

Monte Carlo Simulations Establish Probabilities on Returns

By Gregory Anderson, CFP®

If Mark Twain were a modern investor, he might conclude that we have lies, (worse) lies and probabilities.

You have heard the probabilities for years: “Invest conservatively, and you will probably make money. Invest in stocks for the long-term, and you will probably beat the rate of inflation. Hold that blue-chip for 10 years, and it will probably average out to a 10% return.”

If only it were so simple.

Last month we talked about the possible misleading nature of an average percentage return on an investment, and how wild swings from year-to-year (or even month-to-month) can significantly alter cash returns, even though the “average” might equate to a less volatile investment.

If you missed that article (April 2010), go to www.GRAndersonWealth.com.

We also spoke briefly about Monte Carlo simulation software, and I would like to explain in greater detail how it works and how it might help the average investor make wiser decisions.

If you are like most investors, you have financial goals, and you want to know the likelihood that your investments might help you reach that goal.

Many investors are content to divide investments into a half dozen “risk” categories, research the average returns over the last 5-10 years, and then get a good “feel” for how those investments might perform. However, the “wild swings” (standard deviation) can create many combinations of scenarios – thousands of them.

You might think that you can get a “feel” for those scenarios, but you can’t – not really. In fact, only the most modern computers have been able to account for all the scenarios and then assign probabilities to them. That’s why the Monte Carlo simulations are just now becoming so mainstream – even though the programming for it has its beginnings with the first atomic bomb, when scientists had to compute the probabilities of various outcomes.

Here is a simplified version of how it works:

You purchase a mid-risk investment, and over the next several days it could rise or decline .1%, .2%, .3% etc. -- *up to the standard deviation*. Every day, it could do the same thing. The probabilities add up, and at any point in time – a month, a year, five years – the investor can pluck a probability out of the Monte Carlo formula.

Is this method of measuring “risk” foolproof? Of course not. It is dependent upon historic information, and history does not necessarily indicate what to expect. Also, we never know when

a rare event might occur that could throw all the probabilities out of whack. Even the Sept./Oct. 2008 market collapse was one of those rarities. That's when it helps to have input from a financial planner, who might be on the look-out for such events.

Furthermore, let's say the Monte Carlo simulation shows you have an 80% chance of reaching your financial goal. And let's say a small change in investments raises that probability to 85%. How important is that extra 5%? Only you, with some guidance from a financial planner, can figure that out.

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