In Tanzania most people are very scared of investing in anything that is considered “risky”, to some, real estate investment fits in that category. Today I wish to share with you a compounding theory from a collection of articles on the matter of which I believe will help in shedding a light on how investment can yield returns especially for those who have little to invest in the considered “risky” investment. The years maybe longer but the end will justify the patience and the calculated investment, especially for the youths of today.

Well you see the world is full of empty promises for example an advertisements tell us to buy an amazing cream because it will make us beautiful, or to buy that weird-looking contraption because it will tone our muscles and make us popular.

And here comes the Fool, with another promise. Invest money now and we’ll help make you a millionaire, or at least comfortably well-off in your adulthood. Gee, that sounds even less believable than the beauty cream, doesn’t it? But it’s true. You can print this out and take it to your math teacher, and she can verify it.

If you leave your money to grow for a long time, $100 can turn into a million dollars. No, seriously. How? Through compounding.

The Magic of Compounding

If you’re not the type who enjoys math class, who delights in solving for X and figuring out how long it will take a plane to get from Dar es salaam to Mwanza if it’s going 650 miles per hour, you might expect this section to be boring. It’s all about numbers, after all. Give it a chance, though — these numbers will show you how money grows and how millionaires are made.

Just how magical compounding can be depends on three factors:

1. How much money you invest
2. How much time it spends growing
3. Its rate of growth

Let’s look at some examples, to see how it can work.

Compounding is when something grows over time, and the amount by which it grows is also growing. It’s much easier to understand when you consider some examples. (Math alert! Math alert! **Keep reading, though** — it’s just multiplication, and it’s very important stuff.) Let’s start with a simple example. We’ll use 10% as our annual growth rate and start small, with $100. Let’s call this Year 0, when we start with $100. One year later, in Year 1, our

$100 has grown by 10%. Since 10% of 100 equals $10, we add that to our money and end the year with $110. Got that? (Note: Remember, to find out what 10% of anything equals, just multiply the number by 0.10. To find 5%, multiply by 0.05. For 25%, by 0.25.)

In Year 2, we add another 10%. But this time you don't end up with $10. Ten percent of $110 is $11. So we end Year 2 with $121 ($110 plus $11 equals $121). In Year 3, we add 10% again, or $12.10. Our new total is $133.10. Here's a table that will make it clearer:

Year	Start with	Add 10%
0	$100	$10
1	$110	$11
2	$121	$12.10
3	$133.10	$13.31
4	$146.41	$14.64
5	$161.05	$16.11
6	$177.16	$17.72
7	$194.88	$19.49
8	$214.37	

Do you see what's happening? Your initial bundle of $100 is growing, and the amount by which it's growing is also growing. That's compounding in action. In just eight years, you doubled your money. If you had just added 10% of $100 each time, that would have been $10 every year, and you'd have ended up with $180. But since your money was compounding, it grew faster.

If this doesn't seem magical enough for you, here's a continuation of the earlier table, showing certain years that are farther out:

Year	Start with	Add 10%
8	$214.37	$21.44
10	$259.37	$25.94
15	$417.72	$41.77
20	$672.75	$67.28
25	$1,083.47	$108.35
30	$1,744.94	$174.49
35	$2,810.24	$281.02
40	$4,525.93	$452.59

45	$7,289.05	$728.90
50	$11,739.09	$1,173.91

Now that's magical, isn't it? Here are a few key things to notice:

- You started with just one single investment of $100. In Year 25, your wealth grew by $108! In that single year, you made more than your entire initial investment. And the following year, you made even more than that.
- Notice how large the total gets. You started with $100, but in 50 years, that's become almost $12,000. (A stickler might point out that thanks to inflation you won't be able to buy as much stuff in 50 years with that $12,000 as you could buy with $12,000 today. But then, today you just have that $100. You're still coming out way ahead.)
- Notice that the longer you let your money compound, the more massive each year's growth becomes. In the first years, you just added $10 or $20 or $30 per year. But after 25 years, you're adding hundreds each year. *Compounding gets more powerful the longer it's left to work*.

