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A STUDY ON CAPITAL BUDGETING PROCESS AND TECHNIQUES

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ABSTRACT

Capital budgeting is an important element in Investment Decision most of the organizations before going to investment of their funds on long term assets has to know is it profitable or not after that they have to take the decision to invest or not. Here Capital budgeting can be useful to Investors to take Investment decision, it provides valuable information to the investors threw investment appraisal, is the planning process used to determine whether an organization's long term investments such as new machinery, replacement machinery, new plants, new products, and research development projects are worth the funding of cash through the firm's capitalization structure

Capital budgeting is the process of analyzing and ranking proposed projects to determine which ones are deserving of an investment. The result is intended to be a high return on invested funds. Any capital investment involves an initial cash outflow to pay for it, followed by a mix of cash inflows in the form of revenue, or a decline in existing cash flows that are caused by expense reductions. We can lay out this information in a spreadsheet to show all expected cash flows over the useful life of an investment, and then apply a discount rate that reduces the cash flows to what they would be worth at the present date. This calculation is known as net present value. Net present value is the traditional approach to evaluating capital proposals, since it is based on a single factor – cash flows – that can be used to judge any proposal arriving from anywhere in a company.

Key words- Introduction-Need of Capital Budgeting- Features of Investment Decisions-Process of Capital Budgeting- Project Generation- Evaluation of Project- Selection of the Project- Execution of the Project- Project Review- Techniques of Capital Budgeting-Traditional Techniques- Pay Back Period- Accounting Rate of Return-Modern Methods Net Present Value-Profitability Index-Internal Rate of Return- Conclusion

OBJECTIVES OF THE STUDY

1. To understand the Meaning of Capital Budgeting.
2. To understand the Process of Capital Budgeting.
3. To understand the Techniques of Capital Budgeting

INTRODUCTION

Capital budgeting is a Long term Investment decision-making process for investing in long-term assets such as land, buildings and Machinery. An efficient allocation of Capital is the important finance function in the modern times. A Capital budgeting decision may be defined as the firm's decision to invest its current funds most efficiently in the long term asset in anticipation of an expected flow of benefits over a Series of years. The firm's investment decision generally involved or includes expansion, acquisition, modernization and Research activities. The process evaluates the strategic viability of fixed-asset investments in terms of costs and benefits to be achieved. It includes discounted cash flow and non-discounted cash flow methods. Discounted cash flow is the value of future expected cash receipts and expenditures on a common date. It uses net present value, internal rate of return and the profitability index. Non-discounted cash flow does not consider future changes in the value of money. It uses payback period and average rate of return.

NEED OF CAPITAL BUDGETING

1. As large sum of money is involved which influences the profitability of the firm making capital budgeting an important task.
2. Long term investment once made can not be reversed without significance loss of invested capital. The investment becomes sunk, and mistakes, rather than being readily rectified, must often be borne until the firm can be withdrawn through depreciation charges or liquidation. It influences the whole conduct of the business for the years to come.
3. Investment decision are the base on which the profit will be earned and probably measured through the return on the capital. A proper mix of capital investment is quite important to ensure adequate rate of return on investment, calling for the need of capital budgeting.
4. The implication of long term investment decisions are more extensive than those of short run decisions because of time factor involved, capital budgeting decisions are subject to the higher degree of risk and uncertainty than short run decision.

FEATURES OF INVESTMENT DECISIONS

1. The Exchange of Current Funds for future benefits
2. The funds are invested in long term assets
3. The Future benefit will occur to the firm over a series of years.

PROCESS OF CAPITAL BUDGETING

In Capital budgeting process involves more steps such as given below

1. PROJECT GENERATION

It is a one of the Phase of Capital budgeting process it refers to identify the new project or a new idea that is Expansion, and Introduce of new Product, Replacement of Equipment and Modernization of business, Research and Development and Diversification.

2. EVALUATION OF PROJECT

This phase of Process of Capital budgeting, it involves the determination of proposal and its investments, inflows and outflows. Investment appraisal techniques, such as pay back method and accounting rate of return to the more sophisticated discounted cash flow

techniques, are used to appraise the proposals. The technique selected should be the one that enables the manager to make the best decision in the light of prevailing circumstances.

3. SELECTION OF THE PROJECT

This is another phase of Capital Budgeting process in this phase to select one alternative among the alternatives based on the performance of project. If two or more Projects are there to evaluate all those and give ranks to all give priority to first rank.

4. EXECUTION OF THE PROJECT

It is another phase of capital budgeting process in this phase the top management or the project execution committee is responsible for effective utilization of funds allocated for project, which is selected in above phase.

