



**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF BUSINESS AND ECONOMICS**  
**SCHOOL OF COMMERCE**

**BAIS DEPARTMENT**  
**PROJECT MANAGEMENT PROGRAM**

**ASSESSMENT OF CONSTRUCTION CLAIMS AND ITS EFFECT ON THE  
PERFORMANCE OF BUILDING CONSTRUCTION PROJECTS: THE CASE  
OF COMMERCIAL BANK OF ETHIOPIA, BUILDING CONSTRUCTION  
MANAGEMENT.**

**By: Abiy Aderaw**

**Advisor: Bahran Asrat (PhD)**

**June 2024**

**Addis Ababa, Ethiopia**

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**Assessment of Construction Claims and its Effect on the Performance of Building  
Construction Projects: The Case of Commercial Bank of Ethiopia, Building  
Construction Management Department.**

**By: Abiy Aderaw**

**A Research Project Submitted to the Addis Ababa University, College of  
Business and Economics, School of Commerce, Department of Bias, Project  
Management Program, in Partial Fulfilment of the Requirement for the  
Award of A Master of Arts Degree in Project Management**

**Advisor: Bahran Asrat (PhD)**

**June 2024  
Addis Ababa, Ethiopia**

## **DECLARATION**

I, Abiy Aderaw Mihretu, affirm that the research title "**Assessment of Construction Claims and its Effect on the Performance of Building Construction Projects: The Case of Commercial Bank of Ethiopia, Building Construction Management Department,**" is my original work. It reflects the culmination of my efforts with the valuable guidance and support of my research advisor. All sources of information used in this study have been duly acknowledged. To the best of my knowledge, this research has not been previously submitted, either in full or in part, for any degree at this university or any other institution of higher learning. It is being presented as a partial fulfillment of the requirements for the Master of Arts degree in the School of Commerce at Addis Ababa University.

**Declared by**

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**Abiy Aderaw Mihretu**

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## **LETTER OF CERTIFICATION**

I confirm that Abiy Aderaw received guidance from me in completing his research on the topic of "Assessment of Construction Claims and its Effect on the Performance of Building Construction Projects: The Case of Commercial Bank of Ethiopia, Building Construction Management Department." This research is original and meets the requirements for submission as part of the fulfillment for the Master of Arts Degree in Project Management. I grant the student permission to present this work for assessment.

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**COLLEGE OF BUSINESS AND ECONOMICS**  
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**By**

**ABIY ADERAW**

**APPROVAL BY BOARD OF EXAMINERS**

Members of the Board of Examiners approve that this research project entitled "Assessment of Construction Claims and its Effect on the Performance of Building Construction Projects: The Case of Commercial Bank of Ethiopia, Building Construction Management Department", undertaken by Abiy Aderaw Mihretu, fulfills the requirements for the degree of Master of Arts in Project Management and is acceptable with regards to the standards and regulations of the university.

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## **List of Abbreviations and Acronyms**

BCM – Building Construction Management

CBE – Commercial Bank of Ethiopia

CBE-BCM – Commercial Bank of Ethiopia – Building Construction Management

PMBOK – Project Management Body of Knowledge

PMI – Project Management Institute

PPA – Public Procurement Agency

RII – Relative Importance Index

## **ABSTRACT**

*Construction claims are a prevalent issue in the building construction industry, negatively impacting project time, cost, and quality. This study aimed to examine the effect of construction claims on building projects undertaken by the Commercial Bank of Ethiopia's Building Construction Management Department (CBE-BCM Department) and recommend effective claim prevention and resolution methods. Specifically, the study investigated the root causes, types, and effects of claims on project performance. Three categories of claim causes were considered: contractors' defaults, client's or consultants' defaults, and external factors. Literature review and surveys were employed to gain insights into how construction claim analysis influences project performance at CBE's projects. Additionally, interviews were conducted with top management of the CBE-BCM department to gather in-depth information on the subject. A census survey was conducted with all 55 professional project team members of the CBE-BCM Department. A high response rate of 96.36% (53 returned questionnaires) was achieved. Data analysis involved both descriptive and inferential statistics using SPSS version 27. Descriptive analysis included frequency, percentage, mean, standard deviation, and Relative Importance Index (RII) values. Pearson's correlation and multiple regression analysis were used to examine relationships between variables. The study revealed a positive correlation between all sources of construction claims and project performance. The analysis of beta coefficients indicated a gradient of influence. Contractor defaults ( $\beta = 0.409$ ) exhibited the strongest negative impact on project performance. Whereas, external factors ( $\beta = 0.293$ ) and client or consultant defaults ( $\beta = 0.109$ ) influenced project performance to a lesser extent. Consequently, these factors predicted 39.2% of the variance on project performance. By combining the analysis of beta coefficients, descriptive statistics, correlation results, and qualitative findings, the study provided a comprehensive understanding of how claims affect construction project performance at the Commercial Bank of Ethiopia. Finally, the study concludes by recommending the implementation of effective claim prevention and resolution strategies to enhance project performance efficiency within cost, time, and scope constraints.*

**Keywords:** *Construction claims, Contractors' default, Client's default, External factor, Project Performance*

# Chapter One

## 1. Introduction

Did you know that studies suggest poorly managed claims in construction projects can lead to cost overruns of up to 30% (Love, 2013)? This staggering statistic highlights the importance of effective claim assessment for successful project performance.

The construction industry is fiercely competitive, with high risks and tight margins. Building any infrastructure requires complex management of people, materials, equipment, and even cutting-edge technologies. Every project involves a multitude of stakeholders, including architects, engineers, contractors, subcontractors, material suppliers, and the client. Their success hinges on collaboration and clear communication, as each stage relies on completing the previous one. This interdependence is crucial, and any delays or disruptions in one area can have cascading effects on the entire project timeline and budget.

Construction claims, arising from disputes over schedule delays, cost overruns, or quality issues, can further complicate these relationships. They can erode trust, hinder communication, and lead to costly legal battles (Atkinson, 1999). In a complex and intense framework such as claims, some disputes are naturally expected between the stakeholders involved which in advance results in unsettled dispute that finally leads to financial claims. Despite familiarity with construction contracts, disagreements over contract terms (claims) remain a significant challenge in the construction industry. Even if there is an appropriate understanding of construction contract clauses from the stakeholders in the agreement, claims seem to be a major crisis in the construction sector (Love, Edwards, & Liu, 2015).

### 1.1. Background of the Study

The building construction industry can be defined as the sector of the economy concerned with the creation and modification of physical structures. This includes a broad spectrum of tasks, including planning and design, which requires the input of architects, engineers, and other experts who come up with ideas, designs, and plans for the construction project; the physical construction of the building or structure, usually done by contractors and subcontractors; and project management, which entails supervising the entire construction process to ensure it meets budget, schedule, and quality requirements (Apte & Pathak, 2016).

Even though the construction industry is crucial for any country's economy, ensuring that projects are completed on time is of utmost importance. Inadequate management in the construction sector can result in delays in project advancement. Project budgets are strained by extended labor costs, potential material price fluctuations, and financing penalties. Project functionality is compromised as intended users face disruptions to their operations or daily lives. Stakeholder satisfaction also suffers significantly, leading to frustration, damaged relationships, and potential disputes. Thus, finishing the project on time and within budget without additional claims is impossible (Hackett, 2000).

Claims in building construction projects can significantly hamper performance by causing disruptions, delays, and disputes related to scope, quality, or schedule. Besides, claims often escalate project costs through direct legal expenses and indirect cost increases associated with delays and potential material price fluctuations. The negative atmosphere surrounding claims can also impact morale and communication, leading to a demotivated workforce, reduced trust, and hindered collaboration. In extreme cases, unresolved claims can escalate to lengthy legal battles, further consuming resources and delaying project completion. Therefore, effectively managing claims is crucial to mitigate these negative consequences and ensure the timely success of building infrastructure construction projects.

Building construction projects in Ethiopia, despite recent growth and a focus on social development, encounter claims and disputes. These issues stem from various factors unique to the Ethiopian context, affecting project timelines, budgets, and stakeholder relationships. Ambiguous contractual agreements, ineffective communication, limited expertise, unforeseen circumstances, and weak dispute-resolution mechanisms contribute to the complexities faced by the Ethiopian construction industry (Aschalew, 2022).

The Commercial Bank of Ethiopia (CBE), a leading state-owned financial institution, is undertaking the construction of branch and district office buildings across Ethiopia. This expansion necessitates collaboration with various stakeholders. However, claim management is a significant challenge for CBE's Building Construction Management (BCM) department due to frequent project delays exceeding contractual completion dates and initial project costs. These delays, caused by internal and external factors, lead to construction claims.

This study aims to investigate/assess the effect of various claim types on project timelines and costs within CBE's building construction projects. As no satisfactory research has been conducted within the CBE-BCM department, this study will also propose recommendations for efficient claim management and resolution strategies.

### **1.1.1. Background of the Organization**

The Commercial Bank of Ethiopia (CBE) was established in 1942 under the name State Bank of Ethiopia. In 1963, it transitioned into a share company and is currently one of the largest financial institutions in Ethiopia, government-owned. Since its inception, CBE has played a significant role in the country's development. The bank is dedicated to achieving its vision of becoming a leading global commercial bank that drives Ethiopia's progress. To realize its goal of extending its services nationwide, CBE has initiated the construction of building complexes in various regional states across Ethiopia and Addis Ababa. These complexes will serve as headquarters, district offices, branch offices, and other facilities to ensure accessibility to all.

Currently, the Commercial Bank of Ethiopia manages over twenty construction projects nationwide, including the CBE New Headquarters Building (4B+G+48), the CBE – Mekelle District Office Building (2B+G+17), the CBE – BahirDar District Office Building (2B+G+12), the Hawassa District Office Building (2B+G+11), the Ex Engineer Hailesilassie District Office Building (B+G+6 and B+G+2), the Kombolcha Branch Office Building (B+G+5), the Humera Branch Office Building (B+G+5), and the Jinka Branch Office Building (B+G+3).

Established under the Vice President – Facility Management, the Commercial Bank of Ethiopia's Building Construction Management (BCM) department oversees the construction of Bank buildings and related infrastructure projects. The department executes various contract management activities, including supervision, monitoring, performance management, certification, corrective action, payment processing, performance reviews, communication, reporting, and record keeping, all aimed at supporting the Bank's strategic objectives through timely, efficient, transparent, accountable, and cost-effective construction of environmentally friendly buildings that meet specifications and enhance the Bank's image, while minimizing accidents, disputes, and contractual defaults. To achieve this, the Bank conducts a rigorous bidding process and establishes binding contracts with Grade One Contractors and Consultants, clearly defining roles and responsibilities for successful project execution.

However, CBE's BCM department currently lacks a dedicated unit to manage construction claims. There's also no designated professional with specific expertise in handling these claims. This responsibility falls on the department's Business Analysis and Construction Management units, who manage claims alongside their primary duties. This approach can be problematic when dealing with complex construction claim issues. Furthermore, the BCM department juggles over twenty active and design-stage projects, which can further complicate construction claim management.

## **1.2. Statement of Problem**

Building construction projects are complex undertakings, and timely completion of projects with good performance is crucial for several stakeholders. Clients face financial losses and operational disruptions due to delays, while contractors experience reduced profitability and potential penalties (Love, 2013). Additionally, project delays can have negative social and environmental consequences, impacting users, communities, and the environment.

A major reason construction projects get behind schedule is the frequent occurrence of claims. These claims arise from disagreements between project participants, often stemming from Contractual disputes, Site conditions, and Performance issues. While claims are sometimes unavoidable, their effect on project schedules can be significant. Delays caused by claims can extend project timelines, leading to financial losses, disrupting construction workflows, and Strain relationships between project stakeholders (Aschalew, 2022).

While construction claims are known to cause problems, there's a shortage of in-depth studies examining the specific types of claims impacting project performance in the Commercial Bank of Ethiopia's building projects. Moreover, the building projects of CBE are facing challenges in finalizing those projects within the contract time and cost.

Some of the reasons stated by the CBE-BCM department professionals are the poor performance of the contractor, the occurrence of the COVID-19 Pandemic, and the war in the northern part of the country. Through time, most of CBE's projects resulted in time and cost overruns, some of their projects were even ceased since the issues related to claims were not resolved yet. Subsequently, the causes of claims and their effect on project performance needs to be studied.

This study tackles the under-researched area of construction claims in Ethiopia's building industry, specifically focusing on projects undertaken by the Commercial Bank of Ethiopia (CBE). By thoroughly examining how different claim sources and types contribute to project delays, this research aims to offer valuable knowledge and recommendations that can benefit both the CBE and the wider construction sector.

### **1.3. Research Questions**

- I. What are the root causes of construction claims in the construction projects of CBE?
- II. What are the common types of claims encountered in the construction projects of CBE?
- III. What is the causal relationship between causes of construction claims and their effect on the projects' performance in the construction projects of CBE?
- IV. What interventions and best practices can minimize the effect of claims on project performance for construction projects of CBE and other construction stakeholders?

### **1.4. Research Objectives**

#### **1.4.1. General Objective**

- To assess the effect of construction claims on the performance of building construction projects and to recommend effective claim prevention and resolution methods.

#### **1.4.2. Specific Objective**

- I. To identify the root causes of construction claims in the construction projects of CBE.
- II. To identify various types of claims commonly encountered in the construction projects of CBE.
- III. To analyze the causal relationships between causes of construction claims and their effect on the performance of the construction projects of CBE.
- IV. To develop recommendations and best practices for CBE and other construction stakeholders (contractors, consultants, and concerned government bodies in the construction sector)

### **1.5. Significance of the Study**

This investigation into the effect of claims on building construction project performance holds significant ramifications for diverse stakeholders within the industry. Primarily, by illuminating construction claims that most profoundly influence project schedules and costs, the study

empowers clients/employers to implement proactive strategies alongside contractors, minimizing claim occurrences and fostering timely project completion within its budget. Adjacently, the research will equip contractors with valuable insights for crafting more effective claim management practices, streamlining processing, efficiently resolving disputes, and enhancing project delivery performance.

Besides, by investigating the relationship between construction claims and project performance, readers will gain insights into how these claims affect the time and cost of the project. This understanding is crucial for project managers, stakeholders, and policymakers.

Pinpointing the root causes of claims and how they impact project success allows institutions and organizations to take proactive steps to prevent poor project performance. Moreover, private financial institutions (Banks and Insurance Companies) are starting to construct buildings in different parts of the country, this research will give an insight into the challenges and effects an institution will face regarding construction claims and its management.

This research can be a valuable resource for the construction industry in several ways. Firstly, it can establish benchmarks for how often and how severely claims arise in building projects. Secondly, it can identify the areas where claims have the biggest negative impact on budgets and deadlines. This information will be crucial for researchers as they compare findings from different studies. Finally, by pinpointing the most significant challenges, this research can guide future research efforts toward developing targeted solutions for those specific issues.

This research offers significant advantages to the entire construction industry. By pinpointing the root causes of construction claims and how they impact project success, the industry can gain valuable insights that lead to improvements in efficiency, productivity, and overall knowledge. This fosters the development of best practices and industry standards, propelling the construction sector towards greater maturity and efficiency.

## **1.6. Scope of the study**

This study dives deep into construction claims within Ethiopia's building industry. It focuses on Commercial Bank of Ethiopia (CBE) projects throughout the country, including the capital Addis Ababa. First, it identifies and groups the most common claim sources to understand the typical claim landscape. Then, it analyzes how these various claims affect project performance. This analysis will measure average delays caused by different claim types and assess how often and

severely they occur, revealing the true impact of claim-related disruptions. To gain a richer understanding, the study will explore the factors influencing the link between claims and project success.

Finally, the research aims to provide stakeholders with practical solutions by recommending ways to reduce the negative effects of claims on project schedules and budgets. These recommendations will include a multi-faceted approach, encompassing strategies to prevent claims and improve methods for resolving disputes.

### **1.7. Limitations of the Study**

This research on construction claims in Ethiopia's building industry, specifically those of the Commercial Bank of Ethiopia, offers valuable insights, but with limitations to consider. Firstly, the findings may not be directly applicable to other countries or companies due to the study's focus. Secondly, as the research was conducted within a client organization, it solely reflects the employer's perspective. The study might not capture the client's potential contribution to delays or disputes in great depth. Furthermore, the research focused on identifying the root causes and types of construction claims and their effect on project performance. The detailed claim management process of the CBE's BCM department was not explored. Finally, the research might not account for all external factors impacting project performance, as it concentrates on evaluating construction claims and their influence. Future research could address this limitation by incorporating additional aspects and contextual variables into the model.

### **1.8. Organization of the Study**

This thesis is divided into five chapters. The first chapter sets the stage by introducing the research topic, problem, questions, and objectives. It also explains the study's importance, scope, and how the following chapters are organized. Chapter 2 dives into what's already known on the subject through a thorough review of relevant academic sources, including both theoretical and practical research. Chapter 3 details the research methods used in this study. It explains the research design, type of research conducted, sampling techniques, and the specific data collection tools chosen. Chapter 4 presents the analysis and findings of the research. This chapter carefully analyzes and describes both the qualitative and quantitative data collected. Finally, Chapter 5 wraps up the thesis by summarizing the key findings, drawing conclusions based on the research, and offering valuable recommendations for future research or practical applications.

## 1.9. Definition of Key Terms

**Project:** Projects are temporary initiatives with a specific objective, such as developing a new product or delivering a service. They have a well-defined beginning and end, and some may have intermediate goals to track progress. (PMI, 2021)

**Project Management:** Project management involves applying specific knowledge, skills, and tools to the tasks involved in a project. This ensures the project meets its goals and requirements. It's essentially guiding the project's work to deliver the desired outcomes. (PMI, 2021)

**Claim:** A formal request submitted by a party to a contract seeking either additional payment or an extension of the deadline due to factors beyond their control or a perceived breach of contract by the other party. (Will Hughes, 2015)

**Construction Claims:** Formal requests for additional compensation or time extensions made by a party involved in a construction project due to perceived wrongs or unforeseen circumstances. These claims arise from contractual disputes and disagreements regarding project execution. (Will Hughes, 2015)

**Claim Management:** The process of identifying, evaluating, responding to, and resolving claims arising from a construction project (Will Hughes, 2015)

**Dispute:** A dispute is essentially a disagreement that's become clear to both parties and needs to be settled. This happens when discussions and negotiations about a claim or conflict fail, and one party seeks a formal way to resolve it. (AIBINU, 2007).

# Chapter Two

## 2. Literature Review

### 2.1. Introduction

This literature review has examined existing research on construction claims. It has explored theoretical foundations related to construction projects, including the concept, definition, types, and causes of claims. Additionally, the review has investigated the effect of claims on project performance and claim management. It also analyzes relevant standard documents.

Furthermore, by examining empirical studies, the review has identified key trends and insights relevant to the study. This comprehensive analysis culminated in the development of a conceptual framework.

### 2.2. Theoretical Literature Review

#### 2.2.1. Construction Projects

Because construction projects involve many moving parts and people, unexpected events, big or small, can cause problems that snowball into disputes (Cheung & Yiu, 2006). Major construction projects are prone to changes and claims. These claims are well-known for being both time-consuming and expensive to resolve, requiring significant human effort and specialized knowledge to process them effectively. (Wilson, 1998).

The construction industry is a major driver of a country's financial growth and plays a crucial role in national development strategies. However, it's plagued by a high number of claims, which lead to a cascade of problems such as project delays and budget overruns (Shaikh H H, 2020).

#### 2.2.2. Concept of Claims in Construction

Construction projects often run into disagreements that can't be settled between the involved parties. These disagreements usually involve contractors asking for more time or money to finish the job. These requests from contractors are known as "claims."(Hadikusumo & Tobgay, 2015).

