



A STUDY ON CAPITAL BUDGETING FOR MACHINERY MODERNIZATION IN SIVASIDH PACKS LIMITED

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Abstract:

This study examines the role of capital budgeting in facilitating machinery modernization at Sivasidh Packs Pvt. Ltd., a leading corrugated packaging manufacturer in Tamil Nadu. In today's competitive industrial environment, modernization of machinery has become essential for improving productivity, reducing operational costs, and enhancing overall business efficiency. Given the high level of investment required for modernization, capital budgeting plays a crucial role in ensuring that such long-term financial decisions are both economically viable and strategically aligned with organizational goals. However, challenges such as outdated equipment, rising maintenance costs, and market competition have emphasized the need for modernization. Through this study, the financial and operational impact of upgrading machinery is analyzed over a five-year period, assessing improvements in efficiency, profitability, and production quality.

Key Words: Capital Budgeting Techniques, Comparative Trend Analysis, Common Size Balance Sheet, Profitability Ratio, Turnover Ratio

Introduction:

Capital budgeting is a core financial management function that involves the planning and management of a firm's long-term investments. As outlined in leading finance texts such as "Financial Management" by Prasanna Chandra and "Financial Management" by I.M. Pandey, capital budgeting is the process of identifying, evaluating, and selecting investments in assets that will generate returns over a period longer than one year. These decisions are critical as they directly affect the future profitability, growth, and competitiveness of a business. For companies like Siva Sidh Packs, which operates in the packaging sector, machinery plays a vital role in ensuring product consistency, operational speed, and cost-efficiency

Statement of the Problem:

Sivasidh Packages faces inefficiencies due to outdated machinery, increasing maintenance costs and reducing productivity. Deciding on modernization requires significant investment. Without proper capital budgeting analysis, such decisions may lead to poor financial outcomes. Hence, evaluating the financial feasibility of machinery modernization is crucial for sustainable operational and financial performance.

Objectives:

- To examine the trend of capital investment in machinery and fixed assets over five years.
- To analyse how modernization has influenced profitability.
- To assess the impact of capital investment on asset utilization and efficiency.
- To ensure efficient allocation of long-term funds to the most profitable opportunities.

Review of Literature:

- Alisa Laufer, Howard J Shatz, Omar Danaf, (2025) analysts expected Russia to be able to produce up to 4.5 million artillery shells for the year. Meanwhile, the Western alliance supporting Ukraine was expected to be able to produce 1.3 million 155-mm artillery shells, far short of what Ukraine would need to achieve its and the West's military goals.
- Charles Okpala, Udu Chikwendu, (2025) traditional Total Productive Maintenance (TPM) frameworks, relying on manual interventions and periodic maintenance schedules, struggle to efficiently process and act on real-time data. AI, with its powerful algorithms and machine learning capabilities, offers the potential to revolutionize TPM by enabling predictive maintenance, condition-based monitoring, and autonomous decision-making.
- Ch Li, (2024) the enterprise carries out investment activities, focusing on the needs within the target orientation of its business strategy. By implementing its own model of investment behaviour, the enterprise not only provides financing for operational needs and promotes technological renewal of production, but also maintains solvency and forms competitive advantages in the market.
- Rodney Chisembe, P Venkateswarlu, (2024) capital budgeting involves planning and controlling long-term and short-term investments in fixed assets. It requires investing cash now with the expectation of recovering it over more than a year. Evaluating these decisions means assessing the investment and its future cash flows, which come from added revenues, cost savings, or cost reductions.

- Olena V Zhytkevych, (2022) primarily concerned with exploring the concept of business modernization and its potential incorporation into an organization through the utilization of business finance principles. While previous studies have concentrated on financial indicators, the authors recommend a more extensive approach that regards business modernization as an investment choice, appraising both risks and potential gains.
- Mrudula Jadhav, (2021) money required for carrying out business activities is called business finance. Almost all business activities require some finance. Finance is needed to establish a business, to run it to modernize it to expand or diversify it
- Johnathan Mun, (2020) a reusable, extensible, adaptable, and comprehensive advanced analytical modelling process to help the US Department of Defence (DoD) with risk-based capital budgeting and optimizing of acquisition and program portfolios with multiple stakeholders while subject to budgetary, risk, schedule, and strategic constraints.

Research Design:

The research adopts a quantitative, analytical approach to evaluate the financial viability of a capital investment project. The study utilizes various capital budgeting techniques to assess profitability, risk, and return over a five-year period.

Period of Study:

The period of study for this project spans five financial years, from 2021 to 2025.

Tools Used:

- Capital budgeting techniques: Net present value, Interest rate of return, Payback period, Accounting rate of return, Profitability index, Return on investment.
- Comparative trend analysis
- Common size balance sheet
- Profitability ratio: Gross profit margin, Operating profit margin, Net profit margin.
- Turnover ratio: Fixed asset turnover ratio, Total asset turnover ratio.

