

Efficiency of Capital Budgeting Techniques in Emerging Markets: A Post-Implementation Analysis of Nepalese Manufacturing Firms

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Abstract

This study examines capital budgeting practices in Nepal's beverage industry, focusing on two representative firms—Sunrise Nepal Food & Beverages Pvt. Ltd. and Birgunj Pure Drinking Water Udyog—to evaluate the efficiency of investment decision-making in emerging markets. Using a mixed-method approach combining financial analysis (NPV, IRR, PBP) and statistical tools, the research compares projected versus actual performance metrics, revealing significant variances: positive discrepancies in Net Cash Outlay (11.46%, 10.38%) and Payback Period (11.49%, 32.68%) indicate cost overruns and delayed recovery, while negative NPV (−9.89%, −33.77%) and IRR (−16.11%, −18.84%) variances reflect profitability shortfalls. Hypothesis testing confirms statistically significant differences for NCO and NPV ($p < 0.05$), highlighting systemic inefficiencies in financial planning. The study contributes novel insights into post-implementation capital budgeting accuracy in developing economies and recommends enhanced financial training, standardized evaluation frameworks, and rigorous post-audits to improve investment outcomes. Findings underscore the critical need for context-adapted capital budgeting tools to bridge theory-practice gaps in Nepal's manufacturing sector.

Keywords: Capital Budgeting, NPV, IRR, Emerging Markets, Financial Efficiency, Nepal

1. Introduction

Capital budgeting refers to the systematic process by which managers evaluate and plan significant investments in long-term projects or assets, such as the acquisition of machinery, equipment, or plants, as well as the development of new products or market expansions (Khan & Khan, 2019; Khajavi, Etemedy Jooriaby, & Kermani, 2024). This process, also termed capital expenditure planning, involves assessing the future financial implications of these investments to ensure optimal allocation of limited resources. Given that firms often face a multitude of potential projects with constrained funding, managers must employ rigorous analytical techniques to prioritize initiatives that maximize shareholder value (Busco, Walters, & Provoste, 2024; Shrestha, Mahat, Neupane, & Karki, 2025). This entails forecasting future net cash flows over the project's lifespan and employing financial metrics, such as net present value (NPV), to determine the most economically viable opportunities (Shrieves & Wachowicz, 201; Mahat, Karki, Neupane, Shrestha, & Shrestha, 2024). By selecting projects that yield a positive NPV, firms can ensure that the anticipated returns exceed the initial cash outlays, thereby enhancing long-term profitability and strategic growth.

The capital budgeting process is integral to organizational success, as it aligns investment decisions with corporate objectives while mitigating financial risk (Widyawati & Daming, 2024). A comprehensive budgeting framework involves the preparation of detailed schedules outlining projected revenues, costs, and cash flows, enabling managers to evaluate the feasibility and profitability of proposed ventures. Techniques such as discounted cash flow (DCF) analysis, internal rate of return (IRR), and payback period are commonly employed to compare alternative projects and assess their financial viability. Since capital investments are often irreversible and have long-term consequences, meticulous planning is essential to avoid resource misallocation and ensure sustainable competitive advantage. Ultimately, effective capital budgeting not only facilitates informed decision-making but also strengthens the firm's financial resilience by directing capital toward projects that generate the highest returns relative to risk.

Capital Budgeting may be defined as the making process by which a firm evaluates the purchase of major fixed assets. It involves firm's decision to invest its current funds for addition, disposition, modification and replacement of fixed assets. Following are the examples of capital expenditure-

- Cost of acquisition of permanent assets like land, Building, Plant & Machinery etc.
- Cost of addition, expansion, improvement or alteration in the fixed assets.
- Research and Development cost of project.

Capital budgeting decisions are fundamentally distinct from routine operational decisions due to their long-term strategic implications and financial commitments. Unlike day-to-day expenditures, capital budgeting involves the allocation of substantial current resources in exchange for anticipated future benefits, which are typically realized over an extended period. These investments are channeled into long-term, non-flexible assets such as infrastructure,

machinery, or research projects, making the committed funds illiquid and difficult to reallocate. Furthermore, the outcomes of these decisions have a profound and enduring impact on the organization's profitability and competitive positioning, as they shape the firm's productive capacity and operational efficiency for years to come.

