Proceeding of International Conference Technology, Economics, and Social Science
Vol 1, No 1, January 2026, Page 298-302
ISSN 3124-6087 (Media Online)
https://journals.adaresearch.or.id/ictess

Application of Budgeting and Variance Analysis in Controlling Construction Project Costs at CV Rinjani

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Submitted: **31/12/2025;** Accepted: **07/01/2026;** Published: **23/01/2026**

Abstract−This study examines the application of budgeting and variance analysis in controlling construction project costs at CV Rinjani. This research was conducted using a qualitative descriptive approach through interviews and documentation with management personnel involved in budgeting and cost monitoring. The results show that the budgeting process is carried out through the preparation of the Bill of Quantity (RAB), followed by routine monitoring of costs during project implementation. Variance analysis is used to compare budgeted and actual costs. The findings reveal that the largest variances generally occur in material costs, which are mainly caused by fluctuations in market prices and inefficiencies in material usage at project sites. Labor cost variances also appear, although they are relatively smaller and primarily related to delays in project schedules. To respond these deviations, management revises budgets when necessary, negotiates suppliers, and strengthens supervision material usage. Budgeting and variance analysis help company detect deviations earlier and support decision-making, although effectiveness still limited manual documentation processes.

Keywords: Budgeting; Variance Analysis; Cost Control; Construction Projects; Management Accounting

1. INTRODUCTION

The construction industry plays a crucial role in supporting economic growth, particularly through the development of infrastructure and public facilities. However, construction projects are vulnerable to high levels of uncertainty regarding cost, time, and quality. Cost overruns often occur when companies fail to anticipate price fluctuations, inefficient resource utilization, or tender pressures that force contractors to submit bids with very low profit margins. When cost control is weak, companies risk project delays, decreased profitability, and financial instability, which can threaten business continuity. Budgeting and variance analysis are key management accounting tools that help organizations plan and control project costs. Through budget preparation, monitoring actual expenditures, and analyzing variances between planned and realized costs, managers can evaluate performance and take corrective action when necessary. Several studies have shown that budgeting plays a crucial role in controlling construction costs. For example, (Gerasimova, 2020.) found that a structured budgeting mechanism helps improve transparency and resource allocation in construction project implementation. Similarly, (Handayani, 2020.) reported that weak planning and monitoring systems were a major factor contributing to cost overruns among contractors in Yogyakarta.

Variance analysis is also widely recognized as a crucial tool in identifying whether deviations arise from price changes or inefficient material usage. (Brando Latunggamu et al., 2021) demonstrated that comparing budgeted and actual costs allows managers to detect early signs of cost escalation. Similarly, (Maemunah & Rismayadi, 2024.) emphasized that variance analysis provides crucial feedback for decision-making, particularly when companies operate in uncertain economic conditions. Despite these findings, many small and medium-sized construction companies still use budgets primarily as administrative documents rather than as a true control tool. Manual documentation, limited monitoring processes, and a lack of structured evaluations reduce the effectiveness of management accounting systems. Furthermore, construction companies often face fluctuating material prices such as cement, iron, and sand, as well as intense tender competition that forces contractors to work with minimal margins. However, previous studies rarely detail how budgeting and variance analysis are implemented simultaneously at the project level, particularly in small regional construction companies operating under volatile price conditions and intense tender competition. This represents a research gap addressed in this study.

This study examines the application of budgeting and variance analysis in project cost control at CV Rinjani, a construction company frequently facing material price fluctuations and a competitive tender market. The study explores how the company prepares its budget, how costs are monitored during implementation, how deviations are identified, and how variance analysis results influence managerial decision-making. The results of this study are expected to contribute both theoretically and practically. Theoretically, this study enriches discussions on the role of management accounting in construction cost control. Practically, this study provides insights for small and medium-sized contractors on how budgeting and variance analysis can help minimize cost overruns and increase project profitability.

