FUNDING RELIABLE SPENDING THROUGH INSURED RETIREMENT INCOME

A White Paper for American Equity by Michael Finke, PhD

MICHAEL FINKE, PH.D.

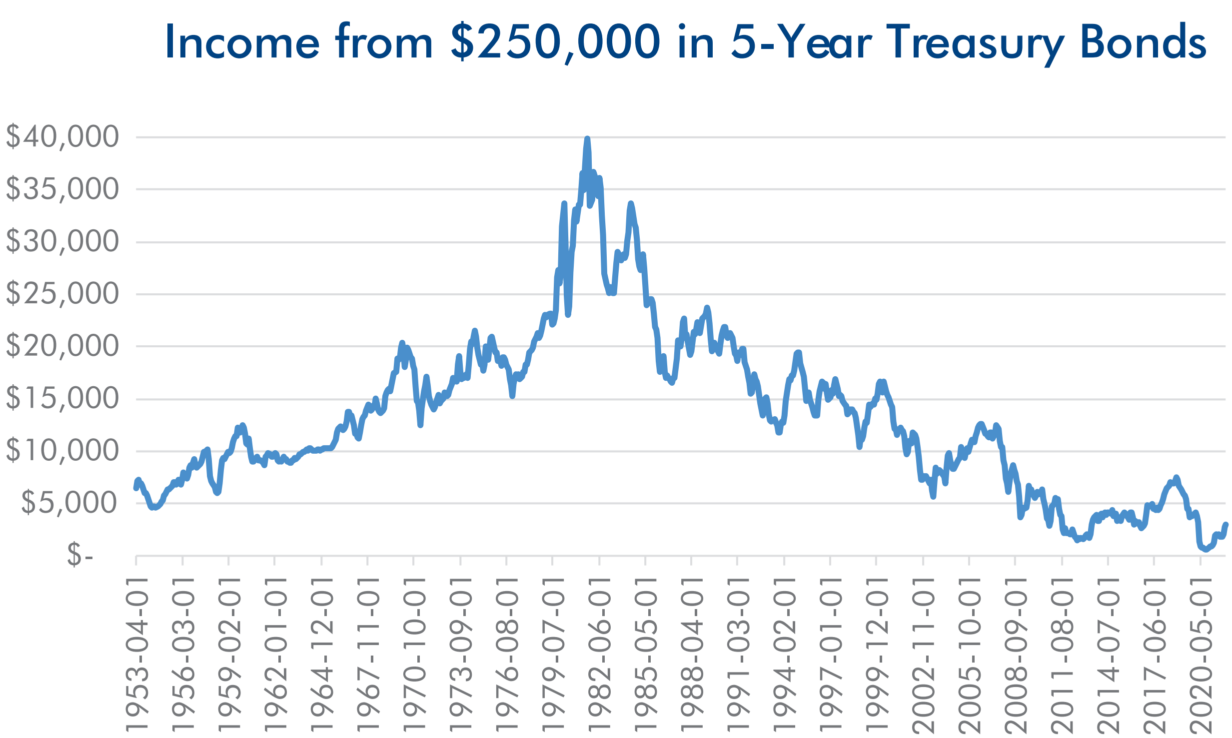
Michael Finke, Ph.D. is a professor of wealth management and Frank M. Engle Distinguished Chair in Economic Security Research at The American College of Financial Services. He received a doctorate in consumer economics from The Ohio State University in 1998 and in finance from the University of Missouri in 2011. He led the Retirement Planning and Living Consortium at Texas Tech University before moving to The American College, and is a nationally known researcher in the areas of retirement income planning, retirement spending, life satisfaction, and cognitive aging. He is a frequent speaker at financial planning conferences and was named one of the 25 most influential people in the field of investment advising in 2020 and 2021 by Investment Advisor Magazine.

Funding Income with Retirement Savings

Today, fewer than 20% of workers age 60-69 will retire with a pension. Pensions make it easy to understand how much we can spend each month. Without a pension, retirees may invest in more conservative assets (like bonds or CDs) whose value remains relatively stable over time and risky assets (like stock mutual funds) that can rise or fall with economic cycles but have the potential to provide higher growth. Retirees must then decide how much they can safely take out of their portfolio each month. Since none of us know exactly how long retirement will last, or what the returns will be on either conservative or risky assets, this isn't easy.

A consumer (or "retiree") may hope to simply live off the dividends and interest earned on their assets without spending down their savings. While this may have been a reasonable option in previous decades, stocks and bonds today provide less income than at any period in United States history. The current dividend yield on the S&P 500 is just 1.29%. Since 1926, the S&P 500 dividend yield has been exactly 3% higher (4.29%). An investment of $250,000 in funds that represent the S&P Index historically produced $10,725 of income each year. Today, the same amount produces just $3,225 of annual income.

