

# AN ANALYTICAL STUDY ON CAPITAL BUDGETING TECHNIQUES IN MANGALAM CEMENT LIMITED

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## *Abstract*

Every organisation have to invest in long term assets and projects. On which project, capital will be invested, is analysed through capital budgeting techniques. Capital Budgeting Techniques are used in every firm to evaluate capital expenditure and make an appropriate decision. These decisions are very crucial for any firm's survival and growth. These decision affects firm's profitability for long period. Once a decision is taken, it can't be reversed.

This study was set out with aim, how capital budgeting techniques are useful to take capital investing decision in Mangalam Cement Limited. The data are collected from company's annual reports and websites. Data analysis and interpretation was accomplished through capital budgeting techniques which are traditional methods and modern methods. Modern methods are more in trend.

From this study it was found that investment in this project is feasible to execute and company's position is good enough to diversify its capital.

**Keywords:** Capital Budgeting, Pay-back Period, Average Rate of Return, Net Present Value, Internal Rate of Return, investing Decision.

## INTRODUCTION

For sustainable development of any business venture, profit is required. For this, capital of business firm should be invested in profitable projects. Every business firm have to invest their capital in assets which are used in operation of the business. From all the investments, some are of short-term and some are of long term. Mostly short-term investments are in current assets which are recurring and not huge in amount. But long-term investments are in fixed assets like building, plants and machinery are huge in amount and non-recurring. These assets affect efficiency, profitability and operation of business activities so they should be done cautiously.

Capital budgeting is a process to evaluate probable projects or investment in business organisation. These investment are long term investment decision which include construction or purchase of new plant and machinery or big investment projects. They are accepted or rejected on the basis of analysis through capital budgeting techniques. This process involves analysis of cash inflow and outflow of a project. There are two types of capital budgeting techniques:-

1. Non-discounted cash flow techniques or Traditional Methods;
  - Payback Period method
  - Post Payback Profitability Method
  - Average Rate of Return Method
2. Discounted cash flow techniques or modern Methods:
  - Net Present Value Method
  - Profitability Index Method
  - Internal Rate of Return Method

## REVIEW OF LITERATURE

**A D Mamatha & P. Basaiah (2020)** stated that capital investment have long term impact on the firm's expenditure and profit, so investor should evaluate their proposals that they are getting back their investment within the expected period. In this study, proposal was evaluated by capital budgeting techniques and found that Net Present Value is positive, Profitability Index is greater than one and Internal Rate is higher than external value, so project is accepted.

**Chandrasekaran.M, Rebaccal.A & Gayathri.S (2019)** revealed that In India, there is awareness about the significance of capital budgeting techniques in large scale companies. It is found that Payback Period is mostly used technique for appraisal but almost all company

use multiple techniques for evaluation of investment proposals. In evaluating process, cash flow estimation is mostly occurred problem and sensitivity analysis is used to analyse risk and uncertainty. This study focus on the merits of Discounted Cash Flow techniques.

**Manoj Choudhary & Sandhya (2018)** made an attempt to analyse the efficiency of cement sector capital budgeting through their financial statement. They analyse the financial statement of Ultra Tech Cement Company for five years and found that incremental fixed assets and sales are efficiently and effectively correlated, but fixed investment and depreciation have poor relationship. It is also found that to make organisation more profitable, company have to invest regularly in different projects and should evaluate profitability of projects by capital budgeting techniques.

**Patil Yogesh Vasant (2018)** done an evaluation on capital budgeting techniques used in manufacturing firms in Mumbai. The result of study shows that large number of companies use NPV to evaluate the financial performance of manufacturing companies. They also concluded that companies should adopt the right techniques for appraisal of investment because survival and success of the firm depends on this.

**Akki Siva Naga Raju (2016)** revealed in his study that capital budgeting analysis helps financial manager to take decision that they should or not be invested in long term projects of cement companies in Andhra Pradesh and found that present value of cash inflow and cash outflow fluctuate from year to year. Companies invested in power project which are economic and efficient. They also found that risk is analysed for new proposals. Long-term budget and Research & Development budget are not frequently used budgets in companies.

**Patricia A. Ryan and Glenn P. Ryan (2002)** survey of fortune 1000 finance managers and scholars discover that NPV is highly used tool than IRR. Capital budgeting techniques helps in establishing alignment between theory and practice. Firms which want to invest huge capital for long term used discounted techniques i.e. NPV and IRR and WACC is the best model for ascertain the suitable discount rate. Due to increased financial complexity and economical computer technology discounted capital budgeting methods are more desirable techniques than non-discounted capital budgeting methods.

