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**Subject: Financial Management**

**Topic: Evaluation of Investment Proposal under Internal Rate of Return Method**

The Internal Rate of Return is also a modern technique of capital budgeting that takes into account the time value of money. It is also known as Time Adjusted Rate of Return or Discounted Cash flow, Discounted Rate of Return Yield method and Trial and Errors Yield method. In the Net Present Value method net present value is determined by discounting the future cash flows of a project at a predetermined or a specified rate called the cutoff rate. But under the Internal Rate of Return method the cash flows of a project are discounted at a suitable rate by hit and trial method, which equates the net present value so calculated to the amount of investment. This rate of return will be a rate of discount at which the net present value of the project is exactly equal to zero. In other words, it is the rate at which present value of annual savings just equal to cost of investment. Under this method, since the discount rate is determined internally, hence this method is called Internal Rate of Return method. Thus, we can say that Internal Rate of Return is the rate of discount at which the present value of cash inflows is equal to the present value of the cash outflows. While using this method, the decision to accept the proposal will be taken when IRR is greater than or equal to the cutoff rate (generally cost of capital) and to reject it if the rate is less than cutoff rate.

Components:

so far the components through which IRR is calculated are concerned they are the same as found under NPV method.

Determination of IRR

It is calculated under two different situations:

(A) when the annual net cash flows are equal over the life of the Asset under this situation IRR is calculated in the following manner:

i) first of all we find out net present value factor by dividing initial outlay (cost of investment) by annual cash inflows, that is,

Present Value Factor =  $\text{initial outlay} \div \text{annual cash inflows}$

(ii) Thereafter we consult present value annuity table as given, by keeping in view the number of years equal to the life of the Asset and find out the rate at which the calculated present value factor is equal to the present value given in the table.

(B) when the annual cash inflows are unequal over the life of the Asset :

In such a situation the Internal Rate of Return is calculated by Trial and Error method, this is why ,it is also known as Trial and Error method .The following steps are followed in calculating this rate

(i)First of all we assume any discount rate and on the basis of that we find out the total present value of cash inflows and compare it with the initial cost of investment to know the NPV.

(ii) if the NPV is positive ,we should apply higher rate of discount.

(iii)If the higher rate of discount

rate still gives a positive NPV, increase the discount rate further until the NPVbecomes negative .

(iv)If the NPV isnegative at this higher rate, the IRR must be in between these two rates.

Thus, we find that in the case of uneven cash inflows, IRRis calculated after getting the positive and negative NPV. After getting these two values, we apply the following formula in order to find out the exact IRR:

$$IRR=LDR+\frac{\text{positive NPV} \times \text{Difference in rates(HDR-LDR)}}{\text{Difference in values(positive NPV-Negative NPV)}}$$

÷Difference in values(positive NPV-Negative NPV)

Advantages:

The IRRmethod has the following advantages:

(i)Like NPV method it also takes into account the time value of money and can be usefully applied in situation with even as well as an uneven cash flows at different period of time.

(ii)It considers the profitability of the project for its entire economic life and hence enables evaluation of true profitability. (iii)The determination of cost of capital is not prerequisite for the use of this method and hence it is better than NPV where cost of capital cannot be determined easily. (iv)It provides for uniform ranking of various proposals due to the percentage rate of return.

(v)This method is also compatible with the objective of maximum profitability and is considered to be a more reliable technique of capital budgeting.

Disadvantages :

In spite of so many advantages it suffers from the following drawbacks also:

(i)It is difficult to understand and is the most difficult method of evaluation of investment proposals.

(ii) This method is based upon the assumption that the earnings are reinvested at the internal rate of return for remaining life of the project which is not justified assumption particularly when the average rate of return earned by the firm is not close to the internal rate of return .In this case, the

Net Present Value method seems to be better as it assumes that earnings are reinvested at the rate of firm's cost of capital .

(iii)The result of NPV method and IRR method may differ when the projects and evaluation differ in their size ,life and timings of cash flows.