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Financial Challenges Leading to Premature Contract Termination in Ghanaian Construction Industry: Causes and Mitigation Strategies

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Abstract

This study examines the link between financial challenges and premature construction contract termination in Ghana's construction industry. The study is grounded in Keynesian economics, which offers insights into the broader economic impacts of these financial challenges, and cash flow management theories, which help analyze the financial viability and liquidity issues that exacerbate these risks. Additionally, financial risk management models are employed to assess the risks related to banking disputes and economic instability, providing a comprehensive framework for understanding the financial difficulties contributing to contract termination. Employing a quantitative research approach, Data from 315 industry professionals revealed three key dimensions of financial challenges: Financial Integrity Risks (FIR), Financial Mismanagement and Economic Instability Risks (FMEIR), and Financial Risk Due to Banking Disputes and Instability (FRBDI). Structural equation modelling confirmed the robustness of the proposed model, highlighting the strong correlations between these financial risks and contract termination. The findings emphasize the need for proactive risk management and comprehensive contractual strategies to prevent contract disputes and ensure project viability. For stakeholders in the construction industry, this study underscores the practical importance of implementing rigorous financial risk management strategies. By enhancing project planning, fostering stakeholder collaboration, and ensuring robust contractual arrangements, the industry can mitigate the adverse effects of financial instability and improve overall project outcomes.

Keywords: Ghana, Construction, Financial Challenges, and Contract Termination.

1. Introduction

The construction industry plays a pivotal role in the global economy, contributing significantly to infrastructure development, economic growth, and employment generation (Khan et al., 2014; Dakhil et al., 2013). Globally, this industry is characterized by firms of varying sizes, from small-scale enterprises to large multinational corporations, with their capacity to undertake projects being heavily influenced by client needs and available resources. Despite its importance, the Ghanaian construction sector faces numerous challenges, particularly in terms of financial stability (Dao et al., 2017; Azim, 2011). One prominent issue is the fragmentation of the industry, with numerous small and medium-sized enterprises (SMEs) coexisting alongside larger firms. This fragmentation often results in resource allocation challenges, inefficient workflows, and an increased likelihood of financial mismanagement. For instance, small firms may lack the financial resilience to absorb cost overruns or delayed payments, while larger firms face complexities in managing extensive project portfolios. The confluence of these factors leads to inefficiencies that manifest as cash flow issues, budget overruns, and, ultimately, financial instability. These inefficiencies are further exacerbated by the inability of some firms to align their operational capacity with the dynamic and often stringent demands of clients.

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Ghana's construction industry is also ranked among the more dynamic in Africa, yet it faces significant hurdles in terms of project financing, cash flow management, and financial risk management. A critical outcome of these challenges is premature contract termination, a pervasive issue in the Ghanaian construction industry. Premature contract terminations disrupt project timelines, inflate costs, and tarnish the reputations of stakeholders involved, from main contractors and subcontractors to clients and financiers. Despite the profound impact of such terminations, existing research often focuses narrowly on legal and dispute resolution aspects, neglecting the broader financial challenges that precipitate these disruptions (Wang et. al, 2000), or changes in project scope (Knowles, 2012; Mathilda, 2017; Shay, 2019).

Premature contract termination can have far-reaching implications for all parties involved in construction projects, including contractors, subcontractors, clients, suppliers, and financiers (Mayeko, 2014). From a financial perspective, the consequences of premature contract termination can be substantial. Contractors may incur additional costs associated with demobilization, lost profits, and potential legal expenses (Zhang et al., 2015). Subcontractors may face payment delays or non-payment for work already completed, leading to cash flow problems and financial instability (Peters et al., 2019; Amoako, 2011). Clients may experience delays in project delivery, increased costs, and reputational damage (Okereke, 2020; Abdul-Rahman, Kho, and Wang, 2014).

The reasons behind premature contract termination are diverse and multifaceted. They may include disputes over project specifications, changes in client requirements, unforeseen site conditions, delays in payments, or breaches of contract by either party (Abeynayake and Kumara, 2013; Evans and Reynolds, 2018). Additionally, economic factors such as inflation, currency fluctuations, and market downturns can exacerbate financial pressures and contribute to contract terminations (Abeynayake, and Kumara, 2013).

Despite the profound impact of premature contract termination, there is a significant research gap in understanding its underlying financial causes, consequences, and mitigation strategies (Liu, Wang, Zhang, and Guo, 2023). Existing studies often focus on the legal aspects or dispute resolution mechanisms, neglecting the broader financial challenges that stakeholders face (Hagedoorn and Hesen, 2007). Therefore, there is a need for comprehensive research that examines the financial dimensions of premature contract termination in the construction industry. By exploring the causes, consequences, and mitigation strategies related to financial challenges, stakeholders can gain valuable insights into how to effectively manage and mitigate the risks associated with premature contract termination.

This research aims to address this gap in the literature by providing a thorough analysis of the financial implications of premature contract termination and offering recommendations for improving project management practices and enhancing stakeholder outcomes in the construction industry.

1.1.Main Objective

The main objective of this study is to explore and analyze the financial challenges that lead to premature construction contract termination in the Ghanaian construction industry, with the aim of identifying key risk factors and proposing effective mitigation strategies to enhance project success and stakeholder outcomes.

1.2.Specific Objectives

To identify and categorize the key financial challenges contributing to premature construction contract termination in the Ghanaian construction industry.

1.3.Significance Objectives

This study is vital in the global construction industry as it sheds light on the financial challenges that can lead to premature contract terminations, a common issue that undermines project success. The findings contribute to a better understanding of how financial instability impacts the construction sector, offering insights that are relevant not only in Ghana but also in other developing economies facing similar challenges.

2. Literature Review

Premature contract termination in construction projects poses significant financial challenges to all parties involved, including contractors, subcontractors, and project owners. Understanding the causes and implications of these terminations is crucial for developing effective strategies to mitigate their impact. This literature review explores the various factors contributing to premature contract termination and its financial implications, integrating findings from multiple studies to build a cohesive understanding of this issue.

2.1. *Causes of Premature Contract Termination*

The factors leading to premature contract termination in construction projects are complex, with financial instability, project mismanagement, and unforeseen challenges being the most prominent. Amoah, and Steyn (2023) highlight that financial failures of contractors and delayed payments by clients are dominant causes of contract cancellations. These financial difficulties often stem from broader economic issues such as inflation and currency fluctuations,

which can exacerbate cash flow problems, leading to contract terminations (Roy, Desjardins, Ouellet-Plamondon, & Fertel, 2021).

In addition to financial challenges, design-related issues play a critical role. Defective designs, including miscalculations and inadequate specifications, can create significant execution problems, leading to increased costs and project delays. Siddiqui (2019) found that many road construction projects in Nigeria were awarded without sufficient knowledge of site conditions, resulting in cost overruns and subsequent contract cancellations. This suggests that poor project planning and inadequate risk assessment are key contributors to premature contract termination.

Human factors and regulatory hurdles further complicate project execution. Henriod et al., (2020) emphasize that human errors, whether through omission or commission, can create major difficulties and even cause total project breakdowns. Similarly, Zaki, Yehia, and Hamed (2024) point out that bureaucratic inefficiencies and legal disputes can prolong the approval process, escalating tensions among stakeholders and increasing the likelihood of contract termination.

Changes in project scope also emerge as a significant factor. Lüthi, and Wolter (2021) argue that evolving client requirements and market dynamics can necessitate modifications to the original project scope, leading to disputes and a loss of stakeholder confidence. This highlights the importance of flexible project management practices that can adapt to changes without compromising project viability.

The lack of effective communication and risk management systems further exacerbates these challenges. Dingiswayo (2022) link many construction project failures to communication-related issues, emphasizing the need for systematic and transparent communication channels. Van Thuyet, Ogunlana, and Dey (2019) support this by identifying the absence of a robust risk management system as a dominant factor influencing construction project failure in Vietnam. These insights suggest that improving communication and risk management could significantly reduce the incidence of premature contract terminations.