The Growth Rate

If you're not yet finding this fascinating, then perhaps the next few tables will do it for you. Remember that we used a growth rate of 10% in our example above. The growth rate — how fast your money grows, on average, from year to year — is very important. Let's start over, using $100 again, but compounding at three other rates of growth: 5%, 11%, and 15%. Five percent is what you might earn in interest in a bank account in some years, or on a CD (certificate of deposit) or on some bonds. Eleven percent is the historical average growth rate per year of the stock market for most of the last century. Fifteen percent is how fast your money might grow if it were invested in a bunch of top-notch companies that you selected on your own.

If you start with $100, and it grows at 5%, 11%, and 15%, here's how much you'll have after various periods of time. (The pennies have been rounded off to the nearest dollar.)

Year	5%	11%	15%
5	$128	$169	$201
10	163	284	405
15	208	478	814
20	265	806	1,637

25	339	1,359	3,292
30	432	2,289	6,621
35	552	3,857	13,312
40	704	6,500	26,786
45	899	10,953	53,877
50	1,147	18,456	108,366

Pretty impressive, eh? Here are some things you should notice or be aware of:

- Again, see how the amount by which the sum grows is increasing as the years go by. For example, growing at 11%, your total increases by around $200 between years 10 and 15. But in a later five-year period, between years 40 and 45, your total grows by more than $4,000!
- Don't let these long time frames put you off. If you're 18 years old now, you probably can't imagine being 55 or 65. That's reasonable. Soon we'll discuss how you can move things along more quickly. Just let these tables show you how compounding works and how it gets more and more powerful as the years go by.
- Finally, notice what a huge difference the growth rate makes. If your money is growing at 15% instead of 5%, you'll end up with about four times more money after 15 years. Even though 11% and 15% might not seem so far apart, over 20 years, you'll end up with twice as much money. Stretch that out over 50 years, and you'll have nearly six times more money at 15% instead of 11%.
- Notice that, growing at 15% per year, a single $100 investment can turn into more than $100,000 over 50 years.

Interest vs. Stock Market Returns

Keep in mind that not all growth rates are the same. If your bank is paying 3% interest on your savings, that's pretty much guaranteed money. If a savings bond is paying you 5% interest, that's also darn close to a sure thing. (Interest rates change over time, though, so your bank might be paying you 1% in some years and 6% in others.)

The stock market, however, is not a sure thing, and neither are some bonds issued by companies. Stock market returns fluctuate. There are good years, great years, so-so years, and years we'd much rather forget. Over long periods of time, though, the stock market

tends to go up. Over many decades, it has averaged an annual 11% return.

Similarly, with companies, many remain strong for decades or a century. Others fail. If you select and invest in solid, growing companies, you can hope to earn as much as 15%, on average, per year. If you select one or more companies that turn out to be remarkable growers, such as Microsoft, the average growth rate for your investments might be higher than 15%.

In general, the more certain the growth rate, the lower it will be. The more iffy it is, the higher it will be. We'll cover these topics in more detail later. For now, just understand that most growth rates are not sure things. (That's okay, though. You can still make a lot of money by investing.)

The Amount of Money You Invest

You should now have a sense of how money can grow over time, and how much growth rates matter. Now let's turbocharge our results by upping how much money we start with. Instead of starting with an initial investment of just $100, let's see what happens with $1,000.

By the way, if $1,000 seems like an awful lot to you, realize that it's really only $20 per week. Accumulating $20 per week to save isn't as difficult as you may think. In another article we offer you a bunch of good ideas.

If you start with $1000, and it grows at 5%, 11%, and 15%, here's how much you'll have after various periods of time:

Year	5%	11%	15%
5	$1,276	$1,685	2,011
10	1,629	2,839	4,046
15	2,079	4,785	8,137
20	2,653	8,062	16,367
25	3,386	13,585	32,919
30	4,322	22,892	66,212
35	5,516	38,575	133,176
40	7,040	65,001	267,864
45	8,985	109,530	538,769
50	11,467	184,565	1,083,657

Year 5% 11% 15% 5 1,276 1,685 2,011 10 1,629 2,839 4,046 15 2,079 4,785 8,137 20 2,653 8,062 16,367 25 3,386 13,585 32,919 30 4,322 22,892 66,212 35 5,516 38,575 133,176 40 7,040 65,001 267,864 45 8,985 109,530 538,769 50 11,467 184,565 1,083,657

Lookie there — in 50 years, $1,000 becomes $1 million! (If only your grandparents had invested $1,000 for you 50 years ago, eh?) The point of this table is just to show you: the more you invest, the more money you're likely to end up with.