When a contractor submits a claim for extra time or money, the client can consult with the project consultant and decide to approve it. This resolves the issue. But if the client disagrees with the claim or interprets it differently, then a dispute arises., as explained in Figure.1 (Hadikusumo & Tobgay, 2015).



Figure 1. The Concept of Claim in Construction

### 2.2.3. Claim and Construction Claim Definition

According to the Project Management Institute (2013), is claim defined as:

*“A request, demand, or assertion of rights by a seller against a buyer, or vice versa, for consideration, compensation, or payment under the terms of a legally binding contract, such as for a disputed change.”*

For many involved in construction projects, claims are a major headache and a source of disruption. (Ho & Liu, 2004). For a clearer and more specific definition, we can refer to the work of Hadikusumo and Tobgay c, which states “When one party believes that the other party has not met the contractual obligations or expectations and that they deserve monetary and/or time compensation, they may submit a claim.” This description describes more simply the concept of claims in a project context.

Claim in construction can also be defined as measurement, rules, delay, disruption, or any other matters not agreed between the contractors and the client or consultant at any given time, and one party or the other wishes to raise it either for financial recompense or for a release from the liability for liquated and ascertained damages or even unliquated damages (Mbakwe, Ugochukwu, & Ajator, 2015).

Moreover, in construction, a claim refers to any situation where one party believes they deserve something extra, typically more time or money, even if it wasn't explicitly agreed upon in the initial contract. (Sibanyama G, 2014).

### 2.2.4. Causes of Construction Claims

Construction projects, while aiming to deliver built environments, can become breeding grounds for disputes and claims. Understanding the root causes of construction claims empowers project stakeholders to proactively mitigate their occurrence and minimize their financial impact. The research conducted by Bhagyashree Apte and Sudhanshu Pathak (2016) summarizes the causes of construction claims which can be broadly categorized as follows.

- I. **Changes in Project Scope:** Deviations that occurred due to design errors, omissions or ambiguities in specifications, inadequate initial bidding information, unforeseen site conditions necessitating alterations, or client-initiated changes such as change orders or additional work.
- II. **Project Delays:** Common causes include late deliveries of drawings, materials, or site access; sluggish decision-making by the owner; inefficient site management practices; or encountering unforeseen subsurface conditions. Delays often translate to extended periods of idle labor and machinery, leading to claims for additional compensation.
- III. **Contractual Disputes:** Ambiguous contract language, differing interpretations of clauses, and unbalanced bidding can all become flashpoints for claims.
- IV. **Payment Issues:** These can involve delayed or withheld payments, unexpected deductions from progress payments, or disagreements over the value of completed work.
- V. **External Factors:** While less controllable, external factors can still trigger claims. These include accidents, natural disasters, extreme weather events, and unforeseen fluctuations in material costs. Recently, Ethiopia's construction industry has been hit hard recently by several factors, including the COVID-19 pandemic, conflict in the north, rising construction material prices, and inflation.

### 2.2.5. Classification of Construction Claims

Construction projects, while aiming for smooth execution, can often encounter unforeseen challenges leading to claims. Understanding the various ways to classify construction claims is a critical skill for both contractors and project owners. There are various ways to classify construction claims.

Here, the three prominent classification systems for construction claims are used: classification by objective, Legal Basis, and Impact.

#### A. **Classification by Claim Objective** (*Chappell, 1984*)

This straightforward approach categorizes claims based on their desired outcome:

- I. **Extension of Time (EOT) Claim:** This claim seeks an adjustment to the project schedule due to disruptions beyond the contractor's control. These disruptions could include unexpected conditions under the ground (unforeseen site conditions), delays caused by the owner, or even severe weather (inclement weather).

- II. **Additional Payment Claim:** This claim seeks financial compensation arising from the execution of the contract. This could be due to variations in scope, unexpected site conditions, or other factors impacting project costs.

While this system provides a basic understanding of the claim's intention, it doesn't delve into the legal basis for the claim or the specific project impact.

**B. Classification by Legal Basis** (*Chappell, 1984*), (*S. Alkass & Harris, 1991*), and (*Hughes & Barber, 1992*)

While the first classification system provides a basic understanding of the claim's intention, it doesn't delve into the legal basis for the claim or the specific project impact. Thus, this classification system offers a more robust framework by focusing on the legal justification for the claim;

- I. **Contractual Claims:** These claims stem from specific parts of the signed agreement. For instance, if the ground conditions are unexpectedly difficult, the owner changes the project plans mid-way, delays the project on their end, or fails to provide crucial information on time, these can all lead to claims.
- II. **Extra-Contractual Claims:** These claims happen when there's a break in the contract, either something clearly stated (express) or something that's generally understood (implied). For example, if the owner provides faulty materials that require extra work to fix, even if that extra work wasn't originally listed in the contract, the contractor could file a claim.
- III. **Ex-Gratia Claims:** These claims aren't supported by anything specific in the contract or by law. However, the contractor believes they deserve compensation because of unexpected difficulties that arose during the project.

**C. Classification by Impact** (*Adrian, 1988*)

The second classification system only provides a clear structure based on legal arguments but may not directly address the specific impacts of the claim, such as delays or increased costs. However, this classification system focuses on how the event leading to the claim affects the project. Moreover, this classification system focuses on the practical impact of the claim, making it easier to identify potential consequences and calculate compensation accordingly.

- I. **Delay Claims:** These claims ask for more time to finish the project because of things beyond the contractor's control, like materials arriving late or bad weather.
- II. **Scope-of-Work Claims:** These claims arise from changes or variations in the originally planned scope of work. These variations might impact costs, schedules, or both, depending on the nature of the change.
- III. **Acceleration Claims:** These claims address situations where the contractor is forced to accelerate work due to the owner's demands or changes in project priorities. This can lead to increased costs or reduced quality if not managed properly.
- IV. **Changing-Site Condition Claims:** These claims deal with unexpected problems underground that are much different from what the contract described. These surprises could be buried obstacles, hazardous materials nobody knew about, or soil that's not what the plans expected.

#### **2.2.6. Claim Management**

Successfully completing construction projects on time and within budget requires effective claim management. According to Mirza, M. A. (2005), claim management involves two sides: the party filing the claim and the party defending against it. He defines a claim as, “A demand for something due or believed to be due”, usually the result of an action or direction toward the signed contract. If both parties agree, a claim can be resolved and transformed into a simple project change. Otherwise, the claim goes through a series of steps for resolution, which could involve negotiation, mediation, or arbitration. As a last resort, the claim may end up in court for a final decision. (Mirza, 2005). Here we have to be informed that claims can originate from both the contractor’s and client’s side.

Besides, Tochaiwat and Chovichien (2004) stated that, Construction claim management involves two key aspects. Firstly, it's about addressing changes initiated by one party during the construction process, potentially leading to disputes. Secondly, as Kululunga emphasizes, it's the coordinated use of resources to efficiently manage claims throughout their lifecycle. This includes identifying, analyzing, preparing, and presenting claims, while also seeking resolution. (Kululunga, 2011).

According to Du Preez, (2014) , claim management focuses on minimizing the negative impact of claims on a project by addressing them swiftly and efficiently. This approach aligns with the principles of risk management. The Construction Extension Guide to PMBOK reinforces this idea, emphasizing the importance of both preventing and handling claims effectively in the construction

industry. PMI, (2008) emphasized that the process of claims management seeks to mitigate the effect claims have on projects.

### 2.2.6.1. Claim Management and Project Management Body of Knowledge Areas (PMBOK)

Project Management and Claim Management, while separate fields, are closely linked within construction. The Project Management Body of Knowledge (PMBOK) provides best practices for successful project completion. Claim management, on the other hand, tackles disruptions and disputes that can pop up throughout the project's lifecycle (Project Management Institute, 2008). Conversely, successful project completion relies on proactive claim management to minimize disruptions and disputes. The key to reducing claims and achieving success is to manage projects effectively through these areas. Accordingly, table 1 shows the symbiotic relationship between claims and PMBOK knowledge areas by examining the impact of claim management on each PMBOK knowledge area.

*Table 1: The Interdependence of PMBOK and Claim Management*

S/N	PMBOK Areas	Their Relationship with Claim Management
1	Project Integration Management	Proactive issue identification during planning reduces the claim likelihood
2	Project Scope Management	Clear scope definition minimizes confusion and "scope creep" disputes
3	Project Schedule Management	Realistic schedules with risk adjustments minimize delay-related claims
4	Project Cost Management	Accurate cost estimates and strong cost control help evaluate claim validity
5	Project Quality Management	Quality control minimizes claims from rework due to non-compliant work
6	Project Human Resource Management	Effective communication and collaboration reduce disputes
7	Project Procurement Management	Clear contracts with risk allocation mechanisms minimize claims
8	Project Communication Management	Open communication prevents and resolves claims through timely issue identification
9	Project Risk Management	Proactive risk management with contingency plans minimizes claims from unforeseen events
10	Project Stakeholder Management	Effective stakeholder management fosters collaboration, reducing misunderstandings and disputes

As discussed above, claim management is not a separate entity but rather an integral part of effective project management. By following the best practices outlined in the PMBOK knowledge areas, project managers can proactively address potential issues that could lead to claims. Correspondingly, effective claim management fosters a collaborative environment and minimizes disruptions, contributing to a more successful project outcome.

#### **2.2.6.2. Construction Claim Management Process**

Levin (1998) presented seven basic processes for claims and change order administration. Accordingly, the process includes; 1) recognition and identification of change, 2) notification of change, 3) systematic and accurate documentation of change, 4) analysis of time and cost impacts of change, 5) pricing of change, 6) negotiation of claim, and 7) dispute resolution and settlement.

#### **2.2.6.3. Dispute Resolution Alternatives in Claim Management**

Subsequently, to resolve any disputes regarding construction claims, selecting an effective way of dispute settlement alternative is a must. Accordingly, here's a look at the four main alternatives of dispute Resolution and Settlement in Construction.

##### **I. Negotiation**

The most common approach, negotiation involves direct discussions between parties (e.g., contractor and owner/client). It's cost-effective and informal, but reaching an agreement can be time-consuming (Love, 2013).

##### **II. Mediation**

When negotiation stalls, a neutral mediator facilitates communication to find a solution agreeable to both sides. Unlike arbitrators, mediators cannot impose binding decisions (Bresnen & Nadkarni, 2006).

##### **III. Arbitration**

If negotiation and mediation fail, arbitration involves presenting the dispute to a neutral arbitrator who delivers a final, binding decision. Compared to litigation, arbitration is faster and less expensive (Jaafari & Assaf, 2013).

##### **IV. Litigation**

In the formal court process, litigation is a last resort due to its high cost, lengthy timelines, and potential to damage relationships (Walker, 2010).

The ideal approach to resolving construction disagreements hinges on three factors: the dispute's intricacy, the desired timeframe for resolution, and the parties' willingness to work together. Negotiation is typically the first step, with mediation as a backup if needed. For faster and more affordable resolution, arbitration is preferred over litigation, which is best suited for intricate or highly confrontational disputes. By understanding these methods, construction professionals can make well-informed choices when dealing with claims, fostering a more efficient and cooperative environment for dispute resolution.

### **2.2.7. Claim Management and Project Performance**

The ultimate measure of a project's success is how well it delivers on its intended outcomes.” (Project Management Institute, 2004). In project management, success means fulfilling the needs and expectations of the client.. Thomas & Kumaraswamy (2002) and Josephson, P. E. & Lindstrom, J. (2007) identified several means for measuring project performance, many of which were directed toward cost, time, and quality.

In a strained relationship, claim negotiations can create tension and communication breakdowns between project stakeholders, hindering collaboration and overall project efficiency. Whereas, unresolved claims can lead to significant financial burdens by affecting the project's budget and profitability. Besides, disputes arising from claims can stall project progress, causing delays in completion (Abbassi & Najjar, 2018).

Conversely, according to Harris and Scott (2001), construction projects will likely always face claims because it's impossible to predict every single unexpected event that could arise and impact project performance. This means changes to construction contracts are almost unavoidable as the project progresses (Oyewobi, Nasri, Lailuddin, & Usikalu, 2016). These changes will inevitably result in more expensive construction work.

This research examines how claims impact the time and cost performance of construction projects. A review of existing studies confirms that claims do indeed affect both project budgets and schedules.

### **2.2.8. Effects of Constriction Claims**

Ideally, construction projects wouldn't involve claims at all. Unfortunately, they're almost unavoidable. Not only do claims lead to unwanted costs, they also create tension between everyone involved in the project. This adversarial environment, where each party views the other with suspicion, can worsen the situation and lead to even more claims down the road (Kahssay, 2003)

#### **2.2.8.1 Effects of Claims on Project Completion Time**

Project timelines are paramount in construction, alongside cost and quality, serving as a key performance indicator (Charmer, 1990). Project completion signifies the successful execution of all contractual obligations by the contractor (Murdoch & Hughes, 2007). The construction project completion period defines the timeframe encompassing all necessary tasks and deliverables for project realization (Love, 2017). However, this period can be significantly impacted by construction claims. These claims, often requiring investigations and potential litigation, disrupt planned schedules and delay critical tasks. Validated claims granting additional time to contractors inevitably push back the completion date, potentially impacting subsequent phases and occupancy milestones.

#### **2.2.8.2. Financial Effect of Claims**

Construction claims can inflict significant financial strain on projects, leading to cost overruns that erode profit margins and potentially threaten project viability. These cost increases can stem from various factors, including extended project timelines due to delays caused by claim disputes, additional labor and equipment required to address claim-related issues, and the potential need for legal representation during claim resolution processes (AAACEI, 2018). Furthermore, delays caused by claims can have a severe financial impact, as they can postpone the generation of revenue from the project, such as rental income or sales proceeds, if occupancy or completion milestones are missed.

#### **2.1.8.3. Other Effects of Claims**

The claim process itself can significantly disrupt how the project runs. When claims reach arbitration, parties often become entrenched in opposition, which can have a much bigger impact than just the financial cost to the project (AAACEI, 2018). Hence, while a firm stance is necessary when dealing with potential claims, all parties involved should strive to foster a collaborative working environment for the project's overall success.

## **2.2.9. Construction Claims and the Ethiopian’s Public Procurement Agency (PPA)**

### **Standard Contract Document**

The Ethiopian government's standard construction contract, set by the Federal Public Procurement Agency (PPA), clearly outlines the responsibilities of both the client and the contractor, including how they should perform their duties. This standard contract also includes procedures for handling construction claims. The Commercial Bank of Ethiopia follows this same standard contract document. The following listed Clauses address issues related to contractual construction claims as per the PPA contract document;

#### **2.2.9.1. Settlement of Dispute (Clause 26)**

The PPA General Conditions of Contract outline a four-step process for resolving disputes arising during contract performance. The first step prioritizes negotiation between the employer and contractor. If negotiation fails, the clause recommends mediation by the consultant/engineer to facilitate communication and find a mutually agreeable solution. Should mediation prove unsuccessful, both parties can escalate the dispute to an external arbitration body, such as the Ethiopian Chamber of Commerce, for a neutral arbitrator's decision. Finally, litigation in formal court remains the last resort for resolving disputes.

to bring the Works to a close in a prompt and orderly manner, make the Site safe and secure, leave the Site as soon as reasonably possible, and make every reasonable effort to reduce expenditures for this purpose to a minimum.

- 25.2 The Engineer shall, as soon as is possible after termination, certify the value of the works and all sums due to the Contractor as at the date of termination.
- 25.3 In the event of termination a report of work performed by the Contractor shall be drawn up by the Engineer as soon as possible after inspection of the works, and inventory taken of temporary structures, materials, plant and equipment. The Contractor shall be summoned to be present during the inspection and the taking of the inventory. The Engineer shall also draw up statements of emoluments still owed by the Contractor to workers employed by him in relation to the contract and of sums owed by the Contractor to the Public Body.

## **26. Settlement of Disputes**

- 26.1 During any dispute, including a dispute as to the validity of the Contract, it is mutually agreed that the Contractor shall continue its performance of the Contract (unless the Public Body requests in writing that the Contractor does not do so).
- 26.2 The Public Body and the Contractor shall make every effort to resolve amicably by direct informal negotiation any disagreement, controversy or dispute arising between them under or in connection with the Contract or interpretation thereof.
- 26.3 If a dispute arises between the Public Body and the Contractor in relation to any matter which cannot be resolved by the Engineer and the Contractor's Contract Manager either of them may refer such dispute to the procedure described in GCC Sub-Clause 26.4.
- 26.4 In the second instance each of the Public Body and the Contractor shall appoint more senior representatives than those referred to in Sub-Clause 26.3 to meet solely in order to resolve the matter in dispute. Such meeting(s) shall be minuted and shall be chaired by the Public Body (but the chairman shall not have a casting vote). Such meeting(s) shall be conducted in such manner and at such venue (including a meeting conducted over the telephone) as to promote a consensual resolution of the dispute in question at the discretion of the chairman.
- 26.5 If the Parties fail to resolve such a dispute or difference amicably within twenty-eight (28) days from the commencement of such procedure, either party may require that the dispute be referred for resolution through the courts in accordance with Ethiopian Law.
- 26.6 Only those Public Bodies that are allowed by law to proceed to arbitration can do so.

*Figure 2. PPA 2011 - GCC Clause 26 - Settlement of dispute*

### **2.2.9.2. Extension of Intended Completion Date (Clause 73)**

Contractors may request extension of the intended completion date if there is delay in completing the contract by due to exceptional weather conditions, artificial obstructions or physical conditions which could not reasonably have been foreseen by an experienced Contractor, Compensation Event occurs or a change order for modification is issued, administrative orders for the client, Failure of the Employer to fulfil his obligations under the Contract, any suspension of the works which is not due to the Contractor's default, and occurrence of force majeure event.

them by the Intended Completion Date.

- 72.3 If provision is made for distinct periods of implementation for separate lots, in cases where one Contractor is awarded more than one lot per contract, the periods of implementation for the separate lots will not be accumulated.

### **73. Extension of Intended Completion Date**

- 73.1 The Contractor may request an extension of the Intended Completion Date if he is or will be delayed in completing the contract by any of the following causes:
- (a) Exceptional weather conditions in the Federal Democratic Republic of Ethiopia;
  - (b) Artificial obstructions or physical conditions which could not reasonably have been foreseen by an experienced Contractor;
  - (c) Compensation Event occurs or a change order for modification is issued which makes it impossible for completion to be achieved by the Intended Completion Date;
  - (d) Administrative orders affecting the date of completion other than those arising from the Contractor's default;
  - (e) Failure of the Public Body to fulfill his obligations under the Contract;
  - (f) Any suspension of the works which is not due to the Contractor's default;
  - (g) Force majeure;
  - (h) Any other causes referred to in these GCC which are not due to the Contractor's default.
- 73.2 The Contractor shall, within 15 days of becoming aware that delay may occur, notify the Engineer of his intention to make a request for extension of the Intended Completion Date to which he may consider himself entitled, and shall, unless otherwise agreed between the Contractor and the Engineer, within 21 days from the notification deliver to the Engineer full and detailed particulars of the request, in order that such request may be investigated at the time.
- 73.3 Within 21 days from receipt of the Contractor's detailed particulars of the request, the Engineer shall, by written notice to the Contractor after due consultation with the Public Body and, where appropriate, the Contractor, grant such extension of the Intended Completion Date as may be justified, either prospectively or retrospectively, or inform the Contractor that he is not entitled to an extension.
- 73.4 If the Contractor has failed to give early notification of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

*Figure 3. PPA 2011 - GCC Clause 73 - Extension of Intended Completion Date*

#### **2.2.9.3. Compensation Events for Allowing Time Extension (Clause 74)**

Accordingly, clause 74 of the contract document (PPA 2011) stated compensation events allowing for time extension.