2.2. *Financial Challenges Leading to Premature Contract Termination*

Financial challenges leading to premature contract termination in construction projects are multifaceted and can significantly disrupt project timelines and completion.

One of the most common financial challenges is inadequate or inconsistent funding from clients, which can occur due to poor budget forecasting or delays in securing loans or other financing options (Mathilda, 2017). When clients struggle to secure the necessary funds, contractors are often left with unpaid invoices, which creates a cash flow problem and delays project progress (Dehaini, 2021).

Additionally, contractors may face financial difficulties due to mismanagement of funds, insufficient working capital, or limited access to credit, which impedes their ability to purchase materials, pay workers, or keep up with operational costs (Nguyen et al., 2020).

Fluctuating material prices and unpredictable exchange rates can also significantly increase project costs, as contractors may have underestimated expenses during the budgeting phase, leaving them unable to complete the project without additional financial resources (Abdul-Rahman et al., 2013). These financial pressures often result in the contractor or client deciding to terminate the contract prematurely, especially when projects become financially unfeasible or when delays accumulate, affecting the project's overall success.

To mitigate these financial risks, it is crucial to improve financial planning, ensure timely payments, and develop risk management strategies that can help manage cost fluctuations and access necessary capital (Osei et al., 2017).

2.3. *Financial Implications for Contractors*

The financial repercussions of premature contract termination are profound, particularly for contractors who often bear the brunt of the losses. Misnan, Ismail, and Yan (2024) observe that contract termination often results in substantial financial losses for contractors, who must contend with unrecovered costs and forgone profits. These losses are compounded by the sunk costs associated with mobilizing manpower, procuring equipment, and acquiring materials, which further strain the contractor's financial viability (Nahlik, & Jackson, 2021).

Legal battles resulting from contract termination can also have long-term financial implications. Khadka and Maharjan (2017) note that contractors may become entangled in protracted legal disputes, which not only incur significant legal costs but also damage their reputation. In an industry where trust and reputation are critical, such negative perceptions can deter future job opportunities and erode client loyalty. The ripple effects of contract termination extend beyond immediate financial losses to encompass broader business prospects. As contractors' face declining market standing and reduced client trust, their overall business sustainability is jeopardized. This underscores the need for contractors to develop robust financial and legal strategies to mitigate the risks associated with contract termination.

2.4. *Impact on Subcontractors and Suppliers*

Premature contract termination has a cascading effect on subcontractors and suppliers, who are integral to the

construction process. Tan, Xue and Cheung (2017) highlight that these entities are particularly vulnerable to the financial fallout of contract termination, as they often provide goods and services in alignment with the original project timeline and scope. When a contract is terminated, unpaid invoices and outstanding payments can lead to severe cash flow problems for subcontractors and suppliers, jeopardizing their financial stability.

Ramachandra, and Rotimi (2016) emphasize that delayed and non-payments can lead to low performance, disputes, and even bankruptcy among subcontractors and suppliers. This disruption to cash flow can result in a liquidity crisis, further exacerbating financial vulnerabilities and impeding business continuity. The impact is particularly severe for subcontractors, who often operate on narrow profit margins and lack sufficient contractual protections against termination (Handayani et al., 2021). The financial instability of subcontractors and suppliers can, in turn, disrupt the entire construction supply chain, leading to project delays and increased costs. This highlights the need for greater contractual transparency and risk-sharing mechanisms to protect these stakeholders from the adverse effects of premature contract termination.

2.5. Owner's Perspective

From the perspective of project owners, premature contract termination introduces significant uncertainty and financial strain. Chen et al. (2018) note that delays resulting from contract termination not only impede project progress but also lead to additional costs, as owners must allocate resources towards mitigating these delays and resuming project activities. This is consistent with findings from Aydin and Osman and Mohamud (2022), who observe that time and cost overruns are global trends in the construction sector, often exacerbated by contract terminations.

Moreover, owners face the challenge of finding replacement contractors, renegotiating contracts, and rectifying incomplete or defective work left by the terminated contractor (Aydin & Mihlayanlar, 2018). These unplanned expenditures can strain project budgets, diminish financial reserves, and ultimately erode project profitability. The legal proceedings associated with contract termination further exacerbate financial strain, diverting resources from core project activities and hindering project success.

The reputational damage resulting from contract termination can also have long-term implications for project owners. Javed, Hussain, Al Aamri, and Akhtar, (2022) point out that the fallout from terminated contracts can tarnish the owner's reputation within the industry, deterring future investment opportunities and damaging long-term business prospects. This underscores the importance of effective risk management and dispute resolution strategies to protect project owners from the adverse effects of contract termination.

2.6. Mitigation Strategies

Given the significant financial risks associated with premature contract termination, it is essential for stakeholders to adopt proactive mitigation strategies. Comprehensive due diligence, performance bonds, advanced project management tools, collaborative contracting models, and effective dispute resolution mechanisms are among the key strategies that can help mitigate these risks and enhance project resilience (Olawale & Sun, 2015; Sykes, 2016; Mullen & Davison, 2019).

These strategies, when tailored to the specific challenges of the Ghanaian construction industry, can provide a framework for managing the financial implications of contract termination and improving overall project outcomes. By integrating these best practices into the construction process, stakeholders can reduce the likelihood of premature contract terminations and enhance the stability and sustainability of construction projects in Ghana.

2.7. Critical Analysis

One of the most significant inconsistencies in the literature is the variation in the emphasis placed on different causes of premature contract termination. While some studies focus primarily on financial factors, such as contractor insolvency and delayed payments (Elsawalhi and Eid, 2012; Ramachandra and Rotimi, 2015), others emphasize non-financial aspects, including design errors, human failings, and regulatory challenges (Henriod and Masurier, 2002; Rostiyanti et al., 2019). This fragmented approach limits the ability to develop a comprehensive understanding of how these factors interact to precipitate contract termination. Furthermore, the literature often treats these causes in isolation, failing to account for the cumulative and interrelated nature of the risks that may lead to premature contract termination. A more holistic approach that integrates financial and non-financial factors is necessary to accurately capture the complexity of this issue.

Another area of debate in the literature concerns the financial implications of premature contract termination for different stakeholders. While the adverse effects on contractors are well-documented, including financial losses, legal battles, and reputational damage (Chen et al., 2018; Faniran et al., 2015), there is less consensus on the extent and nature of the impact on subcontractors, suppliers, and project owners. Some studies suggest that subcontractors and suppliers face severe financial strain and increased risk of bankruptcy (Ramachandra and Rotimi, 2015), while others argue that the impact on these parties is often overlooked or underestimated. Additionally, the literature provides limited insight into how project owners manage the financial fallout from contract

termination, with some studies highlighting the increased costs and delays they face (Olatunji and Afolabi, 2019), while others suggest that owners may have more resources and mechanisms at their disposal to mitigate these impacts. This disparity in focus calls for a more balanced exploration of the financial implications for all stakeholders involved in construction projects.

A notable gap in the existing literature is the lack of empirical studies that quantify the financial impact of premature contract termination on construction projects. Most studies rely on qualitative assessments or case studies, which, while valuable, do not provide a robust framework for understanding the magnitude of the financial losses incurred. Quantitative research that measures the financial consequences of premature contract termination across different types of projects and contexts would greatly enhance the field's understanding of this issue. Such studies could also help identify the most significant risk factors and inform the development of targeted mitigation strategies.

2.8. Theoretical Review

This theoretical review aims to provide a comprehensive framework for understanding the financial challenges leading to premature contract termination in the Ghanaian construction industry. It integrates key economic and project management theories to explain the connections between financial difficulties and contract disruptions.

2.8.1. Keynesian Economics (KE)

The Keynesian Economics theory provides a macroeconomic perspective relevant to financial challenges in construction projects. Keynesian theory emphasizes the role of government intervention and economic policies in stabilizing economic cycles (Keynes, 1936). In the context of construction, KE can help explain how economic fluctuations, such as recessions or inflation, impact financial stability and project financing. For instance, during economic downturns, reduced government spending and credit tightening can lead to cash flow problems and financial strain on construction firms, increasing the risk of contract termination.

