Develop Business/Financial Planning

'Tweaking' Withdrawals After a Portfolio Loss

By Jim Otar, CMT, CFP
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Asking clients to take a "pay cut" in retirement is tough. How much to cut? And what are the chances of recovering from the loss? We chart four withdrawal scenarios along with some pay cut calculations to determine how effective "tweaking" the withdrawal rate really is.

Here's one of the common misconceptions in retirement income planning: If things do not go as planned with the portfolio growth, all you need to do is tweak down your withdrawals for a year, and voilà, you are back on track for lifelong income.

While there may be times when this could be an easy thing to do, for most clients, it will be very challenging. This strategy might place your client in a zone anywhere between foregoing a few steak dinners a month to outright destitution. Where do you draw the line? When does this strategy make sense, and when does it become ridiculous?

There are two questions to consider when it comes to tweaking withdrawals. The first question is this: What are the chances of ever recovering from a loss? The second: How much of a pay cut is necessary to ensure lifelong income?

Getting to the answers

Most retirement forecasts are based on using average growth rates and inflation. They believe in the law of averages—the idea that random events will even out in time. In contrast, we follow Murphy's Law (anything that can go wrong will go wrong) to make sure that extreme risks are covered.

We build our retirement forecasts using actual market history, which we call "aftcasting" (as opposed to forecasting). It uses market history starting in 1900 and ending at the end of 2011. We do not use Monte Carlo simulators.

Aftcasting displays the outcome of all historical asset values of all portfolios since 1900 on the same chart, as if a scenario started in each one of the years between 1900 and 2000. It gives a bird's-eye view of all outcomes. It provides the success and failure statistics with exact historical accuracy—as opposed to man-made simulation models—because it includes the actual historical equity performance, inflation rate, and interest rate, as well as the actual historical sequencing of all these data sets.

Question 1: What are the chances of recovering from a loss?

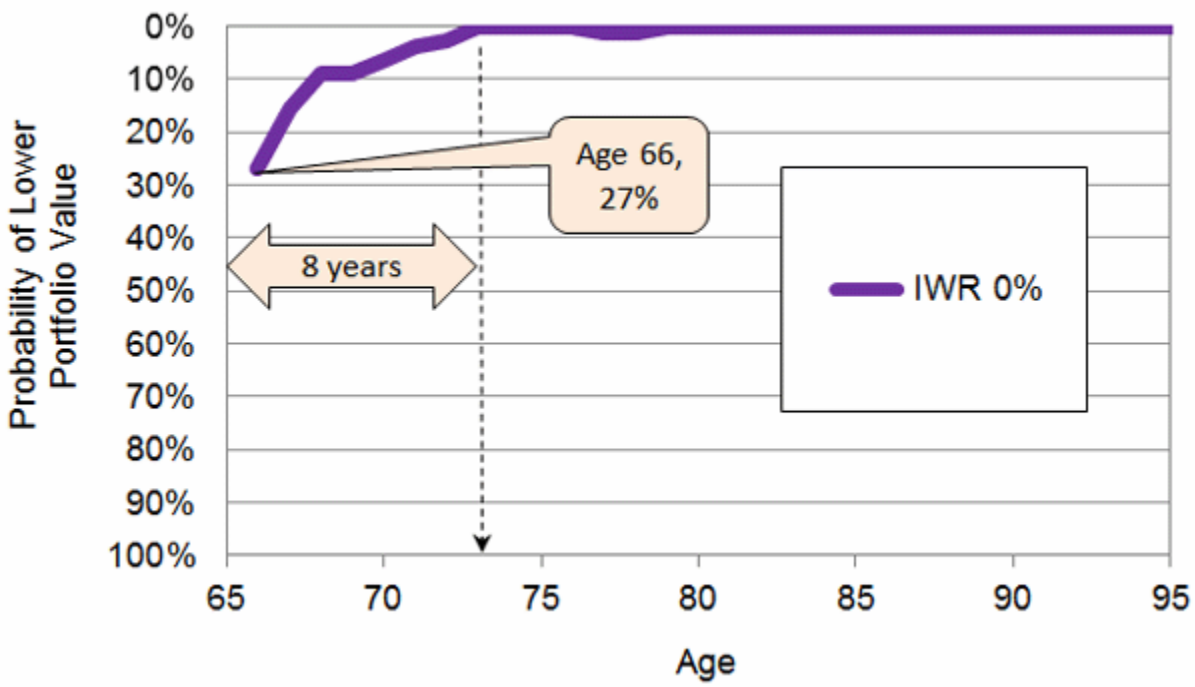
Let's look at an example: Bob is 65. He has $500,000 invested—40% in the S&P 500 index and 60% in fixed income. He is worried about losses in his portfolio during retirement. Let's look at four different scenarios.