## 74. Compensation Events for Allowing Time Extension

74.1 The following shall be Compensation Events allowing for time extension:

- (a) The Public Body does not give access to a part of the Site by the Site Possession Date stated in the Contractor's approved work program;
- (b) The Public Body modifies the Schedule of other Contractors in a way that affects the work of the Contractor under the Contract;
- (c) The Engineer orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time;
- (d) The Engineer instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects;

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- (e) The Engineer unreasonably does not approve a subcontract to be let;
- (f) The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Public Body, or additional work required for safety or other reasons.
- (g) Other Contractors, public authorities, utilities, or the Public Body do not work within the dates and other constraints stated in the Contract, and they cause delay;
- (h) The advance payment is delayed;
- (i) The Engineer unreasonably delays issuing Interim Payment Certificates;
- (j) Other Compensation Events described in the SCC or determined by the Public Body and force majeure.

74.2 If a Compensation Event would prevent the work being completed before the Intended Completion Date, the Intended Completion Date shall be extended. The Engineer shall decide whether and by how much the Intended Completion Date shall be extended.

74.3 The Contractor shall not be entitled to compensation to the extent that the Public Body's interests are adversely affected by the Contractor not having given early warning.

*Figure 4. PPA 2011 - GCC Clause 74 - Compensation Events for Allowing Time Extension*

#### 2.2.9.4. Price Adjustment and Claims for Additional Payment (Clause 62 and Clause 69)

PPA (2011) states about adjustment of the agreed contract price of the item of works under the contract on its GGC Clause 62. Accordingly, Clause 62. states that *“Adjustments of contract prices shall be allowed after twelve (12) months from the effective date of the Contract where it is verified that the performance of the contract requires more than 18 months”*. However, the Commercial Bank of Ethiopia doesn't allow price adjustments on its Special Conditions of Contract Clause SCC 62.1. states *“Delete GCC Clause 62 and replace as follows: There shall be no Price*

*Adjustment under this contract. The Contractor has submitted its price taking into consideration increase and decrease in price of material, fuel, labour, plant, machinery, equipment, tax, duties, exchange rate and other variables".* The contract also specifies situations where the contractor can claim additional payment. These situations are not explicitly mentioned, but the general idea is that the contractor deserves extra money due to unforeseen circumstances.

## **2.3. Empirical Research Review**

A review of existing research studies will investigate the connection between construction claims and project delays. Here are some key areas to search for relevant studies. This research has reviewed and examined construction claims management practices in developing countries, with a particular focus on research conducted in Africa and the Middle East.

### **2.3.1. Construction Claim Management Practice in the Middle East**

Accordingly, a research, conducted among Thai construction contractors, examines the core concepts of construction claims and how they are managed from the contractor's perspective. It was discovered that the following are the active duties that the contractors can complete effectively: (1) recognizing and identifying the change; (2) accurately and methodically documenting the change, and (3) analyzing the change's effects on time and money. The defensive responsibilities include the examination of the change's effects on time and money, as well as the methodical and correct documenting of the modification. Conversely, the following are the tasks that the contractor struggles with and has to get better at: (1) actively notifying the change; (2) actively negotiating the claim; and (3) defensively recognizing and identifying the change. (Tochaiwat, Kongkoon, & Chovichien, 2004).

Whereas, a study done on Malaysian contractors in construction projects by Bakhary, Adnan, & Ibrahim (2015) explains the inevitability of construction claims is attributed to contract complexity, multiple parties involved, risk factors, and time constraints in contract preparation and project execution. The rising number of claims underscores the necessity for effective construction claim management. The study found some key challenges faced by contractors in managing claims, including: Site staff not being proactive in identifying potential claims, Difficulty getting access to important documents for claims, Disagreements during negotiations with the project owner. By addressing these issues, contractors can improve their claim management practices.

Moreover, A study conducted in the UAE identified the five most common types of construction claims encountered in the industry: change claims, extra-work claims, delay claims, and non-performance claims. The research also highlighted the top five reasons why these claims arise, including changes or variations ordered by the client, delays caused by the client, verbal changes requested by the client, late payments from the client, and low contract prices due to high competition (Essam, 2006).

### **2.3.2. Construction Claim Management Practice in Africa**

In the African Context, a study investigated how Egyptian industrial construction contractors handle claims, particularly those arising from project changes. The research revealed that claim management in this sector faces problems like poor notification systems and weak documentation practices.

The study found that changes to project plans (change orders) were frequent, happening in 7 out of 10 projects. However, half the time, contractors lost their right to claim compensation because of poor documentation. This was often linked to site teams not fully understanding the contract. The research recommends improvements to claim management in the Egyptian industrial sector, such as developing a consistent system for valuing change orders and setting standardized contract terms. The study also acknowledges the growing presence of international construction companies in Egypt (Hassanein & El Nemr, 2008).

Whereas, in a research study conducted in Nigeria aimed to investigate how contract-related claims impact public building projects. They found significant cost increases (up to 16.8%) and schedule delays (ranging from 31% to a staggering 866%) due to these claims. The study concluded that minimizing contractual claims is crucial for improving project performance..

Besides, the author recommended that stakeholders enhance their adherence to contractual procedures to reduce preventable errors or modifications during construction by fostering effective communication and leveraging new technologies (Saidu, et al., 2018).

Furthermore, a study of South Africa's construction industry found that the most common reasons for claims are additional work requests, unclear instructions from the client, poor contractor performance, and bad weather. In contrast, claims due to insolvent subcontractors, subcontractor terminations caused by client defaults, and unforeseeable events (force majeure) are much less frequent. (Deacon & Kahilu, 2003).

### **2.3.3. Construction Claim Management Practice in the Ethiopian Construction Industry**

Towards the Ethiopian construction industry A study by Abebe Dinku and Girmay Kahssay found that Ethiopia's construction industry struggles with a high number of expensive claims, sometimes exceeding the entire project budget. To address this problem, the research highlights a lack of qualified engineers with expertise in construction management, international contracts, and specifically, claims management. (Dinku & Kahssay, 2003).

In another study conducted in the Ethiopian Construction Industry, focused on public housing construction projects in Addis Ababa, the research findings highlighted key sources of potential claims, including delays in input material supply, design changes, weather conditions, delayed payment release, and failure to provide written instructions. Furthermore, contractors face challenges in contract claim management due to factors such as high project manager workload, lack of contract expertise, delayed claim notifications, poor communication, and messy record-keeping in project offices.

The research suggests that focusing on early claim identification, notification, and presentation has the biggest impact on successful claim management. Interestingly, claim examination and documentation seem less critical. To minimize claims and disputes proactively, the study recommends all project participants, including clients, contractors, and consultants, take steps like seeking legal advice early, establishing a Disputes Adjudication Board (DAB), and improving their understanding of construction contracts (Aschalew, 2022).

Another study looked into the root causes of construction claims by examining them from four key angles: client actions, issues with the contract documents themselves, contractor behavior, and consultant involvement. The research also emphasized that choosing the right method to analyze claims depends on several factors, including the types of delays encountered, the project's complexity, and the clarity of the contract terms. The paper recommended that the three key contracting parties (Owner, Contractor, and Consultant) share responsibility for completing the project. Each party should fulfill its obligations promptly by enhancing its technical knowledge of how contract claims impact ongoing construction projects (Zenebe & T. Quezon, 2016).

Moreover, research in Southern Ethiopia, mirroring a worldwide trend, highlights that construction projects frequently encounter claims. These claims often involve requests for additional time or financial reimbursement. A significant hurdle in managing claims and disputes lies in identifying

the root causes, assigning responsibility, and evaluating their impact on project timelines and budgets. Ant the research points out, a typical claim involves the party making the claim referencing specific contractual clauses they believe were violated. (Reta & Bassa, 2019).

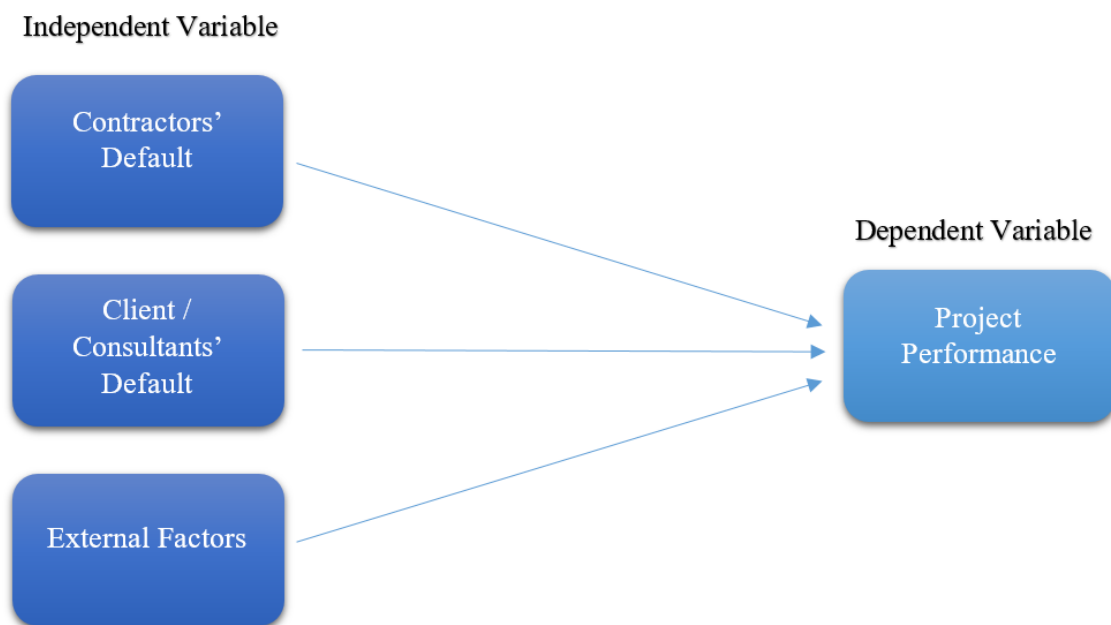
On the other hand, one study by Yehulum Belay and Deekshith Jain (2023) investigated the external factors that contribute to claims in construction, specifically focusing on how rising prices (price escalation) affect building projects. Their research found that price escalation can lead to several negative consequences, including delays in project progress, cash flow problems, increased overall project costs, and a rise in disputes between the involved parties (Belay & Jain, 2023).

## **2.4. Conceptual Framework**

Building on existing research on construction claims, this study delves deeper by examining the cause-and-effect relationships between different types of claims and their impact on project success. Through a review of relevant studies, the research develops a conceptual framework that illustrates the various causes of construction claims and their negative effects on project performance. This framework categorizes claim causes into three main groups: those arising from the contractor, those caused by the client or consultants, and those due to external factors. Table 2 outlines these categories for this specific research project.

*Table 2 Showing causes of claims grouped into their sources related*

S/N	Causes related to Contractor	Causes Related to Client / Consultant	Causes Related to External Factors
1	Poor performance of contractors	Change the scope of the project during construction	COVID-19 Pandemic
2	Financial limitations of contractors	Variation works	Political instability in the northern part of the country
3	Lack of professionals (Shortage of labor/skilled workers)	Late handover of the project site	Construction materials price escalation
4	Preparing an un-realistic work schedule	Slow decision-making	Economic condition (inflation, currency, LC)
5	Failure to manage Subcontractors	Delay to effect Advance Payment and Interim payment certificates to the contractor	Exceptionally adverse climatic conditions
6	Poor quality of work	Setting unrealistic contract durations for projects	Unforeseen ground conditions (Soil condition, water table, etc.)
7	Contractors' lack of contract management skill	Poor coordination and communication	Late issuance of required permits to work by Government
8	Failure to meet milestone dates	Delay in clarification for requested documents	Changes in laws and regulations from the government
9	Delay in site mobilization	Awarding the contract to the least bidder	Accidents during construction
10	Failure to deliver construction materials and equipment	Unclear and incomplete specifications and drawings	Delay in utility services (electricity, water, etc.)



*Figure 5. Conceptual Framework (the causes and effects of construction claims)*

## **Chapter Three**

### **3. Research Design & Methodology**

#### **3.1. Introduction**

This section explains the research methods used in this study. It covers details like the research design, the chosen approach, how participants were selected, what data sources were used and how the data was collected, the specific tool used for data collection (research instrument), the data collection process itself, and finally, how the collected data will be analyzed. The research focused on the Building Construction Management department within the Commercial Bank of Ethiopia. This department was chosen because of its large and diverse construction projects.

#### **3.2. Research Design and Approach**

This study examined how construction claims impact project performance within the Commercial Bank of Ethiopia's Building Construction Management Department (CBE's BCM department). It specifically looked at how claims affect project schedules and budgets. The research used a mixed-methods approach, combining both quantitative (numerical data) and qualitative (descriptive data) methods. The descriptive component has characterized the identification of the root causes and types of construction claims and has analyzed relevant data, while the explanatory component has identified and explained causal relationships between causes of claims (independent variable) and their effect on project performance (dependent variable).

Additionally, quantitative research has been frequently used to utilize experiments, surveys, and existing datasets to collect quantifiable information that can be statistically analyzed. The quantitative approach is a systematic research method that employs measurement and analysis of numerical data to understand phenomena (Creswell & Creswell, 2018). It relies on objective measures and statistical techniques to examine relationships between variables, and describe trends (Polit & Beck, 2017).

In contrast to quantitative methods, qualitative methods allowed researchers to delve deeper into participants' experiences and viewpoints. This approach helped uncover the underlying reasons behind certain behaviors and provided a richer understanding of the research topic (Flick, 2018).

### **3.3. Population and Sampling Techniques**

#### **3.3.1. Sources of the Study Population**

The study took place within the Building Construction Management Department (BCM) of the Commercial Bank of Ethiopia (CBE). This department had two main units that handled the bank's building construction projects. As mentioned earlier, the research aimed to assess how claims impacted the performance of CBE's construction projects. Therefore, the target participants for this study were all operational staff directly involved in managing construction projects. This excluded support staff whose main function was to assist with the department's daily operations.

#### **3.3.2. Target Population**

Due to the uniform knowledge base and small size of the BCM staff directly involved in CBE-BCM's building construction projects, this study employed a census methodology. This approach included data collection from all 55 staff members directly engaged in CBE-BCM's building construction projects. This approach has guaranteed data collection from the entire departmental population. CBE-BCM staff have fulfilled a critical role throughout the building construction lifecycle, encompassing needs assessment studies, quantity preparation, design review, securing bank approvals, monitoring contractors and consultants, payment processing, managing guarantees and bonds, stakeholder engagement, and administering contracts. Due to their comprehensive involvement, these staff members have been ideally situated to offer valuable insights about claim management practices employed within CBE-BCM.

### **3.4. Data Sources and Collection Method**

#### **3.4.1. Sources of Data**

To understand the causes of claims in CBE's building projects, the research used two main sources of information: primary data and secondary data. The study looked at reliable sources like academic journals, books, industry reports, and papers to identify and analyze the different types of construction claims and their effects documented elsewhere as a secondary data. This comprehensive review helped categorize and understand how these claims typically impact projects. The study has also gathered data directly related to CBE's projects through interviews, surveys, or document reviews from the BCM department (mentioned earlier), primary data.

### **3.4.2. Data Collection Method**

To gather information from staff in the CBE's Building Construction Management department (BCM department), the research used a self-administered questionnaire. This questionnaire was specifically designed to measure the causes, types, and impacts of construction claims on project performance. The questionnaire followed a structured format with Likert-type scales, which means participants responded using a rating system (e.g., strongly agree, agree, neutral, disagree, strongly disagree). Furthermore, to facilitate a convenient response process, the questionnaire has been converted into a Google Form and has been distributed electronically. The questionnaire questions were adopted from the research paperwork of Nesru Seran (2020) and Eshetu Z. & Emmer T. (Contract claim Analysis on Building Construction Project in Addis Ababa: A case study at Yeka Sub City, 2016).

Since questionnaires offer a standardized way to gather data from a large sample, interviews have then allowed researchers to delve deeper into specific responses, clarify ambiguities, and explore unexpected themes emerging from the questionnaires (Teddlie & Yu, 2007). Accordingly, managers and project managers have been interviewed to collect qualitative data in addition to the questionnaire.

In addition to the staff survey, the study collected data from various project documents, published and unpublished materials (like books), and relevant project reports. This combination of primary data (from the survey) and secondary data (from documents) allowed the researcher to gather well-rounded information and draw strong conclusions that address the research questions.

### **3.5. Method of Data Analysis**

Once all the data was collected, a computer program called IBM SPSS Statistics (version 27.0.1) was used to analyze the information from the staff survey (primary data). The data went through some adjustments to make it suitable for statistical analysis. The analysis included: Descriptive statistics: this provided clear summaries of the data, often using percentages and tables, to show how frequently things occurred.; Correlation analysis: this helped identify how strong the relationships were between construction claims (independent variable) and project performance (measured variable).; Regression analysis: this helped quantify the exact impact of construction claims on project performance.

### **3.6. Validity and Reliability**

Validity ensures an instrument truly captures what it's intended to measure (Kumar, 2011), or it can be described as the degree to which a measure genuinely captures what we believe it to be measuring (Leavy, 2017). Reliability refers to the consistency and stability of a research tool, which makes it predictable and accurate (Kumar, 2011). It can also be defined as the consistency of results (Leavy, 2017). In this regard, the content validity of the data collection tool has been established by consulting with the research advisor.

On the other hand, reliability refers to the consistency and stability of a research tool. To assess this consistency within the questionnaires, Cronbach's Alpha ( $\alpha$ ), the most common measure of scale reliability, has been employed.

According to Ursachi, Horodnic, & Zait (2015), a score between 0.6 and 0.7 on a reliability test indicates acceptable consistency, while 0.8 or higher is considered very good. Scores above 0.95 might suggest unnecessary repetition in the questions. Table 3 shows the Cronbach's Alpha coefficient for each variable in this study, a measure of reliability. All the variables scored above 0.6, indicating acceptable reliability for the questionnaire as a whole.

The reliability test scores (Cronbach's Alpha) for two sections of the questionnaire, those on external factors and the types of construction claims, were a bit lower at 0.636 and 0.687, respectively. Even though these scores are still considered acceptable, they might be due to two main reasons.

First, inherent variability in the construct itself may be present. This means the underlying concept being measured might be inherently prone to fluctuations or errors (Nunnally & Bernstein, 1994). Second, a lack of item homogeneity could be an issue. In this case, the items within the measure might not be adequately capturing a singular construct. Instead, they could be measuring slightly different aspects, leading to inconsistencies (Clark & Nunnally, 1996).

*Table 3: Cronbach's Reliability Test of the Study*

<b>Reliability Statistics</b>			
S/N	Questionnaire Parts or Segments	No. of Items	Cronbach's Alpha
1	Causes related to the Contractor's default	10	0.764
2	Causes Related to the Client's / Consultant's default	10	0.755
3	Causes Related to External Factors	10	0.636
4	Types of Construction Claims	8	0.687
5	Effects of Construction Claims on Project Performance	10	0.824
6	Prevention and Resolution Alternatives of Construction Claims	14	0.808

*Source: Researcher's Survey SPSS result, 2024*

### **3.7. Model Specification**

The model consists of two main variables. The independent variable has been addressed in the research work, which discussed the causes of construction claims. This variable has been categorized into three sub-categories. The first one is Contractor's default including Poor performance of contractors, Financial limitations of contractors, Lack of professionals (Shortage of labor/skilled workers), Preparing an un-realistic work schedule, Failure to manage Subcontractors, Poor quality of work, Contractors' lack of contract management skill, Failure to meet milestone dates, Delay in site mobilization, and Failure to deliver construction materials and equipment.

The second is the Client's or Consultants' defaults such as Changing the scope of the project during construction, Variation works, Late handover of the project site, Slow decision-making, Delay to effect Advance Payment and Interim payment certificates to the contractor, Setting unrealistic contract durations for projects, Poor coordination and communication, Delay in clarification for requested documents, Awarding the contract to the least bidder, and Unclear and incomplete specifications and drawings.

