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# INFLUENCE OF PROCUREMENT CONTRACTUAL RISK MANAGEMENT ON PERFORMANCE OF BUILDING CONSTRUCTION PROJECT AT TANZANIA BUILDING AGENCY

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## Abstract:
*This study aimed to assess the influence of procurement contractual risk management on the performance of building construction at the Tanzania Building Agency. The targeted population for this study was 267 respondents. The study adopted a descriptive research design, and a simple random technique was used to select 160 questionnaires for quantitative data, of which only 152 were returned as completed questionnaires. Descriptive analysis and inferential analysis were used to analyze the data The findings showed that the procurement risk management plan, risk register, internal audit, contract terms and conditions, have a significant influence performance of building construction projects at TBA, with all P Values were below 0.05. A potential research limitation is the reliance on data from a single agency, the Tanzania Building Agency, which may limit the generalizability of the findings to other contexts. The practical implication is that improving procurement contractual risk management practices can enhance the performance and efficiency of building construction projects at TBA and other Construction industries. It was recommended that TBA should enhance procurement contractual risk management by standardizing risk management plans, regularly updating risk registers, clearly defining contractual terms, and improving risk assessment capabilities for the contract management team to ensure timely, quality, and efficient building project completion. Study lies in its focus on the direct impact of procurement contractual risk management on building construction project performance within the Tanzania Building Agency, offering insights for improving public sector construction*

## Keywords:
Procurement Contract Management, Building construction, Principal Agency Theory

## 1. Introduction
Procurement in the construction sector plays a crucial role in determining the success and performance of building projects (Mamiro, 2020). Tanzania, like many developing nations, faces significant challenges in managing procurement activities within its public sector. One of the most critical aspects of procurement management is the identification and mitigation of contractual risks, which can directly impact the performance of construction projects (Mlinga & Wells, 2022). Contractual risk management involves identifying potential risks, assessing their implications, and developing strategies to mitigate or eliminate their negative effects (Kimundu & Moronge, 2021).
The Tanzania Building Agency (TBA), operating under the Ministry of Works, is a key player in the country's building construction sector (Mamiro, 2020). As a government body, it is responsible for overseeing the construction of public buildings and ensuring that projects are completed within budget, on time, and to the desired quality standards (Lema, 2017). Given the scope and complexity of these projects, procurement contractual risk management becomes a pivotal factor in ensuring that construction performance is not compromised by unforeseen issues such as delays, cost overruns, or substandard work (Kikwasi, 2013).
Tanzania's construction industry has been growing steadily due to an increase in infrastructure projects, particularly public buildings. This expansion, however, also increases the potential risks related to procurement (Mlinga & Wells, 2002). These risks can range from contractor default, inadequate project planning, and poor contract execution to

the lack of compliance with legal and regulatory frameworks (Lema, 2017). Proper risk management helps in minimizing disputes, avoiding litigation, and ensuring smooth project execution (Kikwasi, 2013).
Globally, ineffective contractual risk management in construction leads to risks such as substantial financial losses. In Tanzania, where over 25% of the national budget is allocated to construction, effective procurement contractual risk management is critical to improve the performance of building construction. Principal-Agent Theory highlights the need to align interests and mitigate different risks between the procuring entity and agent through a clear contract structure (Baiman & Demski, 2020). Poor contractual risk management has led to incomplete building and quality issues worldwide (Bekele, 2018; Mlinga, 2020), underscoring the necessity of enhanced procurement practices to improve project performance and efficiency (Emaru, 2016).

### 1.1 Statement of the Problem

Effective procurement risk management practices are crucial for project success but remain challenging, particularly in developing countries where many infrastructure projects have failed (Mwaipopo, 2017). In Tanzania, over 70% of the government's budget is allocated to procurement activities, yet 9.2% of this is wasted due to inadequate contractual risk management (Plan and Budget guideline, 2023; contract management statistics, 2024). This mismanagement not only imposes a significant economic burden but also impairs inefficiencies within the public procurement system. The Tanzanian construction industries including TBA had faced issues with procurement risks including lack of competition, poor material management, and inadequate supervision. These problems have led to risk issues in construction projects, such as leaking roofs, cracks on walls, columns and floors, poorly fixed tiles and poorly constructed plumbing and electricity systems and other found to be below value for money. While existing research (Waigwa & Njeru, 2016; Randhawa et al., 2017; Mwangi, 2018) has explored various aspects of procurement contract management practices but failed to consider procurement contractual risk management, therefore, there is a need to understand the influence of procurement contractual risk on performance building construction. This study aims to address this gap by evaluating how procurement contractual risk management influences building construction performance.

