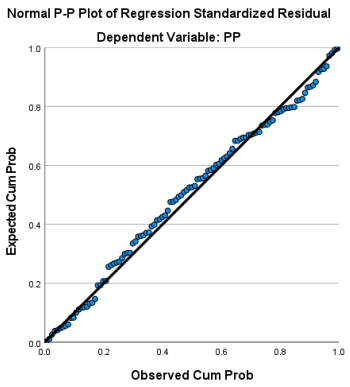
Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Unstandardized Residual	.053	109	.200*	.991	109	.717
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Source: Survey Data, 2026
Table 4. 11 Normality test

As seen in Table 4.11, the p-value Shapiro-Wilk equals 0.717 and is above 0.05. That means the sample residuals are normally distributed; that assumption for the regression test has therefore been satisfied.

Linearity test

If a scatter plot has a linear trend in the predictors against response plot (i.e., the points are lined up very closely in a straight line), the assumption of linearity is made. If the points in a Residuals vs. Fitted Values Plot appear randomly around the zero line, then the linear regression model is considered fit. The linearity test is used to determine how consistently project performance (dependent variable) varies with changes in the risk management dimensions (risk planning, risk identification, risk analysis, and risk response and monitoring) and the moderating effect of team collaboration. Regression residuals were plotted with the SPSS software to check whether project performance and the independent variables follow a linear relationship. A linear relationship between the residuals and the predicted values of project performance is expected when linearity is maintained.



Source: Survey Data, 2026

Figure 4. 2 Normal P-P plot

The linearity and normality of the residuals were further assessed using the Normal P-P Plot. As shown in Figure 4.2, the plotted points (observed values) closely follow the straight diagonal line (expected values). This indicates that the residuals are normally distributed and that a linear relationship exists between the independent risk management dimensions and project performance, fulfilling the prerequisite for multiple regression analysis.

Skewness and kurtosis Test

	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
RISK PLANNING	109	3.7538	-.135	.231	-.133	.459
RISK IDENTIFICATION	109	3.6483	-.032	.231	-.377	.459
RISK ANALYSIS	109	3.8952	-.428	.231	.185	.459
RISK RESPONSE AND MONITORING	109	3.8073	.054	.231	-.219	.459
PROJECT PERFORMANCE	109	3.8394	.237	.231	-.431	.459
Valid N (listwise)	109					

Source: Survey Data, 2026

Table 4. 12 Skewness and Kurtosis test

The measures of skewness and kurtosis show that all variables display values ranging from -

0.428 to +0.237 for skewness and -0.431 to +0.185 for kurtosis. These ranges fall well within the parametric testing limits established by Hair et al. (2010). The data distributions show near-zero skewness values which create symmetrical patterns because the data shows only minimal distortion toward either negative or positive turning points. The results demonstrate that participants used the Likert scale to assess risk management practices and project performance with equal weight across all rating options.

The kurtosis values for all measurements fall between the acceptable boundaries of ±3 for medium- sized samples, as noted by Kline (2016) and George & Mallery (2010). The slightly negative kurtosis values indicate that the distributions are marginally flatter than a normal curve, while the positive values suggest slight peak. All data points maintain their status within normality testing boundaries. The data distribution approximately follows a normal distribution pattern, which permits the researcher to apply parametric statistical techniques including correlation, regression, and moderation analysis throughout the research study.

Multi collinearity test

	Tolerance	VIF
Risk Planning	.980	1.002
Risk Identification	.993	1.007
Risk Analysis	.994	1.006
Risk Response and Monitoring	.981	1.019

Source: Survey Data, 2026

Table 4. 13 Multi collinearity test

A collinearity diagnostic test was conducted to assess the multicollinearity levels between their independent variables. The results in Table 4.13 show that all research variables have tolerance values which exceed 0.980 and reach 0.994. The VIF values for all variables range between 1.006 and 1.020 which are well below the cutoff value of 10. The findings demonstrate that the risk planning, risk identification, risk analysis, and risk monitoring variables do not exhibit significant multicollinearity problems. The analysis shows that each independent variable in the regression model provides distinct explanatory power which does not lead to excessive variable

overlap.

Model Summary for Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.526[a]	.277	.249	.40984
a. Predictors: (Constant), RP, RI, RA, RM				
b. Dependent Variable: PP				

Source: Survey Data, 2026

Table 4. 14 Model Summary

The R value of 0.526 shows a positive link between the independent and dependent variables which leads to a moderate relationship between risk management practices through planning identification analysis and monitoring and project performance. The R Square value of 0.277 in the model summary shows that these variables together explain approximately 27.7 percent of the differences in project performance. The combined impact of risk management practices explains just over one-quarter of all project performance variations.

The Adjusted R Square value of 0.249 provides a more accurate measure of goodness of fit by accounting for the number of predictors in the model. The analysis shows that 24.9 percent of project performance variance gets explained after the researcher adjust for all used predictors. The model shows good predictive accuracy because the standard error of the estimate reaches 0.40984 which shows a moderate level of prediction error. The Durbin–Watson statistic of 1.769 falls within the acceptable range (1.5–2.5), confirming that the residuals are independent and that no serious autocorrelation issues are present.