Is Your Head Hurting?

Is all this math stressing you out? We're almost done. This is extremely important stuff — stuff that could change your life. Don't think of it as just math — think about what the tables represent. They show you how small sums of your money can grow into large sums. You can start with enough money to buy an Ipod player, and end up with enough to buy a car or a house or a trip around the world.

Many adults find that these tables make their heads hurt, too, but for a different reason. It's because when they realize what these tables are saying, they start banging their heads against a wall, wishing they'd known about this stuff when they were younger.

Investing Money Regularly

Let's tweak these tables one last way, to make them more realistic. After all, how likely is it that you'd invest just $100 or $1,000 in one shot at your age, then add nothing else for the rest of your life? Here's what happens when you invest money regularly.

Investing $100 Each Year

If you start with an initial investment of $100 and add $100 every year, and your little bundle of wealth grows at 11% per year, here's how much you'll have after various periods of time.

Year	Amount
5	$639
10	1,700
15	3,488
20	6,500
25	11,576

30	20,129
35	34,541
40	58,827
45	99,749
50	168,706

Notice in the table above how much you put in, versus how much you have. For example, by Year 5, you invested a total of $500, but you have $639. By Year 15, you invested a total of $1,500, and you have more than twice that. By Year 35, you invested a total of $3,500, and you have almost 10 times that much!

Compare this table with the earlier table showing you how a single $100 grows over time at 11%, and you'll see some interesting things. One number that pops out is $6,500. That's how much you'll have after 40 years, if you invest just one $100 bill. But if you're plunking down $100 each year, you'll reach $6,500 in just 20 years — half as long! See the power of investing regularly? Even with these very small amounts, it makes a huge difference.

As you might guess, if you want to know how this would work if you invested $1,000 each year instead of $100, just multiply the numbers in the table above by 10.

The Keys to Compounding

To summarize, remember that the power of compounding depends on:

- How much you invest (and how regularly)
- Your growth rate
- How long you let your money grow

It's likely that none of the examples above reflect how you will actually do. You might start investing sooner or later. You might invest $300 each year in your first two years, $3,000 per year in later years, and more as you're able to. You might earn an average return of 10% over many decades, or perhaps your return will be 7% or 15%. You can't control every variable, but to a great degree, you can control how much you invest, how you invest, and how long you let your money grow.

One of the most important factors here is time. It's one thing that you, as a teenager, have much more of than any adult. It can be a *huge* advantage. You don't have to start investing today, or even this year. (And in fact, you shouldn't begin investing until you've got more knowledge under your belt.) But if you learn a few things now and get started soon, you can

set yourself up to enjoy comfort and security for most of your life.

Remember also that you can still enjoy your life while you're saving and investing. You can amass great wealth by regularly investing a *portion* of your income — not all of it.

You Can Do It!

If you ever begin to doubt whether all this investing stuff is for you, remember these things:

- You need a brain to do this — and you have a brain.
- You need time to do this, and you have time, too. (Teens have way more time than most people.)
- You won't have to sacrifice fun.
- You won't have to save and invest every penny.
- You won't have to spend hours and hours on investing every day, week or month.
- You can take a small amount of money and make it a bigger amount in just a few years.

Try experimenting with compounding. You can do it the old-fashioned way, with paper and pencil, or the less old-fashioned way, with a calculator. You just plug in some numbers and it'll show you how much money you'll end up with. Try changing the numbers you enter and see what happens.

Tanzanians Youth, if not the youth all over the world, have been known to have an inquisitor mind, I welcome you to inquire into the article I have shared today. The world is changing, the economy of Tanzania is growing fast, and with the discovery of gas and other energy resources the real estate development, the life of a Tanzania and the country is set to change. In just five years from now the Tanzania we know will be very different and most of the youth will be left behind or with no stepping stone if we don't act now to improve on our future and the pace that this country is going. Happy compounding!

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The author is an associate with ABC Attorneys of Dar-es-salaam and can be reached at info@abcattorneys.co.tz .Some of the contents of the article were adapted from Selena Maranjian's article on *becoming a millionaire* and from *The Motley Fool Investment Guide for Teens: 8 Steps to Having More Money Than Your Parents Ever Dreamed Of.*