**Vijay M Jog and Ashwini K Srivastava (1995)** survey 133 large Canadian companies for the analysis of capital building process including cost of capital and cash flow estimation. They find that use of discounted cash flow techniques is mostly used techniques in Canadian firms. For investing in any proposal, different standards are used for evaluation. Sensitivity analysis, judgmental and non-standard discount rates are used in estimation of cash flow, risk analysis and cost of capital respectively. These criteria shows the strategic nature of capital budgeting process.

## OBJECTIVES OF THE STUDY

1. To evaluate the effect of capital budgeting techniques on investment decision making in Mangalam Cement Limited.
2. To study the suitability of capital budgeting techniques in Mangalam Cement Limited.
3. To evaluate the profitability of Mangalam Cement Limited by using capital budgeting techniques.
4. To calculate the NPV of Mangalam Cement Limited.
5. To make suggestion to company if any for enhance the profitability of company and diversification in investing decision.

## SCOPE OF THE STUDY

This study is covering capital budgeting techniques on Mangalam Cement Limited for the years 2016-17 to 2021-22.

## DATA ANALYSIS & INTERPRETATION

1. **Pay-back Period:** The payback period is also called pay out method. This shows the period in which initial investment is recovered. Pay-back period is calculate by diving initial investment by cash inflow.

Table – 1

(Rs. in lacs)

Year	Profit After Tax	Depreciation	Cash Inflow	Cumulative Cash Inflow
2016-17	3663.47	4031.46	7694.93	7694.93
2017-18	1138.19	4421.11	5559.3	13254.23
2018-19	(973.72)	4612.47	3638.75	16892.98
2019-20	7590.21	4867.50	12457.71	29350.69
2020-21	9346.65	6291.62	15638.27	44988.96
2021-22	7770.55	6229.83	14000.38	58989.34

Initial investment = Rs. 30915.35 lac

Pay-back Period = time before whole recovery + not recovered cost / cash inflow during that year in which whole investment is recovered.

$$= 4 + 1564.66 / 15638.27$$

$$= 4.1 \text{ Years}$$

**Interpretation:**

In the Table -1 cash inflow and cumulative cash inflow are given for years 2016-17 to 2021-22. The initial investment for this project Rs. 30915.35 lac can be recovered within 4.1 years during the year 2020-21. So the project can be accepted.

2. **Accounting Rate of Return:** Accounting rate of return (ARR) is also called accounting method or non-discounted rate of return method. This rate shows the profitability which will be earned from average investment. From all proposals, which have higher rate is accepted.

**Table – 2** (Rs. in lacs)

Year	Profit After Tax	Depreciation	Cash Inflow
2016-17	3663.47	4031.46	7694.93
2017-18	1138.19	4421.11	5559.3
2018-19	(973.72)	4612.47	3638.75
2019-20	7590.21	4867.50	12457.71
2020-21	9346.65	6291.62	15638.27
2021-22	7770.55	6229.83	14000.38

$$\begin{aligned} \text{ARR} &= \text{Average Annual return after Tax} / \text{Average Investment} * 100 \\ &= 4755.89 / 15457.675 * 100 \\ &= 30.76\% \end{aligned}$$

$$\begin{aligned} \text{Average Annual return after Tax} &= \text{Total return after Tax} / \text{no. of years} \\ &= 28535.35 / 6 \end{aligned}$$

$$\begin{aligned} \text{Average Investment} &= \text{Initial Investment} / 2 \\ &= 30915.35 / 2 \\ &= 15457.675 \end{aligned}$$

**Interpretation:**

The above analysis shows that Accounting Rate of Return is 30.76%. Project is acceptable because ARR is higher than rate in cement industry.

3. **Net Present Value (NPV):** This is also called excess present value. Net present value is a discounted technique of Capital budgeting to analyse the present value of a proposal or initial investment. It is calculated by taking the gap between the present value of earnings and present value of investment over a period of time.

**Table – 3** (Rs. in lacs)

Year	Cash Inflow	PV Factor @10%	Net Present Value
2016-17	7694.93	0.909	6994.69
2017-18	5559.3	0.826	4591.98
2018-19	3638.75	0.751	2732.70
2019-20	12457.71	0.683	8508.62
2020-21	15638.27	0.621	9711.37
2021-22	14000.38	0.564	7903.21
		TOTAL	40442.57

$$\begin{aligned} \text{Net Present Value} &= \text{Present Value of Earnings} - \text{Present Value of Investment} \\ &= 40442.57 - 30915.35 \\ &= 9527.22 \end{aligned}$$

**Interpretation:**

The Net Present Value of this project at the 10% PV factor is 9527.22 which is positive. So the project is acceptable.

