

## Do Annuities Reduce Bequest Values?

By Joseph A. Tomlinson, CFP      Mon, May 27, 2013

*Your clients can reduce their risk of running out of money without sacrificing bequest values if they purchase an annuity with part of their savings and aggressively invest the rest, writes Joe Tomlinson in an article that appeared recently in Advisor Perspectives.*



The widely held view that annuities reduce bequest values is too narrow. Adjustments can be made in retirement portfolios to reduce retirement risk without sacrificing the value of one's bequest. Here's how retirees can purchase annuities, adjust allocations in remaining assets and achieve improved retirement outcomes.

### **An example**

Let's take a 65-year-old retired female with retirement savings of \$1 million, who requires \$30,000 each year with annual inflation increases. I assume that she has a 22-year average life expectancy and treat longevity as variable in the analysis. I use Monte Carlo simulations of investment performance with stocks assumed to earn an average annual return after inflation of 4.8% with a standard deviation of 20.3%, and bonds assumed to earn a 0% real return with a 5.7% standard deviation.

I assume investment expenses of 0.15%. These returns are significantly lower than historical averages and reflect the reasoning in my February 2013 Advisor Perspectives article on asset class returns. Because I've assumed lower-than-historical returns, I've reduced the withdrawal assumption to 3%, from the more typical 4% used in retirement planning research. (Photo of Joe Tomlinson. This article originally appeared in [Advisor Perspectives](#).)



To measure retirement success, I use the probability of running out of money and expected bequest values. In order to facilitate comparisons in today's terms, I calculate bequests as present values and use a discount rate of 2.97% after inflation, which is the estimated return for a 65/35 stock/bond portfolio. All the analysis is pre-tax.

If the woman in this example invests in a 65/35 portfolio, the modeling indicates that she will leave an average bequest with a present value of \$524,000 and face a 9% probability of depleting her savings during retirement. If she were concerned about the risk of running out of money, an option would be to purchase an inflation-adjusted single-premium immediate annuity (SPIA) to provide an income to meet the

withdrawal needs.

Based on rates from Income Solutions®, the current payout rate for a 65-year-old female with such an annuity is 4.19%. An annuity generating an initial annual income of \$30,000 would cost \$716,000, leaving \$284,000 to invest. By purchasing the SPIA, she could completely eliminate the risk of depleting her savings, but the present value of her expected bequest would be reduced to \$284,000, down from \$524,000.

Therefore, purchasing the SPIA would be the equivalent of paying a \$240,000 fee today to eliminate the retirement shortfall risk. Given this cost, her reluctance to purchase a SPIA would certainly be understandable. But something is missing from this analysis.

### Adjusting for risk

Not only does the SPIA purchase reduce the risk of running out of money, but also it dramatically reduces overall investment volatility. A SPIA is essentially a fixed income investment with the additional benefit of pooled longevity. In effect, the SPIA purchase converts a 65/35 stock/bond portfolio to an 18/82 portfolio, if the \$284,000 that is left over is invested 65/35. The reduction in bequest values reflects the shift to fixed income. It does not reflect an inadequate return or other deficiency in the SPIA product.

Conceptually, the stock allocation could be increased for the remaining \$284,000 above 65/35 in order to bring overall allocations more in line with the original systematic withdrawal strategy. To analyze the impact, we can compare expected bequest values, but we also need to measure how changes in stock allocations affect the volatility of bequests.

For this analysis, I measure bequest volatility as the change in the present value of bequests from a 1% reduction in average assumed stock returns. I run Monte Carlo simulations with reduced stock returns, and my risk measure is the difference in the expected present value of bequests before and after the return reduction. Strategies with heavier allocations to stocks will show more bequest volatility. The chart below presents outcomes based on this type of analysis.

Strategy	Probability of failure	Expected PV Bequest	Bequest Volatility Measure
Systematic withdrawal 65/35 stock/bond	9%	\$524,000	\$92,000
Purchase SPIA, 63/35 on remainder	0%	\$284,000	\$32,000
Purchase SPIA, 100% stocks on remainder	0%	\$415,000	\$80,000

### Comparison of strategies

Based on this volatility measure, the purchase of the SPIA without changing the allocation of remaining assets reduces risk by almost two-thirds. Even going to 100% stocks with remaining assets is not sufficient to bring the expected bequest back to the systematic withdrawal level, but there is room remaining to increase volatility. One way would be to invest in a higher beta stock portfolio. I tested a portfolio with a beta of 1.25, which raises the real return to 5.85% and volatility to 25.40%.

It brings the expected bequest present value up to \$512,000, but it overshoots on the volatility measure, raising it to \$102,000. So we are not able to get all the way to the original bequest with the same or lower volatility, but we are able to move substantially in that direction.

### Alternate strategies

Strategy	Probability of failure	Expected PV Bequest	Bequest Volatility Measure
<i>Systematic withdrawal 65/35</i>	9%	\$524,000	\$92,000
Reduced SPIA purchase to cover 85%	1%	\$461,000	\$93,000
SPIA with fixed step-ups	>0%	\$537,000	\$95,000
DIA with 2.35% bond ladder	>0%	\$405,000	\$88,000
DIA with 3.35% bond ladder	>0%	\$502,000	\$96,300
VA/GLWB with 1.50% annual charge	>0%	\$518,000	\$79,000
VA/GLWB with 3.50% annual charge	>0%	\$472,000	\$75,000

I also tested strategies using SPIAs somewhat differently and using other annuity products. I'll briefly describe various strategies and provide a chart comparing outcomes.

