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Optimizing Investment Decisions: A Data-Driven Capital Budgeting Framework for Penna Cement Pvt. Ltd

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ABSTRACT: This study investigates its role in optimizing an organization's financial health. The research focuses on identifying risk factors within investment plans and evaluating proposals for expansion or establishing additional capacity. By employing a combination of primary and secondary data from a specific company (Penna Cement Pvt Ltd), the study analyzes the financial viability of two projects using established capital budgeting techniques like NPV, PI, IRR, and PBP. The analysis revealed a positive NPV and short payback period for the Centralized Blade Shop project, indicating its profitability and swift return on investment. Conversely, the Facilities for Manufacturing Special Tools project exhibited a negative NPV and an indeterminate payback period, suggesting potential financial losses and difficulty in recouping the initial investment.

KEY WORDS: Capital Budgeting, Cost of Capital, Cash Flow Estimation, Internal Rate of Return (IRR),and Investment Opportunity.

I. INTRODUCTION

Capital budgeting tackles the allocation of funds for long-term investments in assets that deliver returns over extended periods, typically exceeding a year. These decisions involve significant upfront capital expenditures. A key characteristic of capital expenditures is that the cost is incurred at a single point in time, while the benefits are reaped over various future periods. The entire capital budgeting process revolves around planning, securing, controlling, allocating, and spending these long-term investment funds. Examples include the acquisition of permanent assets like land, buildings, plant and machinery, and intangible assets like goodwill. Additionally, it encompasses costs associated with expanding, improving, or replacing existing fixed assets, as well as research and development project expenses.
In essence, capital budgeting is the process of making investment decisions involving significant outlays that generate benefits over a period exceeding one year. These expenditures are long-term commitments and have a profound impact on a company's profitability, competitive edge, and future trajectory. Sound capital budgeting decisions can lead to substantial returns, while poor choices can jeopardize a firm's survival. The long-term nature of these decisions and the difficulty of reversing them necessitate careful consideration and wise allocation of scarce capital resources. Capital budgeting decisions are not just of importance to individual firms, but also hold national significance as they influence employment, economic activities, and overall economic growth. This underlines the critical need for thoughtful, strategic, and well-informed investment decisions.

Capital budgeting is a critical process for ensuring the financial health of an organization. It centers on making strategic decisions regarding the allocation of funds to long-term projects. These projects can encompass a wide range of initiatives, from establishing new production facilities and acquiring substantial equipment to expanding existing operations or developing entirely new product lines. Capital budgeting also plays a vital role in determining the optimal timing for replacing aging assets, such as buildings and machinery. Through a comprehensive financial analysis of various investment proposals, capital budgeting empowers organizations to identify the option that delivers the most promising returns and aligns best with their long-term strategic objectives.

II. OBJECTIVE OF THE STUDY

1. To ascertain the risk factor in the investment plan
2. To analysis the proposal for expansion or creating additional capacities

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III. REVIEW OF LITERATURE

Leon et al. (2018) found eight factors that motivate them to choose a capital budgeting method in Indonesian's firm. Factors are chief financial officers' (CFOs) education, size of the firm, total annual investment, industry type, ownership structure, multinational culture and financial leverage. In addition, Brunzell et al. (2013) found one more factor which is political risk for selecting methods. Daunfeldt and Hartwig (2008) conducted a study on Swedish listed companies and found few new factors such as dividend payout ratio, potentiality of firm growth and foreign sales amount

Shinoda (2019) conducted a survey focusing on capital budgeting practices in Japan taking sample data from 225 companies listed on the Tokyo Stock Exchange. The results found that Japanese firms manage their capital budgeting decisions by a combination of PB and NPV methods. The capital budgeting techniques used depend on the subject and situation. Effective decision-making with regard to capital budgeting requires a more multifaceted approach to the issue of capital budgeting methods rather than rigorous academic theory

De Souza and Lunkes (2020) investigated the use of capital budgeting practices by large Brazilian publicly traded companies. Their findings reveal that managers of Brazilian companies mostly used the PB (71%) followed closely by NPV (65%) and (IRR) (61%). The study also reports that the most frequent practice used in setting the minimum rate of return is WACC (63%). For assessing risk, the results show that the most widely used techniques are scenario analysis (68%) and sensitivity analysis (55%).

