

Answer on Question #39576 – Economics – Economics of Enterprise

Assignment

The ABC computer corporation is considering an increase in its advertising expenditures from \$10 million to \$15 million for a five year period (i.e in years 1 to 5). The marketing department estimates that the increased advertising will increase profits by \$4 million in years 3 to 7 and by \$3 million in years 8 to 10, after which profits will return to the level they were at prior to the new program. If the firm uses a discount rate of 12 percent, will the proposed advertising program increase shareholder value?

Solution

In [finance](#), the net present value (NPV) or net present worth (NPW) of a [time series](#) of [cash flows](#), both incoming and outgoing, is defined as the sum of the [present values](#) (PVs) of the individual cash flows of the same entity.

$$NPV(i, N) = \sum_{t=0}^N \frac{R_t}{(1+i)^t}$$

where t – number of years, i=0.12 – discount rate, R – cash flow.

Discounted total profit increase = discounted cost increase + discounted profit increase

NPV = sum of discounted total profit increase

Years	Cost increase	Discounted cost increase	Profit increase	Discounted profit increase	Discounted total profit increase
1	-5	-4,464285714			-4,464285714
2	-5	-3,985969388			-3,985969388
3	-5	-3,558901239	4	2,847120991	-0,711780248
4	-5	-3,177590392	4	2,542072314	-0,635518078
5	-5	-2,837134279	4	2,269707423	-0,567426856
6			4	2,026524485	2,026524485
7			4	1,809396861	1,809396861
8			3	1,211649684	1,211649684
9			3	1,081830075	1,081830075
10			3	0,96591971	0,96591971
				NPV =	-3,269659469

As we can see from the table, the NPV of the project is negative, so the project will not increase shareholders value.