More conservative investments like bonds, money market accounts or CDs are also providing historically low interest income. For example, 5-year Treasury bonds provide a yield of 1.16% today compared to an average yield of 3.77%. An investment of $250,000 in treasure bonds today produces $2,900 of annual income compared to the historical average of $9,425.



[1] Health and Retirement Study, University of Michigan, 2018 data.

[2] Dividend yield on the S&P 500 index on November 26, 2021.

[3] It is not possible to invest directly in an index.

[4] www.treasury.gov as of November 26, 2021.

As previously discussed, a $500,000 balanced investment of the assets that make up the S&P 500 Index and Treasury bonds historically produced $20,150 of income each year, but today only produces $6,125. For most retirees, this isn't enough income to live on.

One alternative is to spend down one's savings over time to provide an adequate lifestyle while avoiding the risk of potentially running out in old age. How long should the money last? Consider the following table based on the Society of Actuaries' individual annuity mortality data for healthy 65-year old Americans[5].

Retirement Length	Probability of Living Longer for a Single Female	Probability of Living Longer for a Couple
20 Years	70.0%	89.0%
22 Years	62.6%	83.3%
24 Years	54.1%	75.3%
26 Years	44.9%	65.1%
28 Years	35.6%	53.1%
30 Years	26.7%	40.4%
32 Years	18.5%	28.1%
34 Years	11.7%	17.6%
36 Years	6.7%	9.9%
38 Years	3.4%	4.9%
40 Years	1.5%	2.1%

A healthy woman has a 20% chance of living beyond age 96 (and a healthy man has a 20% chance of living past age 94). As a couple, there is a 20% chance that retirement will last beyond 33 years (age 98). These numbers reflect the significant improvement in longevity experienced by healthy Americans in recent decades, which is good news. However, living longer means spreading one's savings over more years to fund lifestyle expenses. The amount of income that can be taken out of investments may be significantly lower when a retiree must protect against the possibility that retirement could last more than 30 years.

While retirement has become more expensive and retirees are living longer, many have fortunately seen their investments rise in value over the last decade. A near-retiree may consider locking in these investment gains to gain greater assurance by funding a future lifestyle.

Spending More from Conservative Investments

Imagine that you've baked a lasagna to feed a group of 10 friends after a basketball game. You're not sure how many are going to stop by and have a slice. When the first friend arrives, how big of a slice do you cut? Six pieces will be large enough to keep everyone happy. But if all 10 players show up, you'll be out of luck. If you cut pieces that are too large for the first 3 or 4 players that arrive, what will happen if the 8th player knocks on the door and you've already run out of lasagna? Because most of us would rather not take the risk, we will likely cut smaller pieces.

The amount of income that can be taken out of investments may be significantly lower when a retiree must protect against the possibility that retirement could last more than 30 years.

[5] http://www.actuary.org/pdf/naic/Payout_Annuity_Report_092811.pdf

Similarly, retirees face the prospect of funding spending over the next 15, 20, 30, or even 40 years. How big a slice of their nest egg should they cut to fund spending the first year of retirement? Many will likely spend less to reduce the chance of running out. By facing the risk of an unknown time horizon, referred to by economists as longevity risk, retirees could fail to enjoy the money they've saved for the purpose of living well in retirement.

Experts in the science of retirement income have long understood the benefit of purchasing an annuity. In fact, most economists (including Nobel Laureate Richard Thaler) consider it a puzzle that more Americans don't buy an income annuity. Why? Annuities take away the uncertainty of creating a safe income in retirement. They allow retirees to spend more each year without the fear of potentially running out.

What is an annuity? An annuity is a contract with an insurance company that exchanges a premium payment for the promise of guaranteed lifetime income. The insurance company hires actuaries to estimate the average life expectancy of annuitants, the investment returns they can expect to realize on the premiums they invest, and expenses to calculate how much lifetime income their annuities can provide. In doing so, they cut each piece to be just large enough to provide each retiree an equal slice of income in retirement. If you knew that exactly 6 players would show up, you could cut exactly 6 pieces and everyone would be better off than if you cut little slices in the unlikely event that more people showed up.

Retirees may avoid spending less early in retirement to reduce the risk that they won't have any money left on, say, their 95th birthday. An annuity may instead allow a retiree to spend more each year, and also reduce the anxiety that by going out to dinner with friends or taking a vacation they risk financial ruin later in life.

Funding a Stable Lifestyle

Consider the following hypothetical example of Sylvia, a 65-year old newly retired woman. She has saved diligently for retirement and has benefited from generous stock market returns over the last decade. After surveying her retirement savings, she decides to devote $240,000 of her $800,000 in retirement savings to fund basic expenses such as healthcare, utilities, and food above the amount that can be covered from Social Security. The remaining $560,000 can be invested for more flexible expenses and a small legacy goal.

