RETIREMENT INCOME INSTITUTE
Alliance for Lifetime Income

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ABSTRACT

It now is possible to frame an annuity, or the protections it provides, as an asset class for households to help manage market risks and the risk of outliving assets. In the context of protection as an asset class, annuities offer two different avenues for contributing to better financial outcomes for household financial planning. In a modern portfolio theory investing framework, structured annuities create the potential to produce a more attractive range of investment returns and can be treated as asset classes available for the asset allocation decision. For retirement income, the overlay of a lifetime income benefit on the annuity provides a more efficient means for meeting a lifetime spending goal while also preserving assets for legacy.

PROTECTION AS AN ASSET CLASS

WADE D. PFAU

INTRODUCTION

Annuities are contracts that can be arranged to provide various protections to their owners. Often, we think of these protections in terms of the ability to provide lifetime income that can help retirees to manage the risk of outliving their assets. But the emergence of structured annuities provides a new direction for protection by changing the relationship between downside market risks and upside growth potential when investing. In either context, it now is possible to frame an annuity, or the protections it provides, as an asset class for households to help manage market risks and the risk of outliving assets. These two complementary frames distinguish protection as an asset class, which we will examine further.

First, we start within an investing framework. We consider how adding a structured annuity, whose returns are linked to a stock market index, as an asset class choice can improve the efficient frontier for investors by providing a better risk-adjusted return. Downside risks are present in both stocks and bonds, as evidenced in 2022 when stock and bond markets both experienced double-digit losses. Near-retirees who are depending on bond funds to maintain the value of their assets may be vulnerable to a rise in interest rates. We will illustrate how structured returns impact the efficient frontier for household portfolios, enhancing the risk-adjusted returns for the overall portfolio relative to holding just stocks and bonds.

Then, we will add a lifetime income benefit to the annuity and consider its role in developing an efficient frontier for retirement income that expands beyond the simple investing environment to look at how different asset allocation strategies impact the ability to meet lifetime spending goals while also preserving assets for liquidity and legacy.

We accomplish this with a simple example for a structured annuity: a fixed index annuity that protects principal and caps market upside. Still, there are many different structured annuity designs that provide

	Arithmetic Means	Compounded Returns	Standard Deviations
U.S. Large Cap Equity	9.3%	7.8%	17.3%
U.S. Aggregate Bonds	3.8%	3.7%	5.1%

EXHIBIT 1. *Capital Market Expectations*

Source: BlackRock Investment Institute, February 2023. Data as of December 31, 2022.
Return expectations over thirty years for gross total nominal returns.

different tradeoffs between downside risk and upside potential that could also have been included to expand this analysis.

Protection as an asset class is affirmed: structured annuities can impact both the underlying portfolio returns as well as the ability to overlay a protected lifetime income.

INVESTMENT ASSUMPTIONS

A structured annuity can link its underlying performance to an external stock market index. It is important to first highlight the market assumptions that will drive the returns for investments and the annuity. This analysis uses 100,000 Monte Carlo simulations for stock and bond returns differentiated between income and price returns. Simulations are based on two asset classes: a large-capitalization U.S. stock index (S&P 500) and an aggregate U.S. bond index. Returns and standard deviations for these asset classes are taken from BlackRock's long-term (30-year) capital market expectations last updated in February 2023. We assume the asset classes are not correlated, which is consistent with historical U.S. data. The capital market expectations reflect the lower interest rate environment facing current investors. Exhibit 1 provides these expectations.

To differentiate price returns, we assume a fixed dividend yield of 1.7% for stocks, consistent with the dividend yield on the S&P 500 in early 2023. Strategies are simulated with annual return data. We also assume that investments are held in a tax-deferred account, so the full total returns are allowed to accumulate for the entire period without any tax drag. Annuities provide tax-deferral when held in nonqualified accounts, which would give them a performance edge when compared to taxable assets.

FIXED INDEX ANNUITY

With any deferred annuity, such as a fixed index annuity (FIA), owners continue to see the contract value of annuity assets on their financial statements as part of the overall portfolio balance. The appeal to retirees is based on the combination of downside protection, upside growth potential through their link to a market index, and liquidity of the underlying assets, while also offering the potential for tax-deferral. Retirees can see their contract values, they can continue to make choices about how their funds are invested, they can access their funds, and any funds remaining at death are generally available to beneficiaries as a death benefit, all while ensuring protected income through the inclusion of an optional guaranteed living withdrawal benefit (GLWB) rider on the contract.

