

About Net Present Value

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Present Value and Net Present Value

Present Value

The present value reflects today's value of an investment. Investors usually have more than one alternative to invest their money. They have to make a good decision, to get the best results for their company and the owners.

When an investor has the opportunity to buy a parcel, build a residential house and sell it in one year for €1 million euros by investing €900,000 euros today, one of the critical questions should be: how much this investment is worth today. The future value in this case is €1 million euros. To determine the present value, you have to adapt a formula and multiply the future value by a discount factor. How much the discount factor is will depend on the payoff of returns provided by similar options in the capital market. If we take as a given that the project is assured and the investor would get 6% yield p.a. by investing the €900,000 euros in the capital market, the discount rate is 1.06 (discount factor = $1/1+\text{yield}$ in alternative investments). In this case, the present value is:

$$\text{€}1,000,000 / 1.06 = \text{€}43,396.23$$

Net Present Value

To know whether or not the investment is profitable, you have to compare the present value with the invested capital. The formula to generate the net present value is:

$$\text{Capital Employed} + \text{Present Value} = \text{Net Present Value}$$

In this case, the net present value is:

$$-\text{€}900,000.00 + \text{€}43,396.23 = \text{€}43,396.23$$

Because the net present value is a positive figure, the investment is profitable.

In this case here, there is a residential house located in Munich, for instance. This makes it a relatively safe investment.

When considering a scenario involving a commercial structure in a poor location in the eastern part of Germany, the discount rate would be higher. This is because the risk is higher and, of course, the higher payoffs of return for similar investments.

Let's say that the discount rate is 1.20, then the present value would be €33,333.34 euros. The net present value would be:

$$-€00,000.00 € + €33,333.34 € = -€66,666.66$$

In this case, the investment would hardly be worth doing.

Different types of investors and how net present values can assist decision making

The market has as many different ways to invest money as there are varied market participants. Some of the participants want to spend all their money now while others want to save their money for the future and yet others want to have a part of the money for present disposal and another amount for the future. Finding a one-size-fits-all solution on how to invest is thus rather difficult.

However, there is a rule of thumb for each of these approaches:

If the net present value of an investment is positive, they can or should go for it. If the net present value is negative they should forego the business.

Let's say there is an investor who wants to have money for spending now. But he is also interested in the wealth of his/her company and of the shareholders. The company of this investor has €00,000 euros at his/her disposal. As follows, there is a description of three possibilities of what the company can do with this money:

1. The company could spend all the money now. There would be €00,000 euros at their disposal.
2. The company could invest the entire sum at 6% interest. A year later, they would have €54,000 euros to spend.
3. The company could invest the entire sum in the above-mentioned project. The value of the investment would increase to €1 million euros. This amount could be spent a year later.

If the company chose to execute the third option, the company would have the opportunity to borrow money against the payoff

expected in future from the investment and in turn spend that amount today. In this case - and with an interest rate of 6% p.a. - the company could borrow €43,396.23 euros and spend that today.

The net present value is only viable when the market participants have access to the capital market. If the investor or the investor's company is unable to borrow money, the only options available are the first and the second ones.