



The Magic of Compounding

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“Time is the wisest counselor of all.”
-Pericles

Compound interest has been called the Eighth Wonder of the World. So, what is compounding, and how can it help when you save and invest? We will explain, and show you how investing a little now can give you better returns than investing more later.

Simple vs. Compound Interest

Compound interest is *interest earned on interest*. It allows for interest earned in earlier periods to earn interest in future periods. For example, if you invest \$100,000 in a fund earning 8%, you will earn \$8,000 annually. If this were simple interest, you would continue to earn \$8,000 per year for the period of your investment. However, if the interest was compounded, you would earn interest on your interest.

The power of compound interest over time can be further illustrated by Table 1 on page 2.

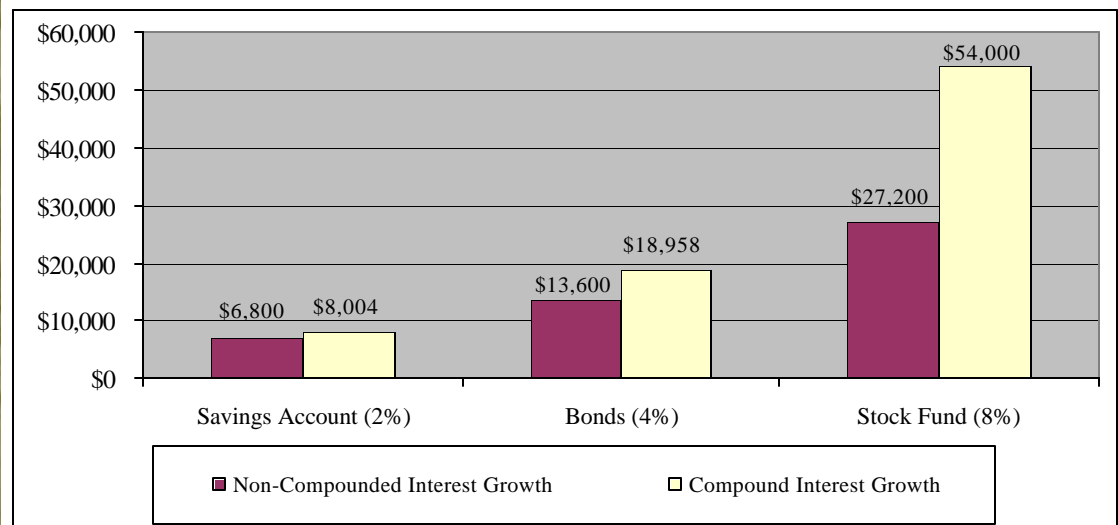
Example 1: Withdrawing Investment Growth Each Year

If an individual invests \$20,000 on a child's or grandchild's first birthday, how much would the investment be worth in 17 years when they turn 18 and start college? There are three investment choices: a savings account earning 2%, a bond earning 4% or a stock fund earning 8%. See Graph 1 below.

Several things stand out. First, is that doubling the rate of interest (from 2% to 4% or from 4% to 8%) *more than doubles the amount of interest that you earn*. Therein is the benefit of compounding. Second, withdrawing the interest eliminates the benefits of compounding. In the case of 8% interest you would have earned \$27,200 of simple interest, versus \$54,000 if the interest were left to compound. Finally, the choice of investments makes a significant

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Graph 1 \$20,000 Invested for 17 Years -How Much Interest Will You Earn?



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difference. Your account would have grown by \$45,996 more if it earned 8% versus only 2%.

Example 2: Time Is Money

Time is an investor's biggest ally. Why? Because the more time you have to invest, the longer your investment can compound or grow in value. The real magic of compounding happens over ten, twenty or thirty years. For instance, let's assume that a person wanted to accumulate \$1,000,000 by age 65. Table 2 below shows how much money (lump sum) would have to be invested at various ages in order to have \$1 million at age 65.

A 20 year old has to invest a lesser amount than a 40 or 50 year old would have to invest. The younger you are when you start investing, the more you will benefit from compounding.

Table 1 Simple vs. Compound Interest

\$100,000 invested at 8%	With Simple Interest	With Compound Interest
Start	\$100,000	\$100,000
After 5 years	\$140,000	\$147,000
After 10 years	\$180,000	\$216,000
After 15 years	\$220,000	\$317,000
After 20 years	\$260,000	\$466,000
After 25 years	\$300,000	\$685,000

Any Drawbacks?

Unfortunately, inflation is also subject to the compound interest phenomenon. The price increase for next year is added onto the price increase for this year and so on and so forth. Even a small difference in the inflation rate has a large impact on the cost of living over time. This is why it is important to **compound your investments** at a higher rate than the compounding of inflation.

Conclusion

Understanding compound interest is a key to building wealth. The important factors are: not withdrawing the interest, rate of return, and allowing time for the investments to compound and grow. Allowing for the compounding on investments is particularly important, because even as your investments are growing, the cost of living is also growing at a compounding rate.

Table 2 Accumulating \$1 Million by Age 65

Age	Required Investment @2%	Required Investment @4%	Required Investment @8%
20	\$410,197	\$171,198	\$ 31,328
30	\$500,028	\$253,415	\$ 67,635
40	\$609,531	\$375,117	\$146,018
50	\$743,015	\$555,265	\$315,242
60	\$905,731	\$821,927	\$680,583
64	\$980,392	\$961,538	\$925,926



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