2. RESEARCH METHODS

2.1 Basic Research Framework

This study employed a qualitative descriptive approach and was conducted at CV Rinjani, a construction company located in Jombang, Indonesia. The informants in this study consisted of management personnel involved in budgeting, financial

administration, and project implementation. A total of five (5) informants were interviewed until data saturation was reached, including the project manager, budgeting (RAB) staff, finance administration staff, and company management. Data were collected through in-depth interviews and documentation of financial reports, project budgets, and internal policies related to cost control. The main variables observed were budgeting practices, cost control processes, material price fluctuations, and their impact on project profitability. The conceptual framework describes the relationship between budgeting, cost monitoring, variance identification, and corrective actions. Figure 1 illustrates how budgeting becomes the initial basis for estimating project costs, followed by continuous monitoring during project execution, variance analysis when deviations occur, and corrective decisions made by management. This framework also explains how evaluation results are used as inputs for planning future projects in Figure 1.

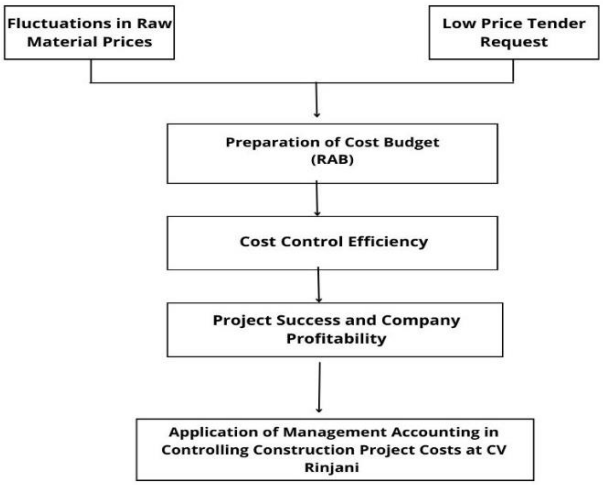

Figure 1. Conceptual framework

The following is an explanation of the conceptual framework above. The conceptual framework in Figure 1 illustrates the relationship between external pressures, budgeting processes, cost control mechanisms, and project outcomes at CV Rinjani. The framework begins with two main external factors, namely fluctuations in raw material prices and low-price tender requests. These two conditions create pressure on the company's budgeting process because project budgets must be prepared carefully to avoid losses while still remaining competitive in tender bidding.

In response to these external pressures, CV Rinjani prepares a Cost Budget Plan (RAB) as the main management accounting tool. The RAB serves as the basis for estimating material, labor, equipment, and overhead costs before project execution. Once the project is running, the company implements cost control to ensure that actual spending remains within the planned budget. Efficient cost control is expected to minimize deviations and prevent cost overruns.

The next stage in the framework shows that effective budgeting and cost control contribute to project success and company profitability. Projects that are completed within budget, on time, and at the expected quality level will improve company financial performance. Finally, the overall framework reflects how the application of management accounting through budgeting and variance analysis supports decision-making and strengthens cost control in construction projects at CV Rinjani.

2.2 Data Collection and Instrumentation

Data were collected using in-depth semi-structured interviews and documentation techniques. Semi-structured interviews allowed the researcher to use prepared questions while providing flexibility to explore emerging issues. The questions covered budget preparation (RAB), cost control procedures, handling variances, and the impact of material price fluctuations. Supporting documents such as project budgets, purchase records, and financial reports were used to validate the interview data. Prior to data collection, all informants were informed about the research objectives and voluntarily agreed to participate. Confidentiality and anonymity were strictly maintained.

2.3 Data Analysis Method

Data analysis followed a qualitative analytic procedure. First, interview transcripts were read repeatedly to obtain a comprehensive understanding of the research context. Important statements and recurring themes were coded. Second, the data were grouped into thematic categories such as budgeting practices, cost monitoring, variance handling, and decision-making support. Third, findings were interpreted by linking empirical data with theories and previous studies. Triangulation was carried out by comparing interview results with documents to increase validity. Finally, conclusions were drawn based on patterns and relationships that emerged from the data. To strengthen the validity of findings, this study applied triangulation. Triangulation was carried out by comparing information obtained from different sources and data collection techniques. Source triangulation was conducted by cross-checking statements from the project manager, budgeting staff (RAB), finance administration staff, and company management. Meanwhile, technique triangulation was carried out by comparing interview results with project documents, financial reports, and budget records. Through

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triangulation, the researcher ensured that the data obtained were consistent, credible, and reflected actual practices in project cost control at CV Rinjani.