The regression results demonstrate that risk management practices which organizations use, provide significant benefits to their project performance. The organizations which possess risk management skills for planning, risk identification, risk assessment, and risk monitoring, achieve higher rates of project success. The results demonstrate that organizations can improve project results through better risk management practices which lead to operational efficiency and

stakeholder satisfaction and fulfilment of their organizational objectives.

ANOVA summary interpretation

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	6.690	4	1.672	9.957	.000[b]
	Residual	17.469	104	.168		
	Total	24.159	108			
a. Dependent Variable: PRP						
b. Predictors: (Constant), RP, RI, RA, RRM						

Source: Survey Data, 2025

Table 4. 15 ANOVA table

The ANOVA table results demonstrate that the regression model with risk planning and risk identification and risk analysis and risk monitoring as its predictor variables has proven statistical significance for project performance prediction. The model demonstrates substantial explanatory capacity because it accounts for 9.957 of project performance variance while the model Error variance remains unaccounted. The research shows that risk management practices help improve project performance results although their impact on results remains lower than that of stronger models. The F-statistic demonstrates statistical validity of the model because it compares regression mean square 1.672 to residual mean square 0.168.

The model shows statistical significance because the p value which is less than 0.05 confirms the model's significance. The results show that one or more independent variables have a substantial impact on project performance. The results show that risk management dimensions help predict project performance even though the F-value is lower than what stronger models demonstrate. The regression coefficients need further analysis to reveal which specific variables most impact the statistical significance of the results.

4.6.1 Result of Multiple Regression

Parameter estimation and interpretation

After carefully conducting assumptions test, parameter estimation and interpretation was done to test the direct effects of the risk management dimensions on project performance. The results, interpretation and discussion are presented below.

The Effect of Risk Planning on Project Performance

	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	LLCI	ULCI
(Constant)	0.122 (.651)		.188	.852	-1.169	1.414
Risk Planning	.323 (.081)	.335	3.977	.001	.162	.484

Source: Survey Data, 2026

Table 4. 16 Regression Result Showing the Effect of Risk Planning on Project Performance

Risk Planning (β = 0.335, p < 0.001, LLCI = 0.162, ULCI = 0.484) has a statistically significant and positive effect on project performance. Since the confidence interval does not include zero, the result is confirmed as significant. This means that the more organizations engage in structured risk planning — setting clear objectives, allocating resources, and integrating risk considerations into schedules — the better their project performance will be. Hence, hypothesis 1 [*The effect of risk planning on project performance is statistically significant and positive*] was supported.

The empirical finding portrays that risk planning plays a crucial role in project success, consistent with prior studies. For example, Al- Sabah and Al- Sabah (2024) emphasized that structured risk planning improves construction project outcomes, while Kerzner (2017) highlighted planning as a cornerstone of project management maturity. Similarly, Chan and Chan (2004) noted that effective planning is a key performance indicator for construction success.

Overall, the result empirically validates that risk planning is not just a theoretical construct but a practical driver of project performance in organizations. By ensuring risks are anticipated and addressed early, organizations can improve efficiency, reduce uncertainty, and achieve better project outcomes (Banaitiene & Banaitis, 2012; Project Management Institute, 2021).

The Effect of Risk Identification on Project Performance

	Unstandardized Coefficients	Standardized Coefficients (Beta)	t	Sig.	LLCI	ULCI

(Constant)	0.122 (.651)		188	.852	-1.169	1.414
Risk Identification	.232 (.073)	.265	3.164	.002	.087	.378

Source: Survey Data, 2026

Table 4. 17 Regression result showing the Effect of Risk Identification on Project Performance

The research shows that Risk Identification (β = 0.265, p = 0.002, LLCI = 0.087, ULCI = 0.378) produces positive results which improve project performance. The result reaches significance because the confidence interval demonstrates zero exclusion. Project outcomes improve when organizations use systematic risk identification methods which include brainstorming sessions and checklists and stakeholder consultations. Hypothesis 2 was therefore supported.

The research result shows that early risk identification helps construction projects because it decreases uncertainty according to Loosemore et al. (2006) whereas Zwikael and Ahn (2011) discovered that risk identification predicts project success across different industries. According to Banaitiene and Banaitis (2012) risk identification acts as the fundamental requirement which organizations need to establish effective risk management systems.

The result highlights that risk identification is not merely a procedural step but a strategic activity. Organizations which establish risk identification processes can reduce project delays and enhance stakeholder confidence through their ability to prepare better for upcoming risks.

The Effect of Risk Analysis on Project Performance

	Unstandardized Coefficients	Standardized Coefficients (Beta)	t	Sig.	LLCI	ULCI
(Constant)	0.122 (.651)		0.188	.852	-1.169	1.414
Risk Analysis	.196 (.106)	.155	1.856	.066	-.013	.405

Source: Survey Data, 2026

Table 4. 18 Regression Result Showing the Effect of Risk Analysis on Project Performance

The risk analysis results show no significant impact on project outcomes with the following

results (β = 0.155, p = 0.066, LLCI = –0.013, ULCI = 0.405). The confidence interval includes zero which demonstrates that the result remains statistically insignificant. The application of probability assessments and simulations together with risk matrices in analytical techniques showed no performance impact that reached statistical significance. The results of the study showed that Hypothesis 3 was not validated.

The findings support Aven (2016) because he established that risk analysis remains theoretical until people create practical solutions and Hillson (2017) declared that organizations need to implement analysis into their active management systems. Sabiel (2020) found that construction projects fail to use risk analysis effectively which restricts their ability to enhance project results.