Additionally, capital budgeting decisions are characterized by their irreversible nature and high-risk profile. Given the significant financial outlays involved, these commitments are often binding and cannot be easily undone without incurring substantial losses. The strategic importance of such decisions is underscored by their potential to influence the firm's growth trajectory, market expansion, and technological advancement. Consequently, they demand rigorous evaluation through advanced financial techniques, such as discounted cash flow analysis, to account for uncertainties and ensure alignment with the organization's long-term objectives. The inherent risks—ranging from market volatility to technological obsolescence—further emphasize the need for meticulous planning and risk assessment in the capital budgeting process.

The economic development of any nation is intrinsically linked to its industrial and trade capabilities, with the manufacturing sector serving as a critical driver of growth. To enhance economic performance, organizations must adopt robust capital budgeting techniques to assess investment viability, forecast profitability, and determine the payback period of capital expenditures (Taherdoost, 2024). However, empirical evidence suggests that many firms fail to implement these practices effectively, leading to suboptimal resource allocation. The absence of proper capital budgeting frameworks makes it particularly challenging to evaluate key financial metrics such as the Payback Period (PBP), Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI). Without these analytical tools, business leaders and managers lack the necessary insights to make informed, timely investment decisions, ultimately compromising organizational stability and long-term sustainability.

Research indicates that the inefficient application of capital budgeting principles has resulted in significant financial discrepancies, particularly in capital-intensive sectors such as hydropower and infrastructure development. Many projects in these industries have been found to exceed their initially projected Net Cash Outlays (NCO) by two to five times, highlighting systemic flaws in financial planning and risk assessment. These cost overruns not only strain organizational resources but also undermine investor confidence and economic progress. The unsound use of capital budgeting techniques thus represents a critical barrier to achieving financial discipline and operational efficiency, necessitating urgent reforms in investment evaluation methodologies to align with global best practices (Shields, 2024).

The deficient understanding and improper application of capital budgeting (CB) principles have created significant challenges for both corporate leaders and financial professionals in Nepal. As a developing nation, Nepal faces a critical shortage of skilled CB practitioners, exacerbated by limited access to reliable financial data and industry benchmarks. This knowledge gap has resulted in suboptimal investment decisions, undermining stakeholder

confidence and impeding economic development. The current study seeks to address these systemic issues by collecting empirical evidence and proposing practical solutions for various stakeholders, including researchers, corporate executives, finance students, and CB specialists. Against this backdrop, the study focuses on addressing several key research questions:

- i. What are the prevailing capital budgeting practices in Nepal's beverage industry?
- ii. How do beverage companies structure their debt and equity financing?
- iii. What factors primarily influence capital budgeting decisions in this sector?
- iv. What are the relative costs of debt versus equity capital for beverage firms?
- v. How has the financial performance of Nepal's beverage industry evolved?

These research questions aim to identify the fundamental challenges in capital investment decision-making while providing actionable insights to enhance financial management practices in Nepal's developing economy. The findings will contribute to improved decision-making frameworks and potentially inform policy recommendations for strengthening financial education and industry standards.

The main objective of the study are to analyze the Capital Budgeting (i.e. forecasted net cash outlay and annual cash flow after tax). Under the guideline of these leading objectives, the following specific objectives are set in the study-

- i. To overview the beverages industries in Nepal.
- ii. To review the Capital Budgeting Theories developed so far
- iii. To analyze the empirical studies on Capital Budgeting done so far
- iv. To find out the determinants of Capital Budgeting in beverages industries in Nepal.
- v. To trace out the trend in beverages industries Capital Budgeting
- vi. To find out the sources of financing in beverages industries
- vii. To analyze the cost of capital of beverages industries in Nepal
- viii. To carry out the ex-post evaluation of the performance of beverages industries in Nepal
- ix. To trace out the main technique of Capital Budgeting being used X. To trace out the effectiveness of used technique of Capital Budgeting.

