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The Power of Compounding

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"Has anyone ever talked to you about retirement?" I was 27 years old and finishing up vet school, and during one of my externships a vet asked me this question. The answer was a resounding no. I didn't have any idea of what saving for retirement even meant. He shared with me some basic information about saving for retirement and how I could retire with over $1 million, with just a *simple* plan and a little bit of discipline. At first, I couldn't believe it, but he showed the math, and it was true. But simple is not the same thing as easy…

This series of articles will help you understand different aspects of saving for retirement and provide some tips to help you get started. We'll begin with the foundational principle of compounding, then we'll examine common types of retirement plans offered by practices, and finally we'll look at the types of mutual funds often offered as part of retirement plans. By the end, you'll have some of the foundational knowledge necessary to get started saving for retirement with your first job. And if one of the other veterinarians at your new job happens to ask, "Has anyone ever talked to you about retirement?" you can confidently answer a resounding "yes."

One of the most important principles for investing for retirement is called compounding. Compounding is when the returns on your investment are reinvested to generate even more returns. In other words, your money makes money, and your returns are exponential instead of linear.

Here's an example:

Suppose someone invests $10,000 for three years and each year the investment makes 8% return which is reinvested to compound. In year one, the math is very straightforward:

$10,000 X 0.08 = $800
$10,000 + $800 = $10,800

With compounding, the $800 return gets added back to the original investment, making it now valued at $10,800. So, in year two, the return is:

$10,800 X 0.08 = $864
$10,800 + $864 = $11,664

Likewise, this return gets added back, and in year three the return is:

$11,664 X 0.08 = $933
$11,664 + $933 = $12,597

In three years, the value of the investment has grown by $2,597, which is more than 25% of the original invested amount. Without compounding, your investment would increase by only $2,400. In just three years, compounding provides you an additional 8% return! You can imagine that if you continue to do this over long periods of time, the growth will be massive.

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Speaking of time, it is a crucial factor in compounding. Let's compare two scenarios to illustrate the impact of time. In both scenarios, let's assume that you're planning to save $100 month until retirement at age 65. Let's also assume that you'll make an 8% rate of return (on average).

If you begin this at age 25 and save until 65 (40 years), you will have contributed a total of $48,000. But your investment will produce over $320,000! (This is about 6.7 times the amount you've put in.)

If you do the same exercise with the same investment parameters but start at age 35 instead, the difference is pretty dramatic. You will have contributed a total of $42,000 (not that much different), but your investment will produce about $214,000 (a lot different!). This is still five times what you invested, but it's more than $100,000 less than if you had saved five years longer. This is the impact of time on compounding. The longer it goes, the more rapidly the number grows in the later years.

Amount invested	Rate of return	Number of years	Amount contributed	Amount produced	Return
$100/month	8%	40	$48,000	$322,000	6.7x
$100/month	8%	35	$42,000	$214,000	5.1X

In the next article, we'll start to look at types of retirement accounts.

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