Batra and Verma (2020) examined responses from 77 Indian companies listed on the Bombay Stock Exchange. Their evidence reveals that corporate managers largely follow the capital budgeting practices proposed by academic theory. DCF techniques of NPV and IRR and risk-adjusted sensitivity analysis are the most popular. Managers also favour WACC as the cost of capital. Yet, the theory-practice gap exists in adopting specialized techniques of real options, modified internal rate of return (MIRR) and Nurullah and Kengatharan (2015b) simulation. Managers also consider nonfinancial criteria in selecting projects.

Mubashar and Tariq (2021) carried out a study on 200 nonfinancial firms listed on Pakistan Stock Exchange, with a response rate of 35%. It was found that Pakistani listed firms frequently used NPV, IRR and PI for capital budgeting. Out of these DCF methods, NPV is the most used method (61.4% of respondent firms always use NPV) of capital budgeting. Again, 27% firms always used IRR, but interestingly all the respondents firms use IRR with NPV as a secondary method. Similarly, WACC is estimated using target value weights, and capital asset pricing model (with extra risk factors) is used to determine the cost of equity capital. For risk assessment, sensitivity analysis and scenario analysis are the dominant approaches; however, despite the theoretical superiority, the use of real options is very low. Overall, investment decision responses significantly differ across firms' demographics and executive characteristics.

IV. RESEARCH METHODOLOGY

This section outlines the research methodology employed in the study. Data was gathered from Penna Cement Pvt Ltd using both primary and secondary sources. Primary data, collected through informal discussions with company personnel knowledgeable about the research topic, provided qualitative insights. Secondary data, sourced from the company's annual reports and audited income statements for the relevant years, provided quantitative data for analysis.

The study utilized Net Present Value (NPV), Profitability Index (PI), Internal Rate of Return (IRR), and Payback Period (PBP) as the primary capital budgeting techniques. Formulas are provided for calculating each metric.

However, the study acknowledges limitations. The analysis was restricted to the available data, and a more in-depth examination was hindered by time constraints.

V. DATA ANALYSIS AND INTERPRETATION

Calculation of cash flows after tax

YEAR	CFBDT	DEP	CFBT	TAX	CFAT	EAT
2018-19	1000	663.2	336.2	--	1000	336.8

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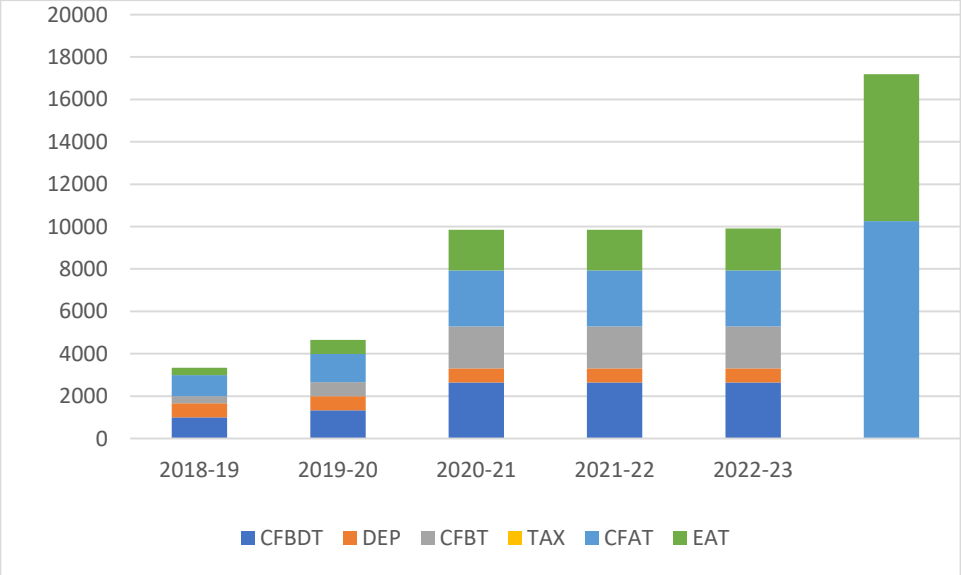
2019-20	1328	663.2	664.8	--	1328	664.8
2020-21	2642	663.2	1978.8	--	2642	1928.8
2021-22	2642	663.2	1978.8	--	2642	1928.8
2022-23	2642	663.2	1978.8	--	2642	1978.8
					10254	**6938.00**



INTERPRETATION: The table summarizes income and taxes for five years (2018-19 to 2022-23). Each year, a consistent amount (around 663) is deducted from the total income (CFBDT) labelled DEP (possibly deposit) to determine the taxable income (CFBT). A seemingly flat tax rate is applied to CFBT to calculate TAX. The totals for all five years show the cumulative income (CFBDT) and total tax paid (EAT). There might be an error in the final year's taxable income (EAT) - it likely should be 1978.8.