To analyze the qualitative data, this study followed the interactive model of (Miles, 2014.), which views data analysis as an ongoing and iterative process. Data analysis was carried out simultaneously with data collection so that every new finding could be compared, clarified, and verified with previous information. This interactive analysis process helps ensure that the conclusions drawn truly reflect the actual conditions in the field. The stages of the analysis process are illustrated in Figure 2.

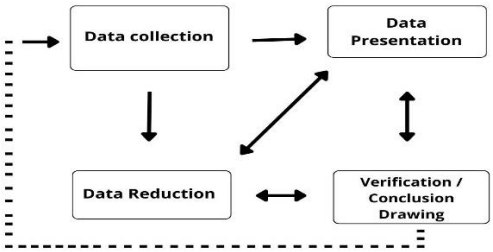

Figure 2. Triangulation Framework

The following is an explanation of the triangulation framework above. This model shows that qualitative data analysis consists of four interrelated stages. Data Collection: Data was obtained from interviews, documentation, and field notes. At this stage, the researcher collected all relevant information related to budgeting practices, cost control, and variance analysis at CV Rinjani. Data Reduction: In this step, unnecessary, repetitive, or irrelevant information was filtered out. Important statements were coded and grouped according to themes such as cost planning, variance handling, and material price fluctuations. Data reduction helps simplify complex information, making it more focused and meaningful. Data Presentation: The processed data was then organized into narrative descriptions, tables, and summaries. Presenting the data in a structured form makes it easier to see relationships, patterns, and cost control issues facing the company. Verification and Conclusion Drawing: In this final stage, interpretations and conclusions were drawn by linking the field findings to previous research and management accounting theory. Conclusions are continuously validated through cross-checking between interview results and documentation (triangulation) to ensure credibility and accuracy. The arrows in the figure indicate that the process is not linear. Researchers can return to previous stages whenever new information emerges. This iterative system strengthens the validity of the findings and ensures that conclusions are supported by adequate evidence.

3. RESULTS AND DISCUSSION

3.1 Result

3.1.1 Application of Management Accounting in Cost Planning

CV Rinjani prepares a detailed Cost Budget Plan (RAB) before projects begin. The budget includes estimates of materials, labor, equipment, subcontractor costs, and indirect operational expenses. This planning process allows management to estimate total project costs and expected profit margins. This finding is consistent with (Darya, 2019.), who explains that budgeting is a key management accounting instrument used to predict resource needs and support project planning.

3.1.2 Cost Control During Project Implementation

During project execution, the company records every expense and compares it with the RAB. If there are differences between budgeted and actual costs, management reviews the causes and determines whether corrective action is required. This finding supports (Mulyadi. (2016), n.d.), who emphasized that continuous comparison between budget and realization is essential to cost control.

3.1.3 Fluctuations in Material Prices

Raw material prices such as cement, sand, iron, and gravel are highly volatile. These fluctuations often cause actual costs to exceed the budget. To anticipate this risk, CV Rinjani: uses conservative (higher) material price estimates, renegotiates suppliers when prices rise sharply, evaluates material usage carefully, minimizes waste at the project site. This practice is consistent with contingency theory, which states that management control systems must adapt to external environmental uncertainty.

3.1.4 Role of Management Accounting in Decision-Making

Cost information generated during project monitoring helps managers evaluate performance, decide whether to revise the budget, adjust work schedules, or change procurement strategies. This supports (Garrison, 2015.), who argues that management accounting provides relevant information to support short-term and long-term decision-making.

3.1.5 Management Accounting and Project Success

According to Soeharto, a project is considered successful when it meets cost, time, and quality requirements. At CV Rinjani, structured budgeting and monitoring systems help keep project costs more controlled, although challenges still exist due to external price shocks.

