

Your Retirement, Your Time, Your Money

by *Guy R. Fleury*

You know you should build a retirement fund to last you a lifetime since you also know that without it your retirement might not be as pleasant as it could be, moneywise that is. The **first hurdle**, evidently, is money. If you do not reach retirement with enough, you will probably be missing out. The **second hurdle**, not surprisingly, is your age. If you start too late, you might not have enough time to make it worthwhile. And the **third hurdle** is you. Will you have the skills and perseverance to build that investment portfolio in the first place?

You are the one to decide what you want to do. Find ways to execute the needed tasks to get there. You will always be at the centre of it all, no matter how you want to look at it. Every investment decision will matter, but mostly, only to you, since you will be the one winning or losing your own money. You remain the one, under market uncertainty or whatever happens to make all those decisions, even if by proxy. Having someone else do the job for you is your decision too.

You might not have that much money to start with, but you could still make the most of it with what you have and what you know. Soon enough, you will also find out that a minimum might be required and a lot of time.

You could compensate for the lack of capital by providing your investment strategy with more time, or finding ways to increase your overall return by adding trading skills (know-how) to do the job. If you already have some trading skills, find ways to increase your available investment capital. Compounding at the highest rate over the long term is what will ultimately matter the most.

The Guiding Equation

From the start you will be confronted with the limits of the compounding future value formula:

$$F(t) = F_0 \cdot (1 + g)^t$$

The equation will be the same whatever you have to start with, how much time you can put on the task, and what growth rate you might or could achieve. Note that the formula does not say which assets you might or could use to achieve your goal. It only states that the future amount of money you will have will depend on those 3 variables and 2 of which are under your control (capital and time). You are not limited to making a single investment. You could make as many as you could handle: $F(T) = \sum_1^N f_i \cdot (1 + g_i)^{t_i}$. You will end up with the net sum of all those investments, some positive, some negative.

You estimate you want \$10⁺ million to retire in 10 years' time. Then, the following equation will tell you the required growth rate to achieve your goal: $\left[\frac{F(t)}{F_0}\right]^{\frac{1}{t}} - 1 = g$. You have to find a feasible and reasonable mix for those 3 variables to satisfy that equation.

Saying that you will reach your objectives within 10 years might be optimistic. But then, that depends on how much you are starting with and what would be your resulting growth rate. You know how much you have to start with, but not necessarily your future growth rate (*g*).

Like in most anything else, you have to plan for where you intend to go, especially since it will take many years.

It Is Your Time

You reached 55, have \$10K to invest before retirement and want \$10M in 10 years. Then, this is the growth rate you will need: $\left[\frac{10M}{10k}\right]^{\frac{1}{10}} - 1 = 0.9952$. That is 99.52% per year. Did you find that answer realistic? Most probably not. Then, why attempt it? Why follow anyone that says they can? That is like almost doubling your money every year for 10 years straight. Note that some have done even better than this by starting their own businesses and nurturing them. So this is nonetheless possible, even if relatively rare. Somehow, it always seems to be the other guy doing it.

Table #1: \$100k Scenario

Initial Capital (\$)		Portfolio Outcome					
100,000		Compounded Annual Growth Rate (CAGR)					
	Cash (- Inflation)	Indexed to Inflation	Bank Fund	Market CAGR (R _m)	Adding Skills (α) g = R _m + α		
Years	-2.50%	0.00%	5.00%	10.00%	15.00%	20.00%	25.00%
5	88,110	100,000	127,628	161,051	201,136	248,832	305,176
10	77,633	100,000	162,889	259,374	404,556	619,174	931,323
15	68,402	100,000	207,893	417,725	813,706	1,540,702	2,842,171
20	60,269	100,000	265,330	672,750	1,636,654	3,833,760	8,673,617
25	53,103	100,000	338,635	1,083,471	3,291,895	9,539,622	26,469,780
30	46,788	100,000	432,194	1,744,940	6,621,177	23,737,631	80,779,357
35	41,225	100,000	551,602	2,810,244	13,317,552	59,066,823	246,519,033
40	36,323	100,000	703,999	4,525,926	26,786,355	146,977,157	752,316,385
45	32,004	100,000	898,501	7,289,048	53,876,927	365,726,199	2,295,887,404

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Here is what should be expected using the stock market's long-term average (≈ 10%) which would give: $F(t) = \$10,000 \cdot (1 + 0.10)^{10} = \$25,937$. That is still way off the desired \$10M.

The task gets easier if you started with more capital:

$$F(t) = \$100,000 \cdot (1 + 0.10)^{10} = \$259,374$$

This is still only 2.59% of the \$10M objective. It simply might not be enough. That comes out to about \$12,969 as income for the first year of retirement using a 5% withdrawal rate. At least, it could be doable by simply buying an index tracking fund like SPY. Evidently, this would depend on the 10-year period. Not all 10-year market intervals were averaging 10%.