## 2. Literature Review

### 2.1. Theoretical Literature Review

Principal-agent theory, an economic model, explores scenarios where a principal (such as a contracting entity) directs an agent (such as a supplier or contractor) to act in alignment with the principal's interests, even when these interests may not align with the agent's personal goals (Waigwa & Njeru, 2016). The theory addresses conflicts arising from differing objectives between principals and agents, focusing on information acquisition, agent selection, and performance monitoring to mitigate issues like adverse selection and moral hazard (Kibogo & Mwangangi, 2019). In practical applications, the theory aids in understanding and managing relationships in construction projects by analyzing incentives, improving procurement risk management, and ensuring effective contract management and monitoring (Ogembo & Muturi, 2019; Johnson, 2020). It also guides contract planning and structuring, including the formulation of procurement plans and the choice between fixed-price or cost reimbursement contracts, and informs how contracts are monitored and controlled to ensure project success (Kibogo & Mwangangi, 2019).

### 2.2. Empirical Literature Review

According to Gamarie (2021), an examination on the impact of contract management on the performance of procuring and disposing entities indicates that contract risk management pertains to the identification, analysis, evaluation, control, avoidance, minimization, or elimination of unacceptable risks within a contract. By appraising the risks inherent in a contract and devising strategies to address potential problems, the likelihood of accomplishing a successful, if not flawless, project is substantially enhanced. Additionally, the continuous practice of risk management guarantees that risks of high priority are vigorously managed and that all risks are handled in a cost-effective manner throughout the project's duration, thereby furnishing management at all levels with the necessary information for informed decision-making (Ejigu, 2021).
According to Herman (2018), focus on the National Population Council (NPC) to better understand the variables affecting contract management effectiveness in Ugandan public sector enterprises. The primary aim of the research was to examine the relationship between successful contract management, which was seen as the dependent variable,

and risk management, which was regarded as the independent variable. The study combined quantitative and qualitative methods with a cross-sectional design. The research had a population size of 55 and a sample size of 48 respondents. The findings of the study revealed that respondents were uncertain about the impact of risk management on effective contract management, which consequently affected procurement performance.
Gamarie (2021) conducted a study on the impact of contract management on procurement performance. The research encompassed both descriptive and correlational research designs. It employed various data collection tools, including questionnaires, interviews, and document review. Questionnaires were distributed to 103 respondents in Kicukiro district. The nature and magnitude of the relationship between the study variables, such as the influence of control and risk management on procurement performance in Kicukiro district and local government entities in Rwanda, were analyzed using the Spearman test with the aid of SPSS.A Case of Kicukiro District. A researcher argued that risk management has a strong relationship with the performance of procurement and disposal in local government in Rwanda. The results are consistent with the inadequate performance observed in the district. To ensure the effective management of procurement and disposal, it is necessary to implement efficient contract management.

## 3. Research Methodology

### 3.1. Research Design

This study employed a descriptive research design. Such a design aimed to depict the current state of affairs as they existed. It was particularly useful when collecting information about individuals' attitudes, opinions, habits, or various educational and social issues (Belegeya, 2020).

### 3.2. Sample Size

The study adopted a simple random sampling technique for questionnaire participants. This was particularly true for a quantitative study, which needs a large sample size to yield better conclusions. In this study, out of the 267 respondents population, about 160 respondents were selected, considering that every sample in the department involved in this study was selected because it was involved in different stages of procurement contract management at TBA. The PMU oversees and coordinates the entire procurement process, from planning through execution. Suppliers, contractors, and consultants were involved primarily in the solicitation, experts, and execution stages, providing goods and services as per the contract. Accounting and finance, their involvement was mainly in the monitoring and review stages, and the legal officers were involved in contract vetting and dispute resolution.
Therefore, the sample size was determined using the formula established by Yamane (1967). Consequently, the calculation of the sample size was conducted as follows; $n = \frac{N}{1+N(e)^2}$

Whereby; n = sample size, N= Population size and e = Precision Level (5%)

N = 267, $e = 0.05$ Hence, $n = \frac{267}{1+267(0.05)^2}$ $n = \frac{267}{1+0.6675}$ $n = \frac{267}{1.6675}$ $n = 160$