Thirdly, beyond the internal factors like contractor performance or unclear contracts, external forces can also significantly impact construction projects and lead to claims. These external factors include disruptions caused by large-scale events like the COVID-19 pandemic or political

instability. Economic challenges like inflation, currency fluctuations, or difficulties securing letters of credit can also create financial strain and contribute to claims. Bureaucratic hurdles such as delays in obtaining permits or changes in government regulations can disrupt the project flow and lead to claims. Finally, accidents during construction or delays in getting utilities connected can also throw a wrench into the project schedule and potentially result in claims from involved parties.

On the other side, the dependent variable for the study has been the effect of Construction Claims on Project Performance. This variable has measured the effect of claims on project outcomes including schedule delays and cost overruns.

The research assumed that the different causes of construction claims (independent variable) would negatively impact project performance (dependent variable). This study investigated the strength and nature of this relationship, aiming to identify which claim causes have the most significant negative effect.

To analyze these factors, a statistical method called linear regression was used. Linear regression helps model the relationship between a dependent variable (affected by other variables), like project performance in this case (denoted by 'Y'), and one or more independent variables (explanatory variables) that potentially influence it, like the causes of claims (denoted by 'X'). The model is simplified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where,

Y = Project Success was identified based on the specified time and cost in contract which mean the time and cost deviate according to the agreements are time delay and cost overrun.

$\beta_0$  = the constant

$\beta_1, \beta_2, \beta_3$  = the coefficients

X1 = Causes related to Contractor's Default

X2 = Causes related to Client's or Consultant's Default

X3 = Causes related to External Factor

$\epsilon$  = the error term

Y represents project performance of construction projects which is dependent on the explanatory variables X1, X2, X3. Accordingly, IBM Statistical Package for Social Sciences (SPSS) computer software version 27.0.1 will be used for this purpose.

**Table 4 Model specification of variables**

S.N	Predictor / Independent Variable (X)	Beta coefficient	Predictor Assigned
1	Contractor’s Default	$\beta_1$	X1
2	Client’s or Consultant’s Default	$\beta_2$	X2
3	External Factor	$\beta_3$	X3

*Source: Adopted Model, 2024*

### **3.8. Ethical Consideration**

The research prioritized the ethical treatment of participants throughout the study. This involved complete transparency from the outset. All participants were fully informed about the research goals and the specific questions being investigated. They were treated with respect as individuals throughout the process. Their participation was entirely voluntary, and they were ensured of their right to withdraw at any point. Informed consent was obtained, meaning participants freely chose to participate after understanding the research and their rights. Additionally, the research ensured respondent anonymity to protect participant confidentiality. The data collected was used exclusively for this specific research project. It's important to note that all sources used, including secondary data from other studies and publications, were properly cited to ensure academic integrity.

## **Chapter Four**

### **4. Results and Discussions**

#### **4.1. Introduction**

This chapter dives into the results gathered from the questionnaires and interviews with participants. The analysis and explanations all connect back to the main goal of the study: evaluating how construction claims impact the performance of building construction projects within the CBE. More specifically, this chapter focuses on three key areas: identifying the root causes of construction claims, defining the common types of claims encountered, and analyzing the connection between these claim causes and how they ultimately affect project performance.

As a result, the descriptive analysis has covered demographic details of participants, their answers regarding construction clauses, types of claims, impacts of claims on project performance, and methods for claim prevention and resolution. Additionally, the chapter delves into the correlation and regression analysis. Moreover, it also examines the findings from the interview analysis.

#### **4.2. Demographic Information of Respondents**

Demographic information of respondents strengthens research papers by providing context about the sample (Rea & Parker, 2012). This allows researchers to understand who participated, examine group variations (Neuman, 2000), assess how well findings apply to a broader population and even identify potential biases (Creswell & Creswell, 2018). Ultimately, demographics enrich the research by ensuring a more comprehensive and generalizable understanding of the results.

A total of 53 questionnaires (out of 55 distributed) were completed and returned by respondents, representing a response rate of 96.37%. Only two questionnaires (3.64%) were not returned. The analysis was subsequently conducted using the data collected from the 53 returned questionnaires.

This section provides an overview of the respondents' demographic data, including age, educational attainment, Job Position, years spent working at CBE-BCM, and total years of experience as indicated in Table 4 below.

**Table 5 Demographic Information of Respondents**

		Count	Column N %
Respondent's Age	20 - 30	23	43.4%
	31 - 40	21	39.6%
	41 - 50	9	17.0%
Respondent's Gender	Female	19	35.8%
	Male	34	64.2%
Educational Background	Bachelor's Degree	22	41.5%
	Master's Degree or above	31	58.5%
Total Work Experience in the Building Construction Industry	0 - 3	9	17.0%
	4 - 5	15	28.3%
	6 - 10	18	34.0%
	11 - 15	6	11.3%
	16 - Above	5	9.4%
Total work Experience in CBE - BCM	0 - 3	14	26.4%
	4 - 5	14	26.4%
	6 - 10	15	28.3%
	11 - 15	10	18.9%
Job Position at CBE - BCM	Junior Engineer	9	17.0%
	Associate Engineer	14	26.4%
	Engineer (Civil, Electrical, Mechanical, Sanitary, Quality)	10	18.9%
	Senior Engineer (Civil, Electrical, Mechanical, Sanitary, Quality)	9	17.0%
	Architect	1	1.9%
	Senior Architect	2	3.8%
	Project Manager	5	9.4%
	Manager	2	3.8%
	Director	1	1.9%

**Source: Researcher's Survey SPSS result, 2024**

Table 5 reveals that the majority of CBE-BCM employees (43.4%) are between the ages of 20 and 30. The next largest group (39.6%) is between 31 and 40 years old, while the remaining nine (17.0%) CBE-BCM staff members are between the ages of 41 and 50 years old. It also shows that The majority of the respondents are male (64.2%), with females comprising the remaining 35.8%.

As the largest demographic group (43.40%), respondents between 20 and 30 years old offer several potential advantages for this research. First, their recent experiences in the construction industry may provide the most relevant and up-to-date insights, particularly for research focused on

emerging trends. Second, their perspectives can differ from those of more seasoned professionals, potentially leading to novel ideas and interpretations. Finally, this generation's comfort with technology and online surveys can contribute to higher participation rates and easier data collection.

On the other hand, the potential disadvantage of having young respondents is a lack of in-depth experience to fully understand the complex legal and technical issues of claims. They may also have a limited perspective due to their specific roles, potentially having weaker recall of details about complex claims from years ago which could affect the accuracy of data on claim frequency or impact. Finally, limited decision-making authority restricts them from being directly involved in claim resolution or having full visibility into the financial repercussions of claims on project performance.

Besides, as is also shown in Table 5, respondents' educational background, all respondents are well-educated, with the majority of respondents at CBE (58.5%) holding a Master's degree or higher qualification and the remaining 41.5% holding a Bachelor's degree. Hence, according to their educational background, respondents might have a strong understanding of specific areas relevant to claims and might possess a deeper theoretical understanding of construction contracts, dispute resolution mechanisms, and claim types.

Whereas, the distribution of work experience of respondents in the building construction industry is relatively even across several bands. The largest group (34.0%) has between 6 and 10 years of experience, closely followed by those with 4-5 years (28.3%). A smaller number (5) of respondents (9.4%) have 16 or more years of experience.

Moreover, Table 5 also shows respondents' experience specific to CBE-BCM, with the majority of respondents having work experience between 6-10 years (28.3%), followed by both 4-5 years (26.4%) and 0-3 years (26.4%), and respondents' between 11-15 years of work experience (18.9%) are the least one.

In addition, it can be seen in Table 5, that the majority of the staff have attained the Associate Engineer title (26.4%) followed by Engineer (Civil, Electrical, Mechanical, Sanitary, Quality) at 18.9%, Junior engineer and senior engineer at 17.0%, Project Manager at 9.4%, managers and senior Architect at 3.8%, and director and architect each with a percentage of 1.9%.

Based on the data in the table, with nearly 70% of respondents having over four years of experience, we can infer that those with more experience likely have a richer understanding of different claim types, their causes, and the legal implications. Furthermore, they can provide insights into the entire claim lifecycle, offering a more generalized picture of how claims affect project performance across all stages.

Additionally, these respondents can potentially provide valuable information on the long-term consequences of claims, extending beyond immediate schedules and budget overruns. This includes potential reputational damage or impacts on future projects.

In general, the survey results showed that the participants were generally young, well-educated, and experienced in building construction. This suggests they had a strong understanding of the field and the CBE's Building Construction Management department (BCM), making them well-qualified to respond to the questionnaire's inquiries.

### **4.3. Responses for Causes of Construction Claims in CBE-BCM Projects**

This part of the survey aims to pinpoint and provide a brief overview of the independent factors in this research project. These independent factors include the reasons behind construction claims linked to contractor defaults, construction claims associated with client or consultant defaults, and construction claims stemming from external influences in CBE-BCM building construction projects.

#### **A. Causes related to the Contractors' Default**

This part of the questionnaire aims to gather information relevant to answering the initial research question, *“To identify the root causes of construction claims in Commercial Bank of Ethiopia’s building construction projects?”*. Accordingly, various causes of claims related to the contractor’s default in CBE-BCM projects have been identified and discussed in this sub-section.

**Table 6 Responses regarding Causes Related to the Contractors' Default**

Causes Related to Contractors' Default	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Poor performance of contractors	1	0	3	9	40	4.64	0.762	0.928	1
	1.90%	0.00%	5.70%	17.00%	75.50%				
Financial limitations of contractors	0	2	3	14	34	4.51	0.775	0.902	2
	0.00%	3.80%	5.70%	26.40%	64.20%				
Preparing an unrealistic work schedule	0	0	4	22	27	4.43	0.636	0.887	3
	0.00%	0.00%	7.50%	41.50%	50.90%				
Failure to manage Subcontractors	0	0	5	23	25	4.38	0.657	0.875	4
	0.00%	0.00%	9.40%	43.40%	47.20%				
Failure to meet milestone dates	0	1	4	23	25	4.36	0.710	0.872	5
	0.00%	1.90%	7.50%	43.40%	47.20%				
Failure to deliver construction materials and equipment	0	1	3	28	21	4.3	0.668	0.860	6
	0.00%	1.90%	5.70%	52.80%	39.60%				
Contractors' lack of contract management skill	0	3	4	22	24	4.26	0.836	0.853	7
	0.00%	5.70%	7.50%	41.50%	45.30%				
Delay in site mobilization	0	3	6	25	19	4.13	0.833	0.826	8
	0.00%	5.70%	11.30%	47.20%	35.80%				
Poor quality of work	0	4	13	22	14	3.87	0.900	0.774	9
	0.00%	7.50%	24.50%	41.50%	26.40%				
Lack of professionals (Shortage of labor/skilled workers)	2	9	7	26	9	3.58	1.082	0.717	10
	3.80%	17.00%	13.20%	49.10%	17.00%				

**Source: Researcher's Survey SPSS result, 2024**

Building on what we discussed earlier, this section of the survey specifically targets causes of construction claims that stem from the contractor's performance or actions in CBE-BCM building projects. According to the analysis shown in above Table 6, the building projects in the CBE-BCM office have experienced all causes of claims related to the contractors' default requested on the questionnaire. Moreover, as per the calculated mean and relativity importance index (RII) of the respondents' responses, causes related to the contractor's defaults are ranked in the following

order; poor performance of contractors (RII = 0.928), financial limitations of contractors (RII = 0.902), preparing an un-realistic work schedule (RII = 0.887), failure to manage subcontractors (RII = 0.875), failure to meet milestone dates (RII = 0.872), failure to deliver construction materials and equipment (RII = 0.838), contractors' lack of contract management skill (RII = 0.853), delay in site mobilization (RII = 0.826), poor quality of work (RII = 0.774), and lack of professionals (RII = 0.717).

Table 6 shows a mean score of less than four (3.58) for "Lack of professionals (Shortage of labor/skilled workers)" as a cause of contractor claims. This indicates a trend of disagreement or dissatisfaction with the frequency of this issue. However, it's important to note that a low score doesn't necessarily justify dismissing it entirely. Hence, in construction projects, a lack of professionals refers to a situation where there aren't enough qualified workers available to meet project requirements (Associated General Contractors of America, 2022). This shortage can negatively impact project performance through schedule delays, increased labor costs due to competition for talent, and quality issues from inexperienced workers, potentially leading to rework and safety concerns.

Although Table 6 shows a mean score of less than four (3.87), indicating a trend of disagreement with poor quality being a frequent issue, this doesn't necessarily justify dismissing it entirely. While poor quality work may not be the most significant factor affecting CBE's construction projects compared to others on the table, it's still important to consider.

As defined by the American Institute of Architects (2023), poor quality of work encompasses any aspect failing to meet agreed-upon standards in the contract documents. This can manifest as deviations from specifications (incorrect materials, improper installation), defects compromising functionality or safety (leaks, cracks), or failure to meet performance standards (energy efficiency, soundproofing).

## **B. Causes Related to the Client's/Consultants' Default**

This section of the survey directly addresses the first research question posed in this study, "*To identify the root causes of construction claims in Commercial Bank of Ethiopia's building construction projects?*". Meanwhile, in this section, the other primary sources of construction claims the client and the consulting firm are being discussed. Since the projects are owned and financed by CBE, it is expected that the client will interfere during the construction process which

affect the project's progress. Accordingly, various causes of claims related to the client's or consultants' default in CBE-BCM projects have been identified and discussed in this sub-section.

**Table 7. Responses regarding Causes Related to the Client's/Consultants' Default**

Causes Related to Client's Default	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Variation works	0	0	4	12	37	4.62	0.627	0.925	1
	0.0%	0.0%	7.5%	22.6%	69.8%				
Change the scope of the project during construction	0	1	4	15	33	4.51	0.724	0.902	2
	0.0%	1.9%	7.5%	28.3%	62.3%				
Slow decision-making	1	1	1	18	32	4.49	0.799	0.898	3
	1.9%	1.9%	1.9%	34.0%	60.4%				
Awarding the contract to the least bidder	0	3	5	11	34	4.43	0.888	0.887	4
	0.0%	5.7%	9.4%	20.8%	64.2%				
Unclear and incomplete specifications and drawings	0	5	6	12	30	4.26	1.003	0.853	5
	0.0%	9.4%	11.3%	22.6%	56.6%				
Setting unrealistic contract durations for projects	2	2	6	17	26	4.19	1.039	0.838	6
	3.8%	3.8%	11.3%	32.1%	49.1%				
Delay in clarification for requested documents	2	3	5	33	10	3.87	0.921	0.774	7
	3.8%	5.7%	9.4%	62.3%	18.9%				
Poor coordination and communication	1	9	4	29	10	3.72	1.026	0.743	8
	1.9%	17.0%	7.5%	54.7%	18.9%				
Late handover of the project site	1	10	8	21	13	3.66	1.108	0.732	9
	1.9%	18.9%	15.1%	39.6%	24.5%				
Delay to effect Advance Payment and Interim payment certificates to the contractor	4	13	25	5	6	2.93	1.053	0.585	10
	7.5%	24.5%	47.2%	9.4%	11.3%				

*Source: Researcher's Survey SPSS result, 2024*

As discussed earlier, this part of the questionnaire looks into causes of construction claims that arise from decisions or actions by the client or consultants involved in CBE-BCM building projects. According to the analysis shown in above Table 7, the building projects in the CBE-BCM office have experienced all causes of claims related to the client's or consultants' default requested on the questionnaire.

Moreover, as per the calculated mean and relativity importance index (RII) of the respondents' responses, causes related to the client's or consultants' default are ranked in the following order; variation works (RII = 0.925), change the scope of the project during construction (RII = 0.902), slow decision-making (RII = 0.898), awarding the contract to the least bidder (RII = 0.887), unclear and incomplete specifications and drawings (RII = 0.853), setting unrealistic contract durations for projects (RII = 0.838), delay in clarification for requested documents (RII = 0.774), poor coordination and communication (RII = 0.743), late handover of the project site (RII = 0.732), and delay to effect advance payment and interim payment certificates to the contractor (RII = 0.585).

Table 7 shows a mean score of less than four (3.66) for " Late handover of the project site " as a cause of claims due to the client's default. This indicates a trend of disagreement or dissatisfaction from the respondents regarding this issue as a potential factor affecting project performance. It's important to consider that even if a cause of construction claims receives a low score, it may still be relevant. For instance, a low score for "late handover of the project site" doesn't necessarily mean it's insignificant. In construction projects, this refers to a situation where the client delays giving the contractor full access to the work area, which can hinder the start of construction activities (Everett & Young, 2018).

Late site handover might be a result of delays in obtaining permits or approvals from relevant authorities, unforeseen issues like environmental concerns, or site contamination requiring remediation, incomplete demolition or removal of existing structures on the site, and unresolved issues with utilities or infrastructure connections. Accordingly, this delay have a significant consequences for the project schedule, budget, and disrupts the projects work flow.

The second factor with a mean score of 2.93 is the delay by the client to effect advance and interim payment certificates. According to the major respondents' responses, CBE did not delay certifying payments to the contractors'. Since CBE is the strongest financial institution in the country, financing its projects is not hindered due to limited finance. Construction projects function

smoothly when payments are made on time, similar to how blood delivers vital nutrients throughout the body. This is because these projects involve significant upfront costs (Ameer Ali, 2005). Besides, The federal public procurement agency's contract documents require the client (employer) to approve both initial and progress payments to the contractor within a specific timeframe outlined in the contract, assuming the contractor has met the necessary requirements. (PPA, 2011).

However, the financial difficulties of the client, disputes over contract interpretation regarding the scope of work, slow bureaucracy on approval of payment by the client, and unsatisfactory work progress might be reasons for the delay in certifying payments. Accordingly, delayed payments will result in a cash flow issue for the contractor followed by project delays, loss of productivity, and legal disputes between the parties (Ameer Ali, 2005).

The other two factors with a mean score of less than four are poor coordination and communication (3.72) and delay in clarification for requested documents (3.87). Referring to the mean scores, it indicate a trend of disagreement or dissatisfaction by the respondents for CBE projects, that the two factors can not be seen as a potential factor affecting project performance compared to the others. However, the client's poor coordination and communication with the contractor will result in scope creep and delays, decision-making delays, loss of trust and conflict, and reduced quality which can significantly hinder project performance. (Ishaq & Omar, 2019).

Whereas, the client's delay in clarification for requested documents will result in disrupted workflows and schedules, incomplete or substandard work, strained client-contractor relationships, and inefficiencies and rework resulting in increased costs (Sambasivan & Soon, 2007).

### **C. Causes Related to External Factors**

The survey questions in this section are designed to directly address the very first research question of this study, *“To identify the root causes of construction claims in Commercial Bank of Ethiopia's building construction projects?”*. Causes related to external factor are beyond the control of both the contractor and client. A study by Apte & Pathak (2016) states external factors (such as accidents, natural disasters, extreme weather events, and unforeseen fluctuations in material costs) are less controllable which can highly trigger claims. Accordingly, various causes of claims

related to external factors in CBE-BCM projects have been identified and discussed in this subsection.