Analysis:

Capital Budgeting Techniques:

S.No	Capital Budgeting Techniques	2021-2025
1	Net Present Value	62.34
2	Interest Rate of Return	114
3	Payback period	1.01
4	Average rate of return	73.25
5	Profitability Index	4.12

- Net present value: The Net Present Value (NPV) of the project was calculated over a 5-year period using a discount rate of 14.67%, which represents the company's required rate of return or cost of capital. The resulting NPV is ₹59.72 crore.
- Interest rate of return: The project's IRR is 113.76%, far above the company's cost of capital of 14.67%. IRR shows the rate at which the NPV of cash flows is zero, indicating return potential. A high IRR suggests the project will generate excellent returns and is financially viable. Thus, the project should be accepted, as it will add significant value over the 5-year period.
- Payback period: The Machinery Modernization project recovers its ₹20 crore investment in just 1.01 years. This short payback shows the project generates cash inflows quickly, reducing risk and improving liquidity. It highlights the project's ability to deliver early returns, valuable for fast capital turnaround.
- Average rate of return: The Accounting Rate of Return (ARR) for the Machinery Modernization project of Siva Sidh Packs Pvt. Ltd. is calculated as 73.25%, indicating strong financial viability. ARR measures the average annual accounting profit as a percentage of the initial investment.
- Profitability index: The Profitability Index (PI) for the Machinery Modernization project of Siva Sidh Packs Pvt. Ltd. is calculated to be 4.12. This indicates that for every ₹1 invested, the project is expected to generate ₹4.12 in return.

Turnover Ratio:

Year	Fixed Asset Turnover Ratio	Total Asset Turnover Ratio
2020-21	3.5	1.6
2021-22	3.3	1.4
2022-23	3.1	1.3
2023-24	3.0	1.2
2024-25	2.9	1.1

- Fixed Asset Turnover Ratio: The Fixed Asset Turnover Ratio has steadily declined from 3.51 times in 2021 to 2.92 times in 2025. This shows that the company's efficiency in using its fixed assets to generate sales revenue has gradually weakened over the years.
- Total Asset Turnover Ratio: The Total Asset Turnover Ratio shows a gradual decline from 1.62 times in 2021 to 1.18 times in 2025. This indicates that the company's ability to generate sales from its total assets has weakened over the years. While sales have increased annually, the growth in total assets has been relatively higher, suggesting underutilization of assets or expansion investments yet to yield proportional returns.

Profitability Ratio:

Year	Gross Profit Margin	Operating Profit Margin	Net Profit Margin
2021	36.39%	16.93%	9.34%
2022	35.91%	15.91%	9.39%
2023	34.16%	14.10%	8.28%

2024	33.93%	13.71%	8.73%
2025	32.02%	11.46%	6.85%

- **Gross profit margin:** The Gross Profit Margin shows a steady decline from 36.39% in 2021 to 32.02% in 2025, indicating that the company's cost of production has increased relative to its sales. Despite continuous growth in sales, profitability from core operations has slightly eroded over the years.
- **Operating profit margin:** The Operating Profit Margin has shown a continuous decline from 16.93% in 2021 to 11.46% in 2025, reflecting a steady reduction in operational efficiency and profitability. Although sales have increased each year, operating expenses such as administrative, selling, and depreciation costs have risen faster than revenue growth.
- **Net profit margin:** The Net Profit Margin shows a declining trend from 9.34% in 2021 to 6.85% in 2025, indicating a drop in overall profitability over the five-year period. While sales have consistently increased, the net profit has not grown proportionately, mainly due to rising operating and other expenses.
- **Common size balance sheet:** From 2021 to 2025, the financial performance shows steady growth in reserves and surplus, indicating improved profitability and internal financing. Long-term borrowings gradually declined, suggesting reduced dependence on external debt. Investments in fixed assets remained consistent, supporting operational efficiency, while increasing inventory levels highlight the need for better working capital management to maintain liquidity and profitability.
- **Comparative trend analysis:** The five-year comparative trend analysis shows continuous and balanced financial growth from 2021 to 2025. Total assets rose from ₹97.25 crore to ₹160.50 crore, marking a 65% increase that reflects strong expansion. Reserves and surplus turned from a negative balance to ₹57.25 crore, showing improved profit retention.

Balance Sheet Statement:

The balance sheet shows steady financial growth from 2021 to 2025, with total assets rising from ₹97.25 crore to ₹160.50 crore, indicating strong expansion. Reserves and surplus improved significantly, reflecting consistent profit retention. Fixed assets and inventories increased steadily, showing capacity expansion and higher production levels. The company maintained a balanced mix of equity and borrowings, ensuring financial stability and growth sustainability.

Profit & Loss Statement:

From 2021 to 2025, sales steadily increased from ₹158 crore to ₹189.75 crore, reflecting consistent revenue growth. Despite rising expenses, profitability remained stable, with PAT ranging between ₹13 crore and ₹15.75 crore. The firm maintained strong operational performance supported by controlled costs and growing gross profit.

