

Longevity Risk, SPIAs And What Retirees Should Know

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While longevity risk has started to get a lot more attention as an abstract notion, the sales of single premium immediate annuities, which are meant to protect against this risk, remain quite modest. Could it be that the value proposition for SPIAs needs to be better understood?

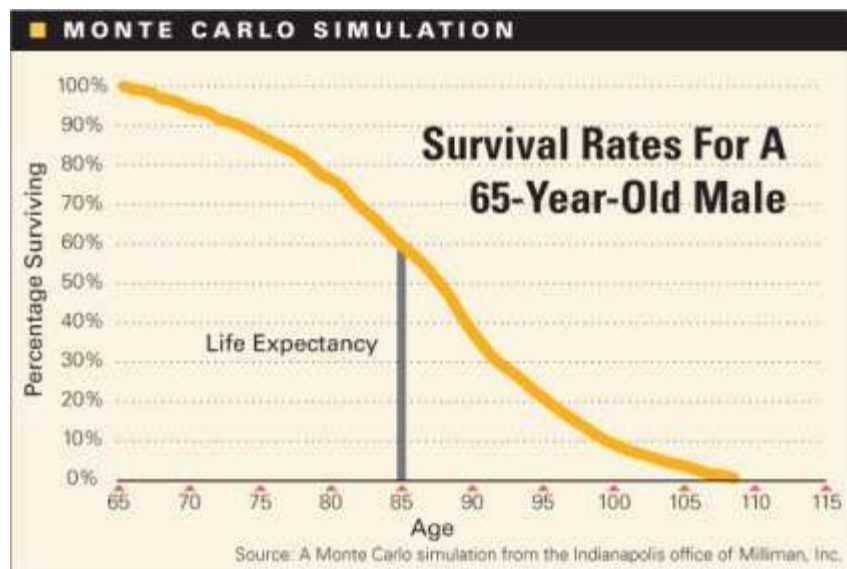
To appreciate the importance of longevity risk, take a look at what is happening in Europe. Recently, several pension plan managers eliminated longevity risk in their pension plans by transferring the mortality risk to insurance companies. Some of the insurers have in turn reinsured part of the risk to reinsurers. It is now expected that there will be more such transactions throughout Europe. If the managers of these pension plans—plans large enough to mute the impact of any one person's longevity—are concerned about longevity risk, it seems that individuals responsible for their own retirement incomes should also be concerned about it.

For some perspective on this, let's compare the numbers (such as fund values and payout amounts) between SPIAs and a fixed investment account.

The comparison centers on the interest rate and mortality risk, although it admittedly ignores liquidity risk, a notable drawback of many SPIA designs. This simple comparison, which ignores taxes for the sake of simplicity, looks at a 65-year-old male who is purchasing a SPIA versus a 65-year-old male who keeps the money in a fixed investment account.

In the current interest rate environment, fixed investment accounts are crediting around 3.75%, and a reasonable SPIA monthly payout rate for a 65-year-old male is \$6.95 for a \$1,000 deposit.

If the man seeks a \$5,000 monthly lifetime payment for retirement, it will cost him \$719,424 to purchase a SPIA. On the other hand, if he deposits the same amount into



an investment account with a 3.75% interest rate and makes systematic withdrawals of \$5,000 a month, the investment account will run out of money before the man turns 81.

This example assumes the investment rate stays constant at 3.75%. If the interest rate drops to 2.75% after one year, the investment account runs out of money before the retiree turns 80. If the interest rate increases to 4.75% after one year, the investment account runs out of money when the retiree is 82.

In contrast, the interest rate for the SPIA is effectively locked in at issue and embedded in the payout rate.

As shown in this example, interest rate movements of 1% do not have a dramatic impact on the duration of the investment account.

Keep in mind, a rule-of-thumb annual payout of 4% of a retirement account would require a \$1.5 million fund to offer the same \$5,000 monthly payment as in the above example. This larger investment account with smaller percentage withdrawal amounts would be more sensitive to interest rate movements than the given example. However, the longevity risk still has a much larger impact.

The life expectancy of a typical male annuitant at age 65 is approximately 20 years or to age 85. In the above example the investment account ran out of money 4 years before age 85.

Running a Monte Carlo test using an annuity industry mortality table facilitates review of the probability of outliving retirement savings.

Almost 75% of 65-year-old annuitants are expected to live to at least age 81, according to the Monte Carlo test. That is a large percentage of the pool that, in the given example, would be better off choosing a SPIA over a fixed investment account. Even if interest rates increase an additional 100 basis points to 4.75%, the percentage is still more than 65%.

The mortality risk at the other end of the spectrum for SPIAs is that the annuitant may die soon after purchasing the SPIA and therefore the estate has to forfeit the SPIA purchase amount.

According to the Monte Carlo test, less than 13% of annuitants are expected to die within 10 years of the purchase, and by that time the survivors would have received \$600,000 in payments. More than 83% of the annuitants are expected to receive total payments that exceed the initial deposit.

The chart shows the percentage of annuitants that are expected to die after the specific attained age.

The numbers are very telling. Even if one fails to understand why pension plans in Europe may want to transfer longevity risk to insurance companies, the numbers do not lie about why individuals may want to do the same.

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