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ANALYSIS OF CAPITAL EXPENDITURE

Capital Expenditures (CE) have profound effect over the long run on the business enterprises.

Depending upon the nature of economic justification supporting them, capital expenditures may be classified into three major types:

1. Expenditures made to Reduce Costs
2. Expenditures made to Increase Revenues
3. Expenditures justified on Non-Economic Grounds.

Many a times, a project will contain expenditure of two or even all three types.

1. Expenditures made to reduce costs would generally include equipment replacement decisions, change of technology (from labour-intensive to capital-intensive) decisions, process-change decisions, etc. As a result of these decisions, revenue is not materially affected but the cost of the product is attempted to be reduced.
2. Expenditures made to increase revenue would be expenditure for new plant, create/increase capacity, expenditure to stimulate demand either through product improvement or advertising, etc.
3. Expenditure justified on non-economic grounds are either too obvious to be justified or have intangible benefits. For instance, replacement of the main pipeline of an oil-station hardly needs any justification. Similarly, staff housing would not require any justification.

ANALYTICAL FRAMEWORK

1. Generate Alternatives: The first and foremost step towards planning any CE is to generate excellent alternatives/investment ideas. If poor alternatives are generated, only a poor one will be implemented.

2. Determine Cash Flows: Systematic attempts should be made to anticipate:
   a. The total cost of The Project (Outflows)
   b. The returns from The Project (Inflows)
   c. The timings of these Inflows and Outflows.

Predicting these inflows and the outflows along with their timings is quite difficult if reliability is to be ensured. Various assumptions will have to be made.

Some of the Critical Factors to be kept in mind are as follows:

a. We define the project properly. Unless a project is thought through a reliable estimate of project cost cannot be made.

b. Immediately thereafter an exercise will have to be done to estimate the time frame within which the project can be completed. *PERT* and *CPM* methods of project planning becomes extremely helpful here to minimize/optimize the time frame for the project preparation.

c. Careful estimate of costs along with the timing of incurring these costs will then have to be made. One has to realize that the project cost is not only made up of machineries and buildings but there are lot of related expenditures that have to be incurred through out the project implementations period.

d. Having arrived at a reasonable estimate of project cost as above, the exercise of working out the means of financing the project will have to be taken up. The alternatives are: share capital, borrowings and retained earnings. We will be talking about the different modes of financing in later chapters. Important aspect here is to make sure that enough funds at acceptable terms, at desired time are available before starting the implementation of the project. This is called '*Financial Closure*'. Many times promoters embark upon implementation without securing financial closures. The projects cannot be then completed on time, cost escalations have to be borne and financial arrangements have to be made subsequently which may prove to be very costly.

e. One important aspect before implementation, is to Evaluate, in detail, the cost benefit analysis of the project popularly known as '*Projections*'. Here one tries to find out what will be the profitability once the project is completed and how much cash surplus annually

will be generated. Very detailed exercise will have to be carried out because any major error in these calculations will lead to wrong decisions. Over optimistic projections in order to convince a financier of the project, can only temporarily bring satisfaction. If desired profits are not achieved, losses and short falls will have to be faced, financial commitments may fail and lot of hardships may follow. The assumptions, concerning future profitability, future cost of the project, expected mode of financing, etc. should therefore be realistic and clearly stated.

f. It is a common practice to work out alternative projections. Many sophisticated analysts also prepare various alternative inflows and outflows and attach probability to each stream before arriving at the 'most likely' stream of inflows and outflows.

3. Comparisons: After preparing cash flows, they can be compared. Since each cash flow is unique, it is not a very easy proposition to compare them.

   Firstly in order to compare them, it is extremely important to know the various assumptions under which they are prepared.

   There are various methods which have been developed to aid this comparison.

a. *The Payback Period Method* helps in calculating the number of years in which the project will be able to generate returns equal to the original capital expenditure. If a project is costing Rs. 1,00,000 and it generates surplus of Rs. 20,000 each year, the payback period is 5 years.

b. Since the returns from the project are going to come in future years, it is proper to discount the future inflows of funds at a particular discount factor. This '*Discount Factor*' would generally represent:
   i. The Opportunity Cost of Investing the Funds elsewhere.
   ii. The Diminishing Value of rupee owing to inflation.
   iii. The Risk Factor.

   Having decided on the discount factor to be adopted, an exercise is done to find out in how many years the discounted value of future cash flows equals the project cost. This is called discounted payback period.

   Please note that while working out the future cash flows interest is considered to be a cost.

c. With minor modifications in the above, various methods have been developed, which are collectively called *'Discounted Cash Flow Methods'*. Some of the better known and talked about methods are:

   i. *the Net Present Value (NPV)* of profits method (which is the method discussed above).

   ii. *the Net Terminal Value (NTV)* method. In this method, instead of just discounting future inflows, the terminal values of investment made now and terminal values of profits are found out and compared. In order to find out the terminal value the following steps are taken:
      a. Detailed cash flows are prepared.
      b. The life of the project is estimated. The residual value of investment is abound.
      c. The net inflows/outflows are inflated over the balance number of years, of the project period.
      d. The terminal value of the project cost so arrived at is compared with the terminal values of the future inflows/ outflows. If the future inflows are more than the terminal value of the Project Cost then that project is to that extent profitable.

   iii. *the Internal Rate of Return (IRR)* method. In this method, following steps are taken:
      e. The future cash flows are prepared as detailed earlier.
      f. The interest as well as repayment obligations are considered as part of the outflows.
      g. The net surplus/deficit of the future years is calculated.
      h. A rate of discounting is found out, at which, the net present value of the future inflows equals to the project cost incurred now. A trial and error method with alternate rate of discounting factar is followed in order to arrive at the IRR.

While comparing various investment proposals, one must keep in mind that the mere projected profitability should not be the sole guiding factor.

Risk Analysis and Significance of the *long run advantages*, do play significant and important role.

These calculations involving comparisons of various alternatives aid in taking decisions, but they are not exhaustive and conclusive.

4. Act: The next step is to ensure the timely implementation of the project, and that too within the cost estimates.

   In fact, a well implemented ordinary project is far better than a badly implemented good project.

   The above steps, though appear simplistic, are extremely crucial. The key is thinking ahead...to anticipate the various effects of a decision (favourable or otherwise)... and then to take the suitable and favourable decision. One cannot eliminate the factor of uncertainty but by taking a careful decision, one can certainly reduce the risk.

   And, if there is No Risk…. There are No Returns!!

Points to Ponder

1. Should one consider "inflation" while giving projections?
2. Of the various methods of 'comparing' the alternatives, which one you think is the best? In which cases?
3. Is it is necessary to make realistic projections or is it adequate to make acceptable projections only?

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