Since FIAs are fixed annuities, crediting interest is the technical term for the returns generated by their contract value. FIA premiums are added to the general account of the insurance company and credit interest to the owner based either on a fixed return or on the performance of a linked market index. FIAs offer index-linked interest, but they are not invested directly into the underlying index. They simply pay interest to the owner using a formula linked to the index performance.

With FIAs, the credited interest (or returns) can be structured more precisely in terms of controlling downside and upside exposures. FIAs protect principal in the sense that 0% interest is credited even if the underly-

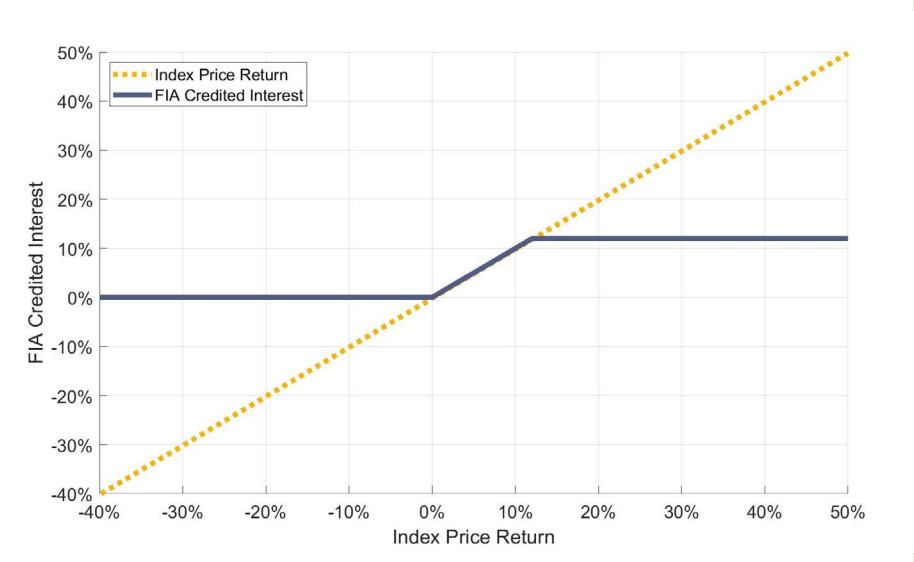

EXHIBIT 2. *Fixed Index Annuity Credited Interest as Based on Index Price Return*

ing index declines significantly in value. To obtain this protection, FIA owners should expect to receive only a portion of any positive gains experienced by the index.

For FIAs, insurance companies generally offer access to different index options as well as a fixed interest option. Contract owners can often combine these options in any way they choose and can change the allocations at the start of each new term. Common index choices include the S&P 500 for large capitalization US stocks, or the MSCI EAFE index that provides representation for international stocks. Only the price returns (capital gains or capital losses) matter with these indices as dividends are excluded from the returns when determining credited interest. This is because financial derivatives are used to link performance rather than owning the underlying assets, so dividends are not available.

Various crediting methods are used in practice. As an example, we will consider an annual reset one-year term point-to-point crediting method with a cap. The one-year term and the point-to-point method means that the changes in the index values on one-year contract anniversaries will be used to calculate interest. Annual point-to-point looks at the change in the index at two different dates, one year apart. At the end of each yearly term on the anniversary date of the contract, the interest-crediting formula uses the index gain for that year (the price return, not including dividends) to credit interest. A floor of 0% is protected, and positive index gains are credited up to a cap. Exhibit 2 illustrates this process for a hypothetical FIA with a one-year term and a 12% return cap, in which negative returns translate into 0% credited interest and returns above 12% translate into 12% credited interest, with the full price return provided between these levels. A 12% cap is roughly aligned with current FIAs available on the market.

If we further think of the underlying index as providing a bell-curve shaped distribution for returns, Exhibit 3 provides another view on how the FIA changes the distribution of returns provided to its owner. FIAs offer protections against loss while forgoing a significant amount of potential upside. The tails of the distribution are eliminated with a spike in returns at the 0% floor and the 12% cap.