An annuity may instead allow a retiree to spend more each year, and also reduce the anxiety that by going out to dinner with friends or taking a vacation they risk financial ruin later in life.

Since these are essential expenses, she believes that risky investments such as stocks are not appropriate since they require accepting the possibility of having to cut back on the amount she can withdraw from her portfolio if markets fall. To ensure that she can always cover these less flexible expenses, Sylvia decides to use government-backed Treasury bonds to fund her desired $1,000 stable monthly income. Treasury bonds have historically provided a rate of return similar to certificates of deposit (CDs)[8].

[6] David Blanchett and Michael Finke, "Guaranteed Income: A License to Spend," https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3875802

[7] The Annuity Puzzle for Retirement Investing - Economic View - The New York Times (nytimes.com)

[8] Eugene F. Fama, "What's different about banks?," Journal of Monetary Economics, 1985, 29-39.

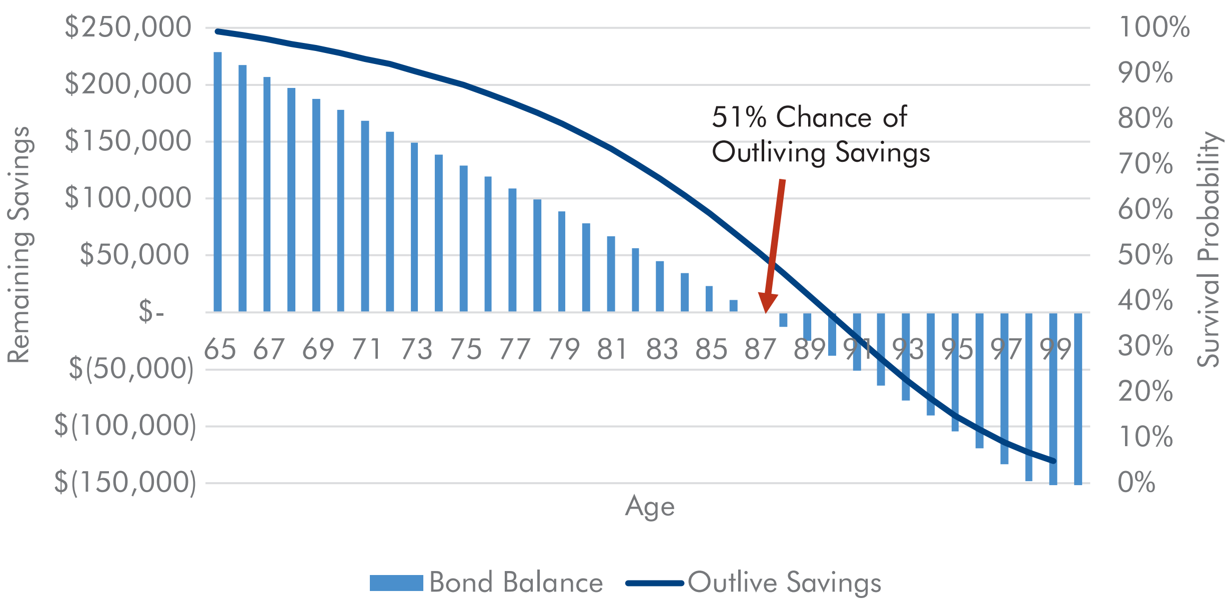
Another alternative for Sylvia is to purchase an annuity that provides a guaranteed lifetime income. Let's say the annuity she is considering allows her to withdraw $1,000 each month from an initial balance of $240,000 to help cover basic expenses. She can also invest the $240,000 in government bonds and withdraw $1,000 each month from her investment account.

Sylvia has a choice. The annuity provides her with a guarantee that she will always receive a check for $1,000 every month in retirement. She can also withdraw the same amount each month from a portfolio invested in Treasury bonds.

Figure 1 shows how Sylvia's initial savings drops each year to pay for $1,000 of spending each month if she purchases Treasury bonds today that provide income at maturity. Figure 1 also displays the probability that Sylvia, who is a healthy woman similar to other annuity buyers, will outlive her $240,000 of savings using longevity data from the Society of Actuaries. By age 78, she has less than $100,000 remaining. By age 87, her savings is gone. She has just over a 50% chance of outliving the savings that she set aside to fund basic spending on top of Social Security. If she wanted to maintain her lifestyle to age 95, she would either need to take an additional $100,000 from other retirement savings or simply accept a less enjoyable lifestyle.

FIGURE 1

Using Conservative Bonds to receive $1,000 of Monthly Income



Most retirees will likely want to avoid having to borrow $100,000 from relatives, spend down savings earmarked to fund a legacy goal, or even borrow against a home to fund additional expenses if they live to age 95. A retiree who chooses not to receive lifetime income through an annuity could potentially experience longevity risk that may result in spending less each year. How much less will she need to spend each year to avoid this risk of an unknown lifespan?