You definitely need to do more.

How about putting in more time? So, you started at 45. Doing it over 20 years instead of 10 would give: $F(t) = \$100,000 \cdot (1 + 0.10)^{20} = \$672,750$. Much better, but still not enough, and it took 20 years to get there. It would actually take close to 49 years at that pace to reach the \$10 million mark. May I say 49 years is a lot of time. Say you started at age 45, you would be 94 by then but would have reached your goal. Note that over those 49 years, inflation would have eaten up a lot of it too. Not only that, but from 65 onward, you might want to withdraw some of it as income.

Chart #1: Impact of Inflation Rate - Past 22 years

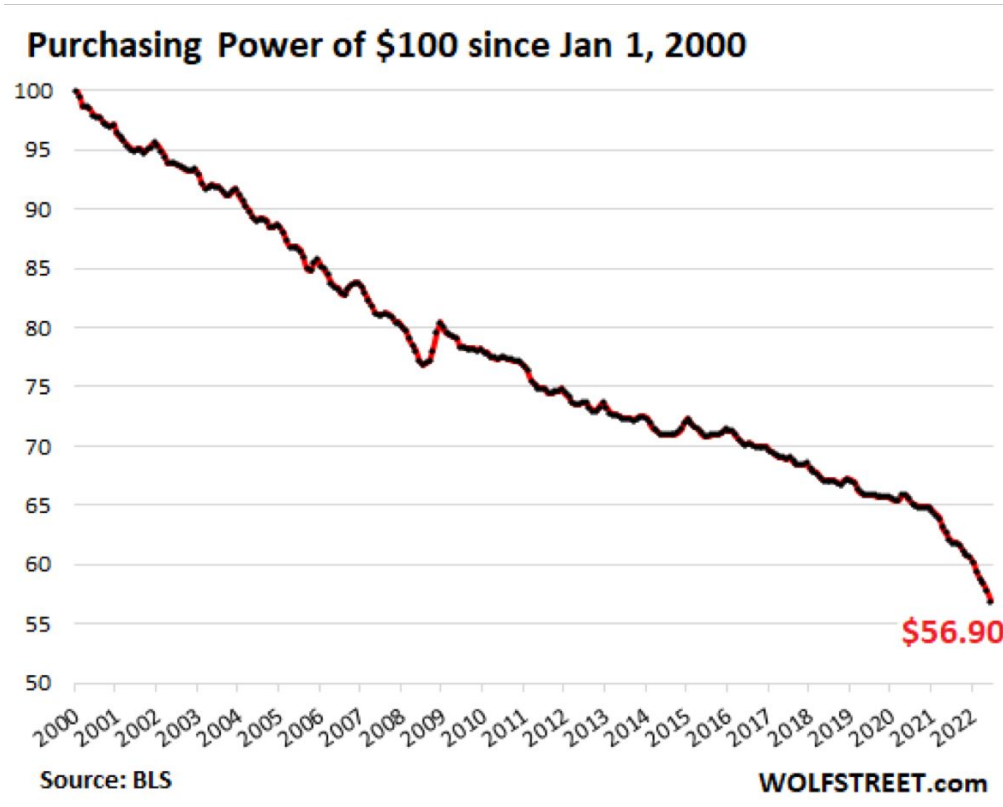


Table #1 shows \$100k at various rates of return for up to 45 years. The first column gives the impact of keeping your money under the mattress. The column used -2.5% for inflation since it has been about the average over the last 22 years (see Chart #1 above). This says that the money you do not use simply degrades with time due to inflation. If you increase the rate of inflation, the remaining value will decline even

faster. After 45 years, more than 2/3 of your money would have evaporated.

Your alternative would be to increase your growth rate and/or increase your initial capital. For instance, \$500k at 16% over 20 years would give: $F(t) = \$500,000 \cdot (1 + 0.16)^{20} = \$9,730,380$, close to 20 times your original stake. Now, 16% is not that high. It can easily be achieved and almost does do the job. Nonetheless, you could do even better.

If you are already retired and your fund is indexed to inflation. Technically, you are not making money. You are barely maintaining your buying power over the years.

The historical market average has been around 10% over the long term. The above table shows that even after 45 years, you would not have reached your \$10 million goal. You need to push higher, or else, accept less.

You could increase the growth rate by adding some trading skills (alpha) to your game. Each 5% you add as alpha can have quite an impact on the overall performance, especially when compounded over long periods of time. The 5%, 10%, and 15% alpha points are not that hard to achieve. However, you are the one to select and implement the kind of trading or investment strategies that could realize those alphas.