The annual reset design reflects how interest crediting calculations start fresh for each term. If the index lost 10% in the previous year and the FIA credited 0% interest for that year, it is only the new point-to-point change for the current year that matters to calculate the new

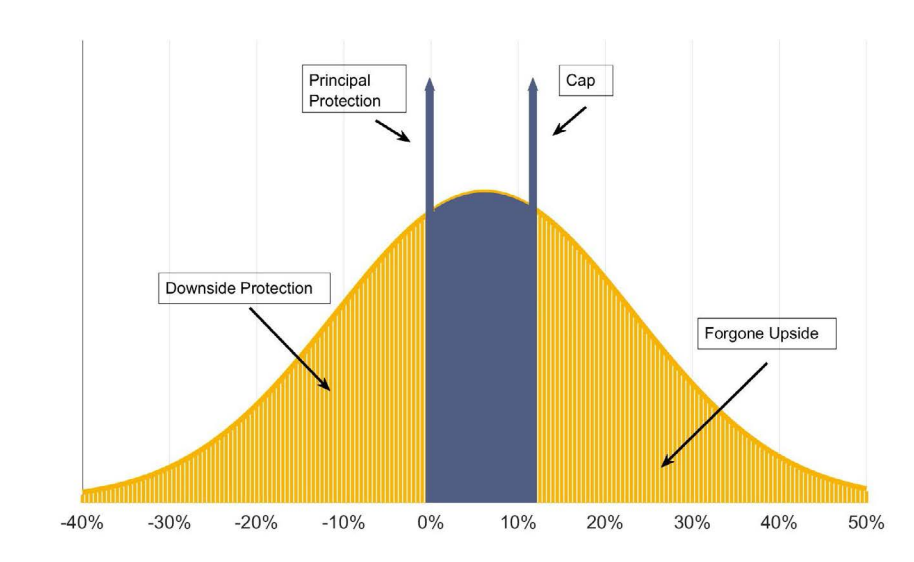

EXHIBIT 3. *Annual Return Distribution for a Fixed Index Annuity with a One-Year Term*

term's interest. There is no need for cumulative gains to make up for previous losses when the annual reset provision is included.

For an annuity that provides downside protection with the guaranteed floor, the insurance company buys enough bonds with the annuity contract value that the growth of that portion with interest will match the original contract value at the end of the term. With what is left after purchasing bonds to protect the principal, the insurance company keeps a portion to cover company expenses and profit motives, and the remainder is the "options budget" used to purchase upside exposure to the index.

When the FIA offers a participation rate on upside, the insurance company can use the "options budget" to buy a one-year at-the-money call option on the S&P 500 index. This is a financial derivative that provides its owner with the right, but not the obligation, to buy shares of the S&P 500 at the option's strike price. The option is at-the-money if the strike price matches the current value of the index. If the index loses value during the term, the option expires worthless, and principal was protected with the bonds. If the index experiences capital gains (not including reinvested dividends) during the term, the owner receives upside exposure through the call option. The participation rate is the ratio of the "options budget" to the price of the call option, which provides the percent of index gains received. If the participation rate is less than 100%, a call option can also be sold to give up the upside beyond a particular level above the strike price. This raises additional funds for buying more at-the-money call options. This is how a cap on returns is created to support 100% participation up to the cap.

Because there is a cost for creating protection for the contract value against a loss when the index declines in value, one should not expect to receive the full upside potential from the index. The call options will generally cost more than the size of the options budget. FIAs do not provide a way to get the returns from the stock market without accepting stock market risk.

It bears underscoring that the amount of upside potential that can be offered by an FIA will vary over time as interest rates and call option prices change. The parameters offered by an FIA will depend in large part on the level of interest rates and the cost of financial derivatives for the associated index. With an annual reset design, the insurance company must repeat the

	Arithmetic Mean	Compounded Return	Standard Deviation	Correlation with Stocks	Probability (Return < 0%)
Stocks	9.3%	8.0%	17.3%	1.00	31.3%
Bonds	3.8%	3.7%	5.1%	-0.01	23.2%
Fixed Index Annuity	6.1%	5.9%	5.4%	0.86	0.0%

EXHIBIT 4. *Return Statistics for Investments & Structured Annuity Segments, 1-Year Segment Duration*

process each year and will face different interest rates and call option pricing as these variables change values over time. More upside potential is possible with higher interest rates and cheaper call options, and vice versa.