CALCULATION OF NPV @ 15%

YEAR	CFAT	PV@15%	PVCF
2018-19	1000	.870	870.0
2019-20	1328	.756	1003.9
2020-21	2642	.658	1738.4
2021-22	2642	.572	1511.2
2022-23	2642	.497	1313.2
			6436.5

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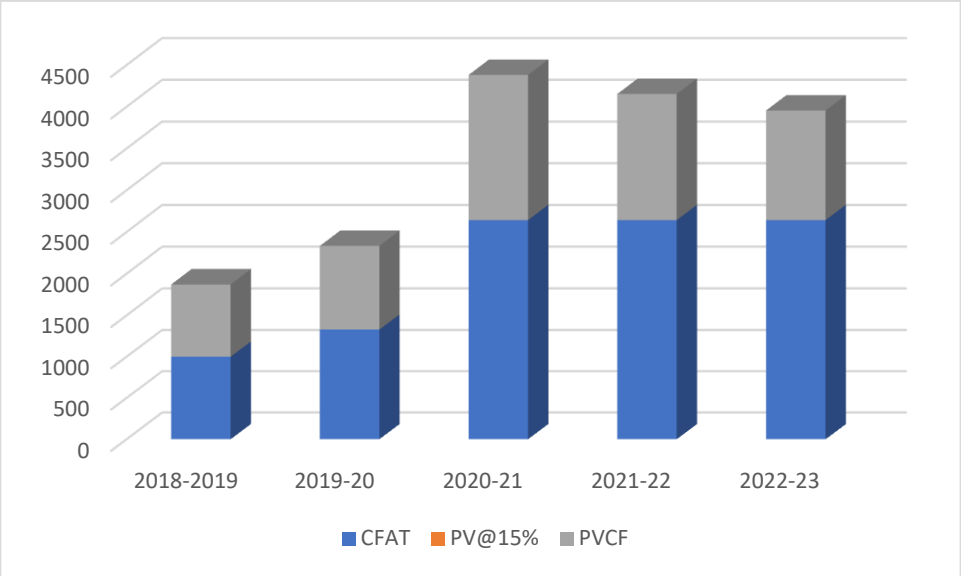
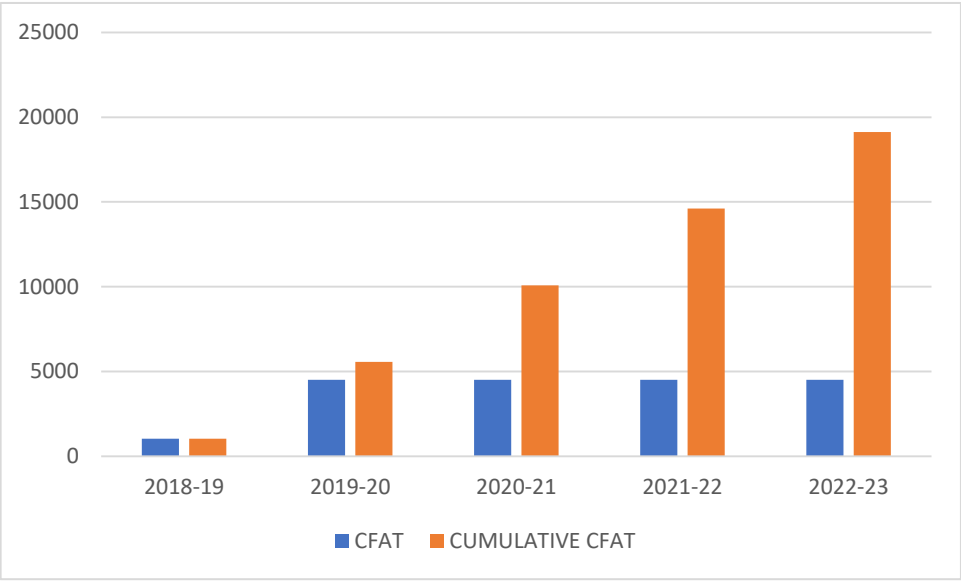


INTERPRETATION: The payback period of the centralized balde shop is 3.108. The project investment recovered in the third year.The N.P.V of the centralize blade shop project is in positive 2291.5

CALCULATION OF PAY BACK PERIOD

YEAR	CFAT	CUMULATIVE CFAT
2018-19	1046	1046
2019-20	4520	5566
2020-21	4518	10084
2021-22	4520	14604
2022-23	4510	19114



INTERPRETATION: This table shows cumulative income over 5 years (2018-19 to 2022-23). Each year, a value labelled CFAT is shown, which likely represents the income for that year. The table also displays the total income up to that year (CUMULATIVE CFAT). The total income for all five years is 19126.