Table #2: \$500k Scenario

Initial Capital (\$)		Portfolio Outcome					
500,000		Compounded Annual Growth Rate (CAGR)					
	Cash (- Inflation)	Indexed to Inflation	Bank Fund	Market CAGR (R_m)	Adding Skills (α) $g = R_m + \alpha$		
Years	-2.50%	0.00%	5.00%	10.00%	15.00%	20.00%	25.00%
5	440,548	500,000	638,141	805,255	1,005,679	1,244,160	1,525,879
10	388,165	500,000	814,447	1,296,871	2,022,779	3,095,868	4,656,613
15	342,010	500,000	1,039,464	2,088,624	4,068,531	7,703,511	14,210,855
20	301,344	500,000	1,326,649	3,363,750	8,183,269	19,168,800	43,368,087
25	265,513	500,000	1,693,177	5,417,353	16,459,476	47,698,108	132,348,898
30	233,942	500,000	2,160,971	8,724,701	33,105,886	118,688,157	403,896,783
35	206,125	500,000	2,758,008	14,051,218	66,587,762	295,334,115	1,232,595,164
40	181,616	500,000	3,519,994	22,629,628	133,931,773	734,885,784	3,761,581,923
45	160,021	500,000	4,492,504	36,445,242	269,384,634	1,828,630,994	11,479,437,020

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It Is Your Money

Just adding more capital to start with will have an impact. The table above is the same as the first one, except the initial capital is now set to \$500k. All the calculations are based on the same future value formula as presented.

Questions are restated: How much time do you have? How much capital can you put to work? What kind of growth rate can you achieve over your specific time interval

using the assets you intend to invest in?

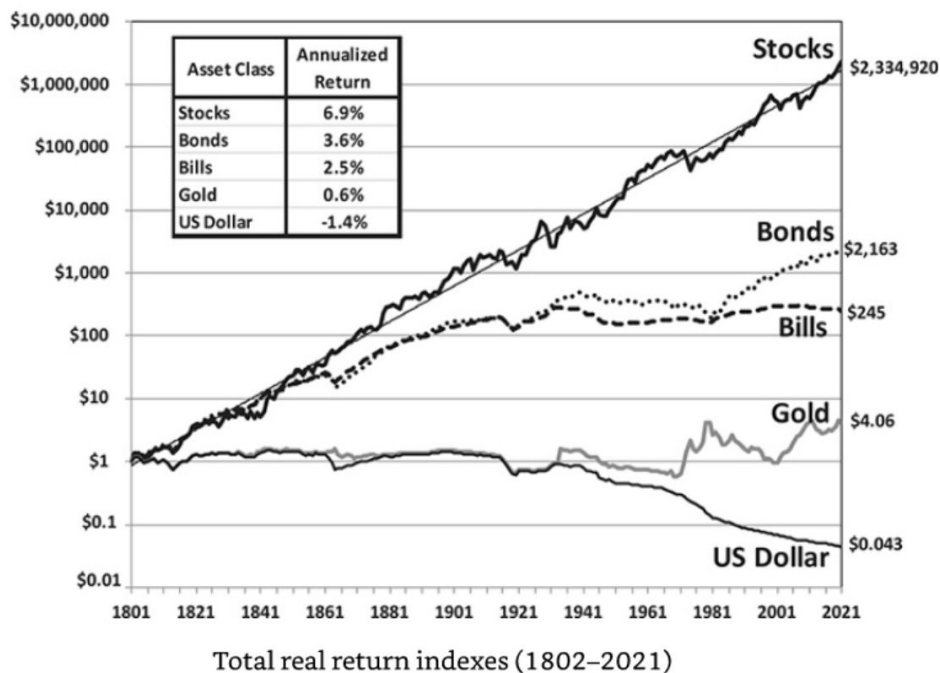
It Is About Your Skills

Based on Table #2, a 10-point alpha above market average would give you \$19M after 20 years. A 20% CAGR is about the same pace as achieved by Mr. Buffett over 50+ years. So, this is not a utopian undertaking. It could be done with relative ease. The point is: you have to plan for this and find your own ways to make it happen.

The future value formula is exponential. The more time you give it, the more it will impact the final outcome. From Table #2, adding 5 more alpha points to the 20% CAGR would make you a billionaire within 35 years. Just by playing a better game.

You can do it all yourself. First, by getting as much starting capital as you can. You can add a zero or two to the initial capital in the above tables, all you would need is to move the decimal point. Second, find investment methods that will give you that higher growth rate. And third, make it last for as long as possible. The outcome is simple, as was stated: $F(t) = F_0 \cdot (1 + g)^t$. Make the most of it.

Chart #2: Rates of Return 1802-2021



The above chart provides a rough estimate of the rate of return for various investments over the past 219 years. The expectations over the long term should be about more of the same. You are the one selecting which route you wish to take. But then, you will also have to live with the consequences of your choices. Sounds

reasonable, doesn't it? Or, you could certainly try to do better by generating some positive alpha.

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