

>>> Can Investors Make Retirement Income

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When people retire they want their retirement savings to sustain them for the rest of their lives. However, increased longevity and volatile financial markets raise concerns among retirees that they may find themselves in diminished financial circumstances in later years. Even with the more predictable returns of a conservative investment portfolio, investors could outlive their assets due to low returns.

Retirees wonder what amount can be safely withdrawn from an investment portfolio without depleting assets. How do they choose an asset allocation and distribution strategy that will provide enough money to maintain a comfortable lifestyle, keep up with inflation, and not run out of money? To address these concerns, should retirees annuitize some or all of their retirement savings?

These questions are the focus of a study by John Ameriks, a research economist at the TIAA-CREF Institute, Robert Veres, editor and publisher of *Inside Information*, a newsletter for financial advisors, and Mark J. Warshawsky, former director of research at the TIAA-CREF Institute. Their findings could prove valuable for investors and financial planners looking for the optimal retirement portfolio.

“People spend a lot of time configuring retirement portfolios to hedge market risk, when they should be more concerned about maintaining their income levels for life,” said Ameriks. To get at the issue of maintaining income, the team designed the study to measure 1) the probabilities that particular allocations will provide inflation-adjusted income for life and 2) whether annuitizing part of the portfolio helps or hinders that probability.

The first objective was to examine how safe it is for a retired investor to make 4.5% annual inflation-adjusted withdrawals from a nest egg. Previous studies by other researchers indicated that an investor liquidating 4% from a pure stock portfolio could expect to sustain income over

many years 80% of the time. However, the authors believe retired investors should diversify more, given wide uncertainties about future rates of return, inflation and longevity. So they asked: Would increasing portfolio diversification to include stocks, bonds and cash help an investor be reasonably sure the money would last the rest of his or her life, with

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an initial 4.5% annual withdrawal and increases each following year to account for inflation?

In setting up their first experiment, the authors constructed four hypothetical portfolios, each with varying percentages of stocks, bonds and cash. To estimate a broad range of possible returns, they ran each portfolio through a Monte Carlo analysis, in which numerous historical investment returns and inflation data were drawn at random. This method reflects future possibilities better than simple historical returns, which are a single sequence of numbers that probably will not repeat themselves. The analysis ran 10,000 trials using data from the period 1946 – 1999.

The test used four portfolios: conservative (20% stocks, 50% bonds, 30% cash); balanced (40% stocks, 40% bonds, 20% cash); growth (60% stocks, 30% bonds, 10% cash); and aggressive (85% stocks, 15% bonds). The simulations revealed the probabilities of maintaining 4.5% inflation-adjusted annual withdrawals for 20, 25, 30, 35 and 40 years with each portfolio.

Results showed that – on average, but not always – the

Lifetime?

higher the percentage of equities in the portfolio, the greater the chance that the retired investor could maintain inflation-adjusted income levels, especially if he or she lives for more than 20 years in retirement.

Growth and aggressive portfolios

On average, the growth and aggressive portfolios showed higher probabilities of maintaining the 4.5% inflation-adjusted income for an investor living 25, 30, 35 or 40 years. These portfolios also had higher average remaining balances at the end of each lifetime. In fact, the rate of growth exceeded the withdrawal rate, so that the longer the lifespan, the more money was left in the portfolio at the end of the investor's life. However, while growth and aggressive portfolios outperformed the others on average, there were instances in which even these portfolios ran out of money.

Conservative and balanced portfolios

In the scenarios using a 20-year lifespan, the conservative and balanced portfolios had a higher success rate in providing lifetime income. This may be due to less short-term volatility in these portfolios. However, over longer time periods, the conservative and balanced portfolios were less likely to provide adequate income.