**Table 8. Response Regarding Causes Related to External Factors**

Causes Related to External Factors	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Construction materials price escalation	0	1	0	6	46	4.83	0.509	0.966	1
	0.0%	1.9%	0.0%	11.3%	86.8%				
Political instability in the northern part of the country	0	1	0	9	43	4.77	0.542	0.955	2
	0.0%	1.9%	0.0%	17.0%	81.1%				
Economic condition (inflation, currency, LC)	0	2	0	6	45	4.77	0.640	0.955	2
	0.0%	3.8%	0.0%	11.3%	84.9%				
COVID-19 Pandemic	0	2	5	17	29	4.38	0.814	0.875	4
	0.0%	3.8%	9.4%	32.1%	54.7%				
Late issuance of required permits to work by Government Authorities	1	4	8	35	5	3.74	0.812	0.747	5
	1.9%	7.5%	15.1%	66.0%	9.4%				
Delay in utility services (electricity, water, etc.)	1	5	12	24	11	3.74	0.964	0.747	5
	1.9%	9.4%	22.6%	45.3%	20.8%				
Changes in laws and regulations from the government	0	8	23	20	2	3.3	0.774	0.660	7
	0.0%	15.1%	43.4%	37.7%	3.8%				
Unforeseen ground conditions (Soil condition, water table, etc.)	3	7	26	13	4	3.15	0.949	0.630	8
	5.7%	13.2%	49.1%	24.5%	7.5%				
Exceptionally adverse climatic conditions	11	6	21	13	2	2.79	1.150	0.558	9
	20.8%	11.3%	39.6%	24.5%	3.8%				
Accidents during construction	3	22	20	2	6	2.74	1.041	0.547	10
	5.7%	41.5%	37.7%	3.8%	11.3%				

**Source: Researcher's Survey SPSS result, 2024**

This part of the survey delves into external forces impacting construction projects in Ethiopia, aiming to identify how these factors might lead to claims. (This paraphrase rephrases the target audience - construction projects - and the ultimate goal of identifying claim causes). According to the analysis shown in above Table 8, the building projects in the CBE-BCM office have experienced all causes of claims related to the external factors requested on the questionnaire.

Moreover, as per the calculated mean and relativity importance index (RII) of the respondents' responses, causes related to the external factors are ranked in the following order; construction materials price escalation (RII = 0.966), political instability in the northern part of the country (RII = 0.955) and economic condition (RII = 0.955), COVID-19 pandemic (RII = 0.875), delay in obtaining necessary permits from government agencies (RII = 0.747) and delay in utility services (RII = 0.747), changes in laws and regulations from the government (RII = 0.660), unforeseen ground conditions (RII = 0.630), exceptionally adverse climatic conditions (RII = 0.558), and accidents during construction (RII = 0.547).

Furthermore, as can be seen from the above table (Table 8) mean score of delay in obtaining necessary permits from government agencies, delay in utility services, changes in laws and regulations from the government, unforeseen ground conditions, exceptionally adverse climatic conditions, and accidents during construction are less than four, which indicates disagreement of respondents to state these issues as a potential factor affecting project performance specific to CBE's projects.

In Table 8 exceptionally adverse climatic conditions with a mean score of 2.79 indicates a trend of difference of opinion or dissatisfaction by the respondents for CBE projects, that it can not be seen as a potential factor affecting project performance. However, exceptionally adverse climatic conditions refer to weather events that are significantly more severe than what's typically expected in a particular location. Accordingly, it disrupts project performance in various ways such as schedule delays, increased costs, material damage and quality issues, safety risks due to hazardous working conditions, and it can disrupt transportation networks and logistics. (Yang & Liu, 2017). Referring to BCM's project history document, CBE's Bahirdar, Mekelle, Woldia, Debre Markos, Hawassa, Butajira, Hossana, and Kake projects have been affected by exceptionally adverse climatic conditions (refer to Annex-3: Project Duration Data).

Unforeseen ground conditions with a mean score of 3.15 also indicate a trend of disagreement or dissatisfaction by the respondents for CBE projects, it can not be seen as a potential factor affecting project performance. Meanwhile, projects encounter unforeseen ground conditions due to limited site investigations, natural variations, and unexpected events. Accordingly, unforeseen ground conditions significantly affect project performance in several ways such as schedule delays due to redesigning, increased costs due to scope change, safety risk of unstable soil conditions or encountering unexpected underground utilities, and also disagreements resulting in disputes and

Claims (Chenari & Rao, 2016). Accordingly, referring to BCM's project history document, CBE's Bahirdar district office project located in Bahirdar town, Amhara regional state, has been affected by unforeseen ground conditions (refer to Annex-3: Project Duration Data).

While permitting delays (lease agreements and construction permits) and utility service hold-ups (Electricity, Water, Telecom) scored moderately low (3.74) in impacting CBE project performance. Research by Yang & Liu (2017) suggests these factors can significantly disrupt schedules, costs, and productivity. For instance, referring to BCM's project history document, CBE's Gilgel Beles Branch Office project faced delays due to a late construction permit (refer to Annex-3: Project Duration Data).

Furthermore, according to the majority of respondents, changes in laws and regulations from the government (mean score = 3.30) did not strongly affect the performance of CBE's projects. However, recently it become an issue for Ethiopian construction projects. From a conducted site visit by the researcher on CBE's projects located in Addis Ababa, it can be justified that CBE's Bole Office Project (3B+G+14) has been affected by the current government launched corridor development project. More than 10 meters of the Bank's land has been taken for the corridor development project stating the newly introduced policy regarding side back from the main road for constructing a building, resulting in design review and demolishing of executing activities on the building. Subsequently, the project schedule and budget will increase as a result of the stated regulation change to accommodate the corridor development project.

Gadisa and Zhou (2019) stated in their study, that frequent changes or unclear regulations can cause confusion and delays in obtaining permits, approvals, and navigating new compliance procedures. This can lead to project schedule slippages and increased costs. Besides, rapidly evolving regulations might outpace the ability of some contractors, especially smaller firms, to adapt their practices and workforce qualifications. This can lead to non-compliance issues and project quality problems (Derese & Assefa, 2016)

The last external factor of causes of claims from Table 7 with the lowest mean score (mean = 2.74) is accidents during construction. An accident during construction is an unplanned, unintended event that results in injury, property damage, or disruption to the project (Haile & Wu, 2018). Types of accidents in the Ethiopian Construction industry falls from height, falling objects, trench collapses, electrocution from faulty electrical installations or maintenance, and machinery

accidents (Bekele & Tefera, 2012). A Study by Bekele & Tefera (2012) reveals several factors contributing to construction accidents in Ethiopia, including weak safety culture leading to unsafe practices, inadequate worker training on safety procedures and equipment, poor supervision allowing disregard for safety protocols, and use of faulty or poorly maintained equipment.

#### 4.4. Responses for Types of Construction Claims in CBE-BCM Projects

The questions in this section directly address the study's second research question, “*What are the common types of claims encountered in Commercial Bank of Ethiopia’s building construction projects?*”. Accordingly, different types of claims commonly encountered in CBE’s BCM building construction projects have been identified.

**Table 9 Response Regarding Types of Construction Claims in CBE-BCM Building Construction Projects**

Types of Construction Claims	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Variation Claims	0	0	1	16	36	4.66	0.517	0.932	1
	0.0%	0.0%	1.9%	30.2%	67.9%				
Delay Claims	0	1	1	18	33	4.57	0.636	0.913	2
	0.0%	1.9%	1.9%	34.0%	62.3%				
Scope Change Claims	0	1	10	15	27	4.28	0.841	0.857	3
	0.0%	1.9%	18.9%	28.3%	50.9%				
Termination of Contract	2	2	6	17	26	4.19	1.039	0.838	4
	3.8%	3.8%	11.3%	32.1%	49.1%				
Suspension of Work	0	5	8	16	24	4.11	0.993	0.823	5
	0.0%	9.4%	15.1%	30.2%	45.3%				
Extra-Work Claims	1	2	17	21	12	3.77	0.912	0.755	6
	1.9%	3.8%	32.1%	39.6%	22.6%				
Contract Ambiguity Claims	5	8	10	24	6	3.34	1.159	0.668	7
	9.4%	15.1%	18.9%	45.3%	11.3%				
Damage Claims	3	5	24	13	8	3.34	1.037	0.668	7
	5.7%	9.4%	45.3%	24.5%	15.1%				

**Source: Researcher’s Survey SPSS result, 2024**

As mentioned earlier, this part of the questionnaire was prepared to determine types of specific construction claims CBE-BCM building projects have faced. According to the analysis shown in above Table 9, the building projects in the CBE-BCM office have experienced all types of construction claims requested on the questionnaire. Moreover, as per the calculated mean and relativity importance index (RII) of the respondents' responses, the occurrence of construction claim types are ranked in the following order; variation claims (RII = 0.932), delay claims (RII =

0.913), scope change claims (RII = 0.857), termination of contract (RII = 0.838), suspension of work (RII = 0.823), extra-work claims (RII = 0.755), contract ambiguity claims (RII = 0.668), and damage claims (RII = 0.668).

In Table 9, the extra-work claim (mean score = 3.77), contract ambiguity claim (mean score = 3.34), and damage claims (mean score = 3.34) have a mean score of less than four, which indicates a trend of disagreement or dissatisfaction by the respondents for CBE projects. Hence, the listed claim types could not be seen as a specific claim type that will occur frequently. However, an extra-work claim happens when a contractor thinks they deserve extra money for doing work that wasn't originally included in the contract (Lught, Zarkovich, & Wehrung, 2018). This can occur due to unexpected ground conditions, changes to the project design initiated by the owner themselves, or the owner requesting additional work beyond the original scope.

Whereas, a contract ambiguity claim is filed when the contract documents contain unclear or conflicting language that can be interpreted in multiple ways (Pickett, 2016). This ambiguity can lead to disputes between the owner and contractor regarding their respective rights and obligations under the contract. The interpretation of the contract by a neutral third party, such as a court or arbitrator, may be necessary to resolve the claim. Lastly, according to Soehring's (2010) book, damage claims encompass a broad category of claims where one party seeks compensation from the other party for losses incurred due to their actions or inactions. In construction, damage claims can be filed by either the owner or the contractor.

On the other hand, interviews have been conducted to strengthen the data collected via questionnaires. Selected top management and senior professionals of the CBE-BCM office were asked to provide an example of a project significantly affected by claims. Besides, the survey asked participants to describe the type of construction claim and how it impacted the project's schedule (time) and budget (cost). Accordingly, during the interview, the respondents said almost all projects face construction claims, particularly CEB's Bahirdar, Hawassa, Mekelle, and Bole office projects are significantly affected by claims. The survey results shed light on the primary factors contributing to construction claims within these projects. The most frequently cited reasons included rising prices for construction materials, political instability impacting the northern region of the country, and financial limitations faced by the contractors themselves. These claims, as reported by the overwhelming majority of respondents, had a demonstrably negative effect on both the project timelines and budgets. This translates to project delays in completion and increased

overall expenses. Besides, the respondents stated that CBE has incurred a significant amount of office rent cost, and has failed to capitalize the projects by the National Bank as fixed assets.

#### 4.5. Responses Regarding Effects of Construction Claims on the performance of CBE-BCM Projects

The following section delves into the third research question of this study, “*What are the casual relationship between causes of construction claims and their effect on the projects’ performance in CBE’s construction projects?*”. Accordingly, various effects of construction claims on the performance of CBE’s BCM building construction projects have been identified and discussed.

**Table 10 Response Regarding Effects of Construction Claims on the Projects’ Performance**

Effects on Project Performance	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Project cost overrun	0 0.0%	1 1.9%	0 0.0%	9 17.0%	43 81.1%	4.77	0.542	0.955	1
Extension of Time	0 0.0%	0 0.0%	1 1.9%	11 20.8%	41 77.4%	4.75	0.477	0.951	2
Price escalation of construction materials	0 0.0%	1 1.9%	1 1.9%	10 18.9%	41 77.4%	4.72	0.601	0.943	3
Dispute between contracting parties	0 0.0%	1 1.9%	0 0.0%	21 39.6%	31 58.5%	4.55	0.607	0.909	4
Work Suspension	0 0.0%	1 1.9%	3 5.7%	18 34.0%	31 58.5%	4.49	0.697	0.898	5
Client's profits and revenue loss	0 0.0%	3 5.7%	7 13.2%	8 15.1%	35 66.0%	4.42	0.929	0.883	6
Termination of Contract	0 0.0%	0 0.0%	7 13.2%	18 34.0%	28 52.8%	4.4	0.716	0.879	7
Penalty and Liquidated damaged of the Contractor	0 0.0%	1 1.9%	4 7.7%	30 57.7%	17 32.7%	4.21	0.667	0.842	8
Contractor’s profits, revenue, and reputation loss	1 1.9%	1 1.9%	11 20.8%	16 30.2%	24 45.3%	4.15	0.949	0.830	9
Poor quality of work	0 0.0%	5 9.4%	11 20.8%	25 47.2%	12 22.6%	3.83	0.893	0.766	10

**Source: Researcher’s Survey SPSS result, 2024**

As mentioned earlier, this part of the questionnaire was prepared to determine the effects of construction claims on the performance of CBE-BCM building projects. According to the analysis

shown in above Table 10, the building projects in the CBE-BCM office have experienced various effects of construction claims on their performances. Moreover, as per the calculated mean and relativity importance index (RII) of the respondents' responses, the effects of construction claims on projects' performances are ranked in the following order; project cost overrun(RII = 0.955), an extension of time (RII = 0.951), price escalation of construction materials (RII = 0.943), dispute between contracting parties (RII = 0.909), work suspension (RII = 0.898), client's profits and revenue loss (RII = 0.883), termination of the contract (RII = 0.879), penalty and liquidated damaged of the contractor (RII = 0.842), contractor's profits, revenue, and reputation loss (RII = 0.830), and poor quality of work (RII = 0.766).

Subsequently, in Table 10, contractors' poor quality work has a mean score of less than four (3.83) to be considered as an effect of the occurrence of construction claims on CBE's projects' performance, indicating a trend of disagreement from respondents. While poor quality work may not be the most significant factor affecting CBE's construction projects compared to others on the table, it's still important to consider. Meanwhile, poor quality of work encompasses aspects failing to meet agreed-upon standards in the contract documents such as deviations from specifications, defects compromising functionality or safety, or failure to meet performance standards. (American Institute of Architects, 2023)

In contrast, CBE-BCM managers and project managers were asked via interview, if their BCM office does have a specific policy and procedure when it comes to the management of claims. The respondents answered that CBE follows the Ethiopian PPA contract document for all projects. However, it was stated by the respondents, that CBE-BCM's procedures are not updated to handle the current dynamic environment of the construction industry. Meanwhile, the common practices to manage construction claims of the CBE-BCM office are; setting specific timelines for the submission of claims, conducting detailed documentation to support the claims followed by a formal review and approval process for evaluating and approving claims, and finally using the dispute resolution mechanisms such as mediation, arbitration, or litigation, to address claims that cannot be resolved through negotiation to ensure that disputes are resolved in a timely and fair manner.

Furthermore, when the respondents were asked whether there were any gaps in the standard contract documents used by the CBE-BCM office that could lead to difficulties when managing construction claims, they agreed there are some common gaps in their office's contract documents.

The stated gaps by the respondents were the estimation of construction project duration, rigidity on price escalation adjustment, and ambiguities in a few contract clauses. As per the response, the project timelines outlined in the contracts often fail to realistically consider factors like the project's complexity, location, availability of materials and labor, and access to the construction site. Whereas, all contracts under CBE-BCM are non-flexible to price escalation related to inflation, devaluation of Birr, and instability of peace and security.

Given that CBE's contracts typically exclude price adjustments, CBE-BCM managers and project managers were asked via interview, how this affects the management of construction claims and their subsequent effect on project performance. The respondents have agreed that contracts can have significant implications for the management of construction claims since price adjustments are excluded from the specific conditions of the contract. Accordingly, the management of construction claims and even execution of the projects will be hindered since the contractor may face cash flow which can lead to absorbing additional costs. Hence, balancing the bank's interest in timely project completion with the rigid terms of the contract has led to ongoing challenges in managing claims effectively. It is putting the management of claims at large, circling in never-ending forth and comebacks between all parties concerned.

Moreover, the professionals stated that most projects are suffering from delays due to the non-flexibility of contract agreements projects in turn will result in cost overruns, variation claims, damage claims, dispute and contractual controversies, deterioration of structures of pending projects, Profit and revenue loss, termination of contracts, good will & reputation loss is also inevitable.

## **4.6. Responses Regarding Prevention and Resolution Alternatives for Construction Claims in CBE-BCM Projects**

### **4.6.1. Claim Prevention Methods**

The following section delves into the third research question of this study, “*What recommendations and best practices can minimize the effect of claims on project completion for the CBE-BCM department and other construction stakeholders?*” Accordingly,

CBE-BCM professionals were requested to evaluate various claim prevention and resolution alternative methods that can help to prevent and reduce the effect of construction claims on the performance of their projects.

**Table 11 Response Regarding Claim Prevention Methods**

A. Claim Prevention Methods	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Good contract management	0	0	0	12	41	4.77	0.423	0.955	1
	0.0%	0.0%	0.0%	22.6%	77.4%				
The client should provide a clear brief of the scope of the works	0	0	1	15	37	4.68	0.510	0.936	2
	0.0%	0.0%	1.9%	28.3%	69.8%				
Ensure adequate and proper communication among party	0	1	1	12	39	4.68	0.613	0.936	2
	0.0%	1.9%	1.9%	22.6%	73.6%				
Effecting payments on time to the contractors	0	0	2	14	37	4.66	0.553	0.932	4
	0.0%	0.0%	3.8%	26.4%	69.8%				
Complete the design, specifications, and drawings at the tender stage	1	1	1	9	41	4.66	0.783	0.932	4
	1.9%	1.9%	1.9%	17.0%	77.4%				
Ensure control during the planning and implementation phase	0	0	1	16	36	4.66	0.517	0.932	4
	0.0%	0.0%	1.9%	30.2%	67.9%				
Ensure suitable procurement method	0	2	1	11	39	4.64	0.710	0.928	7
	0.0%	3.8%	1.9%	20.8%	73.6%				
Carry out detailed site investigation including detailed soil	1	0	1	13	38	4.64	0.710	0.928	7
	1.9%	0.0%	1.9%	24.5%	71.7%				
Resources should be correctly determined and allocated	0	0	2	17	34	4.6	0.566	0.921	9
	0.0%	0.0%	3.8%	32.1%	64.2%				
All parties should forecast unforeseen situations	0	3	4	13	33	4.43	0.866	0.887	10
	0.0%	5.7%	7.5%	24.5%	62.3%				

**Source: Researcher’s Survey SPSS result, 2024**

As mentioned earlier, this section of the questionnaire was prepared to recommend alternative preventive methods of construction claims, to prevent construction claims from happening in CBE-BCM building projects. According to the analysis shown in above Table 11, the building projects in the CBE-BCM office have experienced, the stated alternative prevention method can be useful if applied to building projects of the CBE-BCM office.

Moreover, as per the calculated mean and relativity importance index (RII) of the respondents' responses, the alternative construction claim prevention methods are ranked in the following order; good contract management (RII = 0.955), ensuring adequate and proper communication among

parties (RII = 0.936), the client should provide a clear brief of the scope of the works (RII = 0.936), ensuring control during the planning and implementation phase (RII = 0.932), complete the design, specifications, and drawings at the tender stage (RII = 0.932), effecting payments on time to the contractors (RII = 0.932), carry out detailed site investigation (RII = 0.928), ensure suitable procurement method (RII = 0.928), resources should be correctly determined and allocated (RII = 0.921), and all parties should forecast unforeseen situations (RII = 0.887).

#### 4.6.2. Claim Resolution Alternatives

The questions in this section are specifically designed to investigate the fourth research question of this study, “*What recommendations and best practices can minimize the effect of claims on project completion for the CBE-BCM department and other construction stakeholders?*” Accordingly, CBE-BCM professionals were requested to evaluate the application of the four known claim and dispute resolution methods that can help to reduce the effect of construction claims on the performance of their projects.