Hypothesis of the Study

A quantitative statement about population parameter is called hypothesis. In other words, it is an assumption that is made about population parameter and then its validity is tested. It may or may not be found valid in verification. The main goal of testing hypothesis is to test the characteristics of hypothesized population parameter based on sample information where the difference between the population parameter and sample statistic is significance or not.

Formulation of hypothesis H_0 (Null) Hypothesis and H_1 (Alternative) Hypothesis

First Hypothesis [Net Cash Outlay (NCO)]

H_0 : $\mu = \mu_0$ (i.e. there is no significant difference between sample and the Standard NCO)

H_μ : $\mu \neq \mu_0$ (ie, there is Standard NCO)

Where,

μ = Sample Mean

Mo = Standard Mean

Second Hypothesis [Net Present Value (NPV)]

Ho.: $\mu =$ (ie. there is no significance different between sample and the Standard NPV)

H μ .: $\mu \neq \mu_o$ (ie. there is significance different between sample and the Standard NPV)

Where.

μ = Sample Mean

μ_o = Standard Mean

Third Hypothesis [Internal Rate of Return (IRR)]

Ho.: $\mu =$ (ie, there is no significance different between sample and the Standard IRR)

H μ .: $\mu \neq \mu_o$ (i.e. there is significance different between sample and the Standard IRR)

Where.

μ = Sample Mean

μ_o = Standard Mean

2. Research Methodology

Research Design

This study employed a comparative financial analysis approach to evaluate the performance of two subject companies—SNFBPL and BPDWU—through both Discounted Cash Flow (DCF) and Non-Discounted Cash Flow capital budgeting techniques. The research design was analytical and quantitative in nature, focusing on the comparison between the feasibility study projections and actual operational outcomes of the enterprises over a specific period.

Data Collection

Both primary and secondary data sources were used for the purpose of this study:

- Secondary Data: Feasibility reports, financial statements, and investment appraisal documents of the companies.
- Primary Data: Interviews and consultations with key financial personnel involved in the capital budgeting and feasibility assessment processes of both companies.

Analysis Techniques

The study adopted a variance analysis framework supported by statistical hypothesis testing to assess the deviations between projected and actual financial performance. The main capital budgeting tools used in the analysis include:

- Net Cash Outlay (NCO)
- Payback Period (PBP)
- Net Present Value (NPV)
- Internal Rate of Return (IRR)
- Profitability Index (PI)
- Accounting Rate of Return (ARR)

1. Variance Analysis

Variance analysis was conducted by comparing forecasted financial indicators (from feasibility studies) with actual financial results (after project implementation). The percentage variance for each metric was calculated using the following formula:

$$\text{Variance (\%)} = \left(\frac{\text{Actual Value} - \text{Projected Value}}{\text{Projected Value}} \right) \times 100$$

This allowed for a straightforward comparison of budgeting accuracy and performance.

2. Hypothesis Testing

To validate the significance of the observed variances, Chi-square tests (χ^2) were conducted for three key indicators: NCO, NPV, and IRR. The hypotheses were structured as follows:

- Null Hypothesis (H_0): There is no significant difference between projected and actual values.
- Alternative Hypothesis (H_1): There is a significant difference between projected and actual values.

For each hypothesis, the Chi-square statistic (χ^2) was calculated and compared with the critical value at 5% level of significance ($df = 1, \chi^2 = 3.841$).

The formula used:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where:

- O = Observed (Actual) values
- E = Expected (Projected) values

A result greater than 3.841 indicated statistical significance, implying that the variance was not due to random chance.

Scope and Limitations

- This study focused exclusively on two ongoing enterprises and therefore did not adopt the conventional project acceptance/rejection criteria.
- Only a subset of capital budgeting tools (where data was available) were analyzed in full; PI and ARR were excluded from hypothesis testing due to unavailability of comparable data.
- The results are context-specific and may not generalize across all sectors or industries.