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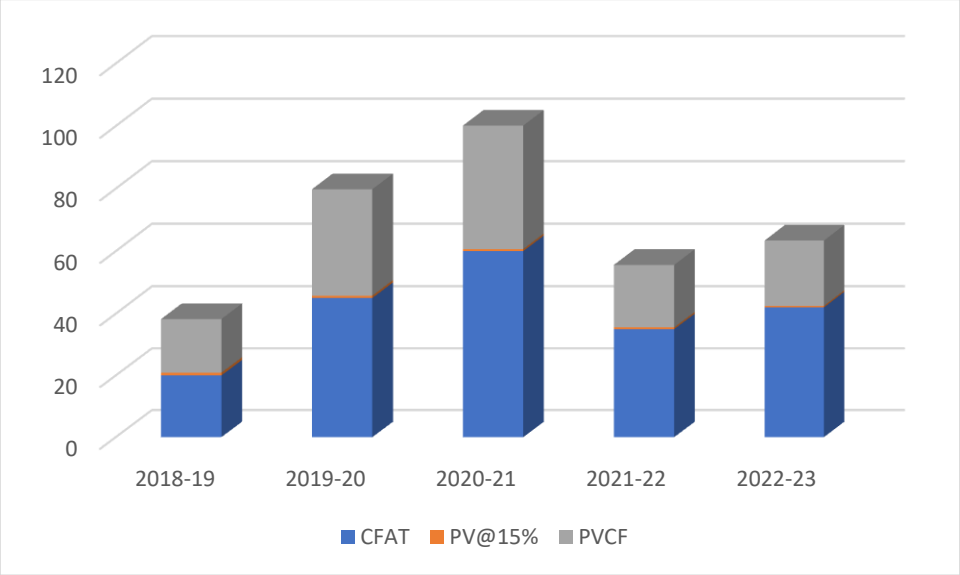
CALCULATION OF N.P.V @ 15%

YEAR	CFAT	PV@15%	PVCF
2018-19	20	.870	17.4
2019-20	45	.756	34.02
2020-21	60	.658	39.48
2021-22	35	.572	20.02
2022-23	42	.497	20.87



INTERPRETATION: The payback period of the facilities for manufacturing special tools project exceeding life of the project.
The N.P.V of facilities for manufacturing tools is negative 89.2

CALULATION OF CASH FLOWS AFTER TAX

YEAR	CFBDAT	DEP	CFBT	TAX	CFAT	EAT
2018-19	300	38.16	261.84	----	300	261.84
2019-20	1500	38.16	1461.84	----	1500	1461.84
2020-21	1500	38.16	1461.84	----	1500	1461.84
2021-22	1500	38.16	1461.84	----	1500	1461.84
2022-23	1500	38.16	1461.84	----	1500	1461.84
					6300	**6109.2**

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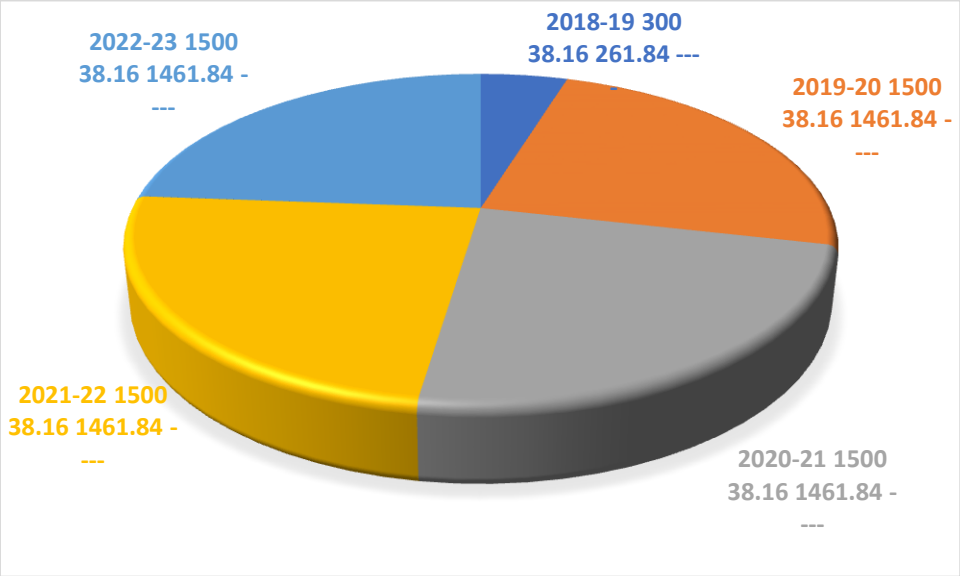