Scenario A: No withdrawals

Bob has plenty of other income. He does not need any income from this portfolio. Thus, his initial withdrawal rate (IWR) from this portfolio is 0%. As his advisor, you tell Bob, "Don't worry about losses; over the long term, markets always come back."

Figure 1 shows the chances of recovering from a loss using actual historical data since 1900. The vertical scale indicates the probability of a lower portfolio value. The horizontal axis indicates the age.

Figure 1: Chances of Recovery From a Loss—0% Withdrawals



Source: Jim Otar, CFP, CMT, M.Eng. Jim Otar, CFP, CMT, M.Eng.

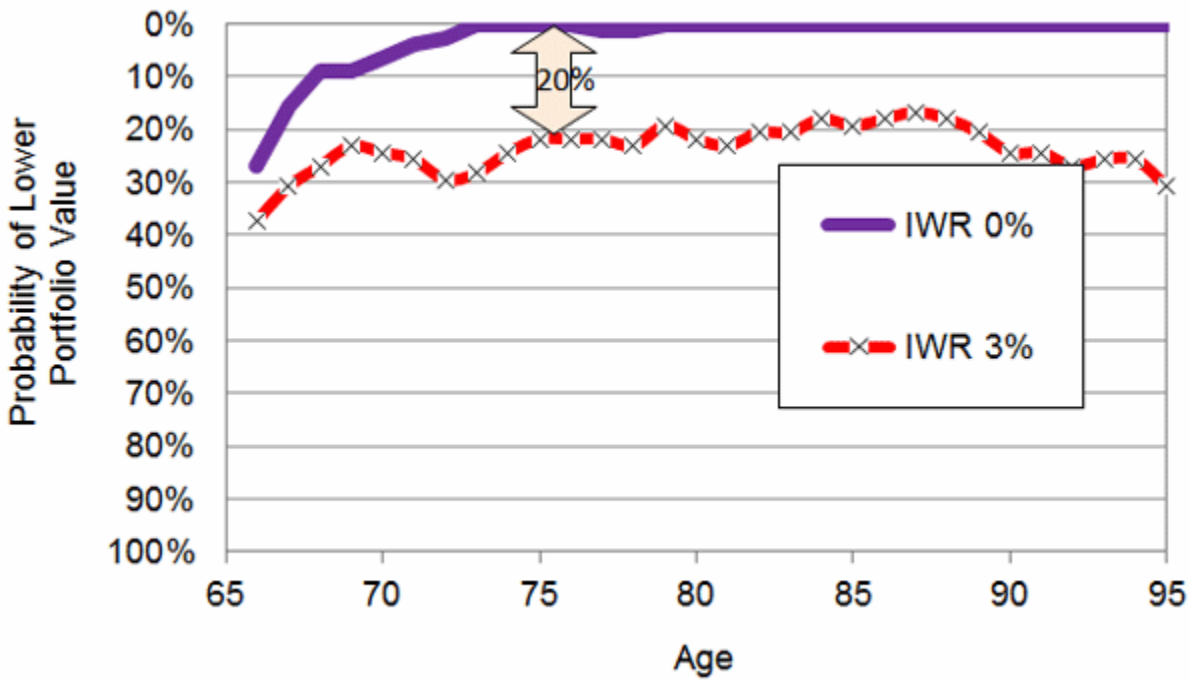
Figure 1 shows that one year later, there was a 27% chance that Bob's portfolio would be lower than what he started with. However, the portfolio inevitably recovered from the loss by age 73, in the worst case. In other words, if there are no withdrawals from the portfolio with this 40/60 asset mix, historically one recovered from the worst loss after about eight years.

Scenario B: 3% Initial withdrawal rate

In this scenario, Bob needs to withdraw $15,000 annually, indexed to the CPI, starting at age 65, for the rest of his life. This is an initial withdrawal rate of 3%, well below the sustainable rate. Can you as his advisor still say, "Don't worry about losses; markets always come back"?

