Introduction to Investing

2. The Power of Compounding

Introduction

What is compound interest or compounding? Imagine planting a small seed and watching it grow into a tree over time. This transformation is similar to the power of compounding in the world of investing.

Many people are not fully aware of how compounding works or how they can harness it to grow their wealth over time. We'll break down what compounding is, how it works, and its potential for enhancing your financial future.

What is Compound Interest?

At its core, compound interest is the interest you earn on both your initial investment (**the principal**) and on the interest that has already been added to your account. Simply put: it also takes into account earning interest on interest which allows your money to grow faster than with simple interest, which is only calculated on the initial investment.

To illustrate compounding, let's start with a basic example:

Suppose you invest $10,000 lump sum at an annual interest rate of 5%.

- With **simple interest**, you'd earn $500 in interest (5% of the **initial** investment amount $10,000) each year as shown below:

Year	Beginning of Year Value	Yearly Earnings (interest)	End of Year Value
1	$10,000.00	$500.00	$10,500.00
2	$10,500.00	$500.00	$11,000.00
3	$11,000.00	$500.00	$11,500.00

- With **compound interest**, the process is a bit different. After the first year, you still have $10,500. However, in the second year, you earn interest on $10,500 instead of just $10,000. So, in the second year you earn $525 (5% of $10,500), giving you a total of $11,025. This process continues year after year, with each year's interest calculated on the new total rather than just the original principal (i.e. initial investment).

Year	Beginning of Year Value	Yearly Earnings (interest)	End of Year Value
1	$10,000.00	$500.00	$10,500.00
2	$10,500.00	$525.00	$11,025.00
3	$11,025.00	$551.25	$11,576.25

After 3 years, the difference between the end of year values using compound interest and simple interest is only $76.25 ($11,576.25 - $11,500.00). However, after 15 years, this difference increases materially:

- **Simple interest:** After 15 years, the value of the initial investment is $17,500. This represents a total growth of $7,500 which is a return of 75% over the 15-year period.
- **Compound interest:** After 15 years, the initial investment has more than doubled, reaching $20,789. The total growth under compound interest is $10,789, resulting in a return of 107.89% over the same period.

This brings us nicely onto the next point.

The Power of Time

One of the key elements that makes compound interest so powerful is **time**. The longer you leave your money invested, the more it has a chance to grow. This is why it's often said that:

> "It's about time in the market, not timing the market."

Let's look at another example to illustrate the power of time:

- Meet siblings, Omar (30 years old) and Amira (20 years old).
- Both invest $10,000 and both earn an annual interest rate of 7%.
- The table below shows how much each of their investment would have grown by the time they both reach the age of 65:

Investor	 **Omar**	 **Amira**
Starting age (years)	30	20
Initial investment amount	$10,000	$10,000
Rate of return per annum	7%	7%
Value of investment at age 65 years	**$106,766**	**$210,025**

- Because Amira was younger than Omar when she made her investment, her end value is almost double Omar's end value. This demonstrates the significant impact of **starting early** and allowing compound interest to work over a **longer period**.

You can see how this was calculated under 'Formulas'.

Compounding Periods

The **frequency** of compounding also affects how your money grows. Interest can be compounded annually, semiannually, quarterly, monthly or even daily. This compounding frequency determines how often interest is added to an investor's account each year (or quarter, or month, or day). The **more frequently** interest is compounded, the **faster your money grows**.

Formulas

The Rule of 72

If you make an investment and you want to know how long it might take for your money to double with the help of compounding, instead of diving into complex calculations, you can use the Rule of 72 for a quick and simple estimation.

According to this rule, dividing 72 by the annual interest rate gives you the approximate number of years it will take for your investment to double (this assumes you make no further contributions into the investment).

For example, if you have a $10,000 investment that earns 6% per year, it will take approximately 72 / 6 = 12 years for your investment to grow to $20,000. It is important to note that it is an approximation and not an exact calculation.