Therefore, the study sample size was 160 respondents
To get proportional sampling for each department, the following formula for strata was adopted:
Sample size of each strata = sample size (population size of strata/ total population)
For example the sample size of PMU = 160 (35/267) = 21

**Table 3.1. Targeted Population with respective sample size**

| Department | Targeted population | Proportional sample size | Percentage (%) |
|---|---|---|---|
| PMU | 35 | 21 | 13 |
| Supplier | 28 | 17 | 10.6 |
| Contractors | 33 | 20 | 12.5 |
| Consultants | 32 | 19 | 11.9 |
| Head of Department | 20 | 12 | 7.5 |

| | | | |
|---|---|---|---|
| Accounting and finance | 33 | 20 | 12.5 |
| Internal auditor | 30 | 18 | 11.3 |
| Legal officers | 31 | 19 | 11.8 |
| Monitoring and evaluation committee | 25 | 14 | 8.8 |
| Total | 267 | 160 | 100 |

### 3.3. Data collection procedures

Primary data and secondary data were collected, while primary data were obtained through the use of structured questionnaires. Secondary data were obtained through a review of documents, including published and unpublished materials such as journals and reports (Marco, 2018). Data collection techniques involve gathering specific information targeted at revealing the realities of the problem at hand. Thus, the questionnaire was the major data collection method employed for this study, which was complemented by a documentary review.

### 3.4. Data reliability and validity

The study ensured the reliability and validity of its research instrument by employing several methods. Reliability was confirmed with a Cronbach's alpha of 0.7 or higher, indicating consistent results. Data validity was secured through a representative sample and consistent data collection tools. The study was reviewed before fieldwork to ensure accuracy, and the internal consistency of the questionnaire was verified with Cronbach's alpha.

**Table 3.2. Cronbach's alpha test**

| Variables | Cronbach's alpha |
|---|---|
| Procurement risk management plan | 0.808 |
| Risk register | 0.850 |
| Internal audit | 0.864 |
| Contract terms and conditions | 0.778 |
| Timely completion | 0.858 |
| Project quality | 0.811 |
| Cost reduction | 0.904 |

Source: Field Data (2024)

Table 3.2 showed that all variables used in this study had high Cronbach's alpha values greater than 0.7 as the minimum alpha value (α) must be greater than 0.7(Kothari, 2018), confirming their reliability and internal consistency.

### 3.5 Data analysis

Data analysis in this study involved both qualitative and quantitative methods. Quantitative data were analyzed using SPSS version 26, employing descriptive and inferential techniques, including factor analysis, Pearson correlation, and multiple linear regression. Factor analysis was used to exclude items with weak loadings, while multiple regression analysis assessed the contribution and relationships between independent and dependent variables. Qualitative data through documentary review were analyzed through narrative methods. The regression model specifically evaluated the impact of procurement contractual risk management on building construction performance.

## 4. Presentation of the Findings

### 4.1. Descriptive Analysis on the Effects of Procurement Contractual Risk Management

Data for this study have been presented using descriptive and inferential analysis. Under descriptive analysis of the effects of procurement contractual risk management on the building construction project performance, findings show that the majority of respondents, 108 (71.5%), believed that a clear and comprehensive risk management plan was in place, while 39 (25.7%) remained neutral, 5 (3.3%) disagreed, and 1 (0.7%) disagreed. Regarding the regular

review and updating of the plan, 126 (82.9%) agreed, 19 (12.5%) were neutral, 7 (4.6%) disagreed, and 3 (2.0%) strongly disagreed. For the effectiveness of risk tracking mechanisms, 125 (82.4%) agreed, with 18 (11.8%) remaining neutral, 5 (2.6%) strongly disagreed, and 4 (2.6%) disagreed. Concerning the development of plans for high-priority risks, 116 (76.3%) strongly agreed, 22 (14.5%) were neutral, 5 (3.3%) strongly disagreed, and 9 (5.9%) disagreed. Regarding contract terms, 109 (71.4%) strongly agreed that they positively impacted project delivery, 19 (12.5%) were neutral, 4 (2.6%) strongly disagreed, and 12 (7.9%) disagreed. Lastly, 105 (69.1%) strongly agreed that clear and fair contract terms improved performance satisfaction and quality, with 12 (7.9%) remaining neutral, 21 (13.8%) disagreed, and 14 (9.2%) strongly disagreed, as shown in Table 4.6 below.