The results demonstrate that organizations need to implement risk management processes because these methods serve as essential components for achieving project success. Organizations need to implement their analytical findings into various processes including decision-making and planning and monitoring so that they can achieve maximum results.

The Effect of Risk Response and Monitoring on Project Performance

	Unstandardized Coefficients	Standardized Coefficients (Beta)	t	Sig.	LLCI	ULCI
(Constant)	.122 (.651)		.188	.852	-1.169	1.414
Risk Response and Monitoring	.235 (.099)	.199	2.361	.020	.038	.432

Source: Survey Data, 2026

Table 4. 19 Regression Result Showing the Effect of Risk Response and Monitoring on Project Performance

The section which describes Risk Response and Monitoring shows a statistical relationship which positively affects project performance with a value of (β = 0.199, p = 0.020, LLCI = 0.038, ULCI = 0.432). The confidence interval without zero demonstrates that the results maintain statistical significance. The research proves that projects achieve better results through organizations which use active response methods together with ongoing project surveillance.

Hypothesis 4 was therefore accepted.

The evidence ties back to Shenhar et al. (2001), which identified monitoring as a project success factor, and PMI (2018), which established risk response and monitoring as essential elements of professional risk management standards. The findings match Zwikael and Ahn's (2011) research, which demonstrated that successful risk response functions as a key element for achieving project success in all industry sectors.

The research demonstrates that organizations can achieve better project results through risk response and monitoring activities. Organizations achieve better risk management results through their continuous risk monitoring activities and proper resource allocation and their prompt execution of necessary adjustments.

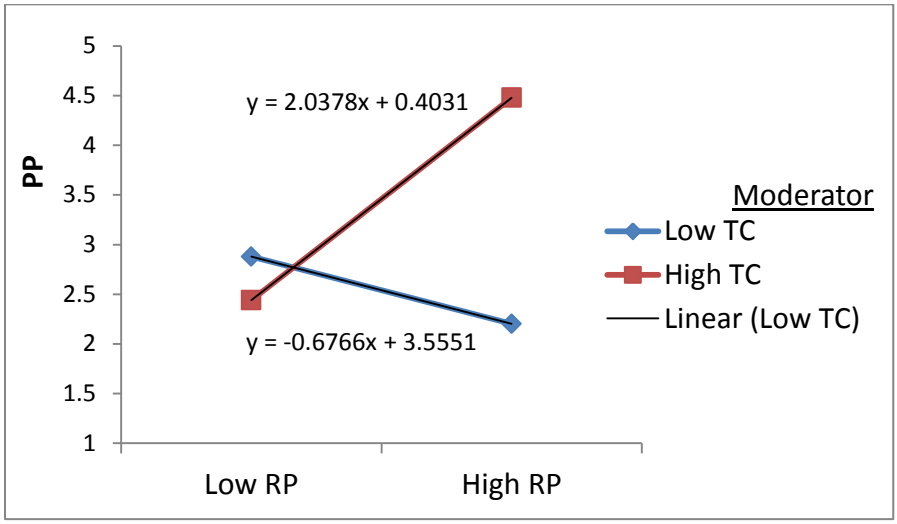
4.6.2 Moderation effect of Team Collaboration

Moderating role of team collaboration in risk planning- Project performance Relationship

Variable	Coefficient (B)	t-value	p-value	LLCI	ULCI
Constant	3.8363 (0.0359)	106.9562	.0000	3.7652	3.9074
RP	0.3403 (0.735)	-3.0019	.0000	0.1945	0.4860
TC	0.4598 (.0917)	.7481	.0000	0.2780	0.6416
RP × TC(Int_1)	.6786 (.1941)	3.4961	.0007	0.2936	1.0634
R^2= 39.09, R^2 change= 0.709, F= 12.2224					

Source: Survey Data, 2026

Table 4. 20 Moderation Analysis of team collaboration on the Relationship between risk planning and Project Performance



Source: Survey Data, 2026

Figure 4. 3 *Moderation effect of team collaboration on Risk Planning to Project Performance Relationship*

As it is shown in Table 4.20, the overall regression model is fit in which effects from the predictor, moderator, as well as the model in general (R^2) are significant ($p < .001$). R- squared being .3909 indicates that 39.09% of project performance variance is accounted for by risk planning, the moderator, and the interaction term.

The results of interaction revealed a significant ($p = .0007$ and the confidence interval does not include zero) and positive (coefficient = .6786) moderating effect of team collaboration on the relationship between risk planning and project performance. Moreover, the R^2- change due to the addition of the new interaction term is significant and accounts for an additional portion of variance explained. This demonstrates significant moderation in the relationship between risk planning and project performance.

Results of slope analysis in Figure 4.3 also showed that the line is much steeper for higher levels of team collaboration, indicating that at a high level of collaboration, the effect of risk planning on project performance is much stronger in comparison to low levels. This is reflected in the coefficients of the slope in Figure 4.3. As the level of team collaboration increased, the strength of the relationship between risk planning and project performance increased. Therefore, hypothesis 5 [*The effect of risk planning on project performance is stronger when moderated by*

team collaboration than the direct effect alone] was supported.