[9] Annuity income is the average of the top 5 quotes from CANNEX for a 65-year old woman on a single premium immediate annuity on 10/29/2021.

[10] Rates current as of 10/29/2021. Today's rates can be found at https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/. This example illustrates the implications of using bonds at current yields compared to purchasing an annuity. Annuity rates will fluctuate over time with changes in bond yields and expected longevity.

[11] Data taken from the 2012 Society of Actuaries individual annuity mortality table: http://www.naic.org/store/free/MDL-821.pdf.

Table 1 shows how big of a slice Sylvia may need to cut from her $240,000 each month in order to reduce the risk of running out of money too early in retirement. A risk-loving retiree who is willing to accept a 25% chance of depleting her savings by age 93 could spend $830 per month. A risk-averse retiree who is only willing to live with a 5% chance of running out of savings at age 99 could spend just $725 per month. Even after cutting back basic expenses by 28%, an estimated one in 20 retirees could still outlive their $240,000 if they live to age or past age 99.

TABLE 1
Longevity Risk and Lifestyle Tradeoffs of Non-Annuitized Investments

Age	Chance of Outliving Savings	Bond Income*	Annuity Income	Savings Needed to Fund $1,000	Annuity Lifestyle Bonus
87	50%	$1,000	$1,000	$240,000	$0
93	25%	$830	$1,000	$289,157	$49,157
95	15%	$790	$1,000	$303,797	$63,797
97	10%	$755	$1,000	$317,881	$77,881
99	5%	$725	$1,000	$331,034	$91,034
103	1%	$670	$1,000	$358,209	$118,209

* Assumes Treasury bond yields current as of 10/29/2021 and expected annuitant longevity based on Society of Actuaries tables.

If Sylvia chooses not to fund her basic expenses by sharing longevity risk through an annuity, she will need to accept the risk of outliving savings, or she may need to spend less each month to help avoid the anxiety of potentially having to cut back on spending later in life.

Table 1 provides a simple hypothetical illustration of the annuity puzzle. If Sylvia has $800,000 in savings, she will need to earmark 41% of this amount, or $331,034, to pay for $1,000 of basic monthly expenses through age 99. The remaining $468,966 could be invested in a riskier portfolio of assets to pay for more flexible expenses and/or fund a legacy, as her risk tolerance allows.

By purchasing a fixed guaranteed annuity for $240,000, Sylvia could spend the same $1,000 each month on basic expenses, avoid the 5% risk of running out of savings, and invest the remaining $560,000 to spend on flexible expenses and fund a legacy. The last column of Table 1 reflects the increase in lifestyle that could be accomplished by not cutting the safe spending budget into small pieces to avoid the risk of potentially outliving savings. In this example, transferring longevity risk to an insurance company frees up an additional $91,034 to spend more without the stress of accepting some risk of failure. This is why the most widely cited academic analyses of annuities and individual welfare estimated a roughly 25% to 50% improvement in retirement well-being through annuitization.

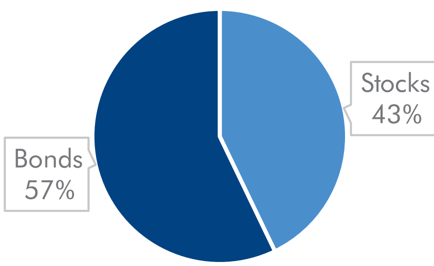
[12] Davidoff, Brown and Diamond, 2005: https://www.aeaweb.org/articles?id=10.1257/000282805775014281 and Horneff, Maurer, Mitchell and Dus, 2008: https://www.sciencedirect.com/science/article/abs/pii/S0167668707000571

The Retirement Income Portfolio

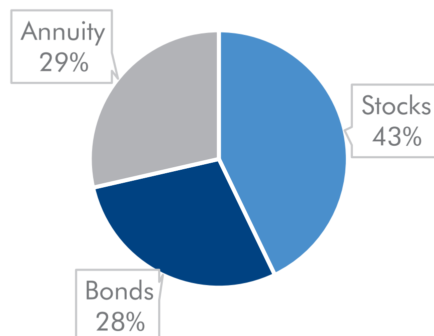
Sylvia currently invests 60% of her retirement savings in bonds and 40% in stocks. By substituting an annuity for a portion of her bond investments, Sylvia creates a base of protected lifetime income that can help her to feel comfortable spending more each month since she need not fear the risk of running out of the money she needs to pay her basic expenses in old age. She maintains the same amount of wealth in stocks to fund more flexible expenses and a legacy goal, and reduces the percentage of her portfolio allocated to bonds since a portion of her bonds are now transformed into protected and guaranteed income.

The following is an example of how this choice could affect her retirement investments.

