

The New Math

Back in the days when I walked up hill to and from school, I learned about arithmetic. One plus two always equaled three and if you added a series of numbers, you could calculate an average.

So how is it that today, one person could start out with an investment portfolio worth \$100,000, earn an average return of 6% over 10 years and end up with a value of \$250,000 LESS than another person with the same set of facts? You would think that an average return of 6% over 10 years on a \$100,000 investment would always produce the same results. But it does not. Why?

This “New Math” can be deceiving, yet it is so very important to understand how it works.

We all know that the in the real world of financial markets some things are not what they appear. The term “average annualized return” is one such example. When you see an ad that displays an average annual investment return, for example of 10% over a two-year period, that does not mean the investment delivered 10% each year. Scenario 1, the return could have been up 30% and the next year down 10%. You would get the same average annual return if Scenario 2 was down 20% and year 2 was up 40%.

Well, if the average annual returns are the same in either scenario, what about the actual results in a hypothetical portfolio of \$100,000?

In Scenario 1

\$100,000 @ 30% = \$130,000

\$130,000 @ -10% = - 13,000

Ending value \$117,000

In Scenario 2

\$100,000 @ -20% = \$80,000

\$80,000 @ 40% = 32,000

Ending value \$112,000

Again, the “average annual returns” are the same in both cases, but the ending results are very different. Blame it on the new math.

What does this mean in retirement?

Creating sustainable retirement income portfolios is both an art and a science. Multiple uncertainties and assumptions will complicate the task. Individual investors (and their advisors) must balance portfolio stability and growth to meet future (or current) income needs. At the same time, portfolio withdrawals magnify the impact of market declines in the distribution phase. As one shifts from the accumulation of wealth to the distribution of wealth, investing itself requires new thinking about risk, about measuring risk and about the “new math”.

No longer are historical average annual returns a sufficient metric for measuring possible outcomes. Longer life expectancies, future inflation rates and retirement spending habits must be accounted for when planning distributions.

The overriding concern for most people in retirement is shortfall risk, defined as outliving one’s assets. Statistical measures such as standard deviation and calendar year returns are incomplete measures of downside risk.

The new math of the distribution phase, of taking withdrawals from a portfolio, must emphasize the importance of downside risk management and the sequence of investment returns, especially in the early years of retirement.

Therein lies the key to understanding the new math. In the accumulation years, the sequence of investment returns affects only the timing of wealth generation; in other words, how long it will take to accumulate a desired amount. In the distribution or withdrawal phase, the sequence of investment returns will have a dramatic effect on whether or not the portfolio lasts.

Over different periods of time or with different withdrawal rates, the sequence of returns has a variable effect. Despite having identical average annual returns and standard deviation (volatility), results are rarely symmetric. Investors in any phase are vulnerable to the market's random gyrations, but individuals in the distribution phase are even more susceptible to unfortunate timing. While there is no way to control the sequence of returns, you can take positive steps by focusing on what you can control.

I'll address that "new math" approach in my next column. Now if you will excuse me, I have to walk (up hill of course) to work.

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