Prof. (Dr.) Nagendra Kumar Jha
Professor
Dept. of Applied Eco. and Commerce
Patna University, Patna

Class: M. Com Semester II

Subject: Financial Management

Topic: Evaluation of Investment proposal under present value method or time adjusted method or discounted method

The traditional methods of capital budgeting that is Pay Back Period method as well as Accounting Rate of Return method suffer from the serious limitations that give equal weight to present and future flow of incomes.

These methods do not take into consideration the time value of money, the fact that a Rupee earned today has more value than a Rupee earned after 5 years. The time adjusted or discounted cash flow method takes into account the profitability and also the time value of money. These methods are called modern methods of capital budgeting and are becoming popular day by day.

Following are the discounted cash flow methods:

(1) Net Present Value method: The net present value method is the modern method of evaluating investment proposals. This method takes into consideration the time value of money and attempts to calculate the return on investments by introducing the factor of time element. It recognizes the fact that rupee earned today is worth more than the same rupee earned tomorrow. The net present value of all inflows and outflows of cash occurring during the entire life of the project is determined separately for each year by discounting these flows by the firm's cost of capital or a predetermined rate. The following are the necessary steps to be followed for adopting the net present value method of evaluating investment proposals:

(1) First of all determine an appropriate rate of interest that should be selected as the minimum required rate of return called cut off rate or discount rate. The rate should be a minimum rate of return below which the investor considers that it does not pay him to invest. The discount rate should be either the the actual rate of interest in the market on long term loans or it should reflect the opportunity cost of capital of the investor.

(2) Compute the present value of total investment outlay that is cash outflows at the determined discount rate .If the total investment is to be made in the initial year, the present value shall be the same as the cost of investment.

(3) Compute the present value of cash inflows of each year at the determined discount rate.

(4) Calculate the net present value of each project and thereafter compare the present value of investment with the aggregate of the present value of cash inflows as known as Gross Present Value (GPV).

(5) We deduct the cost of investment from GPV and the difference is known as Net present value. If the net present value is positive the proposal may be accepted but if NPV is negative the proposal should be rejected. If NPV is zero the proposal may be accepted or rejected by analyzing the existing situation.

(6) To select between mutually exclusive projects, the projects should be ranked in order of NPV and first preference should be given to the project having the maximum NPV.

The present value of Rupee 1 due in any number of years can be found with use of the following mathematical formula:

$PV = 1 \div (1+r)\ n$

Whereas,

PV= Present Value

r=rate of interest/discount rate

n=number of years

It can also be calculated in the following manner:

PVF in the first year= 100÷100+rate

PVF in the subsequent year =PVF of PY×100÷100+rate

Advantages:

(1) It recognizes the time value of money and is suitable to be applied in the situation with uniform cash outflows and uneven cash inflows for cash inflows at different periods of time.

(2)It takes into account the earnings over the entire life of the project and the true profitability of the investment proposal can be evaluated. It takes into consideration the objective of the maximum profitability.

Disadvantages:

(1) In comparison to the traditional methods, the NPV method is more difficult to understand and operate.

(2)This method may fail to give satisfactory answer when projects under consideration are involving different amounts of investment and with different economic life periods.

(3) It is not easy to determine and appropriate discount rate.

(IL) Profitability Index:

It is also a time adjusted method of evaluating the investment proposals. It is calculated by comparing GPV with the cost of investment in terms of index.

Profitability index =PV of Cash inflows ÷ PV of cash outflows

While taking decision regarding accepting or rejecting the investment proposal under this method, it is seen that if profitability index is more than one under this situation the proposal is accepted but if it is less than 1 then the proposal is rejected. The various projects for ranked under this method in order of their profitability index in such a manner that one with higher profitability index are ranked higher than the other with the lower profitability index.

So far the advantages and disadvantages of this method are concerned, we find that it is more or less based on NPV method, hence, it has same merits and demerits as we find under NPV method but one thing we find that under NPVmethod ranking the proposal seems to be very difficult particularly when the cost of the projects differ significantly. To evaluate such projects, the Profitability Index method is most suitable and from that point of view we can say that it is the slight modification of the Net Present Value method.

(Ill) Benefit Cost Ratio method:

This method is also based on Net Present Value and profitability index method .Under this method GPV is compared with the cost of investment in terms of percentage. If the Benefit Cost Ratio is more than hundred percent, the project is said to be selected otherwise rejected. All components for the calculation of Benefit Cost Ratio are the same as found in the case of Present Value Method. It is calculated by comparing GPV with cost of investment.

B/C ratio=GPV×100 ÷ Cost of investment

If the Benefit Cost Ratio is exactly hundred percent under this situation the proposal may be accepted or rejected depending on the situation as existing there. So far the merits and demerits of this method are concerned, these are the same as we find under profitability index method.