**Table 4.1 Procurement Risk Management Plan**

| Statement | SD F (%) | D F(%) | N F (%) | A F (%) | SA F (%) |
|---|---|---|---|---|---|
| **Procurement risk management plan** | | | | | |
| A clear and comprehensive risk management plan is in place. | 4 (2.6) | 1(0.7) | 39(25.7) | 90 (59.2) | 18 (11.8) |
| The risk management plan is regularly reviewed and updated | 3 (2.0) | 4(2.6) | 19 (12.5) | 96 (63.2) | 30(19.7) |
| **Risk register** | | | | | |
| Reporting mechanisms track risk status and progress. | 4 (2.6) | 5 (2.6) | 18 (11.8) | 98 (64.5) | 27 (17.8) |
| Plans for risk avoidance, mitigation, transfer, or acceptance are developed for high-priority risks. | 9 (5.9) | 5 (3.3) | 22 (14.5) | 93 (61.2) | 23 (15.1) |
| **Internal auditor** | | | | | |
| Reporting mechanisms track risk status and progress. | 4 (2.6) | 5(3.2) | 18 (11.8) | 98 (64.5%) | 27 (17.8) |
| Risk avoidance, mitigation, transfer, or acceptance plans are developed for high-priority risks. | 10 (6.6) | 4(2.6%) | 22 (14.5) | 93 (61.2) | 23 (15.1) |
| **Contract terms and conditions** | | | | | |
| Comprehensive contract terms influence timely project delivery. | 12 (7.9) | 4 (2.6) | 19 (12.5) | 94 (61.8) | 23 (15.1) |
| Clear and fair contract terms increase performance satisfaction and project quality | 14 (9.2) | 21(13.8) | 12 (7.9) | 83 (54.6) | 22 (14.5) |

Source: Data Field (2024)

The data indicated that the majority of respondents perceived the presence of a clear and comprehensive risk management plan, with 108 (71.5%) strongly agreeing with this, which suggested that a strong risk management framework was effectively in place. The plan's regular review and updating received substantial support, as evidenced by 126 (82.9%) who strongly agreed, demonstrating a proactive stance towards accommodating emerging risks. The effectiveness of risk tracking mechanisms was notably endorsed by 125 (82.4%), who strongly agreed, implying that these monitoring systems were considered effective. Nonetheless, some dissent was observed regarding the development of plans for high-priority risks, with 116 (76.3%) strongly agreeing, while 5 (3.3%) disagreed and 9 (5.9%) strongly disagreed, indicating areas where improvements could be made. Concerning contract terms, 109 (71.4%) strongly agreed that these terms positively influenced project delivery, although 16 (10.5%) disagreed and 12 (7.9%) strongly disagreed, revealing a variance in opinions about their effectiveness.

**4.2. Inferential Analysis**

In this study, the researcher formulated and tested variables to conclude the relationships between dependent and independent variables. Inferential analysis was employed to explore these relationships, with bivariate correlation used to measure the strength and direction of associations, and multiple regression applied to define the nature and

contribution of these relationships. Before these analyses, factor analysis was conducted to remove items with low loadings from both independent and dependent variables.

**4.2.1. Factor Analysis**

The study incorporated a factor analysis to eliminate items with poor loadings for the independent variable. This analysis involved the application of the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity to assess the data's suitability. Harerimana and Mtshali (2020), suggest that a KMO value of 0.6 or higher and a P-value of less than 0.05 are considered sufficient to conduct factor analysis. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.785, which is above the commonly accepted threshold of 0.6, signifying that the sampling is adequate for the analysis, and the significance level is 0.000. This high significance level ($p < 0.05$) suggests that the variables are sufficiently correlated to proceed with factor analysis, as shown in Table 4.7.

**Table 4.2 KMO and Bartlett's Test for procurement contractual risk management**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .785 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1189.432 |
| | Df | 57 |
| | Sig. | .000 |

Source: Field data (2024)

Table 4.3 below presents the rotated factor matrix and scale analysis, factor loadings for all items, and the calculation of new variables. It shows that only those sub-variables of procurement contractual risk management with factor loadings exceeding 0.6 were kept. These retained items were then used to form new sub-variables