5. PROJECT REVIEW

It is another phase of capital budgeting process in this phase the project performance should be done periodically, in which phase the actual performance is compared with the Pre-determined performance. If the project actual performance is not reach the expected to find out the reasons and take the corrective and necessary action.

In brief, capital budgeting processes include:

A. Estimation of initial investment
B. Estimation of cash inflows
C. Evaluation of projects
D. Selection of projects

TECHNIQUES OF CAPITAL BUDGETING

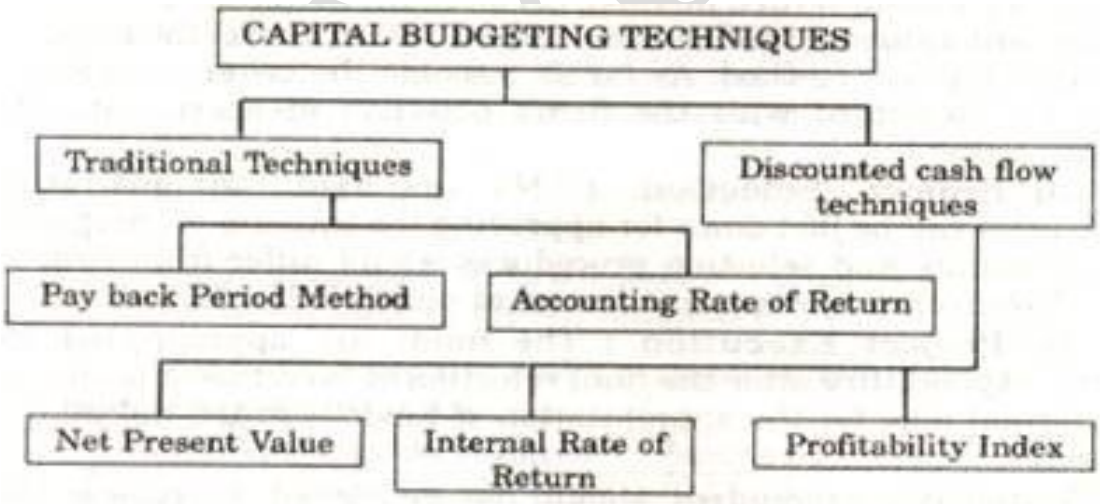

Fig. 24.1.

I. TRADITIONAL TECHNIQUES

It is a older techniques, The time value of money is not taken into account it is also called Non-discounted techniques, it can be classified into two types such as

1.Pay Back Period
2.Accounting Rate of Return

1. PAY BACK PERIOD

It is One of the Capital Budgeting Technique it comes under the Traditional method it refers to the how much amount of time require to recovery of initial investment From Selected Project. Shorter payback periods are preferable to longer payback periods. The Following formula can be useful to know the payback period.

$$\text{Payback Period: } \frac{\text{Initial Investment}}{\text{Average Cash inflow}}$$

Decision Criteria:

- If Actual payback Period is Greater than Standard Payback Period, that Project should be accepted otherwise the Project should be rejected.
- If two or more Project are available accept one Project Whichever having Lowest Payback Period.
- **Example:**

A Company Wants to Introduce a Technology, life period of these Technology 5Years, estimated cash outflow Rs.2, 00,000.Estimated cash inflows after tax as given belo

Years	Cash inflows
1	40,000
2	50,000
3	60,000
4	50,000
5	50,000

Solution:

Firstly we need to find out cumulative cash inflow

Years	Cash inflows	Cumulative Cash inflows
1	40,000	40,000
2	50,000	90,000
3	60,000	1,50,000
4	50,000	2,00,000
5	50,000	2,50,000

We need to find out Average cash inflows = 40,000+50,000+60,000+50,000+50,000 / 5 = 50,000

$$\text{Payback Period: } \frac{2,00,000}{50,000} = 4 \text{ years.}$$

Interpretation:

According to above Problem Payback period is 4years, If Actual Payback Period is greater than Standard pay back period, the Project Should be accepted. Otherwise the project should be rejected

2. ACCOUNTING RATE OF RETURN

Accounting Rate of Return is one of the Traditional methods. The Accounting rate of return (ARR) method uses accounting information, as revealed by financial statements, to measure

the profit abilities of the investment proposals. The accounting rate of return is measure the relationship between average returns and average investment. The following formula can be useful to know the Accounting rate of return.

ARR= Average income/Average Investment

Solution:

Here also we taken above example
Average Cash inflow: 40,000+50,000+60,000+50,000+50,000 / 5 = 50,000
Average Investment: 2, 00,000 /2 =1, 00,000

ARR = 50,000 / 1, 00, 000 = 0.50 or 50%

Interpretation:

- If Actual Project Accounting Rate of return is higher than Standards, that Project should be accepted otherwise that Project should be Rejected
- If two or more Project are there which project are having highest Accounting rate of return that should be rejected.