Investments Only



Potential Income Optimization



Example shown for illustrative purposes only. Does not represent any specific investment or annuity product, and is not guaranteed. Your actual portfolio composition will vary based on your own unique circumstances.

Since she will be receiving $1,000 each month from her annuity to pay for basic living expenses, she won't need to withdraw as much from her investment portfolio. Annuitizing might also allow her to spend more early in retirement because she no longer has to worry about the consequences of completely running out late in retirement – she will always have a base of income to supplement Social Security no matter how long she lives.

Research on retiree spending shows that those who have annuitized savings spend significantly more than retirees who fund a lifestyle with investments alone. Having the confidence to spend more early in retirement can help a retiree to live better when they're younger and better able to enjoy a more active lifestyle.

Since Sylvia receives $12,000 of income from her annuity, she can follow a fixed expense rule on her remaining savings (for example, a 3% rule recommended by experts) and spend 20% more each year ($28,800 vs. $24,000) at the beginning of retirement while reducing her worry of not being able to cover basic expenses later in life.

Building a Plan for Safe Spending

Let's look at another hypothetical example. Keith and Janet are currently 60 years old and close to reaching their desired retirement savings goal. They currently invest in a balanced fund of stocks and

[13] Blanchett and Finke (2021). "Guaranteed Income: A License to Spend." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3875802

[14] https://www.morningstar.com/articles/1066569/whats-a-safe-retirement-spending-rate-for-the-decades-ahead

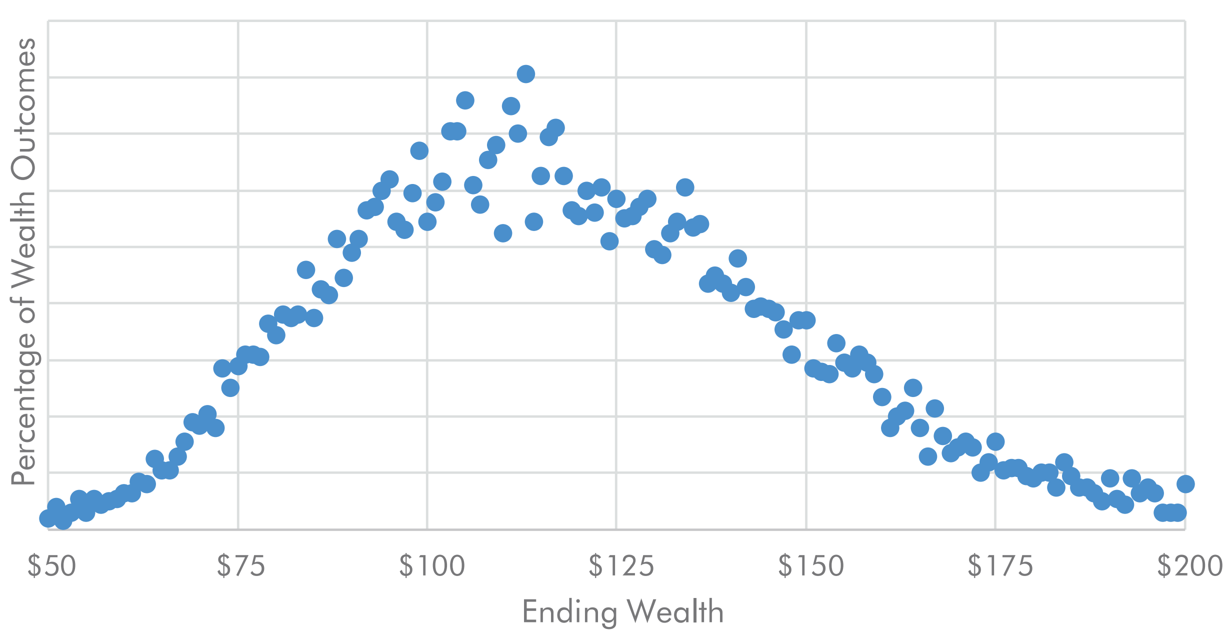
bonds and hope to use a portion of these savings to create reliable income that will begin in 5 years. What are their options?

The years just before retirement present unique risks that younger couples do not face. As a couple approaches retirement, they often begin making plans to leave the workforce at a specific age. They also begin making plans to create a retirement lifestyle that is based on the size of their current nest egg. Additionally, near retirees have less flexibility to work additional years if markets decline significantly, as they did in 2008.

The possibility of a significant loss from more volatile investments such as stocks is referred to as market risk. Risky financial assets historically have provided, on average, a higher return than more conservative or guaranteed assets. But, risky assets can also drop in value. Losses near retirement can cause particular stress because lifestyle expectations may have to be sharply adjusted downward, or retirement may need to be postponed in order to save enough to fund a desired level of spending.

