

## How to Go Broke Earning 12\%: A Cautionary Tale

With the proliferation of financial cable channels and websites, it is difficult to not focus purely on the returns our investments are generating. The hour by hour, minute by minute performance of various indexes, especially the S\&P 500 index, gets covered like football games with reporters on the floor of the stock exchange and celebrity analysts in the booth. Add that to the fact that what a given investment has returned over a certain period of time is easy to understand and it's no wonder we focus on investment return so much. It's just one number telling gain or loss. Couldn't be easier.

With the tech bubble burst, housing bubble burst, and credit market crash of the past 13 years, many investors have also become aware of the risks inherent in various investments. The risk measures are not as easy to report as returns, and they can be reported in enough different ways requiring you to have recently taken (and passed) a statistics class in order to understand them. Despite the difficulties in conceptualizing risk measures, we have become more conscious of investment risks and do place a value on risk minimization.

As a result, we understand better than ever the idea that for a given level of return we want to achieve, we will usually have
to expose ourselves to a given level of risk. That's the easy part. The difficult part is that our own behavior is the main risk we face as we try and achieve our target return. By getting fearful and greedy at the wrong times, American investors by some estimates reduce their returns by more than $50 \%$ over the long-term.

The risk we're highlighting in this specific example is, for lack of a better term, "timing of withdrawal" risk, which is the risk an investor, especially one who is retired, will withdraw too much from his or her investments at a time that is so inconvenient as to permanently damage their ability to grow their assets over time.

To illustrate this, consider two sequences of 20 year investment returns. One sequence is what the S\&P 500 returned every year from 1972 through 1991, inclusive of reinvested dividends. The second sequence is the exact opposite of the first, so the return in year 20 of the reversed sequence is the same as the return in year 1 of the S\&P 500 sequence, year 19 is the same as year 2 , etc.

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sequence 1-S\&P | 19.0\% | -14.7\% | -26.5\% | 37.2\% | 23.8\% | -7.2\% | 6.6\% | 18.4\% | 32.5\% | -4.9\% |
| Sequence 2 - Reverse | 30.5\% | -3.1\% | 31.7\% | 16.6\% | 5.3\% | 18.7\% | 31.7\% | 6.3\% | 22.6\% | 21.6\% |


|  | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sequence 1-S\&P | 21.6\% | 22.6\% | 6.3\% | 31.7\% | 18.7\% | 5.3\% | 16.6\% | 31.7\% | -3.1\% | 30.5\% |
| Sequence 2 - Reverse | -4.9\% | 32.5\% | 18.4\% | 6.6\% | -7.2\% | 23.8\% | 37.2\% | -26.5\% | -14.7\% | 19.0\% |

Mathematically this results in two return patterns with the exact same average annual return and level of risk, in this example both portfolios average $11.89 \%$ per year with identical fluctuations in returns over the 20 years. However, despite the mathematical similarities, an investor withdrawing money from the each portfolio experiences very different, and in one case dangerous, changing asset balances over time:


This assumes the investor starts with $\$ 500,000$ in year one with $\$ 30,000$ of annual income (like social security or a pension) inflating at $1.5 \%$ per year, and $\$ 66,000$ of expenses inflating at $3.25 \%$ per year. The investor is making up the difference between income and expenses by withdrawing from the investments. As you can see, even though both investments average the same return over the 20 years and carry the same amount of risk, the fact that years two and three were big down years for the " $S \& P$ 500 1972-1991" portfolio caused the investor to run out of money after about 20 years. On the other hand, even though the large negative returns also happened for the "S\&P 500 Reversed" portfolio as you can see on the graph, they happened in two of the three final years. The fact that the investor was not removing money from a portfolio that had been beaten up two of the first three years made all the difference in the world.

Although the average annual returns for both portfolios is nearly $12 \%$, one portfolio finishes with more than four times as much money twenty years later even though the investor has withdrawn over \$1 million over that period, and the other has completely run out of money. If you ever wondered if it were possible to average $12 \%$ per year with your portfolio AND run out of money, this is an example of how that is possible.

By making the average annual returns and risk level identical for both portfolios, what we've done is isolate the risk the investor faces by withdrawing too much at a bad time. What's particularly concerning about this is that we did not have to invent a sequence of returns we knew would illustrate our point; we used the actual S\&P 500 plus reinvested dividends over a real twenty year period, and that was the portfolio that ran out of money. What is also of concern is that at the time the investor was
withdrawing the unsupportable amount from the portfolio, it was too early to know he or she would eventually run out of money as a result. In other words, the damage may not become obvious until it's too late to recover.

## So how would we avoid making these mistakes?

The first way would be to structure the portfolio to reduce the potential and scope of large losses, especially over multiple years. We do this by diversifying appropriately across asset classes as well as management styles, blending passive investing with actively and tactically managed investing. There may be periods of time where we are sacrificing some amount of return to protect ourselves from those large negative years, but we found that underperforming in positive periods was not nearly as destructive as fully participating in bear markets.

The second way would be to reduce spending in years including and/or following portfolio losses. If despite everyone's best efforts the investment portfolio is down double digits a couple years in a row, cut back on discretionary spending and do anything else within reason to minimize how much is taken out of the investment portfolio, giving it a chance to recover. This does require some amount of planning ahead of time to make sure your fixed expenses are not so high that you cannot cut back if needed.

With a well-crafted and well-executed strategy, it is possible to reduce some of the losses that come with investing, especially stock market investing. Additionally, when historical and unforeseen events do occur, temporarily changing behavior can help preserve assets to grow back another day.

## 4th of July Fun Facts

- The first Independence Day celebration took place in Philadelphia on July 8, 1776. This was also the day that the Declaration of Independence was first read in public after people were summoned by the ringing of the Liberty Bell.
- The Declaration of Independence was first presented to Congress on June 28,1776 , after more than a year of trying to appeal the practice of taxation by England without representation in the English Parliament.
- John Hancock, President of the Second Continental Congress, was the first signer. This merchant by trade did so in an entirely blank space making it the largest and most famous signature - hence the term John Hancock, which is still used today as a synonym for signature.
- Two future presidents signed, John Adams (second President) and Thomas Jefferson (third President). Both died on the 50th anniversary of signing the Declaration (July 4, 1826). There are 12 counties nationwide named Adams and 26 named Jefferson.
* $\mathbf{\$ 1 0 9 . 8}$ billion = Dollar value of trade last year between the United States and the United Kingdom, making the British, our adversary in 1776, our sixthleading trading partner today.



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