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Time value of money: The guiding principle for virtually every financial and investing decision

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The time value of money (TVM) is the concept that the money you have in your pocket today is worth more than the same amount would be if you received it in the future because of the profit it can earn during the interim.

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- **The time value of money (TVM) is the concept that a dollar today is worth more than a dollar tomorrow.**
- **Understanding TVM allows you to evaluate financial opportunities and risks.**
- **The principle underlies almost every financial and investing decision you make.**

For example, let's say you can either receive a $100,000 payout today or $10,000 per year for the next ten years totalling $100,000. Ignoring taxes, the $100,000 payout today is worth more, according to the TVM principle, because you can put your money to work. For example, you can invest in stocks, buy real estate, or put it in a certificate of deposit (CD).

Understanding the time value of money can help you in making decisions ranging from which job has better salary terms, what's a good rate for a loan, or if the investment you're considering has good growth potential.

How time value of money works

The time value of money is an important concept to keep in mind because your money, once invested, can grow over time. Even if you were to just put it into a CD or savings account, the money can earn compound interest.

On the flip side, money that is not invested will lose value over time. Just think about what you could buy for $1 when you were a child compared to what that same $1 would get you today. This is because inflation and loss of potential earnings erode the value of your dollars. If you keep your money under your mattress for 10 years, not only will it be worth less because of inflation, but you'll also miss out on the interest it can earn when invested.

"So many young people are so busy juggling life, they are missing out on compounding returns of investing smaller amounts of money," says Jeff Rose, founder of GoodFinancialCents.com. "Say, for example, a 25-year-old were to invest $50 per month today, they would have to invest 3-4 times that to make up the difference if they procrastinated until they were 35."

TMV is a fundamental concept that provides the foundation for virtually every financial and investing decision. From taking out a loan to negotiating a salary, or making a purchase decision, use the time value of money to evaluate the best financial course of action.

Quick tip: "An understanding of the time value of money could help when deciding between a job that offers a decent salary and sign-on bonus, and one that pays more on a yearly basis but offers no sign-on incentives," says Brenton Harrison, a certified financial planner based in Nashville, Tennessee.

How to calculate time value of money

Now that you understand what the time value of money is, let's look at a concrete example. Let's say someone would like to buy your car and they can offer you $15,000 for it today or $15,500 if they can pay you two years from now. TVM teaches us that $15,000 today is worth more than $15,500 in two years.

Here's the basic formula for calculating the future value of money:

Future value of money formula

$$\text{Future value of money} = PV \times \left(1 + \frac{i}{n}\right)^{(n \times t)}$$

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- **PV** is the present value of money.
- **i** is the interest rate or other return that could be earned.
- **t** is the number of years to take into consideration.
- **n** is the number of compounding periods of interest per year.

This will help you determine how much money you will have if you took the $15,000 and invested it today or if you waited two years for the $15,500.

An example of using TVM

Using the example above, let's say you can invest the money from selling the car today for $15,000 in a CD that pays 2% every year, compounded monthly. To calculate the value of the money in two years, here's how it works:

FV = $15,000 x (1+(0.2/12))(12x2)=$15,612

This means the $15,000 you get for the car today will be worth $15,612 in two years. If you wait until two years from now to receive the $15,500 payment, you will lose out on $112 in interest you could have earned in that time. With investments that have higher returns, such as stocks or real estate, the missed opportunities will be even bigger.

While you probably won't be using this formula regularly to calculate future value by hand, it gives you an idea of the opportunity cost of money today versus money tomorrow. This can help you make better financial decisions in the future.

For example, when budgeting, keep in mind that your annual expenses will go up because of the time value of money. The return used is usually the inflation rate.

"We've seen the time value of money come into play in the past year as rent and grocery prices skyrocketed," says Jay Wu, CFA, founder of MoneyKnock.com. "Failure to include time value of money in expenses can cause you to under budget."

Quick tip: The formula for figuring the future value of money shows us that money only grows through investment. Delaying an investment is a lost opportunity to grow your wealth.

The financial takeaway

The time value of money is an important concept to understand for personal finance. It can help you decide how much to budget, evaluate a job offer, figure out if a loan is a good deal and help you save for the future. TVM showcases why your money loses value over time because of inflation.

Apply the TVM formula to any loans you have to determine if it's better to pay them off or invest. You can also use it to see how increasing your retirement contributions can affect the future value of your dollars. It's a great tool that gives you information that can help you make smarter financial decisions.

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