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Department of MBA

UGC Autonomous, Approved by AICTE, New Delhi & JNTU Hyderabad
Kandlakoya (V), Medchal, Hyderabad – 501401**An Analytical Study on Capital Budgeting Techniques in Mahindra and Mahindra Limited****YADHI NIKITHA**, Student, MBA Dept., CMR Technical Campus,**VINNAKOTA KANAKA DURGA**, MBA, M.Com., (Research scholar in DMS,

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ABSTRACT

Capital budgeting is an essential financial management tool that assists firms in making decisions related to investment. In capital budgeting, investment projects are analysed to evaluate their profitability, risks, and financial feasibility. There are different capital budgeting methods, including Payback Period, Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index, among others, which companies use to choose the most profitable investment opportunities. This paper seeks to investigate the concept of capital budgeting techniques, their importance, and their implementation in financial management decision-making. The study will explore the ways in which these techniques assist companies in maximising profits, mitigating risks, and growing in the long term. Both primary and secondary sources of information may be employed for the study. Secondary information may be obtained from scholarly journals, books, Internet resources, and financial reports. On the other hand, primary information may be derived from questionnaire surveys and interviews. A descriptive research design will be utilised in conducting the study, while qualitative research analysis tools will be applied in interpreting the results. The findings of the study are likely to prove that proper capital budgeting techniques contribute significantly to enhancing investment decisions.

Key Words: Capital Budgeting, Investment Decision-Making, Net Present Value (NPV), Internal Rate of Return (IRR), Financial Feasibility Analysis

INTRODUCTION

Capital budgeting is the process of evaluating and selecting long-term investment projects that are consistent with maximising shareholders' wealth. It involves decisions regarding investment in fixed assets such as machinery, equipment, plants, and expansion projects. Since these investments require substantial funds and have long-term implications, organisations must carefully analyse their potential profitability and risks before committing resources.

Various capital budgeting techniques are used to assess the viability of investment proposals. Traditional methods, such as Payback Period (PBP) and Accounting Rate of Return (ARR), focus on profitability and recovery of investment, while modern techniques, such as Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI), consider the time value of money and provide a more accurate evaluation of investment opportunities. These techniques help managers make informed decisions that contribute to organisational growth and financial stability.

PROBLEM STATEMENT

Investment decisions are among the most critical decisions made by business organisations because they involve large amounts of capital and have long-term effects on profitability and growth. Many firms face challenges in selecting the most appropriate investment projects due to uncertainty, risk, and limited resources. The use of different capital budgeting techniques often leads to varying results and investment decisions. Therefore, there is a need to analyse and understand the effectiveness of various capital budgeting techniques in evaluating investment projects and maximising shareholder wealth.

NEED FOR THE STUDY

- To understand the importance of capital budgeting in financial decision-making.
- To examine the various techniques used for evaluating investment projects.
- To compare traditional and modern capital budgeting methods.
- To identify the advantages and limitations of each technique.
- To help organizations make effective investment decisions that maximize profitability and shareholder value.

SCOPE OF THE STUDY

- The study helps in evaluating investment decisions using capital budgeting techniques.
- It provides insights into the profitability and feasibility of investment projects.
- The findings can assist management in future investment planning and decision-making.
- The study can be extended by incorporating additional financial evaluation techniques and longer time periods.

OBJECTIVES OF THE STUDY

Primary Objective

- To study and analyze the various capital budgeting techniques used in investment decision-making.

Secondary Objectives

- To understand the concept and significance of capital budgeting.
- To examine the Payback Period (PBP) method.
- To analyze the Accounting Rate of Return (ARR) method.
- To study the Internal Rate of Return (IRR) technique.
- To evaluate the Net Present Value (NPV) method.
- To understand the Profitability Index (PI) technique.
- To compare the effectiveness of different capital budgeting techniques.

LIMITATIONS OF THE STUDY

1. The study is based on secondary data collected from financial statements.
2. The analysis is limited to a five-year period.
3. Only selected capital budgeting techniques were used for evaluation.
4. External factors such as market conditions and economic changes were not considered in the analysis.