3. Results and Analysis

For this research study, both discounted cash flow (DCF) and non-discounted cash flow analysis techniques were employed in the evaluation process. Given that the subject companies are ongoing enterprises, the conventional project acceptance/rejection decision framework was not directly applicable. Instead, the analysis focuses on comparing pre-determined feasibility

study projections with actual operational outcomes, with particular emphasis on variance analysis. This methodological approach allows for the assessment of capital budgeting accuracy and effectiveness in real-world applications. The key findings of this comparative analysis are summarized in Table 1, which presents the variance between projected and actual financial performance metrics.

Table No.: 1

Snap of Outcomes of the Study

Tools	SNFBPL (Variance)	BPDWU (Variance)
Net Cash Outlay (NCO)	11.46%	10.38%
Payback Period (PBP)	11.49%	32.68%
Net Present Value (NPV)	-9.89%	-33.77%
Internal Rate of Return (IRR)	-16.11%	-18.84%
Profitability Index (PI)	NA	NA
Accounting Rate of Return (ARR)	NA	NA

NCO and PBP of both companies show positive variance whereas NPV & IRR shows negative variance and the variance of PI & ARR is not available. Following are the meaning of presented variances-

- Positive variance of NCO shows the over financing in Initial Investment of the both companies.
- Positive variance of PBP shows the more time period requirement to recover the Initial Investment of the both companies.
- Negative variance of NPV shows the both companies are actually less profitable in rupees than reported in feasibility study. It means the actual NPV is higher.
- Negative variance of IRR shows the both companies are actually less profitable in percentage than reported in feasibility study. It means the actual IRR is higher.

Outcomes of Hypothesis

Under the study following three hypothesizes were tested. Following are the results of hypothesis.

• First Hypothesis [Net Cash Outlay (NCO)]

Tabulated (critical) value of X for 1 d. f. at 5% level of significance is 3.841 and calculated value of X= 2.951,945.89. Hence, the calculated value of chi-square is greater than the tabulated value. So, it is significant. Thus, the difference between observed and expected frequencies is significant and cannot be attributed to give chance to fluctuations. It means there are significant difference between Actual (sample) & pre-determined (standard) NCO.

• Second Hypothesis [Net Present Value (NPV)]

Tabulated (critical) value of X for 1 d. f. at 5% level of 43.245.94. Hence, the significance is 3.841 and calculated value of calculated value of chi-square is greater than the tabulated value, it is significant. Thus, the difference between observed and expected frequencies is significant

and cannot be attributed to give chance to fluctuations. It means there are significant difference between Actual (sample) & pre-determined (standard) NPV.

- **Third Hypothesis [Internal Rate of Return (IRR)]**

Tabulated (critical) value of X for 1 d. f. at 5% level of significance is 3.841 and calculated value of $X=1.06$. Hence, the calculated value of chi-square is less than the tabulated value, it is not significant. Thus, the difference between observed and expected frequencies is not significant. It means there are not significant difference between Actual (sample) & pre-determined (standard) IRR.

4. Conclusion

This study critically examined capital budgeting practices in Nepal's beverage industry, focusing on two representative firms: Sunrise Nepal Food & Beverages Pvt. Ltd. (SNFBPL) and Birgunj Pure Drinking Water Udyog (BPDWU). The analysis revealed significant discrepancies between projected and actual financial outcomes, particularly in Net Cash Outlay (NCO), Payback Period (PBP), Net Present Value (NPV), and Internal Rate of Return (IRR). Positive variances in NCO and PBP indicated cost overruns and delayed investment recovery, while negative NPV and IRR variances underscored lower-than-expected profitability. Hypothesis testing confirmed statistically significant differences between projected and actual NCO and NPV, though IRR variances were insignificant. These findings highlight systemic inefficiencies in capital budgeting execution, reflecting broader challenges in financial planning and risk assessment within Nepal's emerging economy.

Recommendations

To address these inefficiencies, Nepalese firms should adopt more robust capital budgeting frameworks. First, companies must enhance financial literacy among decision-makers through targeted training on advanced techniques like discounted cash flow (DCF) analysis and scenario planning. Second, firms should implement stricter post-audit mechanisms to compare feasibility studies with actual outcomes, fostering accountability and iterative learning. Third, policymakers and industry associations should develop standardized capital budgeting guidelines tailored to Nepal's context, incorporating risk-adjusted evaluation metrics and sector-specific benchmarks. These measures would mitigate cost overruns, improve investment accuracy, and align practices with global standards.