2.8.2. Cash Flow Management

Cash Flow Management is a critical economic concept for understanding financial difficulties in construction projects. Effective cash flow management involves monitoring and controlling the inflow and outflow of cash to ensure that sufficient funds are available to meet financial obligations (Brigham and Ehrhardt, 2013). In the construction industry, cash flow problems can arise from delayed payments, budget overruns, and unexpected expenses. Poor cash flow management can exacerbate financial stress, leading to premature contract terminations. By applying cash flow management principles, construction firms can better anticipate financial challenges and develop strategies to mitigate their impact.

2.8.2. Project Funding Structures

Project Financing Structures are essential for understanding how financial arrangements affect project outcomes. The choice of financing structure such as equity financing, debt financing, or a combination affects the financial stability of construction projects (Project Management Institute, 2017). For example, high levels of debt financing can increase financial risk, making firms more vulnerable to cash flow issues and contract terminations. Understanding different project financing structures helps in identifying potential financial vulnerabilities and developing strategies to address them.

2.9. Financial Risk Management Models

Financial Risk Management models provide frameworks for identifying, assessing, and mitigating financial risks in construction projects. These models often involve techniques such as risk assessment matrices, scenario analysis, and stress testing (Hull, 2012). In the construction industry, financial risk management models can help firms anticipate potential risks related to economic volatility, project delays, and cost overruns. By applying these models, stakeholders can develop comprehensive risk management strategies to minimize the likelihood of financial challenges leading to contract termination.

2.9.1. Project Risk Management

Theory focuses on the systematic process of identifying, assessing, and managing risks throughout the project lifecycle (Hillson, 2009). This theory is pertinent to understanding how financial risks, such as insolvency or cash flow issues, can lead to project disruptions. Effective risk management practices, including risk identification, risk analysis, and risk response planning, are crucial for mitigating financial challenges and preventing premature contract terminations.

2.9.2. Integration of Theoretical Concepts

Integrating these economic and project management theories provides a robust framework for understanding the financial challenges leading to premature contract termination. Keynesian economics offers insights into how macroeconomic factors influence financial stability, while cash flow management and project financing structures provide practical tools for addressing financial difficulties. Financial risk management models and project risk management theory offer strategies for mitigating risks and ensuring project success.

3. Research Methodology

3.1. Research Design and Approach

A quantitative research approach was employed to facilitate the collection and analysis of numerical data

essential for this study. A closed-ended questionnaire was used as the primary data collection tool. The adoption of the questionnaire survey technique is prevalent in project management research, as evidenced by previous studies (Ning, 2014; Deng et al., 2014; Adeleke et al., 2016).

The study employed both purposive and random sampling techniques. Purposive sampling was chosen to focus on key individuals who possess specialized knowledge and experience relevant to the study. By targeting procurement officers, project managers, engineers, quantity surveyors, and contract managers with a minimum of six years of experience, the study ensures that the data collected comes from experts who have a deep understanding of the complexities involved in construction contract management. This method allows for the acquisition of detailed and informed perspectives on the financial implications of premature contract termination, which is crucial for addressing the specific research questions. The expertise of the respondents adds significant value to the study by providing nuanced insights into the subject matter.

In contrast, random sampling was employed to achieve a broad and representative sample across different regions and sectors. This technique helps in capturing a diverse range of perspectives from various geographic locations (Greater Accra, Central, Western, and Eastern regions) and industry roles. Random sampling is instrumental in minimizing selection bias and ensuring that the findings are not confined to a particular subgroup but reflect a more comprehensive view of the construction industry. This broad representation is essential for generalizing the study's conclusions to the wider population, thus enhancing the applicability of the results.

The combination of purposive and random sampling methods thus offers a balanced approach to data collection. Purposive sampling provides the depth of expertise necessary for detailed analysis, while random sampling ensures that the findings are representative of the broader industry context. This dual approach strengthens the overall reliability and validity of the study by integrating expert insights with a wide-ranging perspective.

3.2. Data Collection and Analysis

A total of 400 questionnaires were randomly distributed to selected procurement officers, project managers, engineers, quantity surveyors and contract managers that have practiced for at least six years in the Greater Accra region, Central region, Western region and Eastern region of Ghana. A total of 315 questionnaires were retrieved, yielding a response rate of 78.75%. This constituted the dataset upon which the study was based.

This sample size was deemed sufficient for Structural Equation Modeling (SEM) analysis. According to Kline (2015), a critical sample size of 200 responses is generally adequate for conducting SEM, allowing for robust estimation of model parameters and validation of factor structures. With a response rate of 78.75% from 400 distributed questionnaires, the sample size of 315 exceeds this threshold, providing a solid foundation for the analysis. The research instrument was a questionnaire used to collect the data from key experts. The questionnaire used a five-point Likert scale to gauge the respondents' responses, requiring them to indicate their level of agreement on a scale ranging from 1 (no extent) to 5 (very large extent) related to financial risks and impacts.

The instrument was developed based on a comprehensive review of existing literature and expert input. It underwent validation through expert reviews, pilot testing, and statistical analysis to ensure its reliability and validity. Cronbach's alpha was used to assess internal consistency, while Confirmatory Factor Analysis (CFA) verified the factor structure of the questionnaire. This rigorous validation process ensured that the questionnaire effectively captured the relevant dimensions of financial challenges and provided accurate and reliable data for analysis.

The data analysis for this study was conducted using SPSS version 26 and AMOS version 22, focusing on various statistical techniques to explore and validate the financial challenges associated with premature contract terminations. The following describes the specific procedures and tests employed:

Exploratory Factor Analysis (EFA): Initially, EFA was performed using SPSS to identify the underlying factors that explain the correlations among the variables. This step involved extracting factors and rotating them to achieve a clearer structure. Principal Component Analysis (PCA) was used as the extraction method, with Varimax rotation to enhance interpretability. Factor loadings above 0.50 were considered significant for inclusion in the factor solution. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were used to assess the adequacy of the data for factor analysis, with KMO values above 0.70 indicating sampling adequacy.

Confirmatory Factor Analysis (CFA): CFA was conducted using AMOS to validate the factor structure identified in the EFA. CFA tested whether the data fit the proposed measurement model by assessing the relationships between observed variables and latent factors. Key fit indices included the Chi-square test, Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). A CFI value above 0.9 and an RMSEA value below 0.08 were considered indicative of a good fit.

Model Specification and Estimation: After validating the measurement model through CFA, SEM was used

to explore the relationships between latent variables and their impact on financial challenges. AMOS was employed to specify the structural model, incorporating paths between latent constructs and observed variables based on theoretical and empirical insights. The SEM analysis assessed the direct and indirect effects of financial challenges on premature contract termination. The fit of the structural model was evaluated using several fit indices, including Chi-square, CFI, and RMSEA, as previously described. Model modifications were made if necessary, based on modification indices and theoretical justification. The goal was to achieve a model that accurately represented the data and provided a clear understanding of the relationships between financial challenges and contract termination.

Internal consistency of the constructs was assessed using Cronbach's alpha, with values above 0.70 considered acceptable. This step ensured that the items within each factor reliably measured the same underlying construct.

The results from EFA and CFA were used to refine the measurement model, ensuring that the identified factors were valid and reliable. The SEM analysis provided insights into the relationships between financial challenges and premature contract termination, helping to identify significant predictors and their effects. Findings were reported with detailed descriptions of model fit indices and statistical significance levels, providing a comprehensive understanding of the data and its implications.

3.3. Power Analysis

To ensure that the sample size used in this study is sufficient for detecting meaningful effects and ensuring the robustness of the Structural Equation Modelling (SEM) results, a power analysis was conducted. Power analysis is a statistical method used to determine the minimum sample size required for detecting an effect of a given size with a certain level of confidence (Kang, 2021). In SEM, an adequately powered study reduces the risk of Type II errors (failing to detect a true effect) and enhances the reliability of the findings (Wang, and Rhemtulla, 2021).