THE EFFICIENT FRONTIER FOR AN ACCUMULATION PORTFOLIO

Though traditional investment performance metrics tend to assume a bell-curve shaped distribution for the underlying returns, and a fixed index annuity provides a structured return different from a bell curve, it can still be instructive to compare a fixed index annuity to investment asset classes using a traditional investment framework. We start these comparisons using the analysis provided in Exhibit 4 as based on 100,000 Monte Carlo simulations, which will then provide the raw data for calculating the characteristics of the efficient frontier.

Note that the stock and bond returns are gross returns. Advisory and investment fees have not been deducted, which gives them an advantage over the FIA whose cap rate is estimated as net of internal costs. If annuities could be provided without cost, the cap rates we described would otherwise be larger.

First, the arithmetic means are calculated by adding up the annual returns from the Monte Carlo simulations and then dividing by the number of simulations. Stocks provide the highest arithmetic mean of 9.3%, while bonds offer the lowest arithmetic mean of 3.8%. These match the underlying parameters used to generate the Monte Carlo simulations. The annuity returns are derived from the price return component of the simulated stock returns. The FIA supports an average return of 6.1%. While less than stocks, this is well above the average return provided by bonds.

Next, the average compounded return represents the growth rate over multiple years, and it is always less than the arithmetic mean for any volatile asset because gains and losses do not have a symmetric impact on long-term growth. A loss must be followed by a larger gain to get back to the initial starting point. Increased asset volatility causes the compounded return to fall more relative to the arithmetic return. For long-term investors, it is the compounded return that matters. Stocks provide the largest compounded returns at 8%, followed by the FIA at 5.9%, and then bonds at 3.7%. Both FIAs and bonds experience much smaller reductions to their compounded returns than do stocks because the underlying returns are less volatile.

Next, the standard deviation is a measure of volatility in terms of the degree of fluctuations experienced around the average outcome. For a distribution shaped as a bell curve, approximately two-thirds of the returns fall within the range of one standard deviation from the arithmetic mean. The remaining one-third of returns are more extreme in either direction. This characteristic may not apply for structured returns, as this FIA cannot experience returns less than zero or greater than 12%. With the pure standard deviation measure, bonds have the lowest value at 5.1%, followed closely by the FIA at 5.4%, and stocks at 17.3%.

As for correlations, we assumed that stocks and bonds are not correlated and Monte Carlo simulation provides an estimate of -0.01 which in practical terms has the same meaning. The correlation coefficient between two asset classes measures their degree of co-movements. It