**Table 12 Response Regarding Claim Resolution Alternatives**

B. Claim Resolution Methods	Five-Point Likert Scale Count and Percentage					Mean	Std. Deviation	RII	Rank
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Negotiation - involving direct discussions between parties	0	0	0	11	42	4.79	0.409	0.958	1
	0.0%	0.0%	0.0%	20.8%	79.2%				
Mediation - using a Neutral mediator that facilitates communication to find a solution	0	0	8	20	25	4.32	0.728	0.864	2
	0.0%	0.0%	15.1%	37.7%	47.2%				
Arbitration - by presenting the dispute to a Neutral arbitrator	0	3	10	36	4	3.77	0.669	0.755	3
	0.0%	5.7%	18.9%	67.9%	7.5%				
Litigation - in the formal court process	4	3	21	14	11	3.47	1.120	0.694	4
	7.5%	5.7%	39.6%	26.4%	20.8%				

**Source: Researcher’s Survey SPSS result, 2024**

Table 12 shows survey responses of CBE-BCM professionals regarding the alternative resolution methods of construction claims. Accordingly, the respondents' first responses show negotiation which involves direct discussions between contracting parties should be the first choice resolution

method (RII = 0.958). Whereas, according to the survey the next alternative will be mediation (RII = 0.864) using a neutral mediator that facilitates communication to find a solution if the parties have failed to resolve their disputes via negotiation.

On the other hand, the next two claim resolution alternatives are costly compared to the first two. That is why we can see on the survey results, that the respondents gave priority to choosing the first two (negotiation and mediation). Looking from Table 12, respondents agreed and select arbitration (RII = 0.755 and Mean score = 3.77) as the third alternative to reduce the effect of disputes regarding claims. Furthermore, the least advised claim and dispute resolution method is litigation (RII = 0.694 and Mean score = 3.47).

Whereas, making arbitration less preferable is due to arbitration awards are generally not subject to appeal in court, meaning dissatisfied parties have fewer options to challenge the outcome (Stipanowich, 2016) and arbitration can be expensive and time-consuming, especially compared to some alternative methods (Carr & Latanio, 2018).

Besides, litigation is less preferable due to it is notoriously expensive and time-consuming due to court procedures, lawyer fees, and the potential for lengthy trials (Stipanowich, 2016), litigation can be adversarial and damage relationships between the owner and contractor, making future collaboration difficult (Wachter & Huber, 2014), and The outcome of litigation is uncertain, and both parties face the risk of an unfavorable judgment (Carr & Latanio, 2018).

These limitations highlight the potential benefits of exploring alternative dispute resolution (ADR) methods such as mediation or facilitated negotiation. ADR can be faster, less expensive, and more likely to preserve relationships between the parties involved (Wachter & Huber, 2014).

Alternatively, interviews were conducted with CBE-BCM managers and project managers to inquire about the difficulties encountered by the BCM office in handling claims, the steps taken by the office to minimize the impact of claims on project performance, and the practical effectiveness of those measures. Consequently, the professionals responded managing claims was a tough task for the CBE-BCM department (the client) since there is no professional claim expert on the subject, and managing some complex claims was even worse. Besides, the BCM office faces several challenges in managing claims, which include time constraints in investigating claims and gathering evidence; misunderstandings and while negotiating with the contractor; the challenges encountered by BCM while managing extension of time (EoT) claims and cost-related

claims are the burden of proof to convince the top management; and the lengthy bureaucracy of the Banks Purchase Approval Committee.

However, the respondents stated that CBE-BCM follows the contract document while handling claims. Accordingly, the consultants will review and approve the claim with their limit of approval if the claim is found to be justifiable as per the contract. Whereas, If the requested claim needs the client's intervention and is above the consultant's limit given by the contract, with the help of the consultant's technical analysis the client (CBE-BCM) will approve the justified claim. However, if the requested claim has much cost variation or extension of time request, it needs the bank's top management's approval.

Moreover, conducting regular project site visits and tripartite meetings, maintaining accurate and comprehensive documentation, employing dispute resolution techniques to find common ground for settlement, conducting risk assessment reports on projects, and arranging training for CBE-BCM professionals were the measures CBE-BCM office has been taking while handling claims and their effect on project performance throughout the management of projects.

On the other hand, the interviewees stated that the bank has been using administrative time support (to give an extension of time for projects with their initial contract time has finished); pre-financing (to certify payments directly to suppliers of the contractors purchasing of finishing materials and the amounts will be deducted from the contractor's interim payments), and facilitation of letter of credit openings (since there is a shortage of foreign currency in our country, CBE will facilitate the supply of foreign currency to the contractors') to support the contractors for better accomplishment of the projects. Accordingly, these mitigation measures have worked for most claims that are not related to price escalation.

Finally, CBE-BCM managers and project managers were requested via interview, on how they foresee the effect of claims on future building construction projects and what improvements they would suggest to better manage claims and minimize its effect on project performance. Which will address the fourth research question of this research work.

As per the response from the interviewee, claims will be forthcoming for any project since that is the nature of the project. Hence, the effect of claims on future building construction projects will significantly impact project timelines and costs, relationships with stakeholders, and overall project success. Accordingly, the respondents have suggested the improvement that should be done

by the department could be to lock all factors that drive to claim such as conducting a proper feasibility study before rushing to project execution, Invest much time in planning and design, avoiding scope change, preparing own price index manual, develop a design standard Manual, update different procurement procedures considering the prevailing dynamic construction environment, and hiring a claim expert.

Moreover, to better manage claims and minimize their effect on project performance, the respondents have suggested the following improvements to be implemented; 1) Preparing clear and well-drafted contract documents and working closely with legal advisors to review and negotiate contracts to protect the bank’s interest; 2) Conducting a proactive risk assessment to early identification of potential claim issues, and mitigation strategies, can help prevent disputes from arising; 3) Keeping everyone involved in the project informed by holding regular meetings, visiting the construction site, and sharing progress reports with contractors, subcontractors, and consultants; and 4) Providing training and development opportunities for the CBE-BCM professionals, particularly on claim management, dispute resolution techniques, negotiation skills, and contract administration to enhance their ability to handle claims effectively

#### 4.7. Summary of the Descriptive Statistics for the Independent and Dependent Variables

*Table 13 Descriptive Statistics for the Independent and Dependent Variables*

		<b>Descriptive Statistics for Variables</b>			
		Effects of Claims on Project Performance (DV)	Causes Related to the Contractors’ Default (IDV)	Causes Related to the Client/Consultants’ Default (IDV)	Causes Related to External Factors (IDV)
N	Valid	53	53	53	53
	Missing	0	0	0	0
Mean		4.4287	4.2472	4.0679	3.8208
Std. Deviation		0.44544	0.45132	0.52027	0.41480
Minimum		2.60	3.00	2.80	2.30
Maximum		5.00	5.00	5.00	4.50

*Source: Researcher’s Survey SPSS result, 2024*

Table 13 shows a summary of 53 respondents descriptive statistics (mean scores, standard deviation, minimum and maximum scores) for three independent variables (causes related to the contractors' default, causes related to client/consultants' default, and causes related to external factors) and one dependent variable (impact of construction claims on project performance).

Accordingly, the standard deviations for all four variables are relatively small. The data exhibits a high degree of central tendency, with most values concentrated near the mean.

The survey results strongly support the notion that construction claims significantly impact project performance. This is reflected in the high average score (4.43) for the variable "effect of claim on project performance." This finding aligns with the theories and research presented in the literature review, highlighting the importance of effectively managing construction claims throughout a project's lifecycle. By proactively engaging with claims and implementing effective management strategies, project teams can increase their chances of achieving success. According to Love P. (2017), occurrences of construction claims cause significant delays in project completion that affect projects' overall success.

Besides, based on the study's analysis, the mean score for causes of construction claims related to the contractors' default (mean = 4.25) indicates that the respondents consider contractor's default to be one major factor for the occurrence of construction claims and to affect projects' performance.

Moreover, the analysis of the data suggests that the mean score for causes of construction claims related to the client's or consultants' default (mean = 4.07) suggests that most of the respondents perceive the client's or consultants' default as a reason for the occurrence of construction claims. On the other hand, the study's results indicate that the mean scores for causes of construction claims due to external factors (mean = 3.82) are relatively lower than the mean of the other independent variables (causes due to contractors' default and clients' or consultants' default). This suggests that external factors are seen as the least source of construction claims affecting project performance. Furthermore, this result supports the existing body of knowledge presented in the literature review, which identifies clients, consultants, contractors, and external factors as the causes of construction claims, as stated by Apte and Pathak (2016).

#### **4.8. Correlation Analysis**

This section dives into the relationships between different factors that can influence project performance. The researcher employed a statistical technique called correlation analysis to assess how strongly the independent variables (reasons behind construction claims, categorized as contractor-related, client/consultant-related, and external factors) are associated with the dependent variable (project performance). The results of this analysis are presented in Table 14.

The researcher used Pearson's correlation coefficient, a common method for measuring the level of association between two variables.

Correlation analysis is a statistical method that not only determines whether there is a link between variables but also helps to identify the strength and direction of this relationship. The direction of the relationship can be positive, negative, or zero. The correlation coefficient, which ranges from -1 to +1, measures the strength of a linear relationship between two variables. According to Dancey & Reid (2007) a correlation coefficient of +1 or -1 indicates a perfect relationship, while coefficients between  $\pm 0.9$  and  $\pm 0.7$  suggest a strong correlation. Coefficients between  $\pm 0.7$  and  $\pm 0.4$  indicate a moderate correlation, while those between  $\pm 0.4$  and  $\pm 0.1$  suggest a weak correlation. A coefficient of zero indicates no correlation between the variables.

**Table 14 Pearson's Correlation Result**

		<b>Correlations</b>			
		Contractors' Default	Client's Default	External Factor	Project Performance
Contractors' Default	Pearson Correlation	1.00			
	Sig. (2-tailed)				
	N	53			
Client's Default	Pearson Correlation	.359**	1.00		
	Sig. (2-tailed)	.008			
	N	53	53		
External Factor	Pearson Correlation	.404**	.517**	1.00	
	Sig. (2-tailed)	.003	.000		
	N	53	53	53	
Project Performance	Pearson Correlation	.570**	.487**	.506**	1.00
	Sig. (2-tailed)	.000	.000	.000	
	N	53	53	53	53

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

**Source: Researcher's Survey SPSS result, 2024**

Table 14 shows that the correlation coefficient value for the variables is above 0.4, indicating a positive correlation of moderate strength between all three independent variables (causes of claims) and the dependent variable (effect on project performance). Moreover, the strong positive

correlation indicates a direct connection between the factors leading to construction claims and their influence on project performance in CBE-BCM projects, with a statistical significance at the 1% level.

As the variables' magnitude rises, the negative impact on project performance will also magnify. Causes related to contractor's default have the strongest correlation ( $r = 0.570$ ), while causes related to external factors have the second moderate correlation ( $0.506$ ), and causes related to client's or consultants' default have the weakest correlation ( $r = 0.487$ ) with project performance.

#### **4.9. Regression Analysis**

Regression analysis serves as a flexible method enabling researchers to go beyond mere observation of variable correlations, delving into the mechanisms and reasons behind those relationships. Additionally, it quantifies the intensity and direction of the association between a dependent variable and one or more independent variables.

Accordingly, the study directs its attention towards the independent variable, encompassing the origins of construction claims. This variable is subdivided into three categories: contractor defaults, client or consultant defaults, and external factors. Conversely, the dependent variable in this investigation represents the consequences of construction claims on project performance. This variable evaluates the influence of claims on project results, such as delays in schedule and exceeding costs.

Consequently, the researcher utilized multiple regression analysis to investigate the intensity and character of the connection between these variables. The objective of the analysis is to pinpoint the causes of claims that exert the most substantial adverse influence on project performance.

Meanwhile, to guarantee the precision and dependability of the regression analysis findings, the researcher initially confirmed essential assumptions of the classical linear regression model, as delineated by Brooks (2014). These assumptions encompass normality, linearity, homoscedasticity, lack of autocorrelation, and multicollinearity.

##### **4.9.1 Assumption of Normality**

In order to grasp how the dependent variable is distributed concerning the independent variables within the model, the researcher conducted a normality assessment using the Shapiro-Wilk test. The aim of this assessment was to ascertain whether the distribution of error terms was normal.

The Shapiro-Wilk test assumes the data is normally distributed if the test results a high p-value (typically greater than 0.05, depending on the chosen significance level). According to the test results show on Table 15, the significance value of all variables is greater than 0.05, which indicates there is a normal distribution.

**Table 15 Normality Test - Shapiro-Wilk**

Variables	Shapiro-Wilk		
	Statistic	df	Sig.
Contractors' Default (IDV)	.961	53	.083
Client's or Consultants' Default (IDV)	.944	53	.071
External Factor (IDV)	.931	53	.068
Project.Performance (DV)	.976	53	.074

*Source: Researcher's Survey SPSS result, 2024*

#### 4.9.2 Linearity

Linearity is employed to assess whether all regression estimates, including regression coefficients, standard errors, and tests of statistical significance, are affected by bias or not (Keith, 2006). This can be checked by p-p plot residuals as indicated by Figure 7 below. Accordingly, in this research, the causal relation between the causes of construction claims and their effect on project performance is in a straight-line relationship.

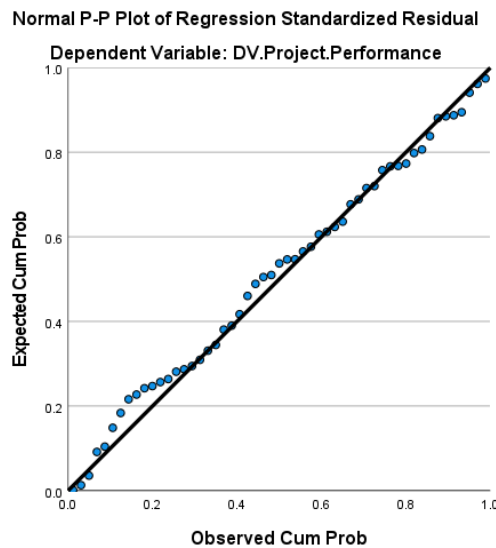
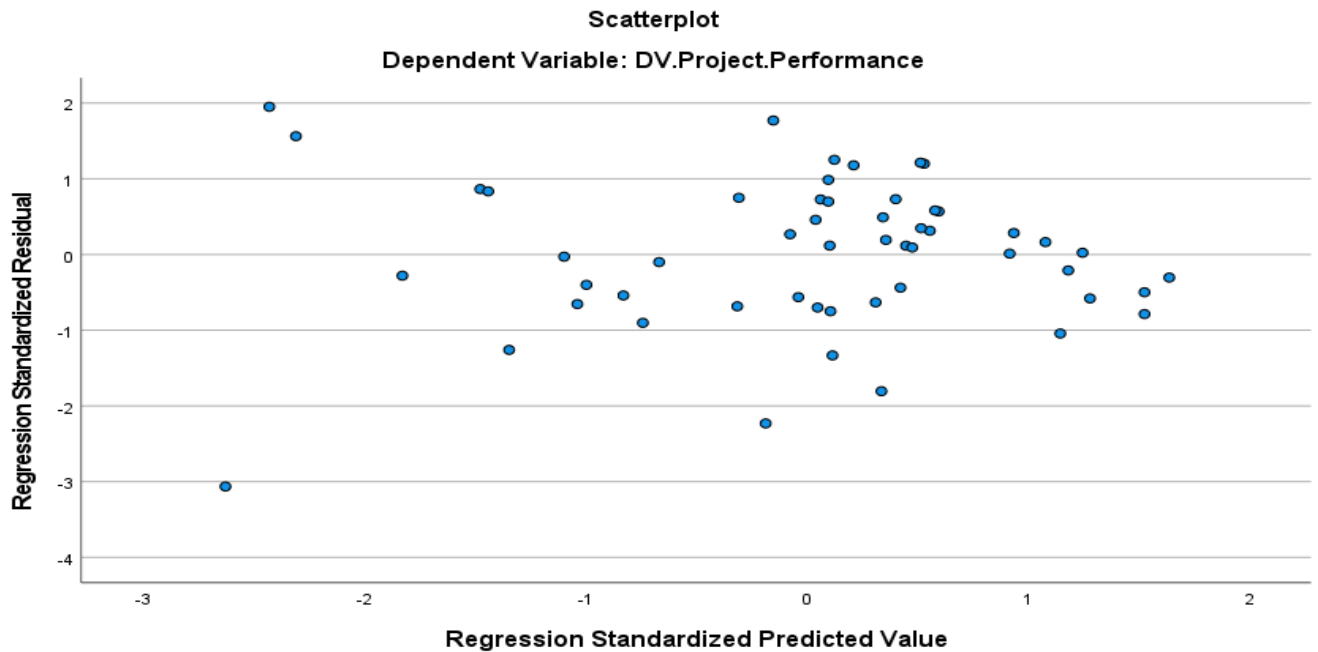


Figure 6. Linearity Test

*Source: Researcher's Survey SPSS result, 2024*

### 4.9.3 Homoscedasticity Test

Another essential assumption in regression analysis is homoscedasticity, which can be assessed by generating a scatterplot that juxtaposes the residuals against the dependent variable. As shown in Figure 8, the residuals appear scattered without a discernible pattern. This suggests that the regression model likely satisfies the homoscedasticity assumption.



*Figure 7. Homoscedasticity Test*

*Source: Researcher's Survey SPSS result, 2024*

### 4.9.4 Multicollinearity Test

Statisticians employed diverse techniques to detect the issue of collinearity. Syed-Ikhsan & Rowland (2004) utilized the Pearson correlation coefficient to examine the interrelationships among independent variables. They contend that multicollinearity poses no concern if correlations in a correlation matrix do not exceed 0.9. Multicollinearity pertains to the correlation among predictor variables. Elevated multicollinearity diminishes the significance levels of optimal coefficients.

To ensure the absence of multicollinearity, a diagnostic examination was conducted. Tolerance serves as an indicator of how much of the variance in an independent variable is not accounted for by other independent variables in the model, calculated as  $1 - R^2$  for each variable. A very low value (below 0.1) indicates a high degree of correlation with other variables. Table 15 presents

results indicating tolerance values spanning from 0.678 to 0.806, with none falling below 0.2 (Belsley, Kuh, & Welsch, 1980).

Furthermore, the range of the Variance Inflation Factor (VIF) was 1.240 to 1.475, well below the concerning threshold of 10 (Menard, 2002). These findings suggest that multicollinearity was not a significant concern, upholding a critical assumption of linear regression analysis.

**Table 16 Multicollinearity Test**

Coefficients <sup>a</sup>			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Contractors' Default	.806	1.240
	Client's or Consultants' Default	.706	1.417
	External Factor	.678	1.475

a. Dependent Variable: Project Performance

**Source: Researcher's Survey SPSS result, 2024**

#### 4.9.5 Autocorrelation Test

The evaluation of the assumption of independence of error terms, which requires independent observations, was conducted using the Durbin-Watson test (Durbin & Watson, 1950). Hair et al. (2019) explained that this test validates the absence of autocorrelation in the residuals of the model, a crucial assumption for regression analysis. The Durbin-Watson statistic ranges from 0 to 4. According to Kinyua et al. (2015), values falling between 1.5 and 2.5 indicate independence of observations. The results from Table 15 indicate a calculated DW statistic of 1.789, falling within the range of 1.5 to 2.5, suggesting that residuals were not auto-correlated.

**Table 17 Autocorrelation Test**

Model	Durbin-Watson
1	1.789

a. Predictors: (Constant), External Factor, Contractors' D., Client's D.

b. Dependent Variable: Project Performance

**Source: Researcher's Survey SPSS result, 2024**

#### 4.9.6 Model Summary

Two primary variables will form the basis of the proposed model. The first, designated as the independent variable, encompasses the various causes of construction claims as identified in the preceding research. This independent variable is further subdivided into three distinct categories. The first subcategory, Contractor Default, includes delays, substandard workmanship, and noncompliance with project specifications. The second subcategory, Client's or Consultant's Default, incorporates changes in project scope, unclear specifications, and late payments. Finally, the third subcategory, External Factors, encompasses unforeseen site conditions, natural disasters, and regulatory modifications, all of which are beyond the control of either party involved in the construction project.