For SEM, it is generally recommended that the sample size should be large enough to provide adequate power, typically around 0.80 or higher, which means there is an 80% chance of detecting an effect if it exists (Moshagen, and Bader, 2024). Using the common guidelines for SEM, which suggest a minimum ratio of 10:1 for the number of participants to the number of estimated parameters, the sample size of 315 respondents in this study was evaluated (Jak, et al., 2021).

Considering the complexity of the model, the number of observed variables, and the expected effect sizes, the sample size of 315 exceeds the minimum requirements for most SEM analyses. Specifically, with a medium effect size ($f^2 = 0.15$), a significance level of 0.05, and power set at 0.80, the required sample size would typically range between 200-300 participants for a model with moderate complexity. Therefore, the sample size of 315 not only meets but exceeds this threshold, ensuring that the study is adequately powered to detect meaningful effects and providing confidence in the robustness of the SEM results.

3.4. Observation of Respondents' Behaviour and Ease in Providing Feedback

In addition to administering the structured questionnaire, this study included an observational component to assess respondents' behaviour and their ease in providing feedback. Observing respondents during the data collection process provided valuable insights into their engagement with the survey and potential challenges they encountered. Non-verbal cues, such as hesitations, body language, and overall demeanour, were noted to gauge the level of comfort and understanding of the questions.

For example, if a respondent hesitated or appeared confused while answering specific questions, it indicated potential issues with the clarity or sensitivity of those items. Observations of the respondents' behaviour also helped to identify any discomfort or reluctance to answer certain questions, which could suggest areas where the questionnaire might need further refinement. Additionally, the speed and confidence with which respondents provided their answers were considered indicators of how well the questions aligned with their experiences and understanding.

3.5. Limitations

The decision not to explore additional areas such as market forces, legal systems, macroeconomic factors, cultural and geographical influences, and comparisons with other regions or industries in this research was primarily driven by the study's focus on financial challenges specific to the Ghanaian construction industry. The research aimed to provide a targeted analysis of the financial issues leading to premature contract termination within this context, ensuring depth and specificity. Expanding the scope to include these broader areas would have diluted the focus, potentially complicating the analysis and making it more challenging to draw clear, actionable conclusions relevant to the Ghanaian industry. Additionally, the constraints of time and resources necessitated a more streamlined approach, allowing for a detailed exploration of the most critical financial factors directly affecting project success in this specific setting. Future research could build on these findings by incorporating these additional dimensions to provide a more comprehensive understanding of the construction industry's challenges.

Moreover, it does not delve into how different stakeholders, such as government departments and the banking sector, could implement these risk management strategies. Addressing these limitations in future research could provide a more comprehensive understanding of financial risks in construction projects across various contexts.

4. Results

4.1. Respondents Demographics

An assessment of the respondents' demographic information was undertaken. Of interest was the categorization of the respondents' organizations or sector of the industry, level of expertise and the years of practice. This was appropriate for bolstering the validity of their answers and the overall study results, while it is an important way to increase the reliability and credibility of the responses and results in a survey (Bryman, 2011).

The summary of the results of the background characteristics data is presented in Table 1. In terms of academic qualifications, as evident from Table 1, more than half (52.4%) of the respondents had a bachelor's degree, this was followed by a master's degree (43.8%) and a Higher National Diploma (HND) (2.5%) while the least qualified was doctorate degree (1.3%) respectively. With regards to the years' practice, the results showed that 37.1 percent of the respondents had worked between 6 and 10 years, 28.3 percent had worked between 11 and 15 years, 21.9 percent had worked between 16 and 20 years, and 12.7 percent of the respondents had been working for over 21 years. All have knowledge or experience in the issues of financial challenges and contract termination. With regards to current specialization, 39.7 percent were building and civil works. About 38.4 percent of the respondents were building works only and 21.9 percent were civil works only. The results on professional qualification showed that, majority of the respondents were employed under public sector, representing 78.7 percent while 21.3 percent of the respondents were employed by the private sector.

The background information indicates that the respondents who participated in the study were academically and professionally qualified as shown by Table 1.

Financial problem as a cause of construction contract termination in Ghana. Financial problem contained twelve (12) items. Among the twelve items,

Table 1: Profile of Respondent

Demographic Characteristics	N	%
Profession		
Contract manager	25	7.9
Procurement officer	84	26.7
Quantity surveyor	104	33
Engineer	73	23.2
Architect	12	3.8
Project manager	12	3.8
Lecturer	5	1.6
Qualification		
HND	8	2.5
BSc/BTech	165	52.4
Masters	138	43.8
PhD/DPhil/DTech	4	1.3
Years Practiced		
6-10 years	117	37.1
11-15 years	89	28.3
16-20 years	69	21.9
21 years and above	40	12.7
Current specialization		
Building works only	121	38.4
Civil works only	69	21.9
Building and civil works	125	39.7
Employer		
Public sector	248	78.7
Private sector	67	21.3
Total	315	100

Source: Researcher's Fieldwork (2023)

Table 2: Financial Challenges Factors (FCF)

	Mean	SD	Rank
Insolvency of both parties	4.36	0.879	1
Contractor and client's cash flow problems	4.32	0.77	2
Inability of client to attract fund	4.25	0.95	3
Budget deficit/Contracts overrun	4.19	0.808	4
Embezzlement and misappropriation	4.19	0.854	5
Poor financial feasibility assessment	3.99	0.833	6
Project lost its economic value	3.96	0.975	7
Fragile financial environment	3.83	0.785	8
Hiigh interest rates from banks	3.82	0.879	9
Poor cost planning and wrong cost estimating	3.73	0.918	10
Blacklisted contractor by banks	3.55	0.981	11
Disagreement between contractor's bankers	3.37	0.974	12

contractor's and client's insolvency was rated 1st as a large extent causes of construction contract termination with mean score of 4.36 (SD = 0.879). From Table 2, other indicators expressed as extent cause of construction contract termination include: contractor and client's cash flow problems with a mean score of 4.32 (SD = 0.770), inability of client to attract fund with a mean score of 4.25 (SD = 0.950), budget deficit or overrun of contracts with a mean score of 4.19 (SD = 0.808) and embezzlement and misappropriation with a mean of 4.19 (0.854) and were ranked from 2nd to 5th. Similarly, the remaining indicators of financial problems were rated as a large extent cause of contract termination.

4.2. Exploratory Factor Analysis of Financial Challenges Factors (FCF)

Exploratory factor analysis was used to evaluate the underlying structure of the indicators of financial challenges as a factors that cause construction contract termination. In essence, the process was relied upon to identify the number of indicators associated with other indicators in the construct which are more interrelated to each other. It also contributes to the strength of the relationships among the indicators and the components which subsequently improve the reliability and validity of the model.

The financial challenges as a construct were made up of twelve (12) indicators and were subjected to factor analysis. The EFA estimation was carried out using principal component method of extraction, with varimax rotation method to enhance interpretation of the component matrix. The number of components extracted was based on Kaiser's criterion with eigenvalue ≥ 1.00 retained.

4.3. *Model Diagnostic for the EFA Model for Financial Challenges Factors (FCF).*

Communalities indicate the proportion of each variable's variance that is accounted for by the factors

Table 3: Initial Communalities for Financial Challenges Factors (FCF)

	Initial	Extraction
Contractor's and client's insolvency	1	0.693
Budget deficit or overrun of contracts	1	0.673
Contractor and client's cash flow problems	1	0.597
Fragile financial environment	1	0.562
Disagreement between contractor's bankers	1	0.709
Blacklisted contractor by banks	1	0.594
Poor cost planning and wrong cost estimating	1	0.485
Project lost its economic value	1	0.528
Inability of client to attract fund	1	0.549
High interest rates from banks	1	0.563
Embezzlement and misappropriation	1	0.682
Poor financial feasibility assessment	1	0.532

Extraction Method: Principal Component Analysis

extracted in the analysis. In Table 3, the initial communalities are all set to 1, representing the total variance of each variable before extraction. After extraction, the communalities reveal how much of each variable's variance is captured by the retained factors. High extraction values suggest that the factors extracted in the analysis account for a substantial portion of the variance in the corresponding variables. For example, the variables "Disagreement between contractor's bankers" (0.709) and "Contractor's and client's insolvency" (0.693) have high communalities, indicating that the extracted factors explain a significant portion of their variance. This suggests that these variables are strongly represented by the underlying factors identified in the analysis. Conversely, "Poor cost planning and wrong cost estimating" (0.485) have a lower communality, indicating that a smaller proportion of its variance is explained by the extracted factors, suggesting it might be less central to the core financial challenges.