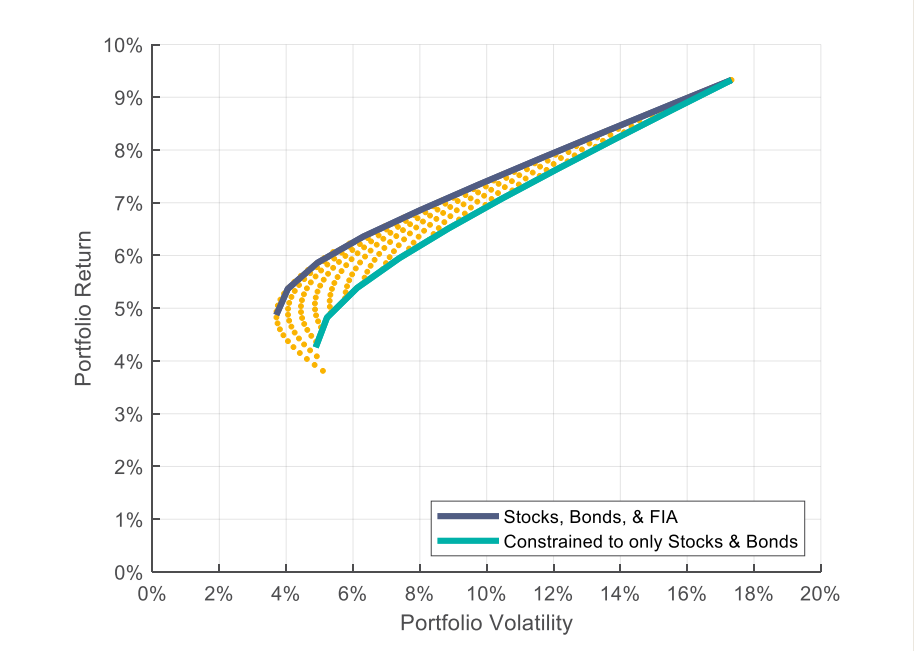

EXHIBIT 5. *Modern Portfolio Theory's Efficient Frontier*

ranges from -1 (move precisely in opposite directions) to one (move precisely in the same direction). If the correlation coefficient is zero, the two asset classes move independently from one another. The lower the correlation coefficient, the greater the reduction in the portfolio volatility when the two asset classes are combined. The exhibit shows the correlations of bonds and FIAs with stocks. FIAs are still highly correlated with stock movements since their credited interest depends on the stock return. The estimated value is 0.86.

The final column illustrates an important aspect of risk when using a structured return. With our capital market assumptions, stocks in any given year experience a 31.3% chance of suffering a loss. For bonds, the risk of loss is 23.2%. This happens when interest rates rise, as the experience of 2022 made clear. FIAs protect the principal and are not at risk of loss.

While these investment metrics help to tell the story about the risk-return tradeoffs for different investment and annuity options, how should the underlying allocation between investments and FIAs be determined? This is where Modern Portfolio Theory (MPT) can help.

In the 1950s, Harry Markowitz created MPT, and Harry Markowitz won the Nobel Prize in Economics in 1990 for his work in this area. MPT provides a framework for choosing an asset allocation under a specific set of assumptions that wealth managers have traditionally accepted as being a reasonable starting point for households.

For the inputs to use this framework, a user decides on the universe of asset classes to consider, and then determines an average arithmetic return and standard deviation for each asset class, as well as the cross correlations for returns between each of the asset classes. We will investigate this for stocks, bonds, and FIAs, using as inputs the simulated parameters in the previous exhibit.

Exhibit 5 plots the portfolio returns and volatilities for different combinations of stocks, bonds, and the FIA as based on their simulated return, standard deviation, and correlation characteristics. Mean-variance optimizer software uses these inputs to find the efficient frontier of allocations that provide the most return for a given volatility or the least volatility for a given return.

		ASSET WEIGHTS		
Portfolio Return	Portfolio Standard Deviation	Stocks	Bonds	Fixed Index Annuities
9.3%	17.3%	100%	0%	0%
8.8%	15.4%	85%	0%	15%
8.3%	13.5%	70%	0%	30%
7.8%	11.6%	54%	0%	46%
7.4%	9.8%	39%	0%	61%
6.9%	8.0%	24%	0%	76%
6.4%	6.3%	9%	0%	91%
5.9%	4.9%	0%	9%	91%
5.4%	4.1%	0%	31%	69%
4.9%	3.7%	0%	53%	47%

EXHIBIT 6. *A Selection of Outcomes from the Efficient Frontier*

The exhibit shows the portfolio arithmetic average return (the reward) on the vertical axis and the portfolio standard deviation (the risk) on the horizontal axis. Investors would like to move toward portfolios in the upper left-hand corner, all else being the same, as that direction represents portfolios with higher returns and less volatility. The dots reflect the different combinations for these investments and FIAs. The purple curve that envelops them on the upper-left side is the efficient frontier. It is the asset class combinations offering the highest returns for a given volatility, or the least volatility for a given return. Households should consider asset allocation combinations from the many combinations reflecting different risk-return characteristics on the efficient frontier. The cyan colored curve is the constrained efficient frontier if only stocks and bonds can be used. It is in an inferior position relative to the yellow points, which indicates that the introduction of an FIA into the mix would help to improve outcomes relative to only using stocks and bonds. The FIA provides a vehicle to benefit from exposure to the equity premium in a manner that can be expected to outperform bonds, while limiting the overall risk to the owner.