**Table 4.3 Rotated factor matrix and scale analysis for procurement contractual risk management**

| Code | Variable | Question code | Component | | | |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| V*101 | Procurement risk management plan* | V101b | .893 | | | |
| | | V101a | .434 | | | |
| V*102 | Risk register* | V102b | | .914 | | |
| | | V102a | | .234 | | |
| | | V103b | | | .773 | |
| V103 | Internal auditor | V103a | | | .715 | |
| V104 | Contract terms and conditions | V104a | | | | .845 |
| | | V104b | | | | .765 |

Source: Field data (2024)

Factor loadings analysis revealed that for the Procurement Risk Management Plan and Risk Register, some sub-variables had loadings below the 0.6 threshold, leading to modifications. Specifically, V101b (0.893) and V102b (0.675) showed strong associations, while V101a (0.434) and V102a (0.234) did not. The Internal Auditor variable had high loadings (V103a = 0.715, V103b = 0.773), supporting its retention, as did the Contract Terms and Conditions variable (V104a = 0.845, V104b = 0.765). Therefore, the computation of the new modified independent variable was done as follows: Procurement contractual risk management* =procurement risk management plan*+ Risk register* + internal audit + contract terms and conditions.

**4.2.2 Regression Analysis**

The study adopted multiple regression analysis. Before the analysis, the researchers tested the assumptions of multiple regression. It is suggested that the assumptions of multiple regressions be checked before analyses are conducted because failure to measure assumptions might result in inaccurate estimates (Keith, 2016).

#### 4.2.2.1 Model Summary

The multiple correlation coefficients (R) measure the strength of the linear relationship between observed and predicted values. R-squared quantifies the proportion of variance in the dependent variable explained by the model. Adjusted R-squared accounts for the number of predictors, providing a more accurate measure of fit. Table 4.4 shows the Model Summary.

**Table 4.4. Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .961[a] | .848 | .772 | .36908 |

a. Predictors: (Constant), Contract relationship management, Procurement risk management, Contract monitoring, Competency of contract management team

Source: Field data (2024)

The Adjusted R-Square value of 0.772 indicated that the model explains 77.2% of the variability in Building Construction Performance after adjusting for the number of predictors. This high value demonstrates that the model is highly effective in explaining and predicting Building Construction Performance, accounting for the number of predictors used in the analysis.

#### 4.2.2.2 Analysis of Variance (ANOVA)

Analysis of Variance was performed by the researchers to evaluate the statistical significance of the obtained result.

**Table 4.5 ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 18.17 | 4 | 4.5425 | 81.4 | .000[b] |
| | Residual | 8.20 | 147 | .0558 | | |
| | Total | 26.37 | 151 | | | |

a. Dependent Variable: Building Construction Performance

b. Predictors: (Constant), procurement risk management plan, risk register, internal audit, contract terms and conditions

Source: Field data (2024)

The updated ANOVA table confirms that the regression model is highly significant with a p-value of .000 and a high F-value of 81.4. This indicates that the model explains a significant portion of the variance in Building Construction Performance. The independent variables used in the model are collectively effective in predicting performance outcomes, emphasizing the importance of these factors in improving building construction projects.

#### 4.2.2.3 Regression Coefficient Results

The variation in the amount of the dependent variable over one unit of the independent variable is measured by the regression coefficient. Through the regression coefficient, the researchers are capable of explaining the contribution of each independent variable to the dependent variable. The researcher also considered the Sig. (p-value) to determine if the independent variable has a significant contribution to the dependent variable.

**Table 4.6 Coefficients**

| Model | Unstandardized Coefficients. | | Standardized Coefficient | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Tolerance | VIF |
| (Constant) | .346 | .069 | | 5.125 | .000 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Procurement risk management plan* | .303 | .061 | .423 | 4.845 | .000 | .550 | 1.818 |
| Risk register* | .333 | .067 | .318 | 4.964 | .000 | .542 | 1.845 |
| Internal auditor | .363 | .055 | .612 | 6.612 | .000 | .467 | 2.141 |
| Contract terms and conditions | .352 | .100 | .790 | 3.520 | .000 | .387 | 2.584 |

Source: Field data (2024)

The results showed that procurement risk management plan, risk register, internal audit, and contract terms and conditions all had statistically significant effects, with p-values well below the 0.05 threshold. These findings suggested that each of these factors positively influences project performance. The analysis also confirmed the absence of multicollinearity, as indicated by Variance Inflation Factor (VIF) values below 5 and tolerance values exceeding 0.1. The unstandardized coefficients revealed that unit increases in procurement risk management, risk register, internal audit involvement, and contract terms and conditions led to respective increases in project performance by 0.303, 0.333, 0.363, and 0.352, respectively. Standardized coefficients showed that among these variables, internal auditor involvement had the highest contribution to project performance (Beta = 0.612), followed by contract terms and conditions (Beta = 0.790), procurement risk management plan (Beta = 0.423), and risk register (Beta = 0.318).