Figure 2 shows the chances of recovering from a loss in the 3% IWR scenario. One year later, there was about a 37% chance that Bob's portfolio would be lower than what he started with. What is worse, even with a low withdrawal rate of 3%, there was a 20% chance that his portfolio would *never* fully recover from a loss. I am not saying that he will run out of money. All I am saying is you should not make a statement like "Don't worry about losses; markets always come back." In this case, markets may come back, but his portfolio might be in a permanent loss situation.

Figure 2: Chances of Recovery From a Loss—3% Initial Withdrawal Rate



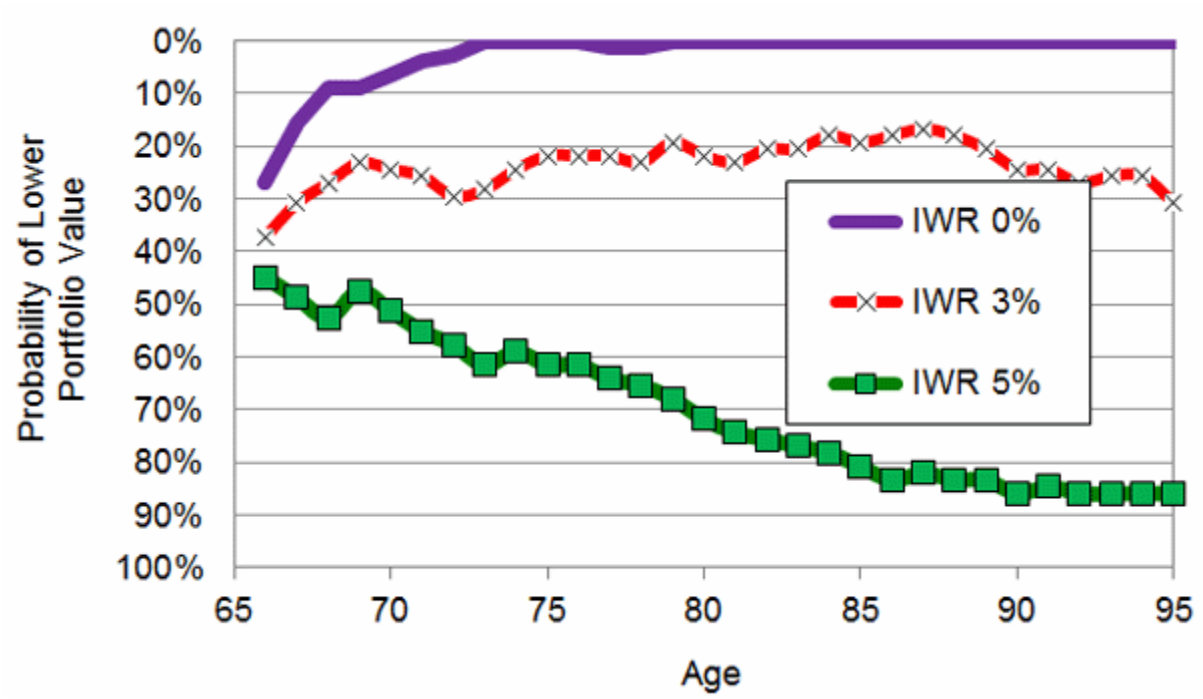
Source: Jim Otar, CFP, CMT, M.Eng. Jim Otar, CFP, CMT, M.Eng.

Scenario C: 5% Initial withdrawal rate

Let's increase Bob's withdrawals to $25,000 annually (5% IWR), indexed to the CPI, starting at age 65, for the rest of his life.

Figure 3 shows the chances of recovering from a loss. The odds are Bob will never see the original amount of his investment ($500,000) after a loss.

