

SURMOUNTING THE INVESTMENT UNCERTAINTIES

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ABSTRACT

Uncertainties are the general phenomena in the business or in investing the money. This paper mainly focuses on the importance of capital investment decisions for an enterprise in the era of uncertainties. The future growth, profitability, efficiency and status of an entity within the business community depend upon present and future capital investment decisions. Investment decisions are closely related to affect future balance sheet, profit statements and cash flow statements. This paper attempts to analyze the approaches to take investment decisions under the condition of certainty and uncertainty and suggest the approaches for investment decisions especially in developing countries.

Keywords: *Investment Uncertainties, Capital Investment, Future Growth, Profitability, Investment Decisions.*

Introduction

The capital investment decisions are very important and crucial for the growth, development and profitability of an organization. The most serious problem about capital investment decisions is the absence of a satisfactory framework for incorporating the element of uncertainty in capital budgeting. The ultimate success and failure of an investment decision depends upon the future developments and the treatment of uncertainty. The efficiency, growth, profitability and status of an entity within the business community very much depend on the present and future capital investment decisions. Investment decisions are very much responsible for reflecting the performance of an entity in its balance sheet, profit statements and cash flow statements.

The presence of risk and uncertainty implies a lack of knowledge of future economic conditions to be faced within the firm and by the firm in its business atmosphere. Certainty exists where there is only one outcome for each particular course of action and this outcome is known. Decision under risk takes place when there are a number of alternative outcomes and the decision maker can determine the probability of each set of outcome likely to take place.

A decision to invest Rs 10,000 in a Government security resulting 8% or 10% return is practically a decision made under conditions of certainty. Although one can raise a question as whether our decision should consider price level changes and other possible complications.

Uncertainty is a situation where the outcomes can't be predicted, so there is quite difference between certainty, risk and uncertainty. In certainty the outcome is certain say 99.99%. In case of risk, outcomes can be clearly anticipated say 60% to 90%, while in case of uncertainty the chances of outcome are divided say equally that is 50% in favour and 50% to its against.

For a choice under risk and uncertainty one may face the problem of analyzing a given range of possible investment outlays, a range of volume expected from the project from year to year, a range of selling prices, a range of cost factors, residual values and life spans etc. Many theories have been put forward concerning decision making under risk and uncertainty. The decision under risk can be taken by reducing the alternatives and their probability estimations to what might be called "certainty equivalents". This can be done quite easily by calculating the weight of the average value of each alternative. For example, on an investment, there are 40% chances to earn Rs 60, 50% chance to earn Rs 40 and 10% chances to earn Rs 70, then the weighted average or expected result can be seen as shown in table 1.

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Table 1

Probability of Earnings	Earnings (In Rs)	Weights of the Earnings
40%	60	24.00
50%	40	20.00
10%	70	07.00
	Total	51.00

The weighted average of expected earnings will be 40% of Rs 60 that is Rs 24, plus 50% of Rs 40 that is Rs 20, plus 10% of Rs 70 that is rupees 7, a total Rs 51 using this method, the range of values of all the factors in the decisions can be reduced to single figure (Rs 51 in the above example) or certainty equivalents and the decisions can be taken on the basis of the following established principles.

Simulation technique may also be found useful in resolving this problem. Under this technique a model is constructed of a real situation and then by manipulating the model, conclusions about the various alternative solutions can be drawn by decision maker. The following are the distinct advantage of investment decision based on the above technique:

- With the introduction of probabilities for each input factor used in investment decision, the about technique makes possible the solution of investment problem, which would not be otherwise possible with the help of analytical technique like calculating alternative rate of return, payback period etc, because considering all possible combinations of input data, the analytical calculations based on these analytical techniques will be unfeasible.
- The technique allows its experiment or to study processes in a way that nature prohibits.
- The technique allows and investment model to be developed and tested with historical data and show that the model reflects actual practice.

The following are the approaches to take decision under the conditions of uncertainty. The selection of approach depends upon the decision maker's psychological make-up and judgement.

- **Criterion of Pessimism:** This criterion, as propounded by Savage, is based on the assumption that the decision maker will attempt to select the strategy which will minimise the maximum regret he may experience. This regret is measured in terms of the difference between the return which decision maker actually receives and the return he would have received if he had known what was going to happen in the future.
- **Second criteria,** as suggested by Hurwitz, assumes that the decision maker will consider both the worst and the best return from each possible alternative course of action. This is based on the principal that most decision maker find their outlook somewhere between extreme pessimism and extreme optimism.

