Time Value of Money

Meaning

Time value of money (TVM) is the idea that money that is available at the present time is worth more than the same amount in the future, due to its potential earning capacity. This core principle of finance holds that provided money can earn interest, any amount of money is worth more the sooner it is received. One of the most fundamental concepts in finance is that money has a time value attached to it. In simpler terms, it would be safe to say that a dollar was worth more yesterday than today and a dollar today is worth more than a dollar tomorrow.

Why Is the Time Value of Money Important?

The time value of money is important because it allows investors to make a more informed decision about what to do with their money. The TVM can help you understand which option may be best based on interest, inflation, risk and return. It can also be used to help you understand how much money to save in an account if you have a certain goal in mind.

There are five variables that you need to know:

1. **Present value (PV)** - This is your current starting amount. It is the money you have in your hand at the present time, your initial investment for your future.

2. **Future value (FV)** - This is your ending amount at a point in time in the future. It should be worth more than the present value, provided it is earning interest and growing over time.

3. **The number of periods (N)** - This is the timeline for your investment (or debts). It is usually measured in years, but it could be any scale of time such as quarterly, monthly, or even daily.

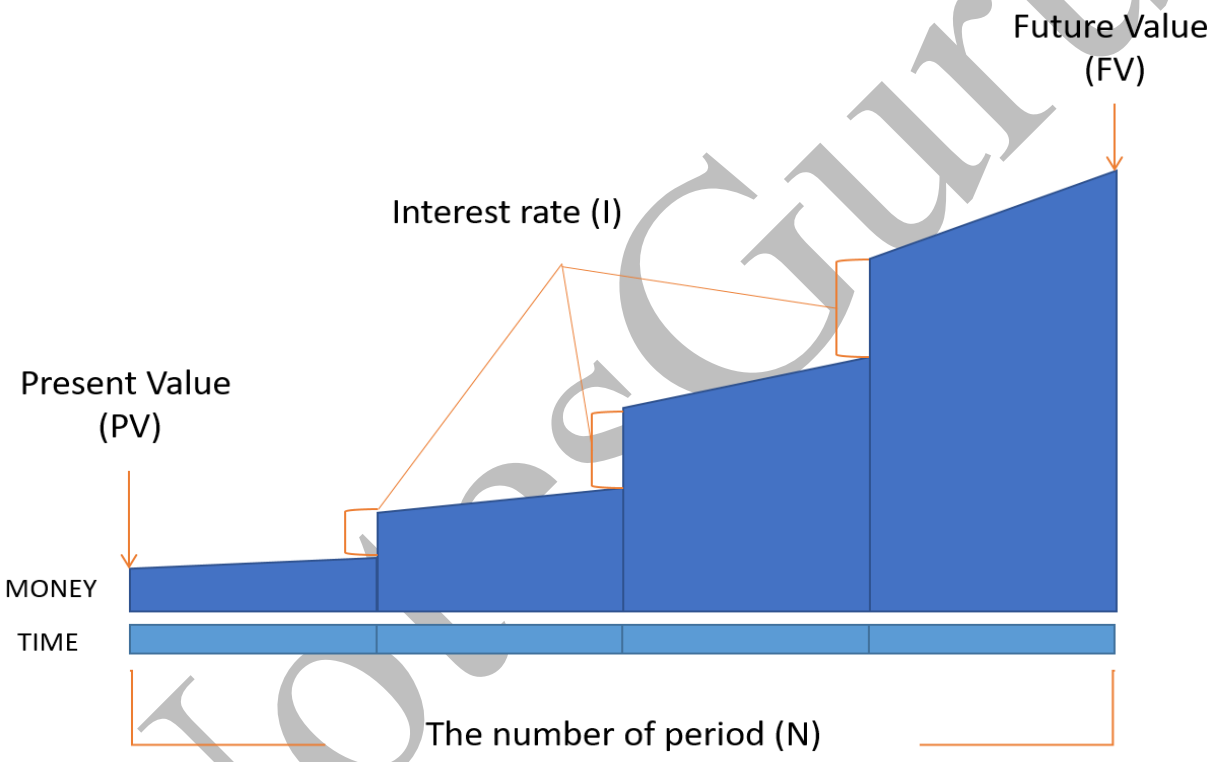
4. **Interest rate (I)** - This is the growth rate of your money over the lifetime of the investment. It is stated in a percentage value, such as 8% or .08.

5. **Payment amount (PMT)** - These are a series of equal, evenly-spaced cash flows.

Present Value and Future Value

Present Value is the same as Time Value. It is the money you have currently that is equal to a future one-time disbursal or several part-payments – discounted by a suitable rate of interest.

Future Value is the sum of money that any saving scheme with a compounded interest will build to by a pre-decided future date. It applies to both lump sum as well as recurring investments like SIP.



You can calculate the fifth variable if you are given any four of the five (all) variables listed above.

The **time value of money** is the greater benefit of receiving money now rather than an identical sum later. It is founded on time preference.

The time value of money explains why interest is paid or earned: interest, whether it is on a bank deposit or debt, compensates the depositor or lender for the time value of money.

It also underlies investment. Investors are willing to forgo spending their money now only if they expect a favorable return on their investment in the future, such that the increased value to be available later is sufficiently high to offset the preference to have money now; see required rate of return.

Time value of money problems involves the net value of cash flows at different points in time.

In a typical case, the variables might be: a balance (the real or nominal value of a debt or a financial asset in terms of monetary units), a periodic rate of interest, the number of periods, and a series of cash flows. (In the case of a debt, cash flows are payments against principal and interest; in the case of a financial asset, these are contributions to or withdrawals from the balance.) More generally, the cash flows may not be periodic but may be specified individually. Any of these variables may be the independent variable (the sought-for answer) in a given problem.

Basic TVM Formula

FV = PV x [1 + (I/ N)] (N*T)

Where,
FV is Future value of money,

PV is Present value of money,

I is the interest rate,

N is the number of compounding periods annually and

T is the number of years in the tenure.

For instance, if you invest Rs. 1 lakh for 5 years at 10% interest, the future value of this one lakh will be Rs. 161,051 as per the formula. This formula can help you to analyze different investments over different time periods, enabling you to make optimal and informed financial decisions.