Future Directions

Future research should expand this study's scope by including a larger sample of firms across diverse industries to generalize findings. Longitudinal analyses could track the long-term impact of capital budgeting reforms on firm performance, while qualitative studies might explore behavioral factors influencing financial decision-making. Additionally, integrating environmental, social, and governance (ESG) criteria into capital budgeting models could offer insights into sustainable investment practices for Nepal's developing economy. By addressing these gaps, stakeholders can foster a culture of financial discipline and strategic investment, ultimately driving economic growth and organizational resilience.

References

- Amin, A. R. S., & Adil, M. (2025). Evaluation of the Relationship Between Capital Budget and Financing Decisions in Firm Growth. *Economics and Digital Business Review*, 6(1).
- Busco, C., Walters, J., & Provoste, E. (2024). Stakeholder management within PPP-arranged civil engineering megaprojects: A systematic literature review of challenges, critical success factors and stakeholder roles. *International Journal of Public Sector Management*, 37(5), 649-671. doi:<https://doi.org/10.1108/IJPSM-10-2023-0316>
- Khajavi, S., Etemedy Jooriaby, M., & Kermani, E. (2024). Budgeting in Healthcare. In *Decision Making in Healthcare Systems* (pp. 213-255). Cham: Springer International Publishing. doi:https://doi.org/10.1007/978-3-031-46735-6_9
- Khan, A., & Khan, A. (2019). Fundamentals of Public Budgeting and Finance. In *Capital Budgeting and Improvement Process* (pp. 275-318). doi:https://doi.org/10.1007/978-3-030-19226-6_8
- Mahat, D., Karki, T. B., Neupane, D., Shrestha, D. K., & Shrestha, S. (2024). Decolonization in Focus: A Bibliometric Analysis of Scientific Articles from 2010 to 2023. *Nepal Journal of Multidisciplinary Research*, 7(1), 1-21.
- Neupane, D., & Lourdusamy, A. (2024). Bibliometric Analysis of Human Aggression Research: Trends, Collaborative Networks and Emerging Themes in the Last Decade. *International Journal of Atharva*, 2(2), 10–23. <https://doi.org/10.3126/ija.v2i2.69823>
- Shrestha, S. K., Mahat, D., Neupane, D., & Karki, T. B. (2025). E-wallet usage and customer purchase intention: Understanding the mediating role of shopping satisfaction and E-wallet structure. *Multidisciplinary Reviews*, 8(3), 2025091-202509. doi:<https://doi.org/10.31893/multirev.2025091>
- Siddiqui, D. A., & Aayan, M. (2024). Financial Constraints and Investment Efficiency: Internal Capital Allocation Across the Business Cycle. *Available at SSRN 4863960*.
- Shields, J. F., Bilsky, B. A., & Shelleman, J. M. (2024). SMEs, Sustainability, and Capital Budgeting. *Small Business Institute Journal*, 20(1), 1-7.
- Shrieves, R. E., & Wachowicz, J. M. (201). Free Cash Flow (Fcf), Economic Value Added (Evatm), And Net Present Value (Npv):. A Reconciliation Of Variations Of Discounted-Cash-Flow (Dcf) Valuation. *The Engineering Economist*, 46(1), 33-52. doi:<https://doi.org/10.1080/00137910108967561>
- Taherdoost, H. (2024). R&D Funding and Budgeting. In *Innovation Through Research and Development: Strategies for Success* (pp. 69-94). Cham: Springer Nature Switzerland.

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Widyawati, W., & Daming, S. (2024). A Qualitative Investigation into Financial Strategy, Performance, Investment Decision-Making. *Economics and Digital Business Review*, 5(2), 885-882. doi:<https://doi.org/10.37531/ecotal.v5i2.1769>

Websites

www.fesnepal.org

www.labournepal.org

www.icrier.org

www.fncci.org