Factor loadings are coefficients that represent the correlation between each variable and the extracted factors. High factor loadings suggest that a variable is strongly related to a particular factor, while low loadings indicate weaker relationships.

In this analysis, variables with high communalities and factor loadings, such as "Disagreement between contractor's bankers" and "Embezzlement and misappropriation," are well-represented by the extracted factors. These variables contribute significantly to the factors identified and validate their relevance in understanding financial challenges. The relatively lower communalities for variables like "Project lost its economic value" (0.528) and "Poor financial feasibility assessment" (0.532) indicate that these variables are not as strongly represented by the factors as others. This could suggest the need for additional factors or a more nuanced understanding of these issues to fully capture their variance. The results of the factor analysis inform the identification and validation of financial challenges factors by highlighting which variables are most effectively captured by the extracted components. High communalities and factor loadings validate the relevance of these factors in representing the underlying financial issues affecting construction projects. For instance, high loadings on factors related to insolvency and banking disputes underscore the critical importance of these issues in the context of financial challenges. Conversely, variables with lower communalities suggest areas where the extracted factors may not fully capture the complexity of financial challenges. This insight can guide further refinement of the factor model, potentially leading to the identification of additional factors or a re-evaluation of the variables included in the analysis.

The Table 4 presenting the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity for Financial challenges plays a critical role in assessing the suitability of the dataset for factor analysis. These statistical measures provide insights into the adequacy of the sample for extracting meaningful factors and the overall appropriateness of applying factor analysis to the financial problems dataset. The KMO Measure of Sampling Adequacy is a crucial indicator that evaluates the proportion of variance in the variables that might be caused by underlying factors. In this case, the KMO value is 0.850, which is considered quite high. KMO values range from 0 to 1, and a higher value indicates better suitability for factor analysis. A KMO value above 0.6 is generally acceptable, and a value above 0.80 is considered good. The KMO value of 0.850 suggests that the dataset for financial problems is highly adequate for factor analysis, indicating substantial correlations among the variables. Bartlett's Test of Sphericity further supports the decision to proceed with factor analysis. The approximate chi-square value is 1292.400, with 66 degrees of freedom, and a significance level (Sig.) of 0.000. The significance level being well below the conventional threshold of 0.05 provides strong evidence to reject the null hypothesis that the correlation matrix is an identity matrix. This implies that there are significant correlations among the financial challenge, justifying the use of factor analysis to explore the underlying factors influencing these issues.

The Table 5 illustrating the Total Variance Explained for financial challenges offers valuable insights into the distribution of variance across different principal components derived from a Principal Component Analysis (PCA). This statistical technique aims to distill the essential patterns within the dataset by identifying principal components that account for the majority of its variability.

Table 4: KMO and Bartlett's Test for Financial Challenges Factors (FCF)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.850
Bartlett's Test of Sphericity	Approx. Chi-Square	1292.4
	Df	66
	Sig.	0

Table 5: Total Variance Explained for Financial Challenges Factors (FCF)

Comp. (PC)	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.745	39.539	39.539	4.745	39.539	39.539	2.694	22.451	22.451
2	1.402	11.686	51.225	1.402	11.686	51.225	2.3	19.169	41.619
3	1.021	8.504	59.729	1.021	8.504	59.729	2.173	18.11	59.729
4	0.835	6.96	66.689						
5	0.764	6.371	73.059						
6	0.649	5.41	78.469						
7	0.606	5.05	83.519						
8	0.472	3.934	87.453						
9	0.461	3.839	91.292						
10	0.4	3.331	94.623						
11	0.353	2.939	97.563						
12	0.292	2.437	100						

Extraction Method: Principal Component Analysis

Examining the results, the initial eigenvalues for each principal component signify the amount of variance attributed to that particular component. The first principal component (PC1) emerges with an eigenvalue of 4.745, explaining 39.539% of the total variance. Notably, PC1 alone contributes significantly to the overall understanding of the financial challenges, as evidenced by the cumulative percentage of 39.539%.

The second principal component (PC2) continues to contribute meaningfully, adding 11.686% to the cumulative variance, resulting in a cumulative percentage of 51.225%. As we progress through subsequent principal components, the cumulative percentages continue to increase, albeit at diminishing rates. The lower-numbered components capture a more substantial portion of the overall variance. Importantly, Table 6 provides a cutoff point where, for example, the first three principal components (PC1, PC2, and PC3) collectively contribute to a cumulative percentage of 59.729%. This implies that these three components encapsulate a significant portion of the dataset's variability.

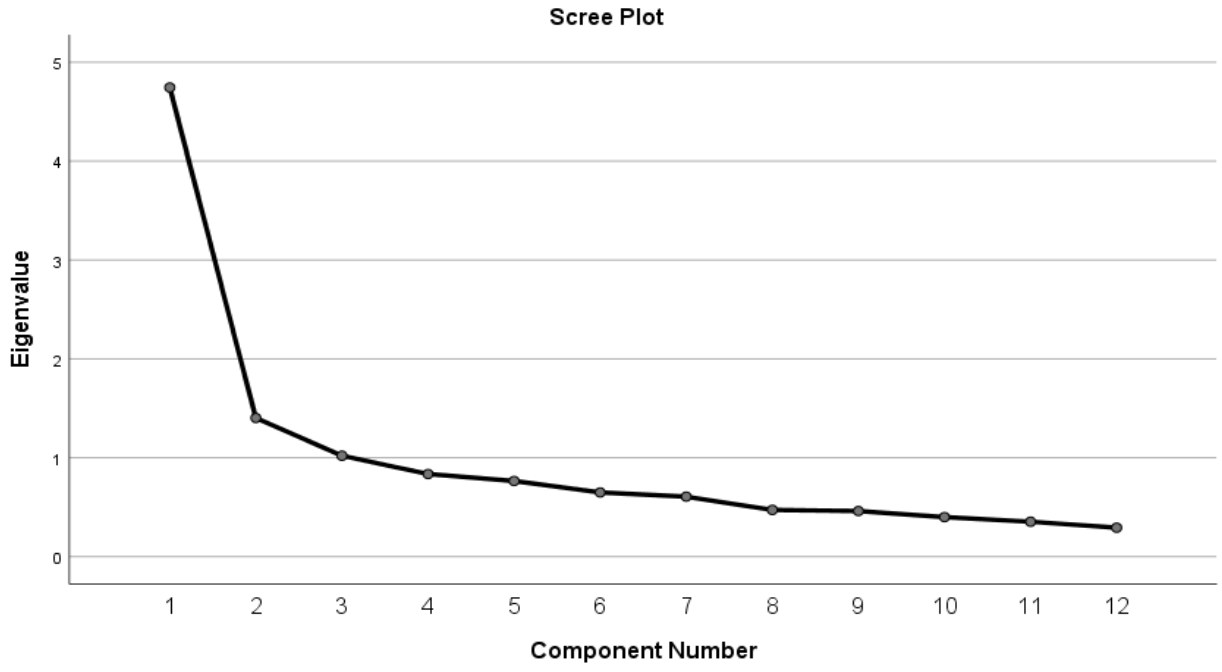

Figure 1: Scree Plot for Financial Challenges Factors (FCF)

In Figure 1, the scree plot illustrates the eigenvalues of Financial Problems components in a descending curve, arranging them from the highest to the lowest. The scree test identifies the "elbow" at component three, where the eigenvalues appear to stabilize. Consequently, retaining three components of financial challenges to the left of this point is considered significant, as suggested by Dmitrienko et al., (2007).