## 5. Discussion of the Findings

### 5.1 Introduction

This chapter provides a detailed discussion of the findings derived from the results presented in the finding presentation from Descriptive and Inferential analysis. The primary aim of this study was to assess the influence of procurement contractual risk management in the performance of building construction at TBA

### 5.2 Procurement risks management plan for the performance of the building construction project

The study reveals that 78.8% of respondents believe that a procurement risk management plan significantly enhances building construction project performance. Regression analysis corroborates this, with a significant unstandardized coefficient of 0.303 and a standardized Beta of 0.423 (p=0.000), indicating its substantial impact on performance. These findings are consistent with existing literature emphasizing the importance of effective risk management in preventing delays and cost overruns (Smith et al., 2018; Brown et al., 2020), as well as the necessity of clear communication and stakeholder involvement (PMI, 2017; APM, 2019).

### 5.3 The risk registers for the performance of the building construction project

According to the data, 78.3% of respondents acknowledge the positive impact of risk registers on project performance. Regression analysis confirms this, with an unstandardized coefficient of 0.333 and a standardized Beta of 0.318 (p=0.000), indicating a significant positive effect. Literature supports these findings, highlighting the role of risk registers in systematic risk management and their contribution to mitigating delays and cost overruns (Smith et al., 2014; Smith et al., 2018; Brown et al., 2020). Moreover, organized risk registers enhance compliance and reduce legal disputes (Harris et al., 2019).

### 5.4 Internal audit on the performance of the building construction project

The study indicates that 80.4% of respondents perceive internal audits as beneficial for project performance. Regression analysis reveals an unstandardized coefficient of 0.363 and a standardized Beta of 0.612 (p=0.000), demonstrating a substantial positive effect. This is supported by literature highlighting the role of internal audits in evaluating controls, reducing fraud, and fostering continuous improvement (Mihret & Yismaw, 2017; Hwang & Ng, 2020; Shin, 2019). Future research should focus on identifying specific audit practices that most significantly influence project outcomes.

### 5.5 Contract terms and conditions on building construction project performance

Data shows that 73.4% of respondents agree that robust contractual terms and conditions positively impact project performance. Regression analysis supports this with an unstandardized coefficient of 0.352 and a standardized Beta of 0.790 (p=0.000), highlighting a significant positive effect. Literature underscores the value of structured contracts in improving resource allocation and mitigating risks (Ashworth & Perera, 2018; Sawhney & Thakur, 2020). Future studies should explore which specific contract elements most significantly affect project performance.

## 6. Summary, Conclusion, and Recommendations

### 6.1 Summary of the findings

The findings indicated that each of these sub-variables positively affected the performance of building construction projects. The implementation of a procurement risk management plan ensures proactive identification and mitigation of potential risks, thereby enhancing building construction performance. The maintenance of a risk register contributes to systematic tracking and resolution of risks throughout the project lifecycle. Internal audits provide ongoing oversight and assurance of compliance with contractual and regulatory requirements, further bolstering project performance. Lastly, well-defined contractual terms and conditions establish clear expectations and responsibilities, reducing ambiguities and fostering smoother project execution.

### 6.2 Conclusion

Effective procurement risk management is crucial for successful building construction projects, involving a strong risk management plan, comprehensive risk registers, diligent internal audits, and well-defined contract terms and conditions. These elements collectively improve project efficiency, ensure timely completion, and maintain budget adherence, enhancing overall performance. Conversely, inadequate risk management, such as a lack of proactive planning or poorly maintained registers, a lack of internal audit, and improper contract terms and conditions, can cause delays, compliance issues, and conflict problems. Thus, integrating these factors effectively is essential for mitigating risks and protection, optimizing project execution, and achieving success.

### 6.3 Recommendation of the study

The study recommended that the Tanzania Building Agency (TBA) develop comprehensive risk management plans, including detailed risk registers and clear contractual terms. Ongoing training for the contract management team and improved communication with contractors are essential. Strengthening conflict resolution guidelines and employing advanced oversight tools will enhance project performance and ensure timely completion. Adopting these strategies will improve procurement processes and overall project success.

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