The operational application of the above mentioned approaches is rather doubtful. It is quite obvious that personal bias plays an important role in these theories under uncertainty. Some of the other fairly simple approaches to make investment decision under risk and uncertainty are as under

- Overcoming risk and uncertainty by improving input data through improved forecasting techniques.
- Improved system of classification for investment projects to isolate those projects subjects to risk and uncertainty and those relatively free of risk and uncertainty. Additional managerial attention and judgement is apparently applied to the risk and uncertainty group.
- Selecting investment which may have shortest payback period.
- Weighting investment outlays or future cost and benefits through contingency allowances.
- Making not only one but several estimates of outlays costs and benefits representing optimistic, expected, and pessimistic estimations, and testing them with historical data.
- Calculating return on capital at risk as well as return on total capital involved in a project.
- Sensitivity analysis-is a technique aimed at evaluating the effect of changes in input factors on profitability. If project profitability changes at greater rate than the changes in input factors, then the project can be said to be sensitive to these changes and the input factors are significant for the decision maker. The analysis has certain advantages for a decision under risk and uncertainty:

- Sensitivity analysis highlights factors worthy of special investigations by management. If a project can be shown to be sensitive to prices or volume, management may attempt to control risk and uncertainty.
- The analysis may isolate factors which warrant particular control after projects have been accepted and implemented by management.
- The analysis may be varied to illustrate the effect of simultaneous changes in two input factors. For example, it may be of interest to management to know whether increases in volume can off-set decrease in selling price vice versa.
- Break-even analysis may be used to supplement sensitivity analysis. For example, given a minimum rate of return standard, it is possible to calculate the annual volume of the output, the minimum selling price or the maximum cost which results in the project remaining acceptable.
- Sensitivity analysis may be combined with simulation (as discussed earlier) to arrive at a more reliable conclusion.

In developing countries it has been noticed that companies rely heavily on management skills in accepting responsibility for identifying the presence of risk and uncertainty and subjectivity making some allowances for its presence in decision making. Other than the above mentioned common "management reliance" the below mentioned approaches are suggested for investment decision in developing countries like India. Sensitivity analysis may be used to identify the significance of individual factors project profitability. Three estimates of each input factors may be taken, one representing a pessimistic estimate, one an optimistic estimate, and a figure between these extremes could be regarded as an assessment of the expected values.

- Sensitivity analysis may be used to identify the significance of individual factors for projecting profitability. Three estimates of each input factors may be taken, one representing a pessimistic estimate, other an optimistic estimate, and a figure between these extremes could be regarded as an assessment of the expected values.
- Contingency allowance - an additional sum should be added to the expected initial outlay to cover unpredictable costs and thus reducing project profitability by contingency factors. The size of contingency allowance will depend on management assessment of risk.
- While accepting projects of long life span, a project which provides higher rate of return initial years should be accepted considering that the rate of return will not considerably fluctuate in long term.
- Future benefits should be penalized by adopting relatively low selling prices figures for decision making. One may take an average of the prices received over the past periods, knowing that future price will be higher than these so as to associate with the price index.
- Profit graphs and break-even charts may be used to illustrate the rate of return required to break even assuming alternative values for input factors.
- Risk and uncertainty may be avoided by introducing products and processing methods which have already been tested by the industry within or beyond the country.
- Production and supply risk may be eliminated by reducing dependence upon outside suppliers for key raw materials, parts or even know how.
- The use of market surveys to test the consumer response to a product before it is launched reduces risk and uncertainty. New products may be initially imported from overseas, if they are available and can be tested in the market before large initial capital investment are committed to the production.
- Projects should be classified according to risk and certainty and high acceptance standard should be established for risk project to eliminate these which are marginal.
- Single purpose project with high element of risk and uncertainty should be avoided. Multi-purpose projects may be accepted even though risk and uncertainty is present.
- A contingency allowance for factors like availability of power, behaviour of labour, development of infrastructure, government's policy and importance of product in consumer's life should also be given due importance.

Conclusion

In developing countries, the emphasis of management seems to be on risk avoidance rather than risk analysis with the result that many projects which can yield good rate of return may be forgone. For the nation this state of affairs is very costly and should be replaced wherever possible by proper risk analysis. The collection of financial and non-financial data for the analysis of capital investment under risk and uncertainty falls within the scope of accounting discipline.

References

1. What your Business Can Do to Surmount Periods of Uncertainty by Paul McCormac.
2. Overcoming the Uncertainties of Clean Technology by David Frans, Jan Rabe, Yvonne and Daria Koroleva. November 3, 2022.
3. Operations Research by S Kalavathy.
4. Risk Analysis of Complex and Uncertain Systems by Louis Anthony Cox Jr.
5. Operations Research by Kanti Swarup, P.K. Gupta and Man Mohan, Pub Sultan Chand & Sons. New Delhi
6. Operations Research by N P Agarwal, Pub. RBD Jaipur.
7. Research Methodology by C R Kothari Gaurav Garg, Pub. New Age International (P) Limited, New Delhi.