Figure 3: Chances of Recovery From a Loss—5% Initial Withdrawal Rate



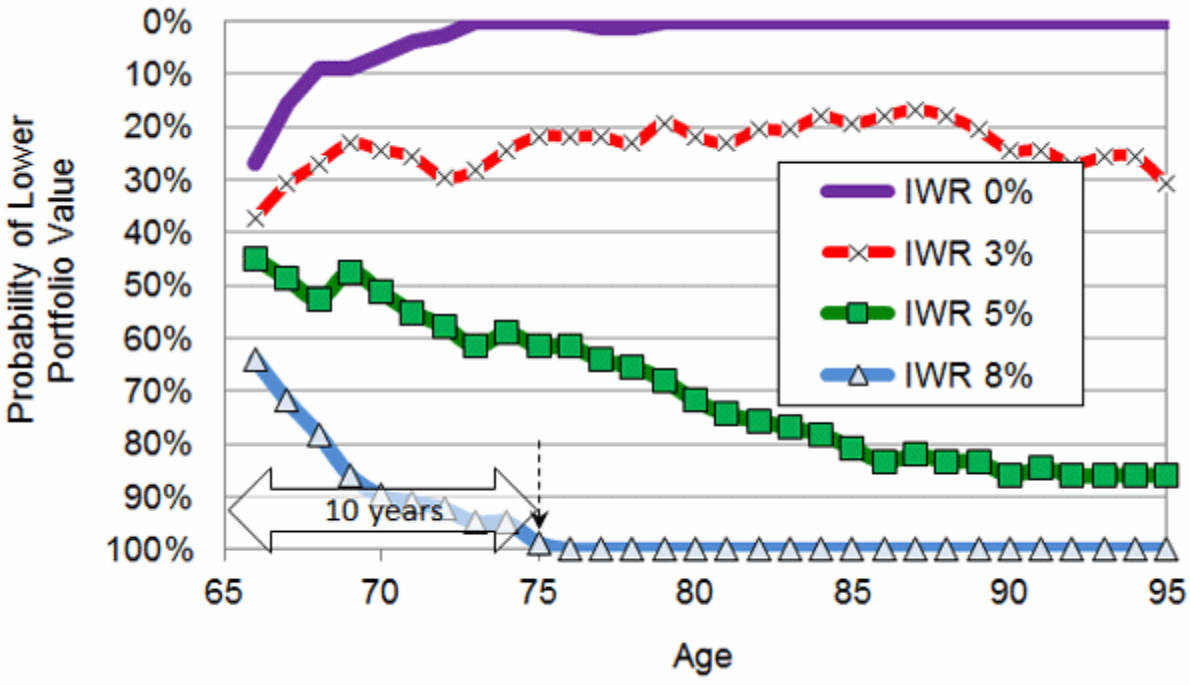
Source: Jim Otar, CFP, CMT, M.Eng. Jim Otar, CFP, CMT, M.Eng.

Scenario D: 8% initial withdrawal rate

Now we increase Bob's withdrawals to $40,000 annually (8% IWR), indexed to the CPI, starting at age 65, for the rest of his life.

Look at Figure 4. After 10 years, there is 100% certainty that Bob will never ever see his portfolio's initial value of $500,000 after a loss.

Figure 4: Chances of Recovery From a Loss—8% Initial Withdrawal Rate



Source: Jim Otar, CFP, CMT, M.Eng.

It is important to understand that the concept of investing for the long term exists only in accumulation portfolios. As soon as a portfolio is switched from accumulation to distribution—even if withdrawals are below sustainable—the idea of long term ceases to exist and the luck factor takes control of the outcome.

If withdrawals are below sustainable, luck determines how much money is left to the estate. If withdrawals exceed sustainable, luck determines how soon the portfolio depletes. If you don't want to rely on luck for lifelong income, you need to pool the risk.

Question 2: How much of a pay cut is necessary to ensure lifelong income?

Suppose Bob decides to withdraw $22,500 annually, indexed to the CPI, starting at age 65, for the rest of his life. Thus, his initial withdrawal rate is 4.5%, the number that William Bengen, financial planner and originator of the 4% rule, said he was comfortable with in a recent article in *Forbes*.

Bob's primary concern is sustainability of income for life. He is worried about outliving his money. He wants his assets to last until age 95, and he wants the probability of depleting his portfolio not to exceed 10%.