INTERPRETATION: This table shows income and taxes for five years (2018-19 to 2022-23). Each year, a constant amount (around 38) labelled DEP is subtracted from the total income (CFBDAT) to find the taxable income (CFBT). A flat tax seems to be applied to CFBT to determine TAX. The totals at the bottom show the combined income (CFBDAT) and total tax paid (EAT) for all five years.

VI. CONCLUSION

The data analysis yielded critical financial performance metrics for the two projects. The Centralized Blade Shop project exhibited a positive NPV (₹2,291.5) at a 15% discount rate, indicating profitability, and a payback period of 3.1 years, suggesting a swift return on investment. Conversely, the Facilities for Manufacturing Special Tools project presented a negative NPV (₹-89.21) at the same discount rate, signifying a financial loss, and an indeterminable payback period, implying potential difficulty in recouping the initial investment. Consequently, based on these findings, the Centralized Blade Shop project appears financially advantageous, while the Facilities for Manufacturing Special Tools project seems unfavourable.

REFERENCES

1. Abson, D. J., et al. (2017). Leverage points for sustainability transformation. Ambio, 46(1), 30-39.
2. Aramyan, L., et al. (2020). Food waste reduction in supply chains through innovations: A review. Measuring Business Excellence, 25(4), 475-492.
3. AgSTAR Project Development Handbook 3rd Edition (2019). Anaerobic Digestion Facilities Processing Food Waste in the United States. EPA.
4. Brest, P., & Born, K. (2013). Unpacking the impact in impact investing.
5. Brown, M. (2020). Unpacking the theory of change. BUILDING ECOSYSTEMS FOR SYSTEMS CHANGE: How Do We Collaborate to Create Ecosystems That Support Innovation for Systems Change? Social Innovation Generation (SiG).
6. Burckart, W., & Lydenberg, S. (2021). 21st century investing: Redirecting financial strategies to drive systems change.
7. Chevalier, J. M., & Buckles, D. (2013). Participatory action research: Theory and methods for engaged inquiry.
8. Colby, S., Stone, N., & Carttar, P. (2004). Zeroing in on impact.
9. Conlisk, J. (1996). Why bounded rationality? Journal of Economic Literature, 34(2), 669-700.
10. A Roadmap to Reduce US Food Waste by 20 Percent (2016). EPA.
11. David J Abson et al. (2017) (reference already provided in 'A')
12. Drury, C. (1993). A Survey of Management Accounting Practices in UK Manufacturing Companies. ACCA Certified Research Report. London: Certified Accountants Educational Trust for the Chartered Association of Certified Accountants.
13. Ehrlinger, J., et al. (2016). Decision-Making and Cognitive Biases. Encyclopedia of Mental Health, 5-12.

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14. Eisenhardt, K. M., & Bourgeois, L. J. (1988). POLITICS OF STRATEGIC DECISION MAKING IN HIGH-VELOCITY ENVIRONMENTS: TOWARD A MIDRANGE THEORY. Academy of Management Journal, 31(4), 737-770.
15. Evans, D. (2021).Blaming the Consumer-Once Again: The Social and Material Contexts of Everyday Food Waste Practices in Some English Households.
16. Farmer, J. D., et al. (2019). Sensitive Intervention Points in the Post-Carbon Transition. Science, 364(6436), 132-134.
17. Fotsch, R. J. (1984). Machine Tool Justification Policies: Their Effect on Productivity and Profitability. Journal of Manufacturing Systems, 3(2), 169-195.
18. Gagliardi, N., et al. (2023). Workers' Tenure and Firm Productivity: New Evidence from Matched Employer-Employee Panel Data. Industrial Relations: A Journal of Economy and Society, 62(1), 3-33.
19. Geddes, A., & Schmidt, T. S. (2020). Integrating Finance into the Multi-Level Perspective: Technology Niche-Finance Regime Interactions and Financial Policy Interventions. Research Policy, 49(6).
20. Geels, F. W. (2004). From Sectoral Systems of Innovation to Socio-Technical Systems: Insights about Dynamics and Change from Sociology and Institutional Theory. Research Policy, 33(6), 897-920.

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