The EFA was used to determine the Financial Challenges Factors (FCF) construct's one-dimensionality and dependability. The extraction and rotation method employed was Maximum Likelihood with Varimax Rotation (ML Varimax). The Construct was measured with ten different factors.

The findings showed that the data may be subjected to factor analysis. All the twelve items (FCF1, FCF2, FCF3, …, FCF12) which are expected to measure employer default factors loaded three components. A factor loading threshold of 0.5 was advocated by Field (2005) and Hair, et al., (1998), This exceeds the recommended threshold of 0.50 all items exhibited factor loadings surpassing 0.5 for their respective components.

In the first component, five items surpassed the threshold of 0.5. They are "Contractor's and client's insolvency", "Budget deficit or overrun of contracts", "Contractor and client's cash flow problems", "Project lost its economic value", and "Inability of client to attract fund". These items measure Financial Integrity Risks (FIR). Thus, the items will be called Financial Integrity Risks (FIR).

The Second component, four (4) items surpassed the threshold of 0.5. They are "Embezzlement and misappropriation", "High interest rates from banks", "Poor financial feasibility assessment", and "Poor cost planning and wrong cost estimating". These items measure Financial Mismanagement and Economic Instability Risks (FMEIR). Thus, items will be called Financial Mismanagement and Economic Instability Risks (FMEIR).

The third component, three (3) items surpassed the threshold of 0.5. They are "Disagreement between contractor's bankers", "Fragile financial environment" and "Blacklisted contractor by banks". These items measure Financial Risk Due to Banking Disputes and Instability (FRBDI). Thus, items will be called Financial Risk Due to Banking Disputes and Instability (FRBDI).

The item-total correlation adjusted for the items within the component was extracted using the proposed cut-off value of 0.30 after utilizing the EFA to extract the component. The items were considered reliable measures of the components, as evidenced by the Cronbach's alpha coefficient for the component (FIR) was 0.809, for the component (FMEIR) was 0.811 and that of the third component (FRBDI) was 0.815, showing satisfactory internal reliability (Nanually and Bernstein, 1994).

4.4. *Structural Equation Model (SEM) for Financial Challenges Factors (FCF) Construct*

After the constructs demonstrated sufficient evidence of one-dimensionality and reliability using EFA, a

Table 6: Unidimensionality and Reliability of Financial Challenges Factors (FCF)

	Component			Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
	1	2	3			
Contractor's and client's insolvency	0.823			0.607	0.769	0.809
Budget deficit or overrun of contracts	0.784			0.64	0.761	
Contractor and client's cash flow problems	0.729			0.593	0.775	
Project lost its economic value	0.557			0.595	0.774	
Inability of client to attract fund	0.525			0.565	0.783	
Embezzlement and misappropriation		0.736		0.441	0.685	0.811
High interest rates from banks		0.715		0.51	0.641	
Poor financial feasibility assessment		0.661		0.513	0.64	
Poor cost planning and wrong cost estimating		0.525		0.531	0.629	
Disagreement between contractor's bankers			0.797	0.465	0.708	0.815
Fragile financial environment			0.711	0.603	0.535	
Blacklisted contractor by banks			0.708	0.552	0.605	

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

CFA was then administered. The analysis strategy of goodness of fit for Financial Challenges Factors (FCF) Construct followed a three statistics strategy of fit indexes as recommended by (Hu and Bentler, 1999).

The sample data on FCF model yielded the S – Bχ2 of 2.204 with 51 degrees of freedom (df) with a probability of p = 0.0000. This chi-square value indicated that the departure of the sample data from the postulated model was significant and hence, indicative of good fit. The chi-square test is very sensitive to sample size and is used more as a descriptive index of fit rather than as a statistical test (Byrne, 2012). The fit indices presented in Table 7 offer a comprehensive evaluation of the structural equation modelling (SEM) results, assessing the model's goodness-of-fit. Understanding these indices is crucial for evaluating the validity and robustness of the SEM model used to analyse the Financial Challenges Factors (FCF).

The CFI measures the improvement in fit of the specified model relative to a baseline model. A CFI value of 0.969, which exceeds the acceptable threshold of 0.90, indicates a good fit of the model. This suggests that the model adequately represents the relationships between the financial challenge factors and supports the validity of the model in explaining the data.

The PCFI accounts for model complexity, penalizing models with excessive parameters. The value of 0.671 is below the ideal threshold of 0.80 but still indicates a good fit when considering model parsimony. This suggests that while the model is relatively complex, it maintains a balance between goodness-of-fit and simplicity.

The RMSEA measures the discrepancy per degree of freedom, with lower values indicating a better fit. The RMSEA of 0.01, which is well below the acceptable threshold of 0.08, reflects an excellent fit of the model. The 95% confidence interval (0.007-0.015) further supports the conclusion that the model fits the data well, providing reassurance about the robustness of the model.

The NFI compares the fit of the model with the null model, with values greater than 0.90 indicating a good fit. The NFI value of 0.937 suggests that the model provides a significant improvement over the null model, affirming the model's validity.

The IFI measures the proportion of improvement in fit relative to the null model, with values greater than 0.90 considered indicative of a good fit. The IFI value of 0.97 indicates that the model performs well in representing the relationships among the factors. Like the PCFI, the PNFI accounts for model complexity. The value of 0.647 is below the ideal threshold of 0.80 but still supports the model's adequacy given the complexity of the data.

The RMR measures the average discrepancy between observed and predicted values, with values less than 0.05 indicating a good fit. The RMR value of 0.033

Table 7: Robust fit index for Financial Challenges Factors (FCF)

Fit Index	Cut-Off Value	Estimate	Comment
S – Bχ^2		2.204	
Df	0≥	51	Acceptable
CFI	0.90≥ acceptable 0.95≥ good fit	0.969	Good fit
PCFI	Less than 0.80	0.671	Good fit
RMSEA	Less than 0.08	0.01	Acceptable
RMSEA 95% CI	0.00-0.08 "good fit"	0.007-0.015	Acceptable
NFI	Greater than 0.90 "good fit"	0.937	Good fit
IFI	Greater than 0.90 "good fit"	0.97	Good fit
PNFI	Less than 0.80	0.647	Good fit
RMR	Less than 0.05 "good fit"	0.033	Good fit
GFI	Greater than 0.90 "good fit"	0.997	Good fit

Note: s-bx² = Chi-Square, DF = Degree of Freedom, CFI = Comparative Fit Index, PCFI =Parsimony Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation, RMSEA 95% CI = Root Mean Square Error of Approximation 95% Confidence Interval, NFI = Normed Fit Index, IFI = Incremental Fit Index, PNFI = Parsimony Normed Fit Index, RMR = Root Mean Residual and GFI = Goodness of Fit Index.

suggests that the model adequately fits the data, with minimal residuals.

The GFI assesses the proportion of variance accounted for by the model, with values greater than 0.90 indicating a good fit. The GFI value of 0.997 is significantly higher than the threshold, indicating an excellent fit and strong representation of the data.

The overall strong fit indices indicate that the model effectively represents the relationships among financial challenge factors, providing confidence in its validity. However, while the fit indices are favourable, the model's complexity and the lower values for some indices like PCFI and PNFI suggest areas for potential refinement. Adjustments could include simplifying the model to improve parsimony or incorporating additional factors to enhance the explanation of variance. It is also important to consider that fit indices alone do not guarantee a perfect model; they should be interpreted in the context of theoretical and empirical validation.