Exhibit 6 provides a selection of ten portfolios on the efficient frontier shown in the previous exhibit. These range from the highest return and volatility combinations to the lowest return and volatility combinations. For example, the first portfolio is listed with a 9.3% return and 17.3% volatility. These are the characteristics for allocating 100% of assets to stocks. Then, as we move down the list, we find portfolios with decreasing returns and volatilities that contain decreasing allocations to stocks. What we can observe is that any of the portfolios that include stocks are treating FIAs as a bond alternative. The efficient frontier consists of stocks and FIAs, not stocks and bonds. The two bottom portfolios do provide examples with the least volatility, and these shift to bonds and FIAs. For the most conservative investors, FIAs can help to eke out higher potential returns as a type of stock alternative when combined with bonds. However, most of the portfolios on the efficient frontier use stocks for the higher return potential, but combine stocks with FIAs to reduce risk and create the best return-to-risk tradeoffs. For all but the most conservative investors, FIAs are working as a bond alternative.

Let's consider an example of what would be needed to match numbers from the efficient frontier if constrained to only using stocks and bonds. For instance, the exhibit shows an allocation on the frontier with 70% stocks and 30% to the FIA. It provides an expected return of 8.3% and standard deviation of 13.5%. If we use bonds instead of the FIA, we can consider what would need to be done to obtain similar results. If the target is an 8.3% return, the stock allocation would need to be increased to 81%, with 19% to bonds, and this would increase the standard deviation to 14.1%. Alternatively, if the accepted volatility is 13.5%, the stock allocation could be increased to 78%, but this would only increase the portfolio return to 8.1%. An FIA is working very well as a fixed income alternative to improve the performance metrics for the overall investment portfolio.

THE EFFICIENT FRONTIER FOR RETIREMENT INCOME

There are various issues when using MPT to determine investment portfolios for household investors, especially after retirement begins. After winning the Nobel Prize in 1990, Markowitz was asked to write an article in 1991 for the first issue of Financial Services Review about how MPT applies to household investors. This article was named, "Individual versus Institutional Investing." In the article, he writes about how he had never thought about the household's investing problem before, and after reflecting on it for an evening, he realized that households face a very different investing problem from the large institutional investors, such as mutual funds, he had in mind when developing MPT. MPT does not teach how individual households should build investment strategies to meet their lifetime financial planning goals.

Specifically, households must meet spending goals over an unknown length of time in retirement—which is key for understanding how the retirement income problem differs from the MPT approach. MPT just shows how to grow wealth over a single time period, such as a year, when there is no need to take distributions from the portfolio. It is an assets-only model. The preretirement wealth accumulation notion that households seek to grow wealth is more closely aligned with MPT, but the retirement income problem is quite different. There is surely a relationship between the idea that having more wealth will support more spending, and the idea that building diversified portfolios is still valid, but that relationship is more complicated when it is unknown how long the spending must last and when taking distributions from assets amplifies the impacts of investment volatility on the retirement income plan. Simply, MPT does not account for cash flows or longevity risk. It equates risk with short-term asset volatility rather than with concerns over the ability to meet financial goals.

The challenge in building an effective retirement income plan is to use available income tools and tactics in a strategic manner to meet the financial goals of retirement while also managing the risks confronting those goals. The financial goals of retirement include sustainably meeting a lifestyle spending goal for as long as one lives, providing a legacy for the family or community, and maintaining liquidity to cover unexpected expenses and contingencies. Thus, the three major categories of risk for a retirement income plan include longevity risk, market volatility, and spending shocks.

We can extend the efficient frontier from MPT beyond its single-period focus into a concept that works for lifetime financial planning. The efficient frontier is about the tradeoffs between risk and return and finding asset allocations that cannot provide greater advantage for one without creating loss for the other. An efficient frontier for retirement income can focus trade-offs between satisfying life spending goals with a high probability of success and preserving financial assets for legacy and liquidity.

We can define the risk metric in terms of a shortfall. How much of the lifetime spending goal cannot be met? A conservative spending plan may provide 100% coverage for much of the potential distribution of outcomes, but if we focus on a bad luck scenario, such as the 10th percentile of outcomes, we can have meaningful way to assess risk in the context of meeting spending. Meanwhile, the "reward" or return metric can focus on the average legacy value for assets. After meeting spending, how much is left on average to be available as a resource for contingencies or legacy? Efficient allocations will do a better job at meeting both lifetime objectives by supporting spending with less shortfall even in bad market environments while also preserving the legacy value of assets on average.

