Retirement Planning
Part 8: Investments or Annuity?

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I started my series on retirement planning on December 2000 with the article titled: "Retirement Planning: Roadmap to Where?". In this seven-article series, I demonstrated how each of the following concepts effect one's retirement planning: market cycles, reverse dollar-cost-averaging, inflation, optimum asset allocation, optimum rebalancing frequency, excessive withdrawal rates, random fluctuations, dividends, and MER's. I concluded that current retirement plans produce projections that are far too optimistic. One hundred years of data shows that the current retirement models may be showing only the best-case scenarios that occur at best 10% of the time. These colorful charts are more valuable as a sales tool for the advisor than as a retirement planning tool for the client.

I made two spreadsheet models available for readers: The first model showed the effect of retiring at the beginning of a typical bull or bear market. The second model showed the worst-case and the best-case portfolio life based on historic experience. Both models are still available for downloading at the Canadian MoneySaver site or at my site (www.cotar.org) for free.

In light of these findings, what is the most appropriate way of securing income during your retirement? Are we so smart as to outperform the markets year after year? For mutual fund portfolios, are fund managers so smart as to beat the index year after year? We have already seen that if we hold index funds in a portfolio from which we want to generate income for 30 years, the most we can withdraw is about 3.5% of our asset base during the first year of retirement (adjusted for inflation in subsequent years). Instead of investing in a portfolio, why not buy annuities? Annuities have a lifetime guarantee, some are indexed, some come with a minimum pay period. What is the best strategy?

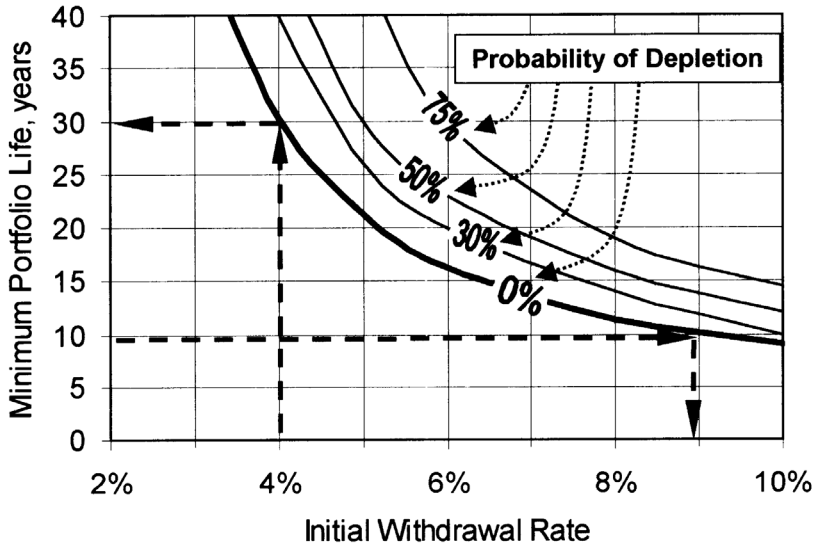
The first question is: "Do I have sufficient asset base that will finance my income needs after my retirement?" Depending on your answer, you can then make better choices.

The chart in Figure 1 (sorry, I just cannot do without my charts!) shows the minimum portfolio life at various withdrawal rates. The chart is based on the most optimum asset mix and rebalancing frequency[1]. In this article, I also assumed that the equity portion of your portfolio outperforms the index by 2% each year.

The horizontal scale shows the initial withdrawal rate as percentage of the initial asset base. The vertical scale shows the minimum portfolio life, i.e. the worst-case scenario during 1900-1999.

The initial withdrawal rate is calculated by dividing the income required during the first year of retirement (in dollars) by the total portfolio value (in dollars). If you are already retired, then use the current annual withdrawal amount divided by the current total portfolio value. Multiply the result by 100 to obtain the percent withdrawal rate.

Figure 1: Minimum Portfolio Life, Equities outperform the index by 2%, Optimum asset mix and optimum rebalancing, 1900-1999



There are four different curved lines on the chart. We first focus on the heavy line. It represents 0% probability of depletion. Using your own withdrawal rate on the horizontal scale, draw a vertical line up to the heavy line on the chart. From there, draw a horizontal line to the vertical scale. On the vertical scale you can read-off the worst-case portfolio life. For example if your initial withdrawal rate is 4% then the portfolio life is 30 years in a worst-case scenario.