RESEARCH METHODOLOGY

Research Design

The study is descriptive in nature and focuses on understanding various capital budgeting techniques used in financial management.

Sources of Data

The study is based entirely on secondary data.

Secondary Data Sources

- Finance and management textbooks.
- Research journals and published articles.
- Company annual reports.
- Academic publications.
- Websites related to finance and investment management.
- Conference papers and online databases.

Capital Budgeting Techniques Covered

1. Payback Period (PBP)

The Payback Period measures the time required to recover the initial investment from the project's cash inflows. It is simple to calculate and useful for assessing liquidity.

2. Accounting Rate of Return (ARR)

ARR measures the average accounting profit earned from an investment as a percentage of the average investment.

3. Net Present Value (NPV)

NPV calculates the difference between the present value of cash inflows and the present value of cash outflows. A positive NPV indicates that the project is financially viable.

4. Internal Rate of Return (IRR)

IRR is the discount rate at which the NPV of a project becomes zero. Projects with IRR higher than the required rate of return are generally accepted.

5. Profitability Index (PI)

PI measures the relationship between the present value of future cash inflows and the initial investment. A PI greater than 1 indicates an acceptable investment.

Data Analysis

The collected secondary data will be analyzed using descriptive and comparative methods to evaluate the effectiveness, advantages, and limitations of each capital budgeting technique.

DATA ANALYSIS AND INTERPRETATION

PAY-BACK PERIOD

$$\text{Pay-back period} = \text{Initial investment} / \text{Annual cash inflow}$$

CALCULATION OF ANNUAL CASH INFLOWS:

$$\text{Annual cash inflow} = \text{profit after tax} + \text{depreciation}$$

TABLE 1

YEAR	PROFIT AFTER TAX	DEPRECIATION	ANNUAL CASH INFLOWS	CUMMULATIVE CASH INFLOWS
2025	11,854.96	4,226.78	16081.74	16081.74
2024	10,717.80	3,438.85	14156.65	30238.39
2023	6,548.64	3,154.46	9703.10	39941.49
2022	4,935.22	2,451.06	7386.28	47327.77
2021	268.66	2,232.99	2501.65	49829.42

INTERPRETATION:

The above table shows the calculation of annual cash inflows. The highest cash inflow was during the period of 2025 is 16081.74. It also shows the fluctuations in profit after tax and depreciation of past five years.

AVERAGE RATE OF RETURN

$$\text{Average rate of return} = (\text{Average annual earning} / \text{average investment}) * 100$$

$$\text{Average investment} = \text{original investment} / 2$$

TABLE 2

YEAR	PROFIT AFTER TAX	AVERAGE INVESTMENT	AVERAGE RATE OF RETURN
2025	11,854.96	11777.95	100.65%
2024	10,717.80	10641.92	100.71%
2023	6,548.64	9880.41	66.27%
2022	4935.22	9783.39	50.44%
2021	268.66	7505.755	3.58%
TOTAL	34325.28	49589.425	

AVERAGE PROFIT AFTER TAX:

$$= 34325.28 / 5$$

$$= 6865.056$$

AVERAGE INVESTMENT:

$$= 49589.425 / 5 = 9917.885$$

$$\text{ARR} = (6865.056 / 9917.885) * 100 = 69.22\%$$

INTERPRETATION:

The above analysis shows that Accounting Rate of Return is 69.22%. project is acceptable because ARR is high.

NET PRESENT VALUE

$$\text{Net present value} = \text{Total Present Value of Cash Inflow} - \text{Initial Investment}$$

TABLE - 3

YEAR	CASH INFLOWS	P.V. FACTOR @ 13%	P.V. FACTOR OF CASH INFLOW	CASH OUTFLOW	NET PRESENT VALUE
2025	19009.92	0.884	16804.77	18626.11	1821.341
2024	6046.18	0.783	4734.159	5597.77	863.6111
2023	7328.35	0.693	5078.547	8547.26	3468.713
2022	2527.08	0.6133	1549.858	3225.82	1675.962
2021	12509.19	0.542	6779.981	18446.76	11666.78
TOTAL	47,420.72		34947.31	54443.72	19496.41

Net present value = Total Present Value of Cash Inflow – Initial Investment

$$= 34947.31 - 54443.72$$

$$= -19496.41$$

INTERPRETATION:

The Net Present Value is -19496.41 which is negative. So, project is not acceptable.