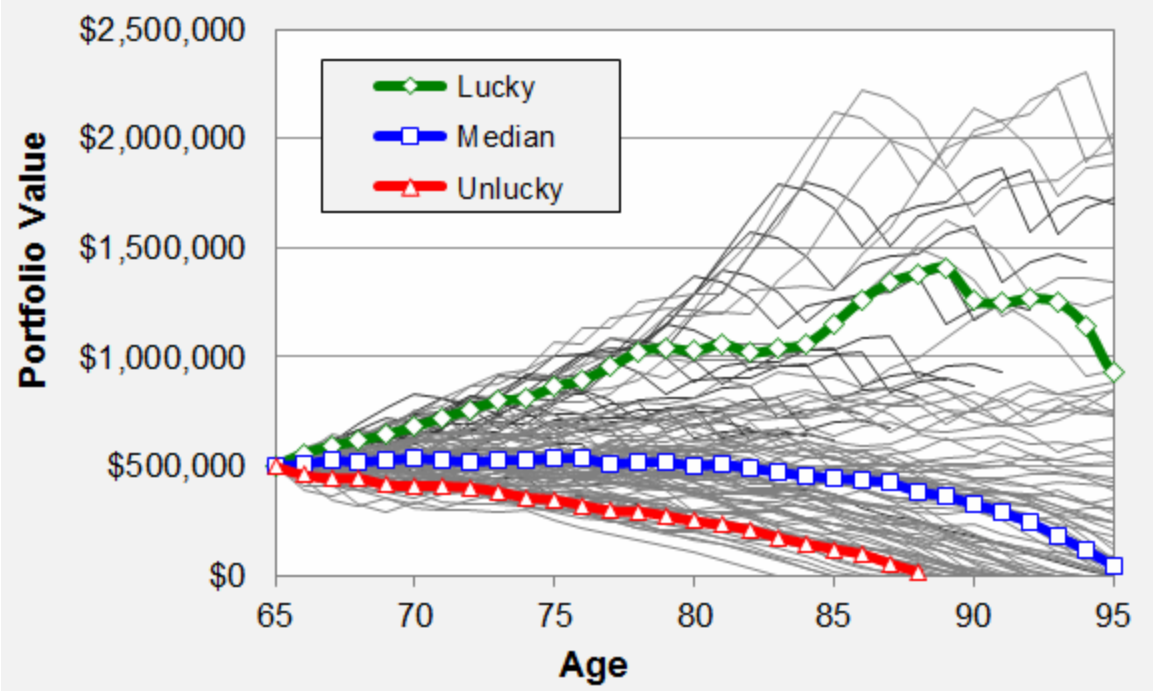
Figure 5 shows the aftcast. This is our base case. On the chart, we see the thin, black aftcast lines. There is one line starting at the left vertical axis for each year since 1900. We define the bottom decile (bottom 10%) of all outcomes as the "unlucky" outcome, the top decile (top 10%) as the "lucky" outcome. The blue line indicates the median

outcome, where half of the scenarios are better and half are worse.

In this example, the probability of depletion by age 95 happens to be 39%. This is way beyond the 10% limit that Bob is willing to risk.

"What?" you might ask. "How can this happen? The initial withdrawal rate is only 4.5%, as Bengen suggests, and the plan is still not adequate?" Correct. This is because the 4.5% withdrawal rate ignores portfolio costs. We don't. Portfolio management costs, advisor fees, trading costs, and all other expenses make the famous 4% rule a little too optimistic.