A common method to illustrate the risk of investments is to simulate a series of investment returns over a period of time using a so-called Monte Carlo analysis that simulates possible retirement spending paths using projected investment returns and volatility. Figure 2 shows the distribution of each $100 invested by Keith and Janet over the next 5 years from an investment portfolio of 50% large cap U.S. stocks and 50% intermediate-term Treasury bonds. Average expected arithmetic returns are set equal to the 2021 J.P. Morgan long-term capital market assumptions.

FIGURE 2
Distribution of $100 Invested for Five Years



[15] 5.13% for large cap US equities and 1.54% for US Treasury bonds. Standard deviation is based on historical average of 19.66% for stocks and 5.55% for bonds. https://am.jpmorgan.com/content/dam/jpm-am-aem/global/en/insights/portfolio-insights/ltcma/ltcma-full-report.pdf
Distribution of 5-year wealth outcomes from Monte Carlo simulation using current 10-year projected returns on large-cap US equities of 5.13% and 1.54% for US Treasury bonds. Standard deviation is based on historical average of 19.66% for stocks and 5.55% for bonds. Return projections based on https://am.jpmorgan.com/content/dam/jpm-am-aem/global/en/insights/portfolio-insights/ltcma/ltcma-full-report.pdf

Using the above assumptions, the median growth in Keith and Janet's investments will be $115 for each $100 invested. If they have saved $300,000, then on average it will grow to $345,000 after five years. However, by accepting investment risk this growth will follow a distribution of possible investment outcomes. Their investments will only grow to $345,000 about 2% of the time.

In 27% of simulations, the investments will not rise above the original $300,000. At the 5th percentile, their balance will be $234,000. At the 10th percentile it will be $265,000. At the 75th percentile, their investments will grow to $400,000. Keith and Janet take investment risk so that their savings will, on average, grow in value over the next five years. However, they must be willing to accept the possibility that their investments will fall in value during a bear market.

One alternative to accepting significant investment risk is to use a fixed annuity designed to prevent losses. An insurance company can place most of the investment in bonds that grow to exactly their initial investment value. The remainder can be invested for potential growth.

What is a Fixed Index Annuity?

A fixed index annuity is a type of fixed annuity that is structured to provide guaranteed lifetime income without the risk of traditional investments. Buying a fixed index annuity allows a retiree to buy future insured income before they actually need the income. The insurance company invests mainly in bonds to ensure protection of the original amount placed in the annuity (principal), and invests a portion in financial options whose performance determines the interest amount credited to the annuity over time.

We can think of a fixed index annuity as a potential alternative to investing in conservative assets such as bonds, but with the potential for modest growth through the credited interest amount. In a low interest rate environment, a higher percentage of annuity premiums must be invested in bonds, leaving a smaller portion available to fund index growth. Traditional investors face the same reality as expected growth from a combination of stocks and bonds will also be limited by lower returns on the portion invested in bonds.

A useful approach to building an income whose purpose is to fund confident spending in retirement is to match the risk of the investment to the amount of spending risk a retiree is willing to accept. If Keith and Janet allocate $160,000 of their retirement savings for this purpose, they can invest in more conservative assets such as bonds or CDs for the next five years. Or they can place the $150,000 in a fixed index annuity. Let's review the potential benefits of both.

The highest rate on 5-year CDs today is 0.75%. If savings are held outside of a tax-sheltered account, then growth each year is taxed at an investor's combined federal and state local tax rate. For an investor in a 30% total income tax bracket, their annual after-tax growth on CDs would be 0.53%.

Because the growth occurs within an annuity, the growth is only taxed when the income is withdrawn.

A fixed indexed annuity will provide the opportunity for greater overall growth than either bonds or CDs from interest credited that is based on the performance of an investment index, although this is not guaranteed. The minimum guaranteed interest in most fixed index annuities is zero. This potential growth is capped each year, and this cap rises and falls with both interest rates and volatility of the stock market. If the market crashes, the fixed index annuity will retain its original value (minus any fees for additional benefits or riders the annuity holder may elect to purchase). In a bull market, the growth in the account value will be limited to the cap. Because the growth occurs within an annuity, the growth is only taxed when the income is withdrawn.