*Reduced SPIA purchase* - If the SPIA rate is greater than the required withdrawal rate (4.19% versus 3% in this example), purchasing a SPIA to cover a portion of withdrawals will lower the percentage withdrawal requirement on the remainder. For example, it would cost \$609,000 to purchase a SPIA to provide an inflation-adjusted income of \$25,500 (85% of the required \$30,000). That would leave \$391,000 to provide withdrawals of \$4,500 to complete the \$30,000 - a withdrawal rate of only 1.15%. So it may be feasible to reduce SPIA purchases slightly and invest more in stocks, without much risk of depleting savings.

*SPIAs with fixed annual increases* - It's expensive to purchase SPIAs that provide increases based on actual inflation, as I demonstrated. An alternative is to purchase an annuity with fixed annual step-ups targeting expected inflation. For example, if expected inflation based on Treasury and Treasury inflation-protected securities spreads is 2.30%, the payout rate for a SPIA with 2.30% annual step-ups is 4.91% This beats the 4.19% payout for a true inflation-adjusted SPIA.

*Deferred income annuities (DIA)* - These products are like SPIAs, but with long deferrals before annuity payments begin. For example, a client could purchase a DIA at age 65 with payments beginning at 85. The product is offered with level payments and with step-ups. There are choices to be made about how to invest funds to support withdrawals during the deferral period. One approach, similar to the SPIA strategy, involves using a bond ladder. Performance will depend on both DIA pricing and yields earned on the bonds.

*Variable Annuities with Guaranteed Lifetime Withdrawal Benefits (VA/GLWB)* - There are low-cost versions with annual charges on the order of 1.5% (for the annuity, investment expenses and the guarantee), including a directly-offered Vanguard product and institutional products beginning to be offered in 401(k) plans. There are also commission-based higher-priced versions with charges averaging about 3.5%.

The chart below shows outcomes for these strategies, with the systematic withdrawal outcomes repeated at the top for comparison. All of these alternative strategies, except for the VA/GLWB, assume excess funds not needed for annuity product purchases or bond ladders are 100% invested in stocks.

### **Alternative strategies**

Reducing the SPIA purchase to cover 85% of required withdrawals moves further toward the systematic withdrawal bequest outcome, compared to purchasing an SPIA and investing the remainder entirely in stocks (see first chart, \$415,000). The probability of failure is not zero, but it is substantially reduced from pure systematic withdrawal, and the bequest volatility measure is about equivalent.

The SPIA with fixed step-ups exceeds the systematic withdrawal expected bequest with similar bequest volatility. The probability of failure is shown as greater than zero because it cannot be precisely measured. Payments will continue for life, but there may be some positive or negative mismatch depending on how actual inflation turns out in relation to the step-ups.

For the DIA strategy, I've tested a bond ladder with a nominal yield of 2.35%, as well as a bond ladder with an assumed 1% corporate bond spread. The DIA strategy with a higher- yielding bond ladder gets close to the systematic withdrawal bequest numbers. An advantage the DIA has over the SPIA is that the up-front commitment is much less, and there is more liquidity. Fixed step-ups of 2.30% are assumed for the DIA, so the failure probability is similar to the SPIA with fixed step-ups.

Bringing a VA/GLWB into this comparison presents complications because, for a 65-year- old, these products typically allow 5% withdrawals with potential increases based on investment performance, but those increases are usually less than actual inflation. I analyzed these examples assuming the purchase of a large enough VA to provide some overpayment in the early retirement years to compensate for expected underpayments later.

Because the VA/GLWB product itself involves a mix of stocks and bonds (with a typical maximum stock allocation of 65%), allocating remaining funds 100% to stocks no longer works - it overshoots on volatility. I found that allocating 75% to 80% of the remaining funds to stocks keeps volatility within reasonable bounds. I show examples based on a low-cost product and a high-cost product. The low-cost product does very well on the bequest versus volatility tradeoff - perhaps the best of all the strategies - although this result is uncertain because of all the assumptions and approximations. The higher cost VA/GLWB shows the give-up in bequest value resulting from the higher charges.

Except for the higher cost VA/GLWB, all annuity products used in the examples are low- cost versions, which explains the rough similarity of results for the various strategies. One might be tempted to fine-tune these strategies to determine which is optimal, but the outcomes are results of the particular structure of this example and of the underlying investment assumptions, so I do not believe such fine-tuning is warranted.

When evaluating annuity products, take a holistic view of combinations of products and investment strategies and avoid a narrow focus on only part of the picture.

## **Conclusion**

It is feasible to use a portion of one's retirement assets to purchase annuities, while aggressively allocating remaining assets in ways that dramatically reduce the risk of depleting savings without sacrificing bequest values. This approach gives advisors more flexibility in choosing which annuity products to recommend. Rather than favoring a particular product, I recommend choosing a low-cost annuity product and making portfolio adjustments to meet objectives. Client characteristics are always important in determining which strategy works best.

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