Previously, scholars found that effective risk planning boosts a project's performance by encouraging efficiency, resource allocation, and enhancing resilience (Kerzner, 2017; Project Management Institute, 2021). It also showed that engaged stakeholders, who are invested emotionally, mentally, and structurally, contribute well to the enhancement of performance (Delil, 2022).In line with that, the current study obtained a significant moderating effect of team collaboration. This finding aligns with the results of existing literature that highlighted how moderators strengthen risk planning practices (Ali et al., 2018; Ahmad et al., 2017), which leads to better performance. Ahmad et al. (2017) noted that a culture that fosters involvement helps risk planning, and the current study shows this through the strong interaction between team collaboration and risk planning. With a positive trend, the interaction between the moderator and risk planning significantly explains additional variance in project performance.

Moderating role of team collaboration in risk identification- Project performance Relationship

	Coefficient (B)	t-value	p-value	LLCI	ULCI
Constant	3.8364 (0.407)	94.1881	.0000	3.7557	3.9172
RI	-.1886 (.0762)	2.4765	.0149	.0376	33.96
TC	0.4724 (0.1030)	4.5861	.0000	.2681	0.6766
RI × TC (Int_1)	0.798 (0.1853)	.4309	.6674	-.2875	0.4472
R^2= 0.2374, R^2 change= 0.0013, F= 0.1857					

Source: Survey Data, 2026

Table 4. 21 Moderation Analysis of team collaboration on the Relationship Between risk identification and Project Performance

As it is shown in Table 4.21, the overall regression model is fit, with R- squared being .2374,

which indicates that 23.74% of project performance variance is explained by risk identification, team collaboration, and their interaction term.

The results of the interaction revealed a non- significant effect (coefficient = .0798, p = .6674, and the confidence interval includes zero). This indicates that team collaboration does not significantly strengthen or weaken the relationship between risk identification and project performance. Hence, hypothesis 6 [*The effect of risk identification on project performance is stronger when moderated by team collaboration than the direct effect alone*] was not supported.

The empirical finding suggests that while risk identification is theoretically important for anticipating potential threats, its impact on project performance is not significantly altered by the moderator in this dataset. Prior studies have emphasized that risk identification must be integrated with analysis, planning, and monitoring to yield tangible improvements (Banaitiene & Banaitis, 2012; Al- Sabah & Al- Sabah, 2024). Similarly, Zwikael & Ahn (2011) noted that risk management effectiveness depends on the combined application of multiple practices rather than identification alone.

The result highlights that risk identification, in isolation or even when moderated, may not be a strong driver of project performance. Organizations should ensure that identification practices are linked to actionable strategies and continuous monitoring to maximize their impact (Kerzner, 2017; Project Management Institute, 2021).

Moderating role of team collaboration in risk analysis- Project performance Relationship

	Coefficient (B)	t-value	p-value	LLCI	ULCI
Constant	3.8393 (0.0404)	94.967	.0000	3.7592	3.9195
RA	0.2210 (0.1086)	2.0351	.0444	0.0057	0.4363
TC	0.5108 (.1030)	4.9581	.0000	0.3065	0.7151

RA × TC(Int_1)	-.1921 (0.2849)	-.6742	.5017	-.7571	.3729
R^2= 0.2258, R^2 change= 0.0034, F= 0.4545					

Source: Survey Data, 2026

Table 4. 22 Moderation Analysis of team collaboration on the relationship between risk analysis and Project Performance

The overall regression model shows a good fit because the F- statistic (F = 0.4545, p > .05) test confirms that the model lacks statistical significance. The R^2 value of .2258 shows that 22.58% of project performance variation gets explained through risk assessment and team collaboration and their interaction term.

The interaction results showed a non-significant effect because the coefficient reached -0.1921 and the p value measured at 0.5017 with the confidence interval showing zero inclusion. The results show that team collaboration does not act as a significant moderator between risk assessment and project performance. The research *did not support hypothesis 7*, which claimed that team collaboration would strengthen the relationship between risk assessment and project performance more than direct effects.

The empirical finding shows that risk assessment must be executed for their theoretical framework which shows potential impacts and risk priorities to create better project results yet organizational teamwork does not change project results within this research sample. Previous research demonstrates that risk assessment needs to be combined with active response measures together with ongoing monitoring systems in order to create measurable benefits (Banaitiene & Banaitis, 2012; Aven, 2016; Al- Sabah & Al- Sabah, 2024). Zwikael and Ahn 2011 found that risk management works effectively when organizations use several practices together instead of using only assessment methods.

The study demonstrates that risk assessment fails to improve project outcomes despite its implementation together with teamwork. Organizations need to transform their analytical results into practical implementation plans which include ongoing evaluation processes to achieve maximum benefits (Kerzner, 2017; Project Management Institute, 2021; Sabiel, 2020).