3.2 Discussion

The findings of this study indicate that management accounting plays a central role in supporting cost control at CV Rinjani, especially in the context of fluctuating material prices and low tender competition. Management accounting does not only function as a technical financial tool but also as strategic support in managerial decision-making. A key finding of this study is the identification of two main types of deviations (variance) that frequently occur : (a) Price Variance – differences caused by unexpected increases in material prices. (b) Quantity/Efficiency Variance – differences caused by excessive material usage, rework, or waste on site.

In several projects, price variance becomes more dominant, particularly when cement and steel prices rise suddenly. However, efficiency variance also appears when workers repeat work due to mistakes or delays in supervision. This is aligned with Maemunah and Rismayadi (2024), who explained that variance analysis helps companies identify whether deviations originate from external market factors or internal inefficiencies.

The results also reinforce findings by Nur Rohimah (2025), who reported that budgeting and variance analysis enable companies to detect deviations earlier and reduce inefficiency. Similar to her study, CV Rinjani uses planning tools (RAB), monitoring reports, and periodic evaluation meetings to maintain cost control. However, unlike many studies conducted in manufacturing sectors, this research highlights the construction sector, where risk and cost uncertainty are significantly higher.

Furthermore, this study confirms the evidence of Khofifah (2025), who found that fluctuations in material prices significantly affect construction project costs. CV Rinjani faces the same condition and responds through supplier negotiations, flexible reserves, and price adjustments when necessary. Meanwhile, research by Lengkong et al. (2021) also shows that structured cost planning and continuous monitoring reduce potential losses. CV Rinjani's practice is consistent with these conclusions.

However, this study also reveals several weaknesses in the implementation of management accounting: (a) recording and monitoring still rely heavily on manual spreadsheets, (b) delays sometimes occur in evaluation, causing deviations to be identified late, (c) variance analysis is not always formally documented. These limitations reduce the effectiveness of early-warning mechanisms. Therefore, even though the company already has a cost control framework, its ability to detect deviations early is still constrained by manual processes. This is consistent with the editor's observation that detection exists but is not yet optimal.

Overall, the findings indicate that management accounting contributes significantly to controlling project costs, improving efficiency, and supporting profitability. However, improvements are necessary through digital recording systems, more structured variance documentation, and routine early variance reviews.

4. CONCLUSION

The findings of this study show that budgeting and variance analysis play an important role in controlling construction project costs at CV Rinjani. The company prepares a project budget (RAB), monitors actual spending, and evaluates deviations between budgeted and realized costs. These practices help management identify whether cost deviations arise from material price increases, inefficiencies in material use, or estimation weaknesses. However, although the framework for early detection of deviations already exists, its implementation is not always optimal. Documentation and monitoring are still carried out manually, causing delays in evaluation and increasing the risk of undetected cost overruns. This finding is consistent with previous studies which emphasize that effective cost control requires structured systems and timely information support (Gerasimova, 2020.) (Brando Latunggamu et al., 2021). In the context of CV Rinjani, fluctuating prices of cement, iron, and sand, as well as pressure from low tender bids, remain the main challenges in maintaining profitability. Variance analysis helps management understand whether deviations are driven more by market-driven price variance or efficiency variance related to resource use. This supports earlier research stating that variance analysis provides important feedback for managerial decision-making in construction projects. Overall, this study concludes that budgeting and variance analysis contribute positively to cost control and decision-making. However, improvement is still needed, especially through digitalizing records, strengthening routine evaluation mechanisms, and applying early-warning systems to detect deviations earlier. Future research may expand the analysis by comparing several construction companies or introducing quantitative measurement of cost variance to deepen the evaluation results.

ACKNOWLEDGMENT

The author would like to express sincere gratitude to all parties who have supported the completion of this research. Special appreciation is extended to the supervisor, Hadi Sucipto., SE., MSA, for his constructive guidance, valuable insights, and continuous encouragement throughout the research process. The author also conveys appreciation to CV

Rinjani for providing access to data and information, as well as to all respondents who were willing to participate and share their time during the interview process. Lastly, heartfelt thanks are addressed to the author's family, lecturers, and friends from Institut Teknologi dan Bisnis (ITEBIS) PGRI Dewantara Jombang, whose prayers, motivation, and support became an important driving force in the completion of this study.

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