The study's dependent variable centers on the influence of construction claims on project performance. This variable will be utilized to measure the impact of claims on project results, notably encompassing deviations from the schedule and exceeding project costs.

**Table 18 Model Summary**

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.653 <sup>a</sup>	.427	.392	.34737	1.789
a. Predictors: (Constant), External Factor, Contractors' D., Client's D.					
b. Dependent Variable: Project Performance					

*Source: Researcher's Survey SPSS result, 2024*

The model summary in Table 17 reveals that the R-value signifies the correlation coefficient between independent variables (Contractors' Default, Client's Default, and External Factor) and the dependent variable, project performance. With  $R = 0.653$ , it suggests a moderately strong positive correlation between project performance and the independent variables.

The  $R^2$  value serves as an indicator of the extent to which variability in the outcome is explained by the independent variable. With  $R^2 = 0.427$ , this indicates that 42.70% of project performance is explained by the independent variable, meaning that all three independent variables collectively predict project performance at 42.70% ( $0.427 \times 100$ ) percent. However, the remaining 57.30% of variability might be attributed to other variables not accounted for in this study.

Additionally, the adjusted R-square value in the model summary serves as an indicator of the model's goodness of fit. As shown in Table 17, the adjusted R-squared value is 0.392. This implies that roughly 39.20% of the fluctuations in CBE-BCM project performance can be elucidated by the independent variables (Contractors' Default, Client's Default, and External Factor). The remaining 60.8% of the variance in project performance might be influenced by other factors not encompassed in this model.

Besides, the standard error of the estimate gauges the variability of multiple correlations and reflects the standard deviation of the residuals. As illustrated in the model summary (Table 17) for the regression analysis, the standard error of the estimate (SEE) for this model is 0.347. Reduced values of SEE suggest an improved fit of the model.

#### **4.9.7 ANOVA**

To assess the statistical significance of the regression model, an ANOVA test was conducted. ANOVA aids in determining the overall significance of the regression model and its utility in predicting the dependent variable. The model effectively elucidates the relationship between the independent and dependent variables. As depicted in Table 18, the significance value is below 0.05, indicating a linear relationship between the causes of construction claims (Contractors' Default, Client's Default, and External Factor) and project performance. This suggests that the model accounts for a substantial portion of the variance in the dependent variable (Effects of Claims on Project Performance). Furthermore, the ANOVA table indicates that the regression model has a statistically significant impact on explaining the dependent variable (project performance).

Another critical aspect of the table is the F-ratio. The F-ratio, or F-statistic, measures the extent to which the model enhances the prediction of the dependent variable (project performance) compared to the model's level of inaccuracy (Field, 2009). As (Field, 2009) explains, in a good model, we anticipate a substantial improvement in prediction due to the model, alongside a minimal discrepancy between the model and the observed data or mean square residual. In essence, a satisfactory model should exhibit a sizable F-ratio (preferably greater than 1) because the mean square regression will surpass the mean square residual. According to Table 18, the ANOVA table indicates a relationship between the independent variables and the dependent variable of the study, with an F-statistic or F-ratio of 12.170.

**Table 19 ANOVA Test**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.405	3	1.468	12.170	.000 <sup>b</sup>
	Residual	5.912	49	.121		
	Total	10.318	52			

a. Dependent Variable: Project Performance

b. Predictors: (Constant), Contractors' Default., Client's Default, and External Factor

**Source: Researcher's Survey SPSS result, 2024**

#### 4.9.8 Multiple Regression Coefficients

Table 19 below exhibits the standard error, Beta coefficient, and p-value for each independent variable. The Beta coefficient quantifies the magnitude of the association between each predictor or independent variable (e.g., factors linked to Contractors' Default, Client's Default, and External Factors) and the dependent variable (Project Performance) within the model.

**Table 20 Multiple Regression Table**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.131	.550		2.055	.045
	Contractors' Default	.409	.119	.414	3.441	.001
	Client's Default	.109	.110	.127	2.985	.029
	External Factor	.293	.141	.273	2.077	.043

a. Dependent Variable: Project Performance

**Source: Researcher's Survey SPSS result, 2024**

Accordingly, Beta values were computed to assess the distinct impacts of the independent variables on the dependent variable. When comparing various variables, researchers must focus on standardized coefficients rather than unstandardized ones. Standardized coefficients ensure that values for each variable are converted to a common scale, facilitating comparison. Nonetheless, individuals interested in constructing a regression equation should utilize the unstandardized coefficient values listed as B (Pallant, 2016).

#### **4.9.8.1. Dependant Variable - Unstandardized Beta Coefficients**

The relationship between the dependent (Y) and independent (X) variables can be expressed as follows:  $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$ , where  $\beta_0$  represents a constant and  $\beta_n$  represents the coefficients of the independent variables. Referring back to the model specifications of the variables outlined in Chapter Three of the methodology section, it was noted that the unstandardized coefficients ( $\beta_1$  to  $\beta_3$ ) denote the coefficients of the estimated regression model. The researcher utilized these unstandardized beta coefficients to compare or prioritize the impact of independent variables on dependent variables and to formulate a regression equation. If we substitute the coefficients from the table above, the equation becomes;

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

Where, Y= Dependent Variable (Project Performance)

$\beta_1$  = Unstandardized regression coefficient of claims related to Contractors' default

$\beta_2$  = Unstandardized regression coefficient of claims related to Client's default

$\beta_3$  = Unstandardized regression coefficient of claims related to External Factor

$\varepsilon$  = error term

Considering the findings presented in Table 19, the regression equation for the study can be formulated as follows:

$$Y = 1.131 + (0.409) X_1 + (0.109) X_2 + (0.293) X_3 + \varepsilon$$

#### **4.8.9.2. Independent Variable - Standardized Beta Coefficients**

At the heart of the quantitative analysis are the beta coefficients ( $\beta$ ) derived from the multiple regression model. The standardized coefficients, obtained from regression, elucidate the relative importance or weight of independent or explanatory variables. These coefficients signify the standardized alteration in the dependent variable (project performance) for a one-unit shift in the independent variable (claims), while keeping all other independent variables constant (Cohen & Aiken, 2003). The rationale is that by standardizing these coefficients, the impacts of the independent or explanatory variables become readily comparable on the same scale.

From the above Table 19, the analysis of beta coefficients reveals a gradient of influence on project performance. Contractor defaults hold the strongest positive relationship ( $\beta = 0.409$ ), indicating projects experiencing these issues are most likely to suffer lower performance. External factors ( $\beta = 0.293$ ) demonstrate a moderately strong positive relationship, implying projects encountering these challenges are more likely to experience a decline in performance. Client or Consultant

defaults ( $\beta = 0.109$ ) exhibit the weakest association, with a positive value suggesting a potential link to lower performance, but the effect is minimal. In summary, the greater the standardized coefficient, the more significant is the relative importance and contribution of the factor to the success of CBE's building construction projects.

***Interpretation:***

- With each one-unit increase in claims associated with Contractors' default, the impact on project performance rises by 41.4%.
- For every one-unit increase in claims linked to Client's or Consultants' default, the impact on project performance rises by 12.7%.
- With each one-unit increase in claims related to External Factors, the impact on project performance increases by 27.3%.

Since Beta values provide a quantitative measure of the independent variable's impact within a specific model, while descriptive analysis, qualitative analysis, and correlation play supportive roles in understanding the data and relationships between variables. The capitalized Beta values of the multiple regression analysis indicate that all three independent variables (causes of claims related to Contractors' default, External Factors, and Client's default, ranked by their beta value) affect project performance (dependent variable). Additionally, descriptive statistics revealed that respondents agreed on the impact of construction claims and their root causes (categorized as contractor's default, client's default, and external factors) on project performance. While the correlation analysis revealed a moderate positive correlation between the two variables, consistent with the multi-regression outcomes, the qualitative analysis through interviews provided additional valuable insights that complemented the quantitative results.

## **Chapter Five**

### **5. Summary, Conclusion, and Recommendation**

#### **5.1. Introduction**

This segment offers a recap, final thoughts, and suggestions in accordance with the research objectives. It succinctly encapsulates the outcomes and discussions delineated in Chapter Four. Following this overview, conclusions and recommendations are subsequently provided.

#### **5.2. Summary of Findings**

The aim of this research was to evaluate how construction claims impact the performance of CBE-BCM department building construction projects and to propose efficient methods for preventing and resolving claims. A questionnaire based on a five-point light spot was administered to all 55 professional staff members of the CBE - BCM Department. Out of these, 53 completed questionnaires were received for analysis, resulting in a response rate of 96.36%. Both descriptive and inferential analyses were carried out. The collected questionnaires were examined using SPSS version 27, a statistical software tool.

The descriptive analysis provides details such as frequency, percentage, mean, standard deviation, and Relativity Importance Index (RII) for each section of the questionnaire. Based on the RII results, respondents' answers were ranked for each section of the questionnaire. Additionally, to summarize the descriptive analysis between the variables (both independent and dependent), mean, standard deviation, minimum, and maximum values were computed. For instance, construction claims resulting from Contractors' default have a mean of 4.2472 and a standard deviation of 0.45132. Claims due to Client's or Consultants' default have a mean of 4.0679 and a standard deviation of 0.52027. Construction claims attributed to External factors have a mean of 3.8208 and a standard deviation of 0.41480. Lastly, project performance has a mean of 4.4287 and a standard deviation of 0.44544. Given that the standard deviation values for all variables fall within the range of 0.41 to 0.55, there is a low level of dispersion around the mean, indicating a high degree of consistency in respondents' replies. Furthermore, the mean values of the variables range from 3.82 to 4.42, indicating a moderate level of consensus among employees regarding the impact of construction claims on project performance, with relatively minor variation in their responses.

On the contrary, to ascertain the presence of a relationship between independent variables and a dependent variable, a Pearson's correlation analysis was conducted. The outcomes revealed a positive correlation between the three indicators of causes of construction claims (Contractors' default, Client's/Consultants' default, and External factor) and project performance. The correlation coefficient indicates that all three variables representing causes of construction claims (Contractors' default with  $r = 0.570$  and  $p = 0.000$ , Client's/Consultants' default with  $r = 0.417$  and  $p = 0.000$ , and External factor with  $r = 0.506$  and  $p = 0.000$ ) are moderately correlated with their impact on construction project performance. This positive correlation suggests a direct positive association between the causes of construction claims and project performance in CBE-BCM projects, with a significance level of 1%.

The model summary suggests that the independent variables (such as causes of construction claims stemming from Contractors' Default, Client's or Consultants' Default, and External Factors) explain 39.20% of the variance in CBE-BCM construction project performance, as indicated by the adjusted R-square value. The remaining 60.80% of the variation in project performance could be attributed to unobserved variables not incorporated into the model.

Additionally, an ANOVA test was employed to assess the significance of the model in elucidating the connection between the independent and dependent variables. The findings reveal that the significance level is below 0.05, indicating a linear relationship between the independent variables (such as causes of construction claims due to Contractors' Default, Client's or Consultants' Default, and External Factors) and their impact on construction project performance (dependent variable). This suggests the model's appropriateness and validity. The regression output from SPSS highlights that the causes of construction claims within the CBE-BCM department significantly affect project performance. The results imply that contractors' default holds the most substantial sway on the variation in project performance, as indicated by its beta value of 0.402. This signifies that, with the effects of other predictors held constant, a one-unit increase in contractors' default would lead to a 40.2% change in project performance. The remaining two predictors, causes of construction claims due to Clients'/Consultants' default and external factors, contribute to the escalation of construction claims' impact on project performance by 0.293 and 0.109, respectively.

### **5.3. Conclusion**

The study's conclusion is drawn from the results, their interpretation, and the discussion of both the questionnaire and interview in line with the research inquiries. This research aimed to explore construction claims and their impact on the performance of CBE-BCM Department construction projects. Throughout the investigation, the underlying causes of construction claims in CBE's projects have been pinpointed. Subsequently, the various types of claims commonly encountered in CBE's projects were identified and discussed. Furthermore, causal relationships between the causes of construction claims and their impact on the performance of CBE's building projects were scrutinized. Additionally, alongside descriptive analysis, Pearson's correlation and multiple regression analysis were conducted to investigate the relationship between variables.

Most participants noted a significant impact of these factors on project performance within the study region. This observation is reinforced by the predominance of "agree" responses, indicating a substantial influence of the independent variables on project performance.

As such, the primary three reasons behind claims linked to contractor default encompass inadequate contractor performance, financial constraints faced by contractors, and the formulation of impractical work schedules. Similarly, the leading three causes of claims associated with client or consultant default include variations in work, alterations to the project scope during construction, and delays in decision-making. Concurrently, the top three factors contributing to claims from external sources were escalation in construction material prices, political instability in the northern region of the country, and economic conditions (including inflation, currency fluctuations, and letters of credit). Additionally, the primary three types of construction claims identified in CBE-BCM projects are variation claims, delay claims, and scope change claims.

Overall, contractor default appears to be the leading cause affecting project performance followed by causes related to external factors and client/consultants default respectively. Subsequently, the top three effects of claims in CBE-BCM projects are project cost overrun, extension of time, and price escalation of construction materials.

Therefore, this research concludes that the occurrence of construction claims, particularly those arising from contractor defaults, client defaults, and external factors, significantly increases the negative impact of claims on project performance of CBE's building construction projects.

## **5.4. Recommendation**

Upon reviewing pertinent research and the outcomes of this investigation, it was determined that construction claims significantly impact project performance. Each of the three sources of claims scrutinized in this study contributes, both independently and collectively, to influencing project performance. To mitigate the impact of these claims on project performance, the CBE-BCM office must adeptly manage claim prevention and resolution methods. Efficient claim management is imperative for achieving successful project outcomes, and it is advised to employ claim prevention and resolution strategies to effectively address disputes arising during projects.

The author of this study proposes the subsequent recommendations to mitigate the impact of claims on the performance of CBE's construction projects. In order to ensure successful project outcomes, the client (CBE) should prioritize addressing all three sources of claims, with specific emphasis on practices that are inadequately implemented within the bank's BCM department. The researcher identified the areas in need of improvement and suggests the following actions accordingly: -

### **5.4.1. Recommendation to the Client (CBE-BCM)**

- In the long run the client (CBE) is advised to establish a unit under the BCM department composed of professionals to manage construction claims properly. Meanwhile, in the soonest possible time, the client is also advised to recruit an experienced claim expert available in the construction industry to help BCM's project teams manage construction claims.
- Different projects of CBE-BCM have similar construction project durations, that don't properly consider the characteristics and intricacy of the project, the project's location, availability of construction materials, skilled and unskilled labor, and access road in the vicinity, which resulted in both project's time and cost overruns. Hence, it is advised by this research that the client has to consider the above-listed factors while setting an estimated project duration period for projects with different scopes.
- It was found that the specific conditions of the contract of CBE's projects do not allow price adjustment. However, bearing in mind the current dynamic nature of the construction industry, restricting price adjustment will result in the total suspension of projects. Hence, it is advisable for CBE to revise its contracts to permit price modifications for specific work items, aiming to decrease the frequency of claims and improve project performance.

Additionally, the client should establish a price index catalog or manual that can be regularly updated with current market prices for construction and finishing materials.

- As it was found out from the interview, the approval of Extension of Time (EoT) and cost-related claims (such as variation works) takes lengthy bureaucracy by the top management approval committee. This research work recommends CBE to give authority to the BCM department to approve both time and cost-related claims which will guide for the better accomplishment of projects.
- To prevent and reduce the chance of occurrence of claims, both the client and consultant are advised to produce a clear and complete specification and drawings for projects and contract documents with a clearly defined scope that will not result a variation of works. Furthermore, it is better to give on-time clarification and work orders if there is any unclear issue requested by the contractor.
- While awarding the contract to the least bidder, the client only considers the bidder with the lowest offer. However, if possible, the researcher recommends the client to compare the lowest bidder's offer with the engineering estimate conducted by the consulting office and the technical capability and experience of the bidder with similar construction works.
- The client is advised to integrate technology while dealing with construction claims by leveraging construction management software, claims management tools, and digital platforms for document management, which can improve efficiency and transparency in managing construction claims.
- Besides, this research recommends CBE-BCM department to practice continuous improvement. Conducting post-project reviews, lessons learned sessions, and performance evaluations to analyze claim trends, identify root causes of disputes, and implement corrective actions can drive continuous improvement in claim management practices. Establishing a culture of learning, feedback, and adaptation can help the CBE better manage claims and enhance project performance in future building construction projects.
- Finally, to mitigate the risks associated with causes of claims attributable to the contractor's default, the client might consider the following strategies: Enhancing the contractor selection process by conducting comprehensive background checks, seeking references, and reviewing past performance records; conducting a thorough financial assessment of the contractor to ensure they possess adequate financial resources for project completion;

regularly monitoring and evaluating the contractor's work to ensure compliance with project quality standards and milestone deadlines, and identifying potential issues early through site visits and progress meetings; fostering an environment of open and transparent communication to detect and address issues before they escalate into significant problems.

#### **5.4.2. Recommendation to the Contractors'**

This research underscores the critical role of a multifaceted approach for contractors in mitigating the risks associated with construction claims stemming from contractor defaults. To this end, the following recommendations are delineated for contractor consideration.

- A cornerstone of successful project execution is robust project management. Contractors are advised to cultivate the ability to effectively manage subcontractors, a critical component of the construction process. Realistic work schedules, adherence to milestone dates, and timely mobilization of materials and equipment are all essential for project completion on time and within budget.
- Financial stability is paramount. If possible, contractors need to ensure they possess sufficient financial resources to see the project through to completion. Furthermore, practice the utilization of advance payments received from the client, strictly for project-related expenses, fosters trust and avoids potential financial disputes.
- Besides, implementing robust quality control processes is fundamental. Regular inspections throughout the construction phase are crucial for identifying and rectifying issues before they snowball into larger problems. Additionally, utilizing high-quality materials and equipment minimizes the risk of rework and associated delays and costs.
- Moreover, a skilled workforce is the backbone of any construction project. Contractors are advised to prioritize the recruitment and retention of qualified personnel to ensure projects meet contractual deadlines, budgetary constraints, and quality standards.
- Furthermore, contractors are advised to maintain open lines of communication with all stakeholders, including the client and subcontractors, is vital. Proactive communication facilitates early identification and resolution of issues, preventing them from escalating into full-blown claims.
- Lastly, investing in contract management training will equip contractors with a thorough understanding of their contractual obligations and rights. Therefore, this research advises contractors to invest in trainings.

## **5.5. Implications for Further Research**

While the findings hold significance, it is crucial to recognize the study's limitations. The research concentrated on the Ethiopian construction sector, specifically the case of CBE-BCM, from a client's standpoint, which may not be directly transferable to other institutions or companies within the construction industry. Moreover, the study results may not be applicable to construction companies or institutions beyond the Ethiopian context.

The study may not encompass all external factors that could impact project performance, as it is confined to evaluating construction claims and their influence on project outcomes. Future research could address this gap by incorporating additional dimensions and contextual variables into the model. Specifically, researchers should delve into the detailed examination of the impact of construction materials price escalation on project performance.

Furthermore, in order to diminish the impact of construction claims on project performance, it is imperative for CBE's BCM department to consider undertaking its building projects through in-house construction (own force construction). Consequently, future research is essential to evaluate the advantages and disadvantages of own force construction in mitigating the impact of claims on project performance.

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## **Annex – 1: Questionnaire**

**ADDIS ABABA UNIVERSITY  
COLLEGE OF BUSINESS AND ECONOMICS  
SCHOOL OF COMMERCE**

**RESEARCH INSTRUMENT  
QUESTIONNAIRE**

**Dear Respondent,**

My name is Abiy Aderaw, and I am a Master's student in Project Management at the School of Commerce, Addis Ababa University. As part of my program requirements, I am currently conducting research titled "Assessment of the Effect of Construction Claims on the Performance of Building Construction Projects." This research focuses on the Commercial Bank of Ethiopia Building Construction Management Department.