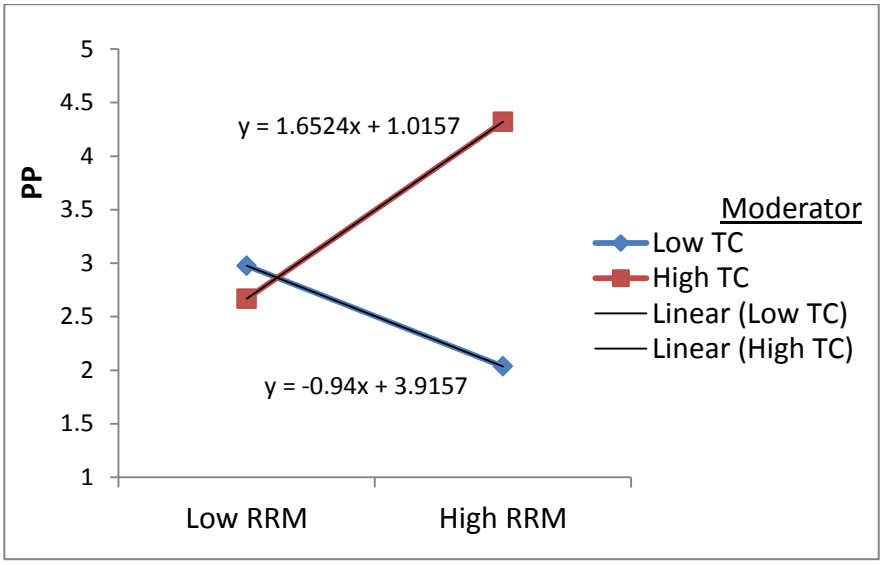
Moderating role of team collaboration in risk response and monitoring- Project

performance Relationship

Variable	Coefficient (B)	t-value	p-value	LLCI	ULCI
Constant	3.8169 (0.406)	94.1036	.0000	3.7365	3.8973
RRM	0.1781 (0.1019)	1.7483	.0833	-.0239	0.3800
TC	0.4943 (0.1026)	4.8159	.0000	0.2908	0.6979
RRM × TC (Int_1)	0.6481 (0.2588)	2.5046	.0138	.1350	1.1613
R^2= 0.2589, R^2 change= 0.0443, F= 6.2731					

Source: Survey Data, 2026

Table 4. 23 Moderation Analysis of team collaboration on the Relationship between risk response and monitoring and Project Performance



Source: Survey Data, 2026

Figure 4. 4 *Moderation effect of team collaboration on Risk Response and Monitoring to Project Performance Relationship*

As it is shown in Table 4.23, the overall regression model is fit, with the F- statistic (F = 6.2731, p < .001) confirming that the model is statistically significant. The R^2 value of .2589 indicates that 25.89% of the variance in project performance is explained by risk response and monitoring, team collaboration, and their interaction term.

The results of the interaction revealed a significant ($p = .0138$ and the confidence interval does not include zero) and positive (coefficient = .6481) moderating effect of team collaboration on the relationship between risk response and monitoring and project performance. Moreover, the R^2- change due to the addition of the interaction term is significant ($\Delta R^2 = .0443$, $p < .05$), accounting for an additional 4.43% of variance explained. This demonstrates that team collaboration significantly moderates the relationship between risk response and monitoring and project performance.

The results from slope analysis results in figure 4.4 demonstrate that team collaboration activities lead to steeper slope results which show that project performance outcomes depend on risk response and monitoring activities at higher collaboration levels. Therefore, hypothesis 8 [*The effect of risk response and monitoring on project performance is stronger when moderated by team collaboration than the direct effect alone*] was supported.

The research results show that risk response and monitoring activities achieve their maximum impact on project success when teams collaborate to enhance these activities. This aligns with Zwikael & Ahn (2011), who found that effective risk response is a key determinant of project success across industries, and Al- Sabah & Al- Sabah (2024), who emphasized that continuous monitoring strengthens resilience in construction projects. The research results show that dedicated teamwork leads to better innovative project results according to Hoegl and Gemuenden (2001), while Baiden and Price (2011) proved that project delivery success improves through integration and collaborative efforts.

The research results demonstrate that organizations achieve better project outcomes when they implement risk response and monitoring together with team collaboration processes. Organizations achieve better resilience and stakeholder satisfaction and organizational alignment by implementing active risk management which includes risk tracking and collaborative risk support methods (Kerzner, 2017; Project Management Institute, 2021; Shenhar et al., 2001).

Regression Model:

Based on the regression and moderation analysis the revised regression model equation has been

adjusted as follows:

$$Y=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5(X1\times X5)+\beta6(X2\times X5)+\beta7(X3\times X5)+\beta8(X4\times X5)+\epsilon$$

Where:

Y = Project Performance X_1 = Risk Planning X_2 = Risk Identification

X_3 = Risk Assessment X_4 = Risk Response and Monitoring X_5 = Team Collaboration

β_0 = Constant of the model Where β_1, β_2, β_3, β_4, and β_5 are coefficients of independent variables

ε = Error term

$$\mathbf{Y=3.8169-2.188X1-0.109X2+0.937X3-2.237X4+0.679(X1\times X5)+0.080(X2\times X5)-0.192(X3\times X5)+0.648(X4\times X5)+\varepsilon}$$

4.6.3 Summary of Hypothesis

Hypothesis	Result	Decision
H1: The effect of risk planning on project performance is statistically significant and positive.	Significant ($p < .001$), coefficient ($\beta = 0.323$)	Hypothesis Supported
H2: The effect of risk identification on project performance is statistically significant and positive.	Significant ($p = .002$), coefficient ($\beta = 0.232$)	Hypothesis Supported
H3: The effect of risk assessment on project performance is statistically significant and positive.	Not significant ($p = .066$), coefficient ($\beta = 0.196$, LLCI includes zero)	Hypothesis Not Supported
H4: The effect of risk response and monitoring on project performance is statistically significant and positive.	Significant ($p = .020$), coefficient ($\beta = 0.235$)	Hypothesis Supported