PROFITABILITY INDEX

PI = Present value of earnings / Present value of investment

TABLE – 4

YEAR	CASH INFLOWS	P.V. FACTOR @ 13%	P.V. FACTOR OF CASH INFLOW	CASH OUTFLOW	NET PRESENT VALUE
2025	19009.92	0.884	16804.77	18626.11	1821.341
2024	6046.18	0.783	4734.159	5597.77	863.6111
2023	7328.35	0.693	5078.547	8547.26	3468.713
2022	2527.08	0.6133	1549.858	3225.82	1675.962
2021	12509.19	0.542	6779.981	18446.76	11666.78
TOTAL	47,420.72		34947.31	54443.72	19496.41

PI = Present value of earnings / Present value of investment

$$= 34947.31 / 54443.72$$

$$= 0.64189$$

INTERPRETATION:

The profitability index for the project at 13% PV factor is 0.641. PI is less than 1. So, the project is rejected.

INTERNAL RATE OF RETURN

Internal rate of return = LDR + {(P1-Q) / (P1-P2)} *(HDR – LDR)

Where:

LDR stands for low discounted rate

P1 stands for present value at the low discounted rate

P2 stands for present value at the high discounted rate

Q stands for initial investment

HDR stands for high discounted rate

TABLE - 5

YEAR	CASH INFLOWS	P.V. FACTOR @ 13%	P.V. FACTOR OF CASH INFLOW	CASH OUTFLOW
2025	19009.92	0.884	16804.77	18626.11
2024	6046.18	0.783	4734.159	5597.77
2023	7328.35	0.693	5078.547	8547.26
2022	2527.08	0.6133	1549.858	3225.82

TABLE - 6

YEAR	CASH INFLOWS	P.V. FACTOR @ 23%	P.V. FACTOR OF CASH INFLOW	CASH OUTFLOW
2025	19009.92	0.813	15455.06	18626.11
2024	6046.18	0.660	3990.479	5597.77
2023	7328.35	0.537	3935.324	8547.26
2022	2527.08	0.436	1101.807	3225.82
2021	12509.19	0.355	4440.762	18446.76
			28923.44	54443.72

$$\begin{aligned}\text{Internal rate of return} &= \text{LDR} + \{(P1-Q) / (P1-P2)\} * (\text{HDR} - \text{LDR}) \\ &= 13 + \{(34947.31 - 54443.72) / (34947.31 - 28923.44)\} * (23-13) \\ &= -19.36\%\end{aligned}$$

INTERPRETATION:

The IRR is -19.36%. The present value at the PV factor of 13% is 34947.31 and at the PV factor of 23% is 28923.44. since IRR is negative so, project is rejected.

FINDINGS

- The annual cash inflows showed an increasing trend, with the highest cash inflow recorded in 2025.
- The Average Rate of Return (ARR) was highest in 2024 and remained satisfactory during the study period, indicating profitability.
- The Net Present Value (NPV) was positive in some years and negative in others, showing fluctuations in project returns.
- The project generated consistent cash inflows, supporting investment recovery and operational sustainability.

SUGGESTIONS

- The company should focus on improving profitability to enhance future cash inflows.
- Management should adopt effective cost-control measures to increase project returns.
- Regular evaluation of investment projects should be carried out using capital budgeting techniques.
- Efforts should be made to maintain a positive NPV by improving revenue generation and efficient resource utilization.

CONCLUSION

Capital budgeting plays a crucial role in helping organizations allocate financial resources efficiently and select profitable investment opportunities. Techniques such as PBP, ARR, NPV, IRR, and PI provide valuable insights for evaluating projects. Understanding these methods enables managers to make sound investment decisions that contribute to long-term organizational success and shareholder wealth maximization.

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