

In finance, the net present value (NPV) 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. In the case when all future cash flows are incoming (such as coupons and principal of a bond) and the only outflow of cash is the purchase price, the NPV is simply the PV of future cash flows minus the purchase price (which is its own PV). NPV is a central tool in discounted cash flow (DCF) analysis and is a standard method for using the time value of money to appraise long-term projects. Used for capital budgeting and widely used throughout economics, finance, and accounting, it measures the excess or shortfall of cash flows, in present value terms, above the cost of funds. NPV can be described as the “difference amount” between the sums of discounted: cash inflows and cash outflows. It compares the present value of money today to the present value of money in the future, taking inflation and returns into account.

$$\text{Cash flow (R)} = \text{Income after tax} + \text{Depreciation} = (\text{Revenue} - \text{Cost}) * (1 - \text{tax rate}) + \text{Depreciation}$$

$i = 12\%$        $\text{NPV} = \text{sum of discounted cash flows}$

Year (t)	Depreciation	Cost	Revenue	Income	Income after tax	Cash flows	Discounted Cash Flows
0		6000000		-6000000	-6000000	-6000000	-6000000
1	666666,667	5000000	7000000	2000000	1300000	1966666,667	1755952,381
2	666666,667	5750000	8050000	2300000	1495000	2161666,667	1723267,432
3	666666,667	6612500	9257500	2645000	1719250	2385916,667	1698248,356
4	666666,667	7604375	10646125	3041750	1977137,5	2643804,167	1680185,344
5	666666,667	8745031	12243043,8	3498013	2273708,125	2940374,792	1668447,623
6	666666,667	10056786	16079500,3	6022714	3914764,344	4581431,01	2321095,529
						NPV =	4847196,665

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