H5: The effect of risk planning on project performance is stronger when moderated by team collaboration than the direct effect alone.	Significant (p = .0007), Positive (β = 0.679)	Hypothesis Supported
H6: The effect of risk identification on project performance is stronger when moderated by team collaboration than the direct effect alone.	Not significant (p = .6674), coefficient (β = .080)	Hypothesis Not Supported
H7: The effect of risk assessment on project performance is stronger when moderated by team collaboration than the direct effect alone.	Not significant (p = .5017), coefficient (β = –.192)	Hypothesis Not supported
H8: The effect of risk response and monitoring on project performance is stronger when moderated by team collaboration than the direct effect alone.	Significant (p = .0138), Positive (β = .648)	Hypothesis Supported

Source: Survey Data, 2026

Table 4. 23 Summary of Hypothesis

CHAPTER FIVE

5 Summary, Conclusion, and Recommendation

5.1 Introduction

This chapter presents the summary of findings, conclusions, and recommendations based on the analysis of the effect of risk management practices on project performance in Grade One construction companies in Addis Ababa, with the moderating role of team collaboration. The chapter integrates both the direct and moderating effects tested through hypotheses H1–H8, highlighting theoretical and practical implications as well as directions for future research.

5.2 Summary of findings

The descriptive results show that the respondents generally agreed that the sampled Grade One construction companies practice the major dimensions of risk management. The four dimensions, which include risk planning, risk identification, risk analysis, and risk response and monitoring, achieved mean scores which fell inside the range of agreement. Project performance and team collaboration both achieved high mean scores which showed above-average values. The organizations have created a structured risk management system which enables successful project delivery according to their perception of risk management foundations.

The correlation analysis showed that all risk management dimensions were positively associated with project performance, although the strength of the relationships varied. Project performance displayed its strongest bivariate relationship with risk response and monitoring ($r = 0.693$), while risk identification showed its weakest relationship ($r = 0.647$) at the correlation stage. The overall pattern shows that organizations with advanced risk management practices achieve higher project performance results, which supports this common expectation.

The multiple regression results demonstrate that three out of the four risk management practice dimensions show positive direct effects which reach statistical significance. This means that each significant maturity dimension contributes to performance outcomes because its effect remains after controlling for other predictors. Risk planning emerged as the strongest direct predictor ($\beta = 0.335$) because standardized planning procedures need to be established as fundamental

guidelines for the construction field. The project management field supports this concept because it shows that organizations achieve better results through established planning frameworks which help teams work together and cut down waste while creating systems for ongoing success.

5.2.1 Project Performance and Risk Planning

The regression results demonstrated a positive and significant relationship between risk planning usage and project performance, with a p-value of 0.001 and a Beta value of 0.335. The hypothesis stating that risk planning has a significant and positive effect on project performance was supported (H1). The combination of shared risk objectives with structured planning and resource allocation among project participants leads to better performance results.

The study found that team collaboration acts as a moderator because it boosts the main relationship through its positive impact on the interaction term RP × TC, which resulted in significant findings with B equal to 0.6786, $p = 0.0007$, and R^2 change $= 0.709$. The relationship between risk planning and project performance becomes more powerful when team members collaborate actively in the project (H5).

5.2.2 Project Performance and Risk Identification

The regression analysis showed that risk identification brings a positive and significant impact on project performance, which was demonstrated through $p = 0.002$ and Beta $= 0.265$. Thus, the hypothesis stating that risk identification has a significant and positive effect on project performance was supported (H2). This implies that the use of standardized and repeatable risk identification procedures improves performance outcomes by enhancing consistency, coordination, and proactive threat tracking in project execution.

The moderation result showed that team collaboration does not significantly moderate this relationship, as the interaction term RI × TC was non-significant, with $B = 0.0798$ and $p = 0.6674$. Therefore, while risk identification contributes directly to performance, its impact does not change based on team collaboration levels (H6 is not supported).

5.2.3 Project Performance and Risk Analysis

The regression result indicated that risk analysis has a positive but statistically non-significant direct effect on project performance, with $p = 0.066$ and Beta $= 0.155$. Thus, the hypothesis stating that risk analysis has a significant and positive effect on project performance was not supported (H3). This implies that evaluating risk probabilities and impacts mathematically does not automatically guarantee better project execution unless it is translated directly into actionable execution steps.

Furthermore, the moderation analysis confirmed that team collaboration does not moderate this link, as the interaction term RA $\times$ TC was non-significant ($B = -0.1921$, $p = 0.5017$), meaning that team dynamics do not rescue or alter the standalone effects of statistical risk analysis (H7 is not supported).

5.2.4 Project Performance and Risk Response and Monitoring

The regression analysis confirmed that risk response and monitoring have a positive and significant effect on project performance, with $p = 0.020$ and Beta $= 0.199$. Thus, the hypothesis stating that risk response and monitoring have a significant and positive effect on project performance was supported (H4). This implies that continuous tracking, tracking of risk registers, and proactive execution of response strategies directly reduce project variations and safeguard the iron triangle (time, cost, and quality).

The moderation result further showed that team collaboration significantly moderates this relationship, as the interaction term RRM $\times$ TC was positive and significant, with $B = 0.6481$, $p = 0.0138$, and R^2 change $= 0.0443$. Therefore, risk response and monitoring contributes far more strongly to project performance when project teams are actively engaged in collaborative communication and mutual support (H8).

