

SES'S L.S.RAHEJA COLLEGE OF ARTS AND COMMERCE

Course: Business Economics II

Unit: IV

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Important Concepts**1) Capital Budgeting**

Capital budgeting or investment appraisal is an official procedure used by firm for assessing and evaluating possible expenses or investments. It is a process of planning of expenditure which involves current expenditure on fixed/durable assets in return for estimated flow of benefits in the long run. Capital budgeting is the process of planning used to determine whether firms long term investments such as heavy machinery, new plant, research and development projects are worth the funding or not.

Charles T. Horngreen defines Capital budgeting as a long term planning for making and financing proposed capital outlays.

Peterson defines capital budgeting as the process of planning capital projects, raising funds and efficiently allocating resources to capital projects.

2) Payback Period Method

It is one of the simplest method of investment appraisal. It helps to calculate period within which initial investment or entire cost of project would be completely recovered. It is also known as pay-off or pay out method. It gives total number of years in which the total investment in particular capital project pays back itself. As per this method there will be no profit till the payback period is over.

Selection criteria: According to payback period criteria, project with lowest payback period should be selected.

Following methods are used to calculate Payback period.

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Net annual Cash inflows}}$$

3) Net Present Value (NPV) Method:

Investment in project generates series of income (cash inflows) over a number of years. It is also known as discounted cash flow technique. NPV method considers the time value of money. To find out whether investment is worthwhile or not, the present value of this series of income (cash inflows) is calculated at a given rate of discount. This gives us Gross Present Value (GPV). If we deduct initial cost (investment) of project from GPV we get Net Present Value i.e. NPV. Investment should be made if present value of the expected future cash inflows from project is larger than the cost of the investment. In simple terms if $\text{NPV} > 0$ then accept the project and if $\text{NPV} < 0$, then reject the project. In case of more than one project, project with higher NPV should be preferred by the firm.

$$\text{NPV} = \text{GPV} - \text{Initial Cost.}$$

If $R_1, R_2, R_3, \dots, R_n$ are yields of assets after first, second, third,nth year and r is the rate of discount then,

$$\text{NPV} = \frac{R_1}{(1+r)} + \frac{R_2}{(1+r)^2} + \frac{R_3}{(1+r)^3} + \dots + \frac{R_n}{(1+r)^n} - \text{Initial Cost}$$

4) Internal rate of return method

Internal rate of return method like NPV also considers time value of money by discounting annual cash inflows. This method is also known as time adjusted rate of return method. In this method we find out that rate of return which will equate the present value of future cash inflows to the present cost of the project. It is generally the rate of return that project earns. It is the discount rate (r) which equates aggregate present value of the net cash inflows with aggregate present value of cash outflows of a project. In simple terms it is the rate which makes NPV of a project equals to zero. In case of multiple projects, project with higher IRR should be selected. Following formula is used for calculating IRR.

$$I = \frac{R}{1+r}$$

Where, I = Initial Investment, R = Cash flows, r = Rate of return

Important Questions

- 1) Discuss meaning and importance of capital budgeting.
- 2) What are the objectives of capital budgeting?
- 3) Elucidate features of capital budgeting.
- 4) Explain advantages and disadvantages of capital budgeting.
- 5) What are the steps involved in capital budgeting?
- 6) Discuss in detail payback period method of investment appraisal.
- 7) What are the merits and demerits of payback period method?
- 8) Discuss in detail net present value method of investment appraisal.
- 9) What are the merits and demerits of net present value method?
- 10) Discuss in detail internal rate of return method of investment appraisal.
- 11) What are the merits and demerits of internal rate of return method?
- 12) Calculate Payback period for the following data and find most suitable project.

Projects	Initial Investment (In Rupees)	Net annual Cash Inflows
A	10000	5000
B	10000	4000
C	10000	2000
D	10000	3000

- 13) Suppose an initial investment in a project is Rs. 5000 and following are the annual cash flows. Calculate payback period.

Year	Annual Cash flows
First	1000
Second	1500
Third	2500
Forth	4000
Fifth	6000

- 14) Suppose there are two projects A and B, with an initial investment of Rs. 50000 each. Cash flows of both the projects are given below. Calculate payback period and find most suitable project.

Year	Annual Cash flows For Project A	Annual Cash flows For Project B
First	20000	10000
Second	30000	20000
Third	50000	30000
Forth	70000	50000
Fifth	90000	60000

- 15) Suppose an initial investment in a project is Rs. 30000 and annual cash flows are as follows. Calculate payback period.

Year	Annual Cash flows
First	6000
Second	9000
Third	13000
Forth	18000
Fifth	25000

- 16) If an initial investment is Rs. 50000 in a project. The project generates annual cash inflows of Rs. 15000, Rs. 20000 and Rs. 25000 for 3 years respectively. If rate of discount is 10 % p.a. then calculate NPV and find out whether project should be accepted or rejected.

- 17) If an initial investment is Rs. 22000 in a project. The project generates annual cash inflows of Rs. 7000, Rs. 9000, Rs. 12000 and Rs. 15000 for 4 years respectively. If rate of discount is 12 % p.a. then calculate NPV and find out whether project should be accepted or rejected.
- 18) If a sum of Rs. 1000 is invested in a project, it will earn Rs. 1500 at the end of one year. Calculate IRR.
- 19) If a sum of Rs. 3000 is invested in a project, it will earn Rs. 3500 at the end of one year. Calculate IRR.
- 20) If a sum of Rs. 20000 is invested in a project, it will earn Rs. 100000 at the end of one year. Calculate IRR.