II.MODERN METHODS

It is also another type of Capital budgeting techniques; it is also called discounted technique, these are classified into three types such as given below

1. Net Present Value
2. Profitability Index
3. Internal Rate of Return

1. Net Present Value:

It is a one of the discounted cash flow technique, and modern technique, here we need to find out present value of future cash inflow with the help of cost of capital, later these cash inflow must compare with present cash out flow. In other hand the difference between present value of cash inflow and Present value of cash outflow. The Following formula can be useful to know the net present value.

$$\mathbf{NPV} = \left[\frac{A\,1}{(1+K)2} + \frac{A\,2}{(1+K)2} + \frac{A\,3}{(1+K)2} + \frac{A\,4}{(1+K)2} + \ldots\ldots\ldots \frac{A\,n}{(1+K)2}\right] - C$$

Here, A1, A2, A3, A4 ……..An, are Estimated Cash inflow

C = Initial Investment or Cash outflow

Decision criteria:

- If NPV is Positive project should be accepted, Otherwise Project should be rejected
- If two or more projects are there which one having highest NPV that project should be accepted

Here also we took above problem but Cost of capital 10%.

$$\mathbf{NPV} = \left[\frac{40{,}000}{0.909} + \frac{50{,}000}{(0.826} + \frac{60{,}000}{0.751} + \frac{50{,}000}{0.683} + \frac{50{,}000}{0.621}\right] - 2,\ 00,\ 000$$

$$= -12{,}080$$

Interpretation:

In above Problem the project should be rejected because of NPV is negative, it means the present value of cash inflow is less than Cash outflow

2. Profitability Index

It is also one of the discounted cash flow techniques It is the ratio of the present value of future cash flows at the required rate of return to the initial cash outflow of the investment.. The formula to calculate profitability index (PI) ratio is as follows.

PI = PV of cash inflows/Initial cash outflow

Decision criteria:

- If profitability index is one or more than one the project should be accepted, otherwise the project should be rejected
- If two or more projects are there which one having highest PI that project should be accepted

Example:

We took above example here also

PI =1, 87,920 /2, 00,000 =0.9396

Interpretation:

According to this model the project should be rejected due to profitability index is below one

3. Internal Rate of Return:

It is also another widely accepted technique. It refers to which discounting rate equates the present value cash inflows with the present value of cash outflows of an investment. It is called internal rate of return because it depends solely on the outlay and proceeds associated with the project and not any rate determined outside the investment, it can be determined by solving the following equation

$$\mathbf{IRR = LDR + \left[\frac{PVLDF - COF}{PVLDF - PVHDF} \right] \times D}$$

Where as

LDR = Lowest discounted rate
PVLDF =PV of Cash flow at lowest discounted rate
COF = Cash out flow
PVHDF=PV of Cash flow at Highest discounted rate
D = Difference between Lowest Discounted rate and highest discounted rate

Decision Criteria:

- If IRR is Greater than cost of capital the project should be accepted, otherwise the project should be rejected
- If two or more projects are there which one having highest IRR that project should be accepted

Example:

We took same example here firstly to know the fake back period, later to find out Internal Rate of Return.

Fake back Period shown Internal Rate of Return Between 7% to 9% . so we need to find out the Present value@ 7% and 9%

Present Value@ 7% =2, 03,810

Present Value@ 9% = 1, 93,000.

$$\text{IRR} = 7 + \left[\frac{2,03,810 - 2,00,000}{2,03,810 - 1,93,000} \right] \times (9-7)$$

$$= 7.70\%$$

Interpretation:

In above Case study IRR is 7.70%, it is a Less than Cost of Capital, so it should be rejected, So finally we understood this project is not profitable better to drop of an idea.

CONCLUSION

Capital Budgeting is a Long Term Investment Decision it can be helpful to the investors to take long-term investment decision. We observed following things in this analysis.

While Preparation of Traditional methods we didn't taken into Consideration of Time value of Money shows that Payback period and Accounting Rate of Return .This is the Limitation of Traditional method. Modern methods overcome the limitation of traditional method with involvement of time value of money above case study shows that:

- The project life period is 5years but Payback period is 4 years so longer payback period involves higher risk
- Accounting rate of return is 50%, it is good.
- Net Present Value of Project is negative, it means Present value of cash inflows are less than present Value of cash outflow so Profitability Index also less than one
- Internal Rate of Returns 7.70%, it is a less than cost of capital

Finally better to drop investment of the funds on this Project. Because of no one technique supported that project.

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