Theoretical implication

- The study results demonstrate that risk management practices function as multiple distinct elements which work together to create effective risk management systems. The three project components which include risk planning and identification and assessment work together to create a more secure project environment. The research findings confirm that project success requires organizations to implement complete risk management systems which include multiple risk management processes.

- The study extends existing theory by demonstrating that team collaboration acts as a critical moderator in the relationship between risk management and project performance. Specifically, collaboration amplifies the effects of risk planning and monitoring, confirming that interpersonal and organizational dynamics play a decisive role in shaping the effectiveness of technical risk management processes. This aligns with Shenhar et al. (2001), who emphasized the importance of teamwork in project success, and adds empirical evidence to the argument that collaboration is not merely supportive but transformative in risk management contexts.
- The non- significant moderation effects for risk identification and risk assessment demonstrate that different risk management dimensions experience different degrees of impact from collaborative efforts. The theoretical framework explains how technical system identification and assessment practices differ from planning and monitoring practices which depend on team-based work. The distinction between organizational culture and collaborative processes from risk management practices provides new insights about their relationship.
- The study establishes a connection between Ethiopian construction industry research and risk management theory which applies to developing economies. The study shows that while the core principles of risk management function worldwide, their implementation through collaborative efforts differs based on an organization's development stage and available resources and cultural characteristics.

Practical implication

- A significant moderating effect was found specifically in the relationship between risk planning and project performance, as well as risk response and monitoring and project performance. This proves that collaboration increases the influence of these two factors.
- Construction companies need to develop structured risk management systems which they should implement through ongoing risk assessment processes together with their team-based work methods. The organization can improve its ability to recover from setbacks and adapt to new situations through the implementation of joint planning sessions and shared monitoring dashboards and integrated project teams.
- The process of risk identification and assessment must extend beyond its traditional function as a technical procedure. Managers should ensure that identified risks are translated

into actionable strategies and that assessments are linked to proactive responses.

- The research shows that risk management practices influence performance outcomes as well as team collaboration's moderating effect, thus providing practical value to construction practitioners. Organizations that enhance their risk management systems and collaborative functions will create more resilient, people-focused project results.

5.3 Recommendations

The following recommendations are made based on the results of the study's descriptive and regression analyses:

- Construction companies should develop and institutionalize strategies where risk planning, identification, assessment, and monitoring are well documented and consistently applied.

- Construction companies need to create and maintain risk management strategies that require teams to record and assess risk through all stages of project work. The organizations should implement risk management practices through established procedures which become part of its daily operations.

- Organizations should invest in collaborative systems, digital tools, and training initiatives to strengthen the moderating effect of team collaboration. Shared risk registers and project dashboards with communication tools create an environment which enables teams to work together and share responsibility for their tasks.

- The risk assessment process requires managers to incorporate assessment procedures with both response and monitoring systems. The complete project outcome requires organizations to implement analytical insights through practical strategies and backup plans which will be monitored throughout the entire project.
- Construction companies should create a work environment which promotes teamwork between their employees to make shared decisions while exchanging information and taking joint responsibility for risk management. Organizations should achieve better stakeholder satisfaction through improved organizational adaptability and backup

systems when they make collaboration a core element of their risk management operations

5.4 Suggestions for Future Research

Based on the findings and limitations of this study, the following suggestions are proposed for future research:

- Future studies should explore why risk identification and risk assessment did not show significant moderation effects. This could involve examining organizational culture, leadership styles, or resource constraints that may limit the influence of collaboration on these dimensions.

- The findings reflect only Grade One construction companies in Addis Ababa. Future research should replicate this model in other regions of Ethiopia and across different industries to determine the broader applicability of risk management practices and collaborative dynamics.

- Longitudinal studies must be done to assess how risk management and collaboration evolve over time. Tracking projects across multiple phases would provide insights into the sustained impact of these practices on project performance and resilience.

- Further research should investigate additional moderators.

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Appendix I



ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

MASTER OF ARTS IN PROJECT MANAGEMENT

Dear Participants

This questionnaire is part of a research thesis carried out for the partial fulfillment of requirements for MA in Project Management at Addis Ababa University, School of Commerce, Department of Project Management. The main purpose of this questionnaire is to collect data that will be used for a research work titled "**The Effect of Risk Management Practices on Project Performance at Construction Companies: The Moderating Role of Team Collaboration"**. Your participation in this study will be valuable and greatly appreciated.

It should be noted that participation in this project is voluntary, and all responses will be treated with strict confidence. Neither the identity of the respondents nor the organization will be made public. I value the time that you will spend filling this survey.

If you have any questions or concerns, please feel free to contact me via the following Email addresses: alemunadiya74@gmail.com and phone number 0922856764

Thank you in advance for your cooperation.