4. **Profitability Index (PI):** The profitability index (PI) is also called present value index or profit cost ratio. This is a relative measure. It shows the connection between the costs and return of a proposal. It is calculated by taking the ratio between present value of cash inflow or earning and the initial investment of the project.

**Table – 4**

(Rs. in lacs)

Year	Cash Inflow	PV Factor @10%	Net Present Value
2016-17	7694.93	0.909	6994.69
2017-18	5559.3	0.826	4591.98
2018-19	3638.75	0.751	2732.70
2019-20	12457.71	0.683	8508.62
2020-21	15638.27	0.621	9711.37
2021-22	14000.38	0.564	7903.21
		TOTAL	40442.57

$$\begin{aligned} \text{Profitability Index (PI)} &= \text{Present Value of Earning} / \text{Present Value of Investment} \\ &= 40442.57 / 30915.35 \\ &= 1.31 \end{aligned}$$

**Interpretation:**

The profitability index for this project at 10% PV factor is 1.31 higher than 1 so project is acceptable.

**5. Internal rate of Return:** The internal rate of return is also called Discounted Cash Flow Rate. This is a technique used in analysis of proposal to determine the profitability of probable investments in firm. IRR is a rate which equates the present value of cash inflow and present value of cash outflow. If this rate is higher than external rate, proposal can be accepted.

**Table – 5**

(Rs. in lacs)

Year	Cash Inflow	PV Factor @10%	Net Present Value
2016-17	7694.93	0.909	6994.69
2017-18	5559.3	0.826	4591.98
2018-19	3638.75	0.751	2732.70
2019-20	12457.71	0.683	8508.62
2020-21	15638.27	0.621	9711.37
2021-22	14000.38	0.564	7903.21
		TOTAL	40442.57

**Table – 6**

(Rs. in lacs)

Year	Cash Inflow	PV Factor @ 20%	Net Present Value
2016-17	7694.93	0.833	6409.88
2017-18	5559.3	0.694	3858.15
2018-19	3638.75	0.579	2106.84
2019-20	12457.71	0.482	6004.62
2020-21	15638.27	0.402	6286.58
2021-22	14000.38	0.334	4676.12
		TOTAL	29342.19

$$\begin{aligned} \text{Internal Rate of Return} &= \text{LDR} + \{(P_1 - Q) / (P_1 - P_2)\} * (\text{HDR} - \text{LDR}) \\ &= 10 + \{(40442.57 - 30915.35) / (40442.57 - 29342.19)\} * (20 - 10) \\ &= 18.58\% \end{aligned}$$

Where:

LDR stands for Low Discounted Rate

P<sub>1</sub> stands for Present Value at the Low Discounted Rate

P<sub>2</sub> stands for Present Value at the High Discounted Rate

Q stands for Initial Investment

HDR stands for High Discounted Rate

### Interpretation:

The Present Value at the PV factor of 10% is 40442.57 and at the PV factor of 20% is 29342.19 which equates at 18.58%. IRR is greater than external rate for this project so project is acceptable.

### FINDINGS

1. The cash outflow or investment for this project is Rs. 30915.35 lacs which payback within 4.1 years. The investor receive the return as it was analyse that further cash inflow will be increase.
2. ARR of this project is 30.76% so project is feasible to execute.
3. The NPV of cash inflow is higher than cash outflow the value of NPV is 9527.22 so project is acceptable.
4. Profitability index or NPV is 1.31 which is higher than one it shows the investment in this project is satisfactory which increase form value.
5. IRR is 18.58% which is higher than external values of this this project will increase the value of firm.

### SUGGESTIONS

1. It is suggested to manager of Mangalam Cement Limited that they should invest in different projects so they minimise their risk.
2. It is also suggested that before investing in any project, it will be analyse about risk and uncertainty of projects along with profitability.
3. It is also suggested that while estimating profitability company should analyse about weighted average cost of capital (WACC) because it is main factor which affect profitability of project.

### CONCLUSION

Capital budgeting is a technique which is used for long term investing decision making. It affects the company's profitability directly. If these decisions are proved wrong then it will affect company for a very long period.

From the study it is concluded that investor should invest in this project because they are getting back their investment amount within expected time period. It is also concluded that project is feasible to execute because it has enough ARR, NPV is positive, NPV is greater than 1 and IRR is higher than external value. It is also suggested to company that they should evaluate the different projects.

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