[1] For optimum asset mix and rebalancing frequency, see my previous articles or Table 5 in my recently published book "High Expectations and False Dreams"

You can also do the opposite: If you know how long your portfolio should last, you can figure out how much you can withdraw from your portfolio. For example if you need to draw income for only ten years, draw a horizontal line starting at "10" on the vertical scale until it meets the heavy line. Then draw a vertical line down to the horizontal scale. You can see that the maximum withdrawal rate is about 9%.

The three lighter lines above the heavy line represent the probability of depletion at a given withdrawal rate after a certain number of years. For example if your initial withdrawal rate is 4% then by 40 years the probability of depletion is 30%.

Examples:

In the following examples, it is assumed that you want your income to last for 30 years. If you want you can use a different number for your own situation.

Example A: Say you need to withdraw $50,000 from your portfolio annually (adjusted for inflation). Your portfolio value is $1 million. Your initial withdrawal rate is 5%, calculated as $50,000 divided by $1million multiplied by 100%. From the 5% point on the horizontal scale, draw a vertical line (shown as a dashed line on Figure 2) until it meets the heavy line. On the vertical scale, read off the minimum portfolio life as 21 years. This is 9 years short of your 30-year target!

If you extend the vertical line further to 30 years (light dashed line), then the probability of depletion (i.e. running out of money) by 30 years is about 50%. This is not good, is it?

Here is the solution: Use this probability of depletion as the amount of life annuity to buy. In this case, the probability of depletion is 50%; so buy a life annuity with 50% of your portfolio, that is $500,000. Say this life annuity pays[2] you $33,000 each year, indexed by 2% annually, with minimum guaranteed pay of 10 years. Now, you only need to withdraw $17,000 ($50,000 less $33,000) from your remaining investment portfolio of $500,000. Your initial withdrawal rate from your portfolio is reduced to 3.4% (calculated as $17,000 divided by $500,000 times 100%). Thus the "withdrawal stress" on your portfolio is greatly reduced.

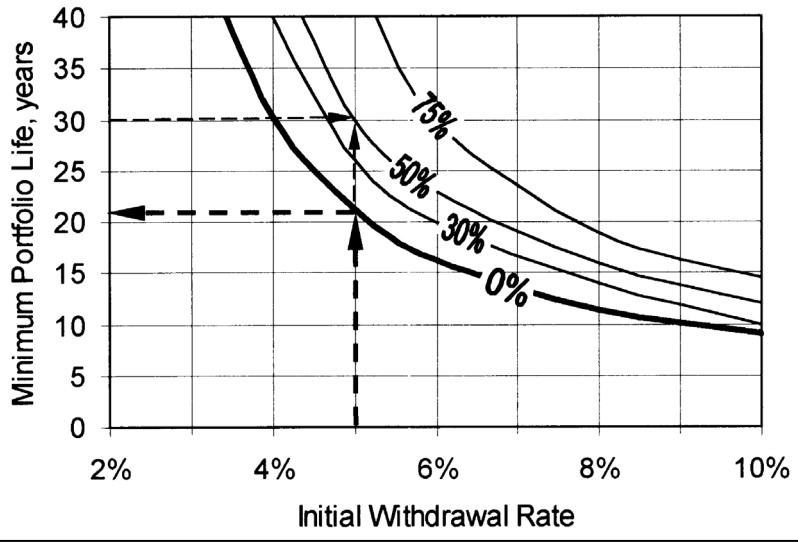
If you follow this logic, not only would you secure half of your income needs from your annuity for the rest of your life, but also by reducing your initial withdrawal rate from your remaining investment portfolio from 5% to 3.4%, you would extend its life from 21 years to at least 40 years! Good for your estate too!

Note that buying the entire annuity all at once may not be a prudent thing to do. In my next and final article in this series, I will write about the best time to buy an annuity and the concept of the "annuity ladder".

Example B: Your annual withdrawal from your portfolio amounts to $40,000. Your portfolio value is $1 million. Therefore, your withdrawal rate is 4%. From the 4% point on the horizontal scale, draw a vertical line until it meets the solid curve. On the vertical scale, read off the minimum portfolio life as 30 years. This is exactly how long you wanted your portfolio to last at the first place. For this portfolio, where we assumed that our choice of equities outperform the index by 2% each year, if the initial withdrawal rate is 4% or less, the probability of running out of money before 30 years is NIL.

Be aware that all the conclusions are based on one hundred years of market history between 1900-1999. The future performance may be different.

Figure 2: Example A



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[2] The annuity payments depend on annuitant's age, gender, interest rates, mortality rates and other factors. Always consult your advisor before taking any action.