[16] www.bankrate.com as of 10/27/2021

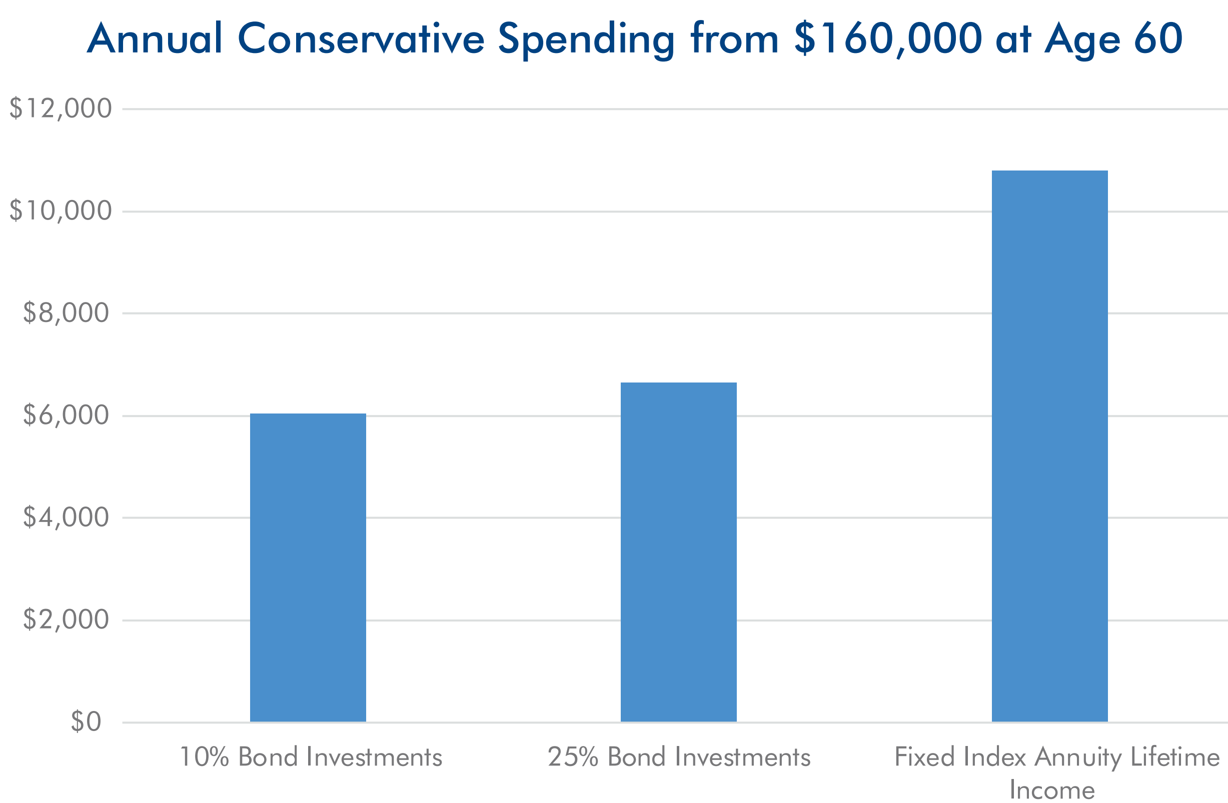
Through the fixed index annuity, Keith and Janet can buy insured income by selecting a lifetime income benefit rider for an additional annual fee. The rider gives them the option to withdraw a fixed amount from their income account value. This amount typically rises each year by a set formula outlined in the annuity before they begin taking annual income payments.

Consider the following hypothetical example. Keith and Janet can place $160,000 in a CD earning 0.75% to fund reliable spending starting in five years at age 65. Or they can place $160,000 in a fixed index annuity with an income rider. Each year, the income account value they selected rises by 10% of the initial $160,000, or $16,000 (the income growth percentage will vary by carrier and product). After five years, the value on which their lifetime income is based has grown to $224,000. Their joint lifetime income benefit is 4.5% of this value, or $10,800 per year as long as one of them is alive.

Let's compare this income to the amount of income Keith and Janet could withdraw to the 10th and the 25th percentile of their combined longevity invested at age 65 in government-backed Treasury bonds at today's rates. The analysis assumes income from an account such as an IRA which isn't subject to taxes on growth until withdrawn.

FIGURE 3

Annual Spending from Initial $160,000 Invested Conservatively to Fund Income at Age 65