Holding portfolios with a higher percentage of equities consistently increased the probability of sustaining inflation-adjusted withdrawals for life. But a note of caution: The

Sample results showing the probabilities that each portfolio would allow the retiree to withdraw 4.5% (inflation-adjusted) annually to meet living expenses over 20, 30, and 40 years

Life expectancy: 20 years in retirement

Portfolio Type	Average success rate in making withdrawals last 20 years
Conservative	99.1%
Balanced	99.1%
Growth	98.8%
Aggressive	98.3%

Life expectancy: 30 years in retirement

Portfolio Type	Average success rate in making withdrawals last 30 years
Conservative	32.6%
Balanced	76.3%
Growth	87.4%
Aggressive	91.6%

Life expectancy: 40 years in retirement

Portfolio Type	Average success rate in making withdrawals last 40 years
Conservative	2.9%
Balanced	44.6%
Growth	73.2%
Aggressive	85.3%

results in the tables are averages. Each trial gave a range of outcomes. In the worst scenarios the money ran out before death, and in the best sce-

narios money remained after death. The growth and aggressive portfolios had the widest ranges of outcomes. The next step was to explore how

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distribution of funds through a fixed annuity would affect the probable outcomes. Annuities reduce the risk of outliving one's money because assets are pooled and the risk of one person living a very long time is reduced by the probability that others will die sooner. Also, fixed annuity payments are predictable. Another consideration: with history's strongest equity bull market now over, spreads between equity and more conservative investments may stay in a narrower range. On the down side, locking in a rate of return for 20 years or more could affect an investor's ability to keep up with inflation. The annuity used in the study assumes a 65-year-old annuitant receiving a 7% fixed rate of return, net of fees.

The Monte Carlo analysis was run again, annuitizing 25% and 50% of the investor's nest egg. Non-annuity assets remained in one of the four portfolios described earlier.

The results of 10,000 trials showed that annuitizing 25% of the portfolio increased the probability that retired investors would maintain their inflation-adjusted income their entire lives. Annuitizing 50% of the portfolio further increased this probability. The results were consistent for all four portfolios, for life expectancies at age 65 of 20, 25, 30, 35 and 40 years.

There are tradeoffs: Because annuity payments in this study are fixed, an investor must withdraw a greater amount from the non-annuity nest egg to maintain inflation-adjusted income. That means less money left over when an investor dies. If the investor's main concern is adequate income for life, not leaving assets for heirs, the annuity is very attractive. If the investor is aggressive and wants to leave wealth to heirs, the annuity may be less appropriate.

The study suggests that it is possible to withdraw 4.5% of one's income the first year of retirement,

increase the withdrawal each year to keep up with inflation, and not run out of money. However, the probability of success depends on the investor's asset allocation and the decision whether to place a portion of assets in an annuity upon retirement. Also, knowing that it is possible to sustain a 4.5% inflation-adjusted withdrawal rate helps in targeting the size of one's nest egg.

"The findings also open the door to further analysis," says Ameriks. "One approach would be to show the effects of taxes." (For a discussion of the effects of capital gains taxes on portfolio decisions, see "Optimal Consumption and Investment with Capital Gains Taxes," on page 4 of this issue.) Ameriks adds, "Another approach would be to gauge the effects of a variable annuity on the levels of retirement income. In fact, this will be the focus of a future research project undertaken by the Institute."

The authors conclude that the benefits of portfolio diversification and annuities may help investors and financial planners select a post-retirement allocation and distribution plan better suited to considerations of age, health, lifestyle and other factors. It may also help reduce anxiety about volatile markets. If the market declines, retirees would not feel as much of their assets are at stake if a certain amount is in an annuity. Indeed, by allowing individuals to feel assured of having sufficient sources of guaranteed income, an annuity can free them to invest part of their assets for growth to help protect against inflation during their retirement years. ■

Average success rate in making withdrawals last 30 years with different percentages of the portfolio annuitized

Life Expectancy: 30 years in retirement			
Portfolio Type	No annuity	25% annuity	50% annuity
Conservative	32.6%	53.3%	81.3%
Balanced	76.3%	85.1%	94.5%
Growth	87.4%	92.2%	96.7%
Aggressive	91.6%	94.6%	97.5%