Unidimensional model for Financial Challenges Factors (FCF) features are presented (Figure 2 and Table 8). Out of the twelve (12) indicator variables, twelve (12) were obtained and used for the final CFA analysis (Abd-El-Fattah, 2010; Joreskog and Sorbom, 1988). From the 315 cases analyzed for this construct, twelve (12) indicator variables made up of three (3) components realized as FIR (FIR1, FIR2, FIR3, FIR4 and FIR5), FMEIR (FMEIR1, FMEIR2, FMEIR3 and

Table 8: Final Conceptual Model Indicator Variables for Financial Challenges Factors

Latent Component	Indicator Variables	Measurement Variables	Label
Financial Integrity Risks (FIR)		Contractor's and client's insolvency	FIR1
		Budget deficit or overrun of contracts	FIR2
		Contractor and client's cash flow problems	FIR3
		Project lost its economic value	FIR4
		Inability of client to attract fund	FIR5
Financial Mismanagement and Economic Instability Risks (FMEIR)		Embezzlement and misappropriation	FMEIR1
		High interest rates from banks	FMEIR2
		Poor financial feasibility assessment	FMEIR3
		Poor cost planning and wrong cost estimating	FMEIR4
Financial Risk Due to Banking Disputes and Instability (FRBDI)		Disagreement between contractor's bankers	FRBDI1
		Fragile financial environment	FRBDI2
		Blacklisted contractor by banks	FRBDI3

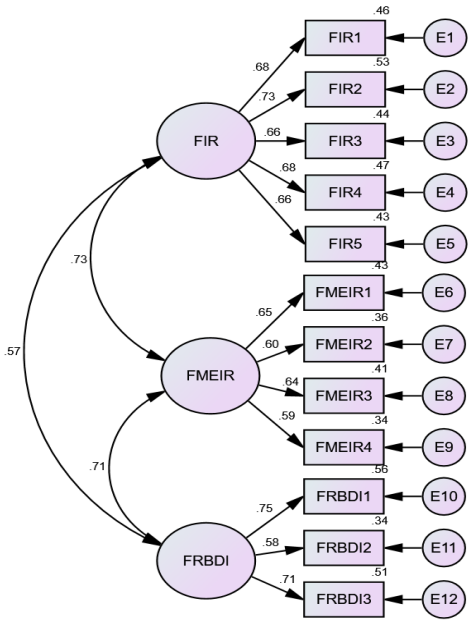

Figure 2: CFA Model for Financial Challenges Factors (FCF)

FMEIR4) and FRBDI (FRBDI1, FRBDI2, and FRBDI3).

Table 9 shows the correlation values, standard errors and the test of statistics of the final twelve-indicator model. All the correlation values were less than 1.00, and all the p-values were less than the significant value of 0.05 and show appropriate signs. The estimates were therefore deemed reasonable, as well as statistically significant. The parameter with the highest standardized coefficient was the indicator with variable FRBDI1 and its parameter coefficient was 0.748.

Most of the parameter estimates had high correlation values close to 1.00. The high correlation values suggest a high degree of linear association between the indicator variables and the unobserved variables (FIR, FMEIR and FRBDI**)**. In addition, the R Square values were also close to the desired value of 1.00 indicating that the factors explained more of the variance in the indicator variables.

The results therefore, suggest that the indicator variables significantly predict the unobserved components, because all the measured variables are significantly associated with the components (FIR, FMEIR and FRBDI) under financial challenge factors.

5. Discussions of Results

The findings revealed three main components: Financial Integrity Risks (FIR), Financial Mismanagement and Economic Instability Risks (FMEIR), and Financial Risk Due to Banking Disputes and Instability (FRBDI). These components were identified through exploratory factor analysis (EFA) and confirmed using confirmatory factor analysis (CFA).

5.1. Financial Integrity Risks (FIR)

This encompasses issues such as contractor and client insolvency, budget deficits, and cash flow problems. These findings are consistent with prior research highlighting the significance of financial stability and integrity in construction projects (Jha and Iyer, 2006). FIR reflects the challenges associated with ensuring financial viability and solvency throughout the project lifecycle, which are crucial for project success and continuity.

5.2. Financial Mismanagement and Economic Instability Risks (FMEIR)

It includes factors like embezzlement, high interest rates, and poor financial feasibility assessment. This component underscores the importance of effective financial management practices and the impact of economic instability on project outcomes. These findings align with literature emphasizing the role of financial mismanagement in project delays and cost overruns (Ogunlana et al., 2002).

5.3. Financial Risk Due to Banking Disputes and Instability (FRBDI)

This addresses challenges arising from disagreements between contractors' bankers, fragile financial environments, and contractor blacklisting by banks. This component highlights the intricate relationship between project financing and banking institutions, echoing existing literature on the vulnerability of construction projects to external financial disruptions (Liu et al., 2013).

Table 9: Factor Loading and P-Value of Financial Challenges Factors (FCF)

Hypothesised relationships (Path)	Unstandardised Coefficient (λ)	Standardised Coefficient (λ)	P-Value	R- Square	Significant at 5% Level
FIR1 → FIR	1.00	0.681	0.00	0.463	Yes
FIR2 → FIR	0.985	0.729	0.00	0.531	Yes
FIR3 → FIR	0.854	0.664	0.00	0.440	Yes
FIR4 → FIR	1.111	0.682	0.00	0.465	Yes
FIR5 → FIR	1.047	0.659	0.00	0.435	Yes
FMEIR1 →FMEIR	1.00	0.654	0.00	0.428	Yes
FMEIR2 → FMEIR	0.949	0.603	0.00	0.364	Yes
FMEIR3 →FMEIR	0.953	0.639	0.00	0.409	Yes
FMEIR4 → FMEIR	0.91	0.585	0.00	0.342	Yes
FRBDI1 → FRBDI	1.00	0.748	0.00	0.560	Yes
FRBDI2 → FRBDI	0.626	0.582	0.00	0.338	Yes
FRBDI3 → FRBDI	0.958	0.712	0.00	0.506	Yes
FMEIR ↔ FRBDI			0.00	0.708	Yes
FIR ↔ FMEIR			0.00	0.734	Yes
FIR ↔ FRBDI			0.00	0.573	Yes

5.4. Integration with Existing Literature

The study's findings align with and extend the existing literature on financial challenges in construction projects. The identification of FIR, FMEIR, and FRBDI provides an understanding of how various financial risks manifest and interact within the construction industry. While previous studies, such as those by Yap, Lee, and Skitmore (2020) and Azibaraniyar (2023), have explored aspects of financial integrity and mismanagement, this study offers a more integrated view by combining these issues with financial risks related to banking disputes. The results confirm the importance of financial stability and effective management practices while also introducing new insights into the role of banking relationships in project performance.

However, this study also presents opportunities to challenge and refine existing theories. For example, while the results support the notion that financial integrity is crucial, they also reveal additional dimensions of financial risk, such as banking instability that previous studies may have underexplored. By highlighting these aspects, the study not only corroborates existing findings but also contributes to a more comprehensive understanding of financial challenges in construction projects.

5.5. Market Forces

The findings of this study highlight that financial instability in the Ghanaian construction industry is exacerbated by fluctuations in market forces, particularly the costs of materials and labour. For instance, contractor insolvency and cash flow problems are often linked to sudden price surges in essential materials like cement and reinforcement bars. The study also revealed that market-driven budget overruns are a significant factor contributing to contract termination. Comparatively, industries in neighbouring countries like Nigeria face similar challenges, suggesting a regional trend that could inform the development of better financial planning strategies to mitigate these issues.

5.6. Legal Systems and Structures

While the study focused on financial challenges, its findings suggest that weak enforcement of financial agreements and the absence of robust legal frameworks contribute indirectly to premature contract termination. For example, disputes over delayed payments were identified as a key issue, which could be mitigated by stronger legal mechanisms to enforce timely payments and contractual obligations. A comparative perspective with South Africa, where standardized construction laws are more robust, highlights the potential benefits of enhancing Ghana's legal frameworks to ensure project continuity.

5.7. Macroeconomic Factors

The study found that macroeconomic factors, including inflation and high interest rates, significantly impact financial viability in construction projects. High interest rates were identified as a major factor under the Financial Mismanagement and Economic Instability Risks (FMEIR) component, complicating access to financing for both contractors and clients. Currency fluctuations were also noted to worsen cash flow issues, especially for projects reliant on imported materials. These findings underscore the need for adaptive financial models to account for macroeconomic volatility, which is a recurring challenge across developing economies.