Yours sincerely

Nadiya Alemu

Part I: Demographic Information

Please put "√" on the appropriate option

Name of the Organization: _____

No.	Personal Details	Response	No.	Personal Details	Response
1.	**Sex**		**4**	**Years of Experience**	
	Male			Up to 5 years	
	Female			6 to 10 years	
2.	**Age**			11 to 15 years	
	21-25 Years			Above 15 years	
	26-30 Years		**5**	**Position**	
	31-38 Years			Project Manager	
	> 38 Years			Project Management Office (PMO) Staff	
3	**Educational Level**			Admin Management	
	Diploma			Admin Staff	
	Bachelor 's			Other (Specify):	
	Masters or above				

Part II: Measurement For Risk Management Practices

The following items relate to your observation of the Risk Management Practices in your organization. Please read through the lists in the table below and make a √ mark on your response to each statement according to the five-point scale labeled. Please select only one response per item.

A: RISK MANAGEMENT PLANNING		**1**	**2**	**3**	**4**	**5**
A1	The organization's risk management objectives have been clearly set out, and have a project risk management planning process for all projects					
A2	There are planning meetings to develop the risk management plan.					
A3	In your organization, RBS has been developed to define risk categories for projects.					
A4	There is an estimation of resources and costs needed for risk management activities, and include them in the project					

	budget.					
A5	Risk management activities define and include in the project schedule.					
A6	Your organization uses standard and useful tools and techniques to plan.					
B: RISK IDENTIFICATION						
B1	A common definition of risk is used throughout the organization and uses standard and useful tools and techniques to identify risks.					
B2	The organization identifies the main potential risks related to each of its declared aims and objectives of the project.					
B3	Changes in risks are recognized and identified when the organization's roles and responsibilities change.					
B4	The organization assesses the likelihood of risks occurring and its potential impact, prioritize its main risks, and prepare risk register for each project.					
B5	All key project participants/stakeholders are involved in risk identification					
B6	Your organization uses scope statement, milestones, WBS and deliverables to identify risks.					
C: RISK ANALYSIS						
C1	Your organization uses standard and useful tools and techniques to analyze risks.					
C2	There are established qualitative and quantitative risk analysis methods and tools.					
C3	Your organization uses a risk matrix that defines probability and impact levels.					
C4	Overall risk ranking is practiced in your organization.					
C5	Quantification of the possible outcomes for the project and their probabilities is practiced in your organization.					
C6	Your organization does assessment of the probability of achieving specific project objectives.					
C7	Your organization identifies realistic and achievable cost, schedule, or scope targets, given the project risks.					

D: RISK RESPONSE AND MONITORING						
D1	Your organization has a risk response planning process.					
D2	In your organization, there are planned responses as opposed to considering risks as they arise.					
D3	Your organization assigns one or more responsible entities for each agreed-upon risk response.					
D4	Your organization uses decision tree analysis to choose the most appropriate response.					
D5	Your organization develops primary and backup strategies for the risk response plan.					
D6	Your organization has a contingency reserve allocation practice for time and cost.					
D7	There is a risk response and monitoring process.					
D8	The organization monitors and reviews the risks to achieving its objectives.					
D9	Changes to the organization's risks are identified, assessed, and reported on an ongoing basis as to their impact on objectives.					
D10	Lessons learned from past projects are systematically incorporated into current risk response monitoring practices to improve effectiveness.					
D11	Stakeholders are regularly informed of risk response outcomes through structured reporting mechanisms.					
D12	Key performance indicators (KPIs) are established and tracked to measure the success of risk response and monitoring activities.					

Source: Tewodros, 2017

Part III: Measurement for Team Collaboration

The following items relate to your observation of team collaboration in your organization. Please read through the lists in the table below and make a √ mark on your response to each statement according to the five-point scale labeled. Please select only one response per item.

NB: 1=Strongly Disagree 2=Disagree3=Neutral4=Agree 5=Strongly Agree

F: COMMUNICATION						
No.		**1**	**2**	**3**	**4**	**5**
F1	The team members communicate often in spontaneous meetings, phone conversations, etc.					
F2	There are moderators through whom much communication is conducted. ®					
F3	Project-Relevant ideas and information relating to the teamwork is shared by all team members					
F4	Important information is kept away from other team members in certain situations. ®					
F5	In the team, there are conflicts regarding the openness of the information flow. ®					
F6	The team members are happy with the timeliness with which they received information from other team members.					
G: COORDINATION						
G1	The work done on subtasks within the project is closely harmonized.					
G2	There were clear and fully comprehended goals for subtasks within our team.					
G3	The goals for subtasks are accepted by all team members.					
G4	There were conflicting interests in our team regarding subtasks/subgoals. ®					
H: BALANCE OF MEMBER CONTRIBUTION						
H1	The team recognizes the specific potentials (strengths and weaknesses) of individual team members.					
H2	The team members contribute to the achievement of the team's goals in accordance with their specific potential.					

Source: (Hoegl and Gemuenden's (2001)

Part IV: Measurement For Project Performance

The following items relate to your observation of the Project Performance in your organization. Please read through the lists in the table below and make a √ mark on your response to each statement according to the five-point scale labeled. Please select only one response per item.

	Project Performance	1	2	3	4	5
PP1	We achieve the scope and objectives of a project					
PP2	We usually achieve the quality deliverables of a project					
PP3	We frequently fail to complete projects within budget. ®					
PP4	We typically complete projects within the planned timescale					
PP5	Our stakeholders (donors, implementing bodies and beneficiary) are satisfied with the project outcomes					
PP6	Our projects frequently fail to contribute to long-term development objectives					
PP7	Our projects successfully produce the intended impacts					
PP8	The projects have attained sustainability in the community					

(Surafel, 2025)

Thank You for your participation.