The purpose of this survey is to gather valuable information from the client, specifically regarding the impact of construction claims on project performance within the Commercial Bank of Ethiopia Building Construction Management Department. The data collected through this questionnaire will be critical to achieving the research objectives.

I kindly request your participation in completing and returning the enclosed questionnaire. Your insights are highly valuable to this study.

Please be assured that all information you provide will be used solely for academic purposes and will be kept strictly confidential. I thank you in advance for your cooperation. However, should you have any questions or comments regarding the survey, please do not hesitate to contact me.

**Sincerely,**

**Abiy Aderaw**

## Part I: General Information about Respondents

Please mark (x) in the box that best describes your answer

Respondent's Age	<input type="checkbox"/> 20 - 30 <input type="checkbox"/> 31 - 40 <input type="checkbox"/> 41 - 50 <input type="checkbox"/> 51 - 60 <input type="checkbox"/> 60 - Above
Respondent's Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Educational Background	<input type="checkbox"/> Master's degree or above <input type="checkbox"/> Bachelor's degree
	Other (Specify) _____
Total Work Experience in the Building Construction Industry	<input type="checkbox"/> 1 - 3 <input type="checkbox"/> 4 - 5 <input type="checkbox"/> 6 - 10 <input type="checkbox"/> 11 - 15 <input type="checkbox"/> 16 - Above
Total work Experience in CBE-BCM	<input type="checkbox"/> 1 - 3 <input type="checkbox"/> 4 - 5 <input type="checkbox"/> 6 - 10 <input type="checkbox"/> 11 - 15 <input type="checkbox"/> 16 - Above
Position at CBE-BCM	<input type="checkbox"/> Junior Engineer <input type="checkbox"/> Associate Engineer <input type="checkbox"/> Engineer (Civil, Electrical, Mechanical, Sanitary, Quality) <input type="checkbox"/> Senior Engineer (Civil, Electrical, Mechanical, Sanitary, Quality) <input type="checkbox"/> Architect <input type="checkbox"/> Senior Architect <input type="checkbox"/> Project Manager <input type="checkbox"/> Manager <input type="checkbox"/> Director

**Part II: Causes of Construction Claims in CBE-BCM Building Construction Projects**

**A. Causes related to the Contractors’ Default**

When appropriate, please indicate your agreement on the following five-point Likert Scale questions by marking (x) in the corresponding box.: Strongly Disagree (SD) = 1, Disagree(D) = 2, Neutral(N)= 3, Agree(A) = 4 and Strongly Agree (SA) = 5

No	Causes related to the Contractors’ Default	SD	D	N	A	SA
1	Poor performance of contractors					
2	Financial limitations of contractors					
3	Lack of professionals (Shortage of labor/skilled workers)					
4	Preparing an un-realistic work schedule					
5	Failure to manage Subcontractors					
6	Poor quality of work					
7	Contractors’ lack of contract management skill					
8	Failure to meet milestone dates					
9	Delay in site mobilization					
10	Failure to deliver construction materials and equipment					

**B. Causes Related to the Client’s/Consultants’ Default**

When appropriate, please indicate your agreement on the following five-point Likert Scale questions by marking (x) in the corresponding box.: Strongly Disagree (SD) = 1, Disagree(D) = 2, Neutral(N)= 3, Agree(A) = 4 and Strongly Agree (SA) = 5

No	Causes Related to the Client’s/Consultants’ Default	SD	D	N	A	SA
1	Change the scope of the project during construction					
2	Variation works					
3	Late handover of the project site					
4	Slow decision-making					
5	Delay to effect Advance Payment and Interim payment certificates to the contractor					
6	Setting unrealistic contract durations for projects					
7	Poor coordination and communication					
8	Delay in clarification for requested documents					
9	Awarding the contract to the least bidder					
10	Unclear and incomplete specifications and drawings					

### C. Causes Related to External Factors

When appropriate, please indicate your agreement on the following five-point Likert Scale questions by marking (x) in the corresponding box.: Strongly Disagree (SD) = 1, Disagree(D) = 2, Neutral(N)= 3, Agree(A) = 4 and Strongly Agree (SA) = 5

No	Causes Related to External Factors	SD	D	N	A	SA
1	COVID-19 Pandemic					
2	Political instability in the northern part of the country					
3	Construction materials price escalation					
4	Economic condition (inflation, currency, LC)					
5	Exceptionally adverse climatic conditions					
6	Unforeseen ground conditions (Soil condition, water table, etc.)					
7	Late issuance of required permits to work by Government Authorities (Construction permit office)					
8	Changes in laws and regulations from the government					
9	Accidents during construction					
10	Delay in utility services (electricity, water, etc.)					

### Part III: Types of Construction Claims in CBE-BCM Building Construction Projects

When appropriate, please indicate your agreement on the following five-point Likert Scale questions by marking (x) in the corresponding box.: Strongly Disagree (SD) = 1, Disagree(D) = 2, Neutral(N)= 3, Agree(A) = 4 and Strongly Agree (SA) = 5

No	Types of Construction Claims in CBE-BCM Building Construction Projects	SD	D	N	A	SA
1	Delay Claims					
2	Variation Claims					
3	Scope Change Claims					
4	Suspension of Work					
5	Termination of Contract					
6	Extra-Work Claims					
7	Contract Ambiguity Claims					
8	Damage Claims					

**Part IV: Effects of Construction Claims on the performance of CBE-BCM Building Construction Projects**

When appropriate, please indicate your agreement on the following five-point Likert Scale questions by marking (x) in the corresponding box.: Strongly Disagree (SD) = 1, Disagree(D) = 2, Neutral(N)= 3, Agree(A) = 4 and Strongly Agree (SA) = 5

No	Effects of Construction Claims on the performance of CBE-BCM Building Construction Projects	SD	D	N	A	SA
1	Extension of Time					
2	Project cost overrun					
3	Dispute between contracting parties					
4	Work Suspension					
5	Termination of Contract					
6	Client's profits and revenue loss					
7	Contractor's profits and revenue loss					
8	Price escalation of construction materials					
9	Penalty and Liquidated damaged of the Contractor					
10	Poor quality of work					

**Part V: Prevention and Resolution Alternatives for Construction Claims in CBE-BCM Building Construction Projects**

When appropriate, please indicate your agreement on the following five-point Likert Scale questions by marking (x) in the corresponding box.: Strongly Disagree (SD) = 1, Disagree(D) = 2, Neutral(N)= 3, Agree(A) = 4 and Strongly Agree (SA) = 5

No	Prevention and Resolution Alternatives for Construction Claims in CBE-BCM Building Construction Projects	SD	D	N	A	SA
<b>A</b>	<b>Claim Prevention Methods</b>					
1	Effecting payments on time to the contractors					
2	Ensure suitable procurement method					
3	Good contract management					
4	Resources should be correctly determined and allocated					
5	Ensure adequate and proper communication among party					
6	Ensure control during the planning and implementation phase					
7	Complete the design, specifications, and drawings at the tender stage					
8	Carry out detailed site investigation including detailed soil investigations and consider it during the tendering stage					
9	All parties should forecast unforeseen situations					
10	The client should provide a clear brief of the scope of the works					
<b>B</b>	<b>Claim Resolution Alternatives</b>					
1	Negotiation involving direct discussions between parties					
2	Mediation using a neutral mediator that facilitates communication to find a solution					
3	Arbitration by presenting the dispute to a neutral arbitrator					
4	Litigation in the formal court process					

**The End**

**Thank you,**

**for taking the time to complete this questionnaire!**

## **Annex – 2: Interview Guide**

### **INTERVIEW GUIDE**

My name is Abiy Aderaw, and I am a Master's student in Project Management at the Addis Ababa University School of Commerce. I am currently conducting research titled "Assessment of the Effect of Construction Claims on the Performance of Building Construction Projects," with a specific focus on the CBE-BCM Department. Your expertise in this area makes your insights particularly valuable to my research.

I would appreciate your time and participation in a brief interview session. The interview will identify the construction claims, and their causes, and explore the effect of construction claims on project performance within the Commercial Bank of Ethiopia Building Construction Management Department. The discussion will take approximately 30 to 40 minutes.

The following are interview questions for selected respondents on the types and causes of construction claims and their effect on the project's performance;

1. Can you provide an example of a project that was significantly affected by claims? What was the nature of the claim and what was its effect on the performance of the project's time and cost?
2. Are there any specific policies or procedures that the BCM office follows when handling claims?
3. In your opinion, are there any gaps in the standard contract documents used by the CBE-BCM office that could lead to difficulties when managing construction claims?
4. Given that CBE's contracts typically exclude price adjustments, how does this affect the management of construction claims and their subsequent effect on project performance?
5. What challenges does the BCM office face in managing claims and what measures does the office take to mitigate the effect of claims on project performance? How effective have these measures been in practice?
6. How do you foresee the effect of claims on future building construction projects and what improvements would you suggest to better manage claims and minimize their impact on project performance?

### Annex – 3: Project Duration Data

S.N	Project Name	Project Duration				Time elapsed in days (as of March 31, 2024)	Project Status (as of March 31, 2024)	Reasons for Justified Time Extension	Remark
		Commencement Date	Initial Completion Date	Time Extension Granted (Days)	Revised Completion date				
1	Mekelle District Office Building (2B+G+17)	19-Sep-18	07-Mar-21	362	04-Mar-22	758.00	17.02%	Delay due to late handover of project site, Design Revision & Variation Work, and Exceptional Weather Conditions	The project has been ceased since November 4, 2020, due to the war in the northern part of the country.
2	Bole Office Building Construction (3B+G+14)	13-Aug-21	30-Mar-24	21	20-Apr-24	-	20.27%	Cement Shortage	The project has ceased since November 28, 2021, due to Price escalation of materials.
3	EX-Engineer Haileselassie Remaining Work Construction (B+G+ 6)	03-Nov-20	27-Apr-22	256	08-Jan-23	448.00	13.40%	Delay due to the late handover of the project site	The contractor was terminated on November 19, 2023, due to his poor performance
4	Humerra Branch Office Building Construction (2B+G+3)	10-Dec-19	02-Jun-21	27	29-Jun-21	1006.00	9.77%	Delay due to war in the northern part of the country	The project has been ceased since November 4, 2020, due to the war in the northern part of the country.

5	Woldia Branch Office Building Construction (B+G+3)	19-Nov-19	12-May-21	116	05-Sep-21	938.00	19.31%	Delay due to Exceptional Weather Conditions, Cement shortage and COVID-19 Pandemic	The project has been ceased since July 23, 2021, due to the war in the northern part of the country.
6	Bahirdar District Office Construction (2B+G+12)	10-Apr-18	26-Sep-20	392	23-Oct-21	2182.00	27.70%	Delay due to late handover of the project site, unforeseen ground conditions, Delayed Designs and Responses, Provision of Design / Instruction / Change Order, Riots and Commotion, Outbreak of the COVID-19 Pandemic, Shortage of Material, War in the Northern Region, and Abay Gorge Road Blockage.	10 months (303 days) additional time has been given starting from May 01, 2023
7	Motta Branch Office Construction (B+G+M+3)	21-May-22	21-May-23	390	14-Jun-24	680.00	91.14%	Due to Changes in regulation and laws of the cement distribution system, Social unrest, regional instability, additional works and variations on the project, and Administrative time extension	

8	Debremarkos Branch Office Building Project (2B+G+M+5)	08-May-17	30-Oct-18	302	28-Aug-19	-	98.16%	Delay due to Delayed site Boundary demarcation, unexpected heavy rainfall, and devaluation of Birr on 11 October 2017 which caused the shortage of rebar among others, excess backfill quantity, design change decision, and removal of electric lines and poles have affected the works of fence and site work	Provisional acceptance was conducted and final acceptance is expected
9	Gilgel Beles Branch Office Construction (B+G+M+3)	20-Dec-19	12-Jun-21	1150	05-Aug-24	-	41.76%	Due to obstruction to carry-out setting out and mobilization, Design change & clarification, Construction permit permission, Shortage of Cement, COVID-19 pandemic, Security Problems, and Administrative time extension	
10	Hawassa District Office Building (2B+1SB+G+11)	20-Apr-18	05-Oct-20	388	28-Oct-21	885.00	27.38%	Delay due to Design Revision, Delay due to late handover of the project site, & Variation Work, Delay due to Adverse Weather Conditions, and unjustified delays	The project has been suspended since August 2022 due to the non-performance of the contractor after his price escalation request.

11	Butajira Branch Office Building Construction (B+G+M+4)	16-May-18	08-Aug-19	800	16-Oct-21	897.00	98.96%	Delay due to shortage of construction materials (Cement shortage), design modification, Adverse Weather conditions, COVID-19 Pandemic, and the late response of clarification.	The project is almost completed after administrative time extension. PA will be conducted after a month.
12	Jinka Branch Office Building Construction (B+G+M+3)	05-Jun-18	30-Aug-19	532	12-Feb-21	1143.00	57.36%	Delay due to Adverse Weather Conditions, shortage of construction materials (Cement shortage in the local market), COVID-19 – 19 Pandemic, late response of clarification, and boundary issues.	The project was suspended for a long period and resumed after an administrative time extension was granted starting on October 20, 2023, and is expected to be completed on August 20, 2024.
13	Hossaena Branch Office Building Construction (B+G+M+2)	05-Nov-20	05-Nov-21	192	16-May-22	685.00	97.67%	Delay due to Cement shortage, COVID-19 Pandemic, Weather Conditions, and unjustified delays due to the contractor's price escalation request.	The project is almost completed after administrative time extension. PA will be conducted after 3 months.
14	Gida Ayana Branch Office Building	03-Aug-18	27-Oct-19	512	22-Mar-21	1105.00	72.77%	Delay due to repetitive social unrest around the project area, Variation words, the COVID-19	The client contract with the contractor and consultant is suspended officially after a triparty meeting

	Construction (B+G+M+2)							Pandemic, and Adverse Weather Conditions.	and decision to suspend the contract till the farce Majeure (Social unrest) is resolved.
15	Kake Branch Office Building Construction (B+G+M+2)	20-Aug-20	11-Feb-22	0	11-Feb-22	779.00	23.13%	Delay due to repetitive social unrest around the project area, Adverse Weather Conditions, Variation words, COVID-19 Pandemic,	The project has been suspended for over two years due to the contractor's non-performance and unilateral decision and the project's fate is not decided yet.

#### Annex – 4: Financial Data of Projects with Variation

S.N	Project Name	Project Scope	Financial Data				Total Executed Work (as of March 31, 2024)	Reason for Variation work
			Initial Project Cost	Variation Work Amount	Variation Work Amount in %	Revised Project Cost		
1	Bole Office Building Project	3B+G+14	1,207,871,576.18	1,799,769,581.43	149.00%	3,007,641,157.61	244,891,448.52	Price Escalation
2	Mekelle District Office Building Project	2B+G+17	974,659,075.87	2,650,468,614.06	271.94%	3,625,127,689.93	173,349,459.82	Price Escalation
3	Motta Branch Office Construction	B+G+M+3	107,322,159.60	21,462,891.06	20.00%	128,785,050.66	117,375,078.59	Unforeseen Ground conditions, overlooked quantities, and new additional works
4	Bahirdar District Office Construction	2B+G+12	888,410,773.19	3,527,693.55	0.40%	891,938,466.74	247,099,934.64	Unforeseen ground conditions
5	Hawassa District office Building	2B+1SB+G+11	895,641,880.36	14,274,614.37	1.59%	909,916,494.73	245,189,724.49	Design modification
6	Butajira Branch Office	B+G+M+4	122,984,573.66	12,131,320.76	9.86%	135,115,894.42	125,302,275.52	Additional works and design modification

	Building Construction							
7	Jinka Branch Office Building Construction	B+G+M+3	121,438,954.63	1,814,560.28	1.49%	123,253,514.90	70,663,630.76	Additional works and design modification
	Hossaena Branch Office Building Construction	B+G+M+2	41,689,750.11	-2,127,500.00	-5.10%	39,562,250.11	39,063,130.08	Design modification
8	Gida Ayana Branch Office Building Construction	B+G+M+2	69,043,500.79	-936,130.92	-1.36%	68,107,369.87	57,776,180.54	Material change

## Annex – 5: Project Information

CBE's Building Construction Projects – Project Information of CBE's Completed, Under Construction and Design Stage Projects

S.N	Project Name	Project Scope	Status	Location
1	CBE's New HQ Building	4B+G+48	Completed	Addis Ababa
2	Paulos Office Building Construction	3B+G+12	Completed	Addis Ababa
3	Hidasse Office Building Construction	3B+G+M+12	Completed	Addis Ababa
4	Kombolcha Branch Office Building Construction	B+G+5	Completed	Kombolcha
5	Shire Endasilasie Branch Office Building Construction	B+G+5	Completed	Shire Endasilassie
6	CBE Stadium Project	Stadium	Completed	Addis Ababa
7	Bole Office Building Construction	3B+G+14	Under Construction	Addis Ababa
8	Hawassa District Office Construction	2B+1S+G+11	Under Construction	Hawassa
9	Mekelle District Office Building	2B+G+17	Under Construction	Mekelle
10	Bahirdar District Office Construction	2B+G+12	Under Construction	Bahirdar
11	EX-Engineer Haileselassie Remaining Work Construction	B+G+ 6 and B+G+ 2	Under Construction	Addis Ababa
12	Humerra Branch Office Building Construction	2B+G+3	Under Construction	Humera
13	Woldia Branch Office Building Construction	B+G+3	Under Construction	Woldia
14	Motta Branch Office Building Construction	B+G+M+3	Under Construction	Motta
15	Debremarkos Branch Office Building Construction	2B+G+M+5	Under Construction	Debre Markos

16	Gilgel Beles Branch Office Building Construction	B+G+M+3	Under Construction	Gilgel Beles
17	Butajira Branch Office Building Construction	B+G+M+4	Under Construction	Butajira
18	Jinka Branch Office Building Construction	B+G+M+3	Under Construction	Jinka
19	Gida Ayana Branch Office Building Construction	B+G+M+2	Under Construction	Gida Ayana
20	Kake Branch Office Construction	B+G+M+2	Under Construction	Kake
21	Hossana Branch Office Construction	B+G+M+2	Under Construction	Hossana
22	Debre Berhan Data Center	G+0	Under Construction	Debre Berhan
23	Warehouse Building Construction	2B+G	Design Stage	Addis Ababa
24	Bishoftu Branch Building Construction	B+G+4	Design Stage	Bishoftu
25	Woliso Branch Construction	B+G+M+3	Design Stage	Woliso
26	Addis Zemen Branch Building Construction	B+G+M+4	Design Stage	Addis Zemen
27	Old Headquarter Expansion	3B+G+20	Design Stage	Addis Ababa
28	Central Archive Building	2B+G+5	Design Stage	Addis Ababa
29	Top Management Villa House (2 Block)	B+G+2	Design Stage	Addis Ababa
30	Center of excellence	2B+G+10	Design Stage	Addis Ababa
31	Banks clinic Building Construction	B+G+12	Design Stage	Addis Ababa
32	Bonga Branch Building Construction	B+G+M+3	Design Stage	Bonga
33	Wolkite Branch Building Construction	B+G+M+3	Design Stage	Wolkite
34	Yabello Branch Building Construction	B+G+M+3	Design Stage	Yabello
35	Kamashi Branch Building Construction	B+G+M+3	Design Stage	Kamashi
36	Dembi Dollo Branch Building Construction	B+G+M+3	Design Stage	Dembi Dollo
37	Gambella Branch Building Construction	B+G+M+3	Design Stage	Gambella