5.8. Cultural and Geographical Influences

The findings revealed that financial challenges vary by geographical and cultural contexts within Ghana. Projects in rural areas face logistical challenges that increase costs, while urban projects benefit from better access to resources. Additionally, informal cultural practices, such as reliance on non-formal dispute resolution mechanisms, often delay effective conflict management. These insights suggest that tailored financial risk management strategies that account for regional and cultural differences could improve project outcomes.

5.9. Comparisons with Other Regions and Industries

The study's identification of financial risks, such as disagreements between contractors and bankers, aligns with challenges observed in other industries within Ghana, including manufacturing. However, the construction industry's dependence on long-term financing makes it uniquely vulnerable to financial instability. Comparatively, other sectors have adopted innovative financial solutions, such as supply chain financing, which could serve as a model for addressing similar issues in construction. Regional comparisons with East Africa indicate that public-private partnerships (PPPs) have effectively mitigated some financial challenges, offering a strategy for Ghana's construction sector to consider.

6. Findings

The study's findings highlight the significant role of financial challenges in influencing premature contract termination within the construction industry. Through a quantitative research approach involving a diverse sample of 315 construction industry professionals, including procurement officers, project managers, quantity surveyors and contract managers, the study elucidates the various financial factors contributing to contract termination.

6.1. Contractor and Client Insolvency

The analysis of financial challenges revealed several key insights. First, contractor and client insolvency emerged as the foremost cause of contract termination, followed closely by cash flow problems and the inability of clients to attract funds. These findings underscore the critical importance of

financial stability among project stakeholders in ensuring project continuity and success.

6.2. Negative Cash Flow and Fund Mismanagement

Moreover, factors such as budget deficits, embezzlement, and misappropriation were identified as significant contributors to contract termination, highlighting the pervasive nature of financial risks within construction projects. Poor financial feasibility assessment, high interest rates from banks, and disagreements between contractors' bankers further compounded these challenges, exacerbating financial instability and increasing the likelihood of contract termination.

6.3. Factor Analysis and Model Fitting

The exploratory factor analysis (EFA) conducted to evaluate the underlying structure of financial challenges identified three distinct components: financial integrity risks, financial mismanagement and economic instability risks, and financial risks due to banking disputes and instability. Each component encapsulates specific financial factors contributing to contract termination, providing a comprehensive framework for understanding the multifaceted nature of financial challenges within construction projects.

Furthermore, the confirmatory factor analysis (CFA) corroborated the one-dimensionality and reliability of the financial challenges construct, affirming the validity of the study's findings. The CFA model exhibited good fit indices, indicating that the proposed model adequately described the sample data and effectively captured the relationship between financial challenges and contract termination.

7. Conclusion

The findings of this study suggest the pervasive nature of financial risks within construction projects, with contractor and client insolvency, cash flow problems, and budget deficits emerging as primary contributors to contract termination. These challenges, compounded by issues such as embezzlement, poor financial feasibility assessment, and high interest rates, underscore the complexity of financial management within construction projects and its profound impact on project outcomes.

The exploratory factor analysis (EFA) delineated three distinct components of financial challenges: financial integrity risks, financial mismanagement and economic instability risks, and financial risks due to banking disputes and instability. This nuanced understanding of the underlying structure of financial challenges provides valuable insights for stakeholders seeking to develop targeted interventions to mitigate financial risks and enhance project resilience.

Moreover, the confirmatory factor analysis (CFA) affirmed the validity and reliability of the financial challenges construct, demonstrating its robustness in capturing the relationship between financial factors and contract termination. The CFA model exhibited good fit indices, indicating that the proposed model effectively encapsulated the complexity of financial challenges within construction projects.

8. Recommendations

8.1. Way Forward

Based on the 3 key findings obtained from the study, this paper suggests the following recommendations for addressing financial challenges of contract termination:

I. To ensure project viability and identify potential financial risks from the outset, it is crucial to implement detailed financial feasibility assessments at the project inception stage. This process should involve comprehensive cost-benefit analyses that include in-depth cash flow forecasts and sensitivity analyses. Using financial modeling tools such as Monte Carlo simulations can help assess the impact of varying financial scenarios on project viability. Project managers should consider incorporating best practices and frameworks from successful large-scale infrastructure projects to guide these assessments.

II. Enhancing cash flow management requires implementing advanced strategies to ensure timely payments and efficient invoicing processes. Contractors and clients should adopt automated invoicing systems that integrate with project management software to provide real-time financial oversight and streamline payment tracking. Regular reviews of cash flow projections, based on up-to-date project data, should be conducted to manage liquidity effectively. Practical examples include utilizing cash flow management software to facilitate real-time financial oversight and ensure timely financial decision-making.

III. To address financial risks throughout the project lifecycle, it is important to establish comprehensive risk management protocols. These protocols should include systematic procedures for identifying, assessing, and mitigating financial risks, as well as developing contingency plans to manage unforeseen challenges. Organizations should create clear guidelines and provide training to ensure the effective implementation of these protocols.

IV. Before engaging in contractual agreements, it is vital to conduct thorough financial due diligence on all project participants, including contractors, subcontractors, and clients. This due diligence should assess each participant's financial stability, track record, and creditworthiness to mitigate risks associated with insolvency and financial mismanagement. Establishing clear criteria and processes for evaluating financial stability can help in making informed decisions and avoiding potential financial pitfalls.

8.2. Recommendations' Feasibility

While the recommendations are aimed at mitigating financial risks, their implementation may face several challenges. For instance, conducting thorough financial feasibility assessments requires access to accurate and comprehensive financial data, which may not always be readily available. To address this, organizations could establish partnerships with financial experts or consultants who can provide the necessary data and analysis.

Additionally, enhancing cash flow management may involve upfront investment in new technologies and training, which could be a barrier for smaller firms. To overcome this, phased implementation strategies and scalable solutions should be considered, allowing gradual integration of new systems. Establishing comprehensive risk management protocols may also face resistance due to organizational inertia or lack of expertise. Developing clear guidelines, training programs, and a risk management culture within the organization can facilitate the adoption of these protocols. Engaging with stakeholders to ensure their buy-in and providing support during the transition can further enhance the feasibility of implementing these recommendations.

8.3. Practical Implications

To effectively apply these findings, stakeholders such as project managers, contractors, and clients can adopt specific strategies and tools based on the recommendations. Project managers can integrate financial feasibility assessments into their project planning processes, using tools such as financial modelling software to simulate different scenarios. Contractors can enhance their cash flow management by implementing electronic invoicing and automated payment tracking systems, while clients can establish clear payment terms and schedules.

Furthermore, both contractors and clients should develop and regularly update comprehensive risk management plans to address potential financial challenges. By incorporating these practical strategies, stakeholders can better manage financial risks, improve project viability, and reduce the likelihood of contract termination due to financial issues.

8.4. Further Research

The present study lays the groundwork for further exploration and inquiry into several key areas within the domain of financial challenges and premature contract termination in the construction industry. Building upon the insights garnered from this research, future studies could consider the following avenues for investigation: Conduct a longitudinal study to track the impact of financial risk management strategies over time and assess their effectiveness in different project phases. This approach can provide insights into the long-term benefits and challenges associated with implementing these strategies.

In addition, explore cross-cultural variations in financial risk management practices and their implications for contract termination outcomes, providing insights into the influence of cultural factors on project governance and decision-making processes.

Moreover, based on the findings, future research should also explore: The impact of inflation and interest rates on project viability over time, using longitudinal studies. The effectiveness of legal reforms in reducing payment delays and enforcing contractual agreements.

Cross-industry and regional strategies to adapt innovative financial solutions, such as PPPs and supply chain financing, to the construction sector in Ghana.

By leveraging these findings, stakeholders can better address the multifaceted financial challenges affecting construction projects in Ghana, fostering greater stability and resilience in the industry.

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