

## Assignment – 3 Capital Budgeting

**Example 1:** Compare the following two mutually exclusive projects on the basis of ARR. Cash flows and salvage values are in thousands of dollars. Use the straight line depreciation method.

**Project A:**

Year	0	1	2	3
Cash Outflow	-220			
Cash Inflow		91	130	105
Salvage Value				10

**Project B:**

Year	0	1	2	3
Cash Outflow	-198			
Cash Inflow		87	110	84
Salvage Value				18

Answer:

Project A: 19.1%, Project B: 20% (Using Initial Investment as a denominator)

**Example 2:** The Good Year manufacturing company has the following different alternative investment proposals:

	Proposal A	Proposal B	Proposal C
Expected incremental income per year (a)	50000	75000	90000
Initial investment (b)	250000	300000	500000
Expected accounting rate of return (a)/(b)	20%	25%	18%

Required: Using accounting rate of return method, select the best investment proposal for the company.

**Example 3:** The management of Fine Electronics Company is considering to purchase an equipment to be attached with the main manufacturing machine. The equipment will cost \$6,000 and will increase annual cash inflow by \$2,200. The useful life of the equipment is 6 years. After 6 years it will have no salvage value. The management wants a 20% return on all investments.

**Required:**

1. Compute net present value (NPV) of this investment project.
2. Should the equipment be purchased according to NPV analysis?

Answer: NPV=\$1317

**Example 4:** A project requires an initial investment of \$225,000 and is expected to generate the following net cash inflows:

Year	1	2	3	4
Cash inflow	\$95,000	\$80,000	\$60,000	\$55,000

Compute net present value of the project if the minimum desired rate of return is 12%.

Answer: Net present value \$1,295

**Example 5:** A firm whose cost of capital is 10% is considering two mutually exclusive projects X and Y, the details of which are:

	Year	Project X	Project Y
Cost	0	70000	70000
Cash Inflow	1	10000	50000
	2	20000	40000
	3	30000	20000
	4	45000	10000
	5	60000	10000

Compute the NPV at 10% of both the projects.

Answer: Project X: 46135 Project Y: 36550

**Example 6:** To provide an example of Net Present Value, consider company Shoes ForYou's who is determining whether they should invest in a new project. Shoes for You's will expect to invest \$500,000 for the development of their new product. The company estimates that the first year cash flow will be \$200,000, the second year cash flow will be \$300,000, and the third year cash flow to be \$200,000. The expected return of 10% is used as the discount rate.

Answer: NPV = 80015.02

**Example 7:** Machine A costs Rs. 1, 00,000, payable immediately. Machine B costs Rs. 1, 20,000, half payable immediately and half payable in one year's time. The cash receipts expected are as follows:

Year	A	B
1	20000	-
2	60000	60000
3	40000	60000

4	30000	80000
5	20000	-

-With 7% cost of capital, which machine should be selected?

**Answer:** NPV: A=40780 B=46280

**Example: 8** A company is considering the replacement of its existing machine which is obsolete and unable to meet the rapidly rising demand for its product. The company is faced with two alternatives: (i) to buy Machine A which is similar to the existing machine or (ii) to go in for Machine B which is more expensive and has much greater capacity. The cash flows at the present level of operations under the two alternatives are as follows:

	0	1	2	3	4	5
Machine A	-25	-	5	20	14	14
Machine B	-40	10	14	16	17	15

The company's cost of capital is 10%. The finance manager tries to evaluate the machines by calculating the Net Present Value

At the end of his calculations, however, the finance manager is unable to make up his mind as to which machine to recommend.

You are required to make these calculation and in the light thereof to advise the finance manager about the proposed investment. Note: Present values of Rs. 1 at 10% discount rate are as follow:

Year	0	1	2	3	4	5
PV	1.00	.91	.83	.75	.68	.62

Answer: Machine A=12.35 and Machine B=13.58

**Example 9:** In appraising a \$ 300,000 investment project, a firm uses a discount rate of 5%. The equipment will produce a cash inflow (net of operating costs) of \$ 75,000 per year, over a five year period. At the end of the five years, the firm expects to sell the equipment for \$ 10,000. What is the Net Present Value of the project?

Year	cash flow	Present Value
0	-\$ 300,000	-\$ 300,000
1	+\$ 75,000	+\$ 71,428.57
2	+\$ 75,000	+\$ 68,027.21

3	+\$ 75,000	+\$ 64,787.82
4	+\$ 75,000	+\$ 61,702.69
5	+\$ 85,000	+\$ 66,599.72

Year 0 is the present day (i.e. when the initial capital outlay is spent).

Answer: NPV=32,546.01



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