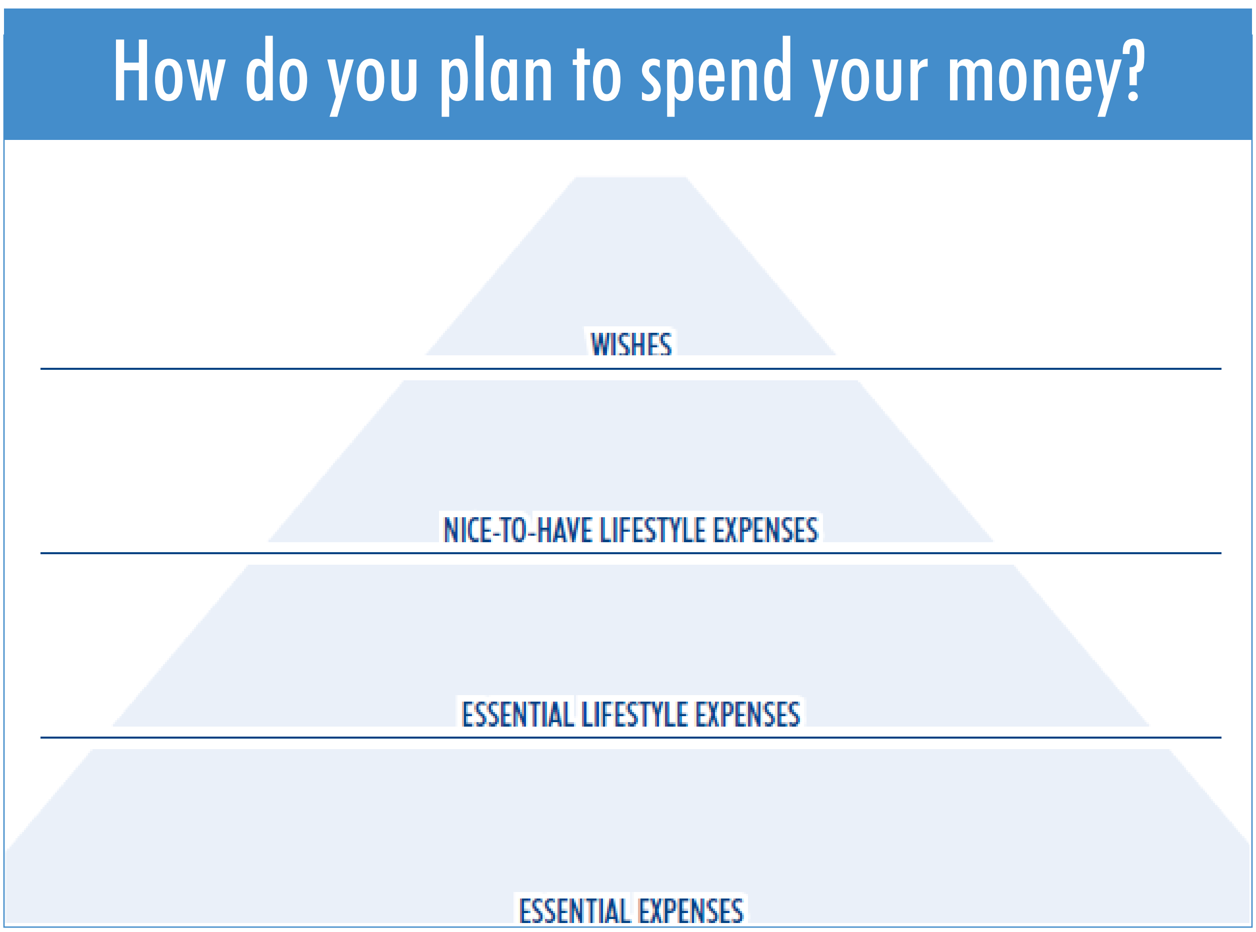


By carving out a portion of their savings at age 60 and dedicating this amount to the goal of funding protected income in retirement, Keith and Janet may be able to spend significantly more each year by placing their savings within a fixed index annuity. At today's low interest rates, the potential improvement in lifestyle between an income annuity and bonds increases allowing perhaps even greater benefits to those who buy insured income.

Conclusion

If the goal of a retiree is to create a base of income from protected investments, annuities may allow them to spend more each year free of the risk of outliving all of their savings. Retirees who follow a goal-based process should decide how much of their savings to devote to basic expenses and how much to devote to more flexible expenses and a legacy. Workers near retirement can begin locking in a higher future income through the use of a fixed index annuity that provides the opportunity to potentially spend more each year than an investment in other conservative assets.

To begin the process of planning for income in retirement, consider building a retirement budget that places spending into 4 categories ranging from highly flexible (wishes) to completely inflexible (essentials). For the inflexible expenses, evaluate existing income in the form of Social Security and pensions and then estimate the additional income needed to fund essentials. For essential expenses above Social Security, consider the use of an income annuity to provide a stable income throughout retirement.



In addition to the mathematical benefits, well known among retirement income professionals, annuitization can offer greater clarity about how much a retiree can spend from their savings each month and reduce the anxiety of not knowing when the money will run out.

Buying insured income means retirees don’t have to worry as much about how many slices they can cut from their nest egg. Freedom from worry may allow them to spend more of their savings, particularly early in retirement when they can enjoy it the most.

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Annuity withdrawals are subject to ordinary income taxes, including an additional 10% federal penalty if taken before age 59-1/2.

Possible interest credits for money allocated to an index-linked crediting strategy within a fixed index annuity are based upon performance of the specific index; however, fixed index annuities are not an investment, but an insurance product, and do not directly invest in the stock market or the index itself. The FIA index performance does not include dividends paid on the underlying stocks.

Some fixed index annuities involve a Market Value Adjustment (MVA) which applies to partial withdrawals that exceed the free withdrawal amount allowed and surrenders occurring during the surrender charge period.

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