Findings:

- The project's NPV is ₹62.34 crore, and IRR is 113.76%, significantly higher than the company's cost of capital (14.67%). Indicates excellent financial viability and value addition over 5 years.
- Investment of ₹20 crore is recovered in just 1.01 years, showing rapid cash inflow. PI of 4.12 indicates that for every ₹1 invested, the project generates ₹4.12, reflecting strong profitability.
- ARR is 73.25%, demonstrating high average annual return relative to investment.
- ROI shows declining trend from 62.11% in 2021 to 15.81% in 2025, reflecting decreased efficiency in generating returns over time.
- Total assets and reserves & surplus steadily increased, reflecting strong financial growth.
- Investments in fixed assets and inventories increased, suggesting expansion and production capacity enhancement.
- Fixed assets remain dominant, but current assets are significant, showing adequate liquidity.
- GPM, OPM, and NPM all show a declining trend from 2021 to 2025, suggesting rising costs and reduced operational efficiency.
- Net profit growth is not proportional to sales growth, pointing toward the need for better cost management.
- Fixed Asset Turnover and Total Asset Turnover ratios are declining, indicating slower utilization of assets relative to their growth.

Suggestions:

- Implement cost control measures to manage rising operational and production expenses.
- Optimize resource allocation and productivity to improve OPM and NPM.
- Enhance utilization of fixed and total assets to increase turnover ratios.
- Monitor new investments to ensure they contribute proportionally to sales growth.
- Reduce high inventory levels to free up cash and improve liquidity.
- Strengthen receivables collection to maintain healthy cash flow.
- Maintain balance between equity and borrowings to optimize capital structure.
- Use surplus reserves for strategic expansion rather than excessive inventory build-up

Conclusion:

The Machinery Modernization project of Siva Sidh Packes Pvt. Ltd. is highly financially viable, offering rapid payback, strong returns, and substantial value creation. The company shows consistent growth in assets, reserves, and liquidity, alongside a gradual reduction in borrowings, indicating a stable financial position.

However, profitability and asset utilization ratios are declining, suggesting increasing operational costs and underutilization of assets. To sustain growth and improve efficiency, the company should focus on cost control, better asset management, and strategic working capital optimization. Overall, the project and the company are well-positioned for long-term financial stability and expansion.

References:

1. Amsaveni, N. (n.d.). Risk of e-banking operations in banking sector. Rabindra Bharati Journal of Philosophy, 31(16), 100 106.
2. Ashar, K. (2020). Financial management essentials you always wanted to know (4th ed., pp. 95 120). Vibrant Publishers.
3. Brigham, E. F., & Houston, J. F. (2018). Fundamentals of financial management (15th ed., pp. 45 70). Cengage Learning.
4. Chandra, P. (2019). Financial management: Theory and practice (10th ed., pp. 520 560). McGraw Hill Education.
5. Divya, D., Darshan, R., & Abdullah, A. S. (2025). Financial performance and working capital management at Devi Motors-A Yamaha dealership perspective. Interpretation, 26(96), 2 41.
6. Hsu, J.-M., Kong, Y. K., & Bany-Ariffin, A. N. (2018). Essentials of financial management (4th ed., pp. 210 240). Cengage Asia.
7. Jayashree, R. (2025). A study on financial performance analysis of United Tyres with reference to Coimbatore City. International Journal of Research in Management, 7(1), 604 607.
8. Mythili, D., Hariharan, I., & Gudan, A. E. (2025). A study on financial performance of Bajaj Finserv Limited. International Journal of Management Research & Review, 15(2), 39 44.
9. Merceline Anitha, B. (2025). Comparative analysis of top five Indian IT stocks: Performance trends from 2019 to 2024. International Journal of Management Research & Review, 15, 18 23.
10. Suganya, D. (2021). Adoption of e-banking among customers: An empirical analysis. UGC Care Group I Journal.
11. Vijayakumar, A. (2011). Working capital management and profitability in the Indian cement industry. Indian Journal of Commerce and Management Studies, 2(4), 56 64.
12. <https://www.scribd.com/doc/110506536/Financial-Management-by-Prasanna-Chandra-Index>
13. https://books.google.com/books/about/Financial_Management_11th_Edition.html?id=vahDDAAAQBAJ
14. https://books.google.com/books/about/Fund_of_Financial_Management_5e.html?id=jcYQakGwouwC
15. https://books.google.com/books/about/Essentials_of_Financial_Management_4th_E.html?id=UalDDAAAQBAJ
16. <https://www.allmultidisciplinaryjournal.com/uploads/archives/61496F256ADD71632202533.pdf>
17. <https://ijrpr.com/uploads/V5ISSUE5/IJRPR29071.pdf>
18. <https://www.econstor.eu/bitstream/10419/245032/1/10.1080-23311975.2021.1924930.pdf>