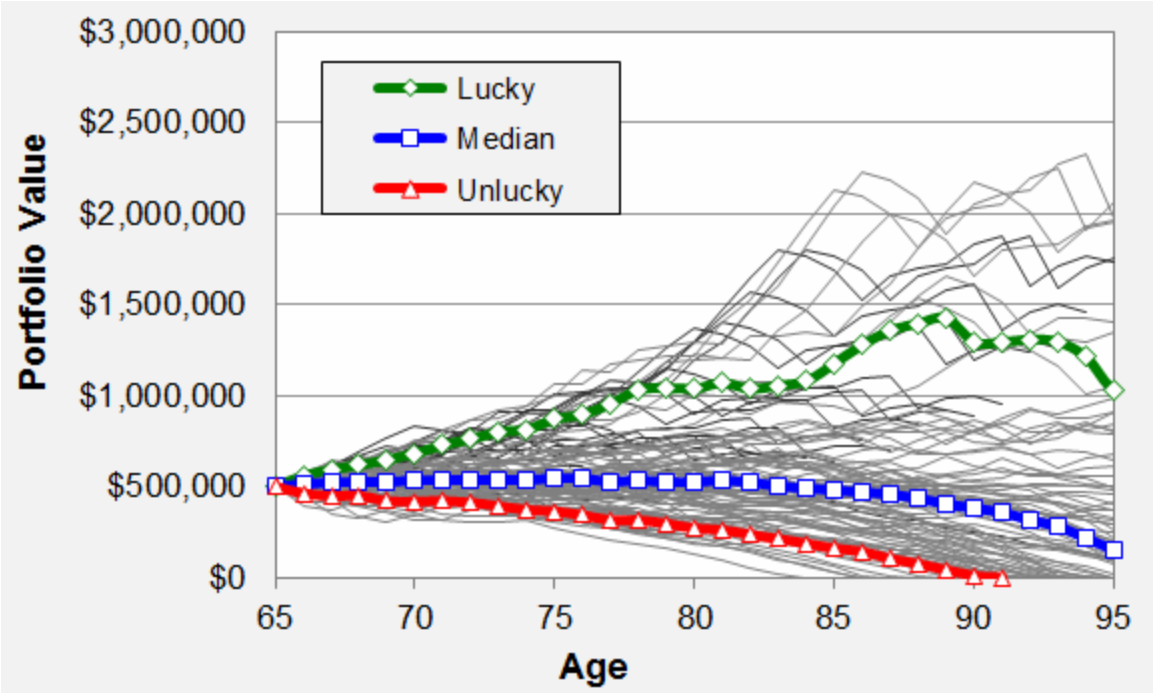
Figure 5: Aftcast of $22,500 Annual Withdrawals
Indexed to inflation from an investment portfolio with starting capital of $500,000



Source: Jim Otar, CFP, CMT, M.Eng.

Now let's modify our base case. Bob is willing to take a 15% pay cut whenever his portfolio grows less than 0% in the preceding calendar year. We call 0% the "growth threshold." Figure 6 depicts the aftcast. Now the probability of depletion by age 95 is reduced from 39% to 33%. Yet when we compare these two charts (Figures 5 and 6), we hardly notice the difference. They both look bad.

Figure 6: Aftcast of $22,500 Annual Withdrawals—0 Portfolio Growth
Indexed to inflation from an investment portfolio with starting capital of $500,000, withdrawals reduced by 15% whenever portfolio growth is less than 0%



Source: Jim Otar, CFP, CMT, M.Eng.

Can we solve the problem by varying the growth threshold? What happens if we increase the growth threshold from 0% to 6%?

Bob takes a 15% pay cut if his portfolio grows by less than 6% in the preceding calendar year. Now the probability of depletion by age 95 is 26%, somewhat better. But now the pay cuts happen more often. Table 1 shows how varying the growth threshold influences the potential frequency of pay cuts.

Table 1: Growth Threshold and Pay Cuts

	2013	
0%	21%	About 1 in 5 years
3%	31%	About 1 in 3 years
6%	48%	About 1 in 2 years

Source: Jim Otar, CFP, CMT, M.Eng.

Be careful with the meaning of "historical average." Just because it says one in five years, it does not mean that the pay cut happens once every fifth year. You might never see a pay cut, or you might see three pay cuts in five years. It is just an average across all 30-year rolling periods during the entire 20th century—nothing more.

