

# How Much Alpha Do You Need During Retirement

BY JIM OTAR

I must admit, my topic – the mathematics of lifelong income – is not a cheerful subject. On the contrary, many advisors I have spoken to recently admit that it is depressing. During one of these recent sessions, an advisor asked: “What if you were holding the best managed funds, the funds with the highest alpha?” Now, as the boomer wave rolls into retirement, advisors become more and more receptive to learning about distribution planning. This makes this, and other questions, all the more important.

## WHAT IS ALPHA?

Alpha is a measure of excess return over and above its benchmark. For example, say your benchmark is the S&P 500 and it returns 8% for the year. The equity portion of your portfolio has a net return of 10% for the same year. In this case, your alpha is 2% including all dividends, expenses, fees, talent, luck, and, yes, stupidities for the entire year.

So, what is the minimum alpha that this retiree needs for a lifelong income? If the answer is zero or less, then all you need to do is put your money into index funds and you should be OK. The reality is, if you need just a small amount of income, index funds may be just fine. However, if you need a large amount of income, fund selection becomes a critical issue for generating lifelong income.

For example: Bob, 65, is just

retiring. He has \$1 million in his portfolio. He needs \$30,000 from his portfolio each year, indexed to CPI until the end of his life. For planning purposes we use age 95 as age of death and an asset mix of 40% S&P 500 and 60% fixed income.

I ran my retirement calculator based on the actual market history. Figure 1 shows the potential outcomes of Bob’s portfolio if he were to retire in any year since 1900. Each thin black line shows the portfolio value. By plotting each of these lines on the same chart, we generate a “bird’s-eye” view of all outcomes. This type of a chart is called an aftcast, as opposed to a forecast where you need to make assumptions about the portfolio growth rate and inflation. Here, we have no assumed growth rate, no assumed inflation and no Monte Carlo, just historic data.

This chart shows us that if Bob had just the index return on his equity investments, he would have lifelong income. When he dies at age 95, he would leave a sizable estate, somewhere between \$200,000 and \$6.8 million depending on his luck – based on market history since 1900. Good news.

We can go a little further than that. For my retirement plans, I use a maximum of 10% probability of depletion at the age of death. That is my acceptable risk. At this risk level, if things don’t work out as planned, there is still time to change strategy and create

lifelong income. If you plan for a probability of depletion at the age of death that exceeds 10%, the risk can become unmanageable and this can cause irreversible damage.

## WHAT IF I NEED ALPHA?

So, my next step is to decrease the alpha until this risk level is reached. This alpha would then indicate by how much the equity portion of Bob’s portfolio can “safely” underperform the index. While nobody wants to admit that they underperform the index, the fact is that 80% of mutual funds underperform the index in the long term.

After running my calculator, the market history shows us that if Bob underperforms the index by 4.5% (an alpha of negative 4.5%), he would still have lifelong income. This is the “Minimum Required Alpha.”

In this example, Bob was lucky; he only needed \$30,000 from his portfolio. What if Bob needed \$50,000 at age 65, indexed to CPI annually until age 95? This is an initial withdrawal rate of 5%. The program tells me that the probability of depletion at age 95 is 68%. Not a pretty figure.

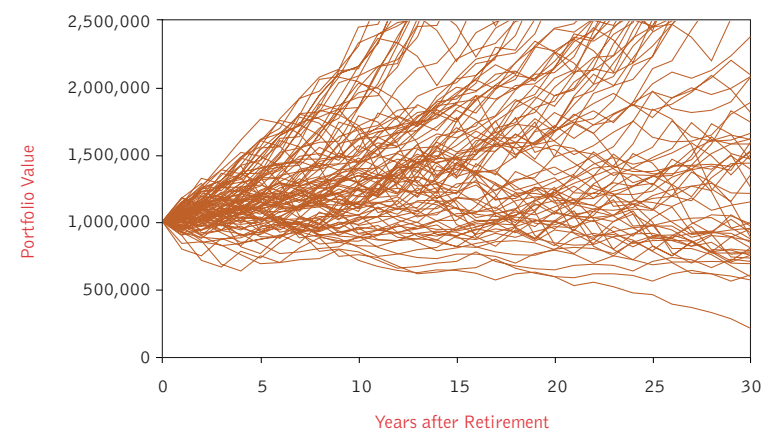
So, we need to outperform the index; i.e. we need a higher alpha to bring the risk down to an acceptable level. Just how much is the alpha in this case? A whopping 5.3%!

I calculated the minimum required alpha for various initial withdrawal rates and various time horizons. The table on the left shows the results:

- The higher the withdrawal rate, the higher the required alpha.
- The longer the time horizon, the higher the required alpha.

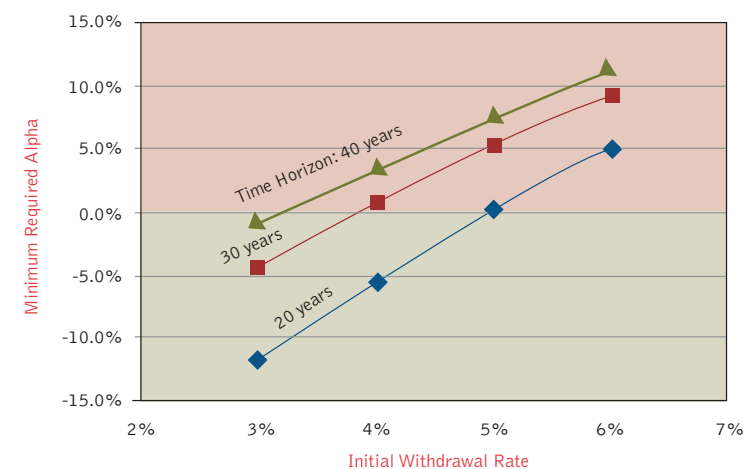
Figure 2 depicts this table in a visual format. Here, you can clear-

FIGURE 1: RETURNS SINCE 1900



Source: Retirementoptimizer.com Inc.

FIGURE 2: MINIMUM ALPHA REQUIRED



Source: Retirementoptimizer.com Inc.

ly and precisely make a decision about using index funds versus actively managed funds in retirement portfolios. These decisions are as follows:

- If the minimum required alpha is 0% or less, then you can successfully use the equity index fund in your retirement portfolio. For example, for a 30-year time horizon, if the initial withdrawal rate is less than about 3.8%, you can use the index fund for a lifelong income.
- If the minimum required alpha is larger than 0%, then index funds will likely not give you a lifelong income. You need actively managed portfolios that can deliver this minimum alpha. This tells me that once you are operating in this region, portfolio manager selection becomes a very important factor.

Going back to Bob’s example, he wants a 5% initial withdrawal rate for 30 years. For that, he needs to find a portfolio manager that can deliver

an alpha of +5.3% for the next 30 years. If you can find a manager with a 5.3% alpha with a 30-year history, please let me know!

The law of averages tells me that unless you are filthy rich, incredibly lucky, or have a government pension, then you need to pass on the risk to others. You’d be better off exporting this risk to an insurance company by buying a life annuity or variable annuity with lifelong payment guarantees if your minimum required alpha is larger than zero. Life can be too agonizing if you have to depend on your children for help, or worse, move in with them in your old age.

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## RETIREMENT TIME HORIZON

Initial Withdrawal Rate	20 years	30 years	40 years
	Minimum Required Alpha		
3%	-11.8%	-4.5%	-0.8%
4%	-5.5%	+0.8%	+3.6%
5%	+0.1%	+5.3%	+7.5%
6%	+5.0%	+9.3%	+11.1%

Source: Retirementoptimizer.com Inc.