Formula for Compound Interest (the more complex calculation)

Want to find out what the **future value** of your investment could be? The future value (FV) formula is based on the principle of compound interest. It considers the present value of the investment, the annual interest rate, the compounding frequency (number of compounding periods per year i.e. the number of times interest is applied per time period), and the total number of years. The general formula is as follows:

$$FV = PV \times \left(1 + \frac{i}{n}\right)^{nt}$$

Where:

- *FV = Future Value*
- *PV = Principal Amount or Present value of your investment*
- *i = Annual Interest Rate (decimal)*
- *n = Number of compounding periods per time period*
- *t = Number of years the interest will be applied*

Using the example of Amira above, let's solve for her FV (future value):

	What is Amira's Future Value (FV) at age 65?		
 **Amira**	▪ *PV = $10,000 (initial investment)* ▪ *i = 0.07 (7% interest rate)* ▪ *n = 1 (compounded annually)* ▪ *t = 45 years (65 - 20)*	$PV \times \left(1 + \frac{i}{n}\right)^{nt} = FV$	$10,000 x (1 + $\frac{0.07}{1}$)^(1*45) = **$210,025**

Practical Steps

1. **Start early:**	As shown above, the earlier you start investing, the more time your money has to grow. Even small amounts can grow substantially over time.
2. **Be Consistent:**	Consistency in making regular contributions (no matter how small) is key to taking advantage of compounding. Setting up automatic transfers to your savings account is one way to help you stay consistent without having to think about it.
3. **Re-invest your Earnings:**	Instead of taking out the interest that you earn, consider leaving it in your account so it can earn more interest. This is the essence of compound interest.
4. **Be Patient:**	Compounding is long-term strategy. The real magic happens over decades, not months or years.
5. **Avoid High Fees:**	Be aware that high investment fees can eat into your returns and reduce the compounding effect.

Considering compound interest allows you to visualize the projected future value of your savings. There are many helpful tools available online to help you determine how long you need to save and how much you need to contribute to achieve specific goals, like saving for a down payment on your first home or funding a wedding.

Conclusion

Compound interest is a powerful financial concept that can boost your savings over time by earning interest on both your principal and the interest already accumulated.

The magic lies in its ability to grow your savings exponentially over time so plant your tree today and watch it grow!

Important Notices

This document is being issued by Mercer Financial Services Middle East Limited ("Mercer"). Mercer is regulated by the Dubai Financial Services Authority ("DFSA").

The information contained in this document does not constitute professional and/or financial advice. Furthermore, the information does not (i) constitute an offer or a solicitation of an offer to buy or sell securities, commodities and/or any other financial instruments, financial products or other products or (ii) constitute a solicitation on behalf of any of the investment option providers, their affiliates, products, or strategies that the operator of a DC plan may make available.

Disclaimer

The findings, ratings and/or opinions expressed in this document are the intellectual property of Mercer and are subject to change without notice. They are not intended to convey any guarantees as to the future performance of the investment products, asset classes or capital markets discussed. The value of investments may fall as well as rise and the amount returned may be less than the amount invested. Income from investments may also fluctuate in value. Where charges are deducted from capital, the capital may be eroded or future growth constrained. Changes in investment strategy are likely to incur transaction costs. The value of investments in a foreign currency will vary as a result of changes in currency exchange rates. Past performance does not guarantee future results.

The information contained herein may not adequately take into account the recipient's particular investment objectives, financial situations, or needs. Prospective investors should consult their legal, tax and financial advisers as to the consequences of an investment. All investments experience gain or loss. An investor may lose all or a substantial part of its investment in any private investment vehicle.

This document should be considered in its entirety since individual sections, if read in isolation, may be misconstrued.

This does not contain investment advice or constitute individualized investment advice relating to your particular circumstances. No investment decision should be made based on this information without first obtaining appropriate professional advice and considering your circumstances.

The contents and information contained herein have not been endorsed nor is it intended that they will be endorsed by any regulatory authority.

For the conflict of interest statement of Mercer Investments, of which MFSMEL is a part, contact your Mercer representative or see www.mercer.com/conflictsofinterest

Registered with DIFC, License No. 0939 and Regulated by the DFSA