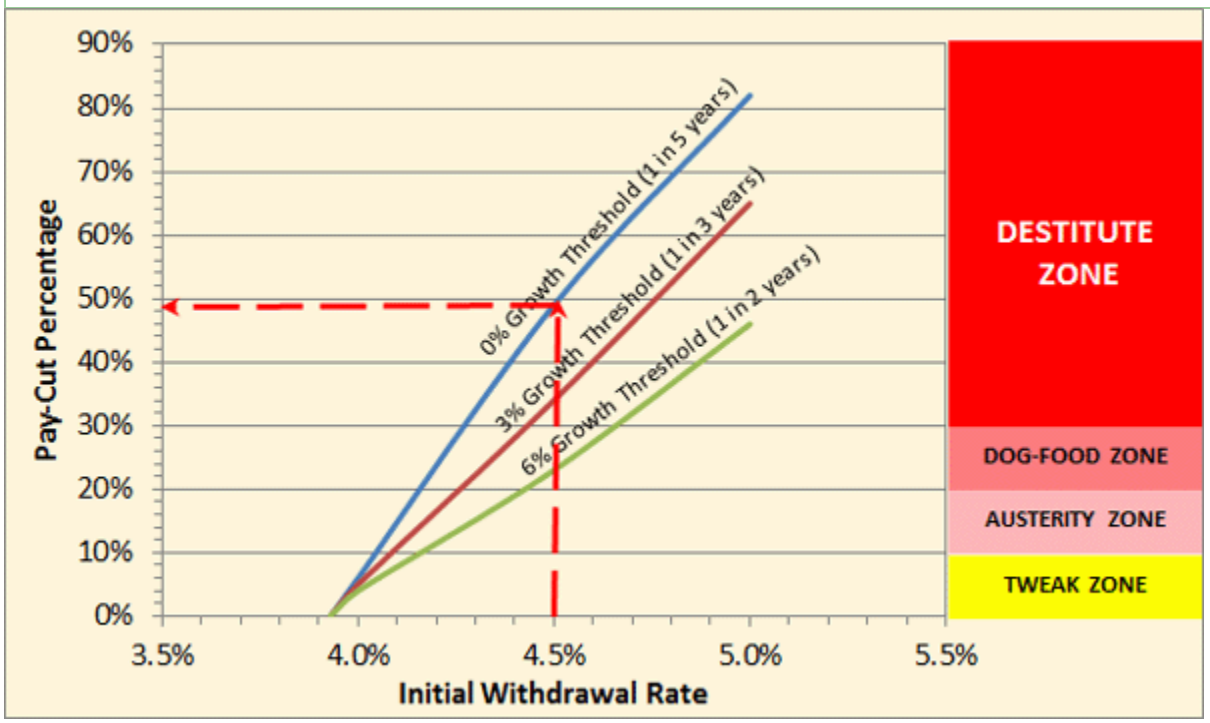
Here are two basic points to remember: (1) The larger the growth threshold, the more often you get pay cuts, and (2) The larger the growth threshold, the smaller the pay cut amounts (for the same initial withdrawal rate and time horizon).

Calculating pay cuts

Finally, we want to know how much of a pay cut Bob needs in order to ensure that the probability of depletion is 10% or less by age 95. His initial withdrawal rate is 4.5%, and he does not want the probability of depletion to exceed 10% by age 95. He is willing to take a pay cut in the year following a bad year, which he defines as portfolio growth of 0% or less.

So, how much is the pay cut in the year following a bad year? Figure 7 answers this question easily.

Figure 7: Pay Cut Calculation to Bring the Probability of Depletion Down to 10% for a 30-Year Time Horizon



Source: Jim Otar, CFP, CMT, M.Eng.

To answer this question, look up the 4.5% initial withdrawal rate on the horizontal scale. Follow the vertical red dashed line up until it intersects the blue line (0% threshold). From that point, draw a horizontal line until it meets the left axis. The pay cut will be 48% and statistically occurs about once every five years.

Never forget that the pay cut a client can tolerate depends on what this money is needed for. It might be for basic necessities such as housing, transportation, or health care, or for discretionary expenses such as travel, donations, and stuff on the bucket list.

If these withdrawals are for basic necessities, and the pay cut exceeds 10% (outside the

Tweak Zone), it is probably not an acceptable proposition. In these situations, suggest other remedies, such as reducing expenses, delaying retirement, creating income from other assets (renting part of the home, cottage, summer home), working part-time during retirement, downsizing the home, selling the home outright and renting, and so on.

The frequency of pay cuts may be another concern. If the pay cuts are required too often or are too deep, you might want to consider annuitization strategies.

If this income is earmarked for discretionary expenses, tweaking income each year is probably a high-maintenance strategy to follow. Each year, you will have to do the calculations, fill out forms, implement the revised withdrawal amounts, and then follow up with the client. Instead consider a strategy that requires lower maintenance, such as withdrawing a fixed percentage of the portfolio value or portfolio growth.

Some overly optimistic academic studies define this type of income adjustment strategy as tweaking. The ramifications of pay cuts can be a lot more severe than the word "tweaking" implies. We think it is far better to disclose any potential pay cuts and their frequency to clients up front, quantitatively, as we demonstrated here, rather than downplaying it with misleading words like "tweaking."

There is one more thing to watch: This type of analysis uses small differences of large numbers. Most Monte Carlo simulators are inadequate to model the sequence of returns and sequence of inflation to start with. In such a calculation environment, all imperfections of the simulators are greatly amplified. The resulting conclusions are significantly distorted, and their results might be too optimistic. Be mindful of what model is used in any analysis.

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