For this lifetime spending analysis, we will add a guaranteed lifetime withdrawal benefit (GLWB) to the FIA and assume the case for a 65-year old single retiree who is ready to begin the lifetime income payments right away. A GLWB is an optional lifetime income protection that does not require annuitizing the contract. We develop a simple case in which a GLWB rider supports an income for life at a fixed withdrawal percentage of the guaranteed benefit base. The guaranteed benefit base is a hypothetical amount used to calculate the guaranteed annual income amounts. It initially equals the premium paid into the annuity, which is also the initial contract value for the assets. Over time, the value of the underlying assets can rise or fall depending on the underlying market performance and as fees and distributions are taken. The benefit base evolves separately from the contract value. The benefit base enjoys annual step-up opportunities. If the underlying annuity contract value achieves a new high watermark and exceeds the guaranteed benefit base net of fees and distributions on a contract anniversary date, then the benefit base is reset to this higher level and will never decrease. This increases the subsequent amount of guaranteed income.

The income rate payment percentage is expressed as a percentage of the benefit base, which we will assume is 5.5% at age 65. Should the protected assets be depleted, the guaranteed annual income amount received prior to asset exhaustion will continue for life. The fee for this GLWB lifetime income protection rider is 1.1% of the benefit base value at the start of the year, with the fee charged at the end of the year. This rider applies only while the contract value in the annuity is positive. With the 5.5% payout and 1.1% fee, step-up opportunities will be possible in the early retirement years if the FIA returns exceed these distributions.

The 65-year old is retiring and is seeking to position $100,000 of investable wealth to help fund retirement expenses through age 100. She wants to determine the best way to position her assets both in terms of asset allocation and whether to take an investments-only route or to include income protections with the GLWB for the FIA. Unlike with Modern Portfolio theory, where the amount of wealth considered is immaterial, we must specify starting assets and spending goals because it governs the risk of asset depletion. When starting from 65, the initial goal is to spend 4% of the current $100,000 (or $4,000). This spending level is chosen to align with the well-known, but not academically rigorous, 4% rule for guiding sustainable retirement spending. For each year of retirement, this spending increases by a 2% annual cost-of-living adjustment to help cover inflation for retirement expenses. The primary goal is to fund this spending through age 100, and risk is measured in terms of any shortfall in the attempt to meet the spending goal. It is the sum of the spending through age 100 that could not be achieved because assets were depleted, net of any lifetime income provided through the annuity, measured as a percentage of the overall lifetime spending goal.

In 10% increments, we consider all the possible allocations to stocks, bonds, and an FIA with a lifetime income benefit. Allocations to the FIA represent an initial allocation that is not subsequently rebalanced, while the stock-bond portion in the unprotected investment portfolio is rebalanced. For instance, if the allocation is 40% to stocks, 30% to bonds, and 30% to an FIA, then after shifting assets to the annuity, the remaining investment portfolio consists of 40%/70% = 57% stocks and 30%/70%=43% bonds. This asset allocation is subsequently rebalanced annually.

For spending, the retiree first receives all funds from the FIA as supported by the GLWB. If the allowed annuity distribution exceeds the spending goal, the excess income is reinvested into the investment account. More typically, the annuity will not cover the entire spending goal. The remainder of her spending goal not covered by the income guarantee will be distributed from the remaining investment portfolio for as long as portfolio assets remain. If the unprotected portion of assets depletes, the retiree continues to receive the guaranteed income from the annuity to at least cover a portion of her expenses for life.

Exhibit 7 provides this efficient frontier for retirement income. The yellow dots are the different allocations of stock funds, bond funds, and annuities plotted by the spending shortfall at the 10th percentile and average legacy value. The most efficient outcomes are in the upper-left direction: less spending shortfall and greater average legacy. Again, the efficient frontier consists of stocks and FIAs. Specifically, the least risky allocation is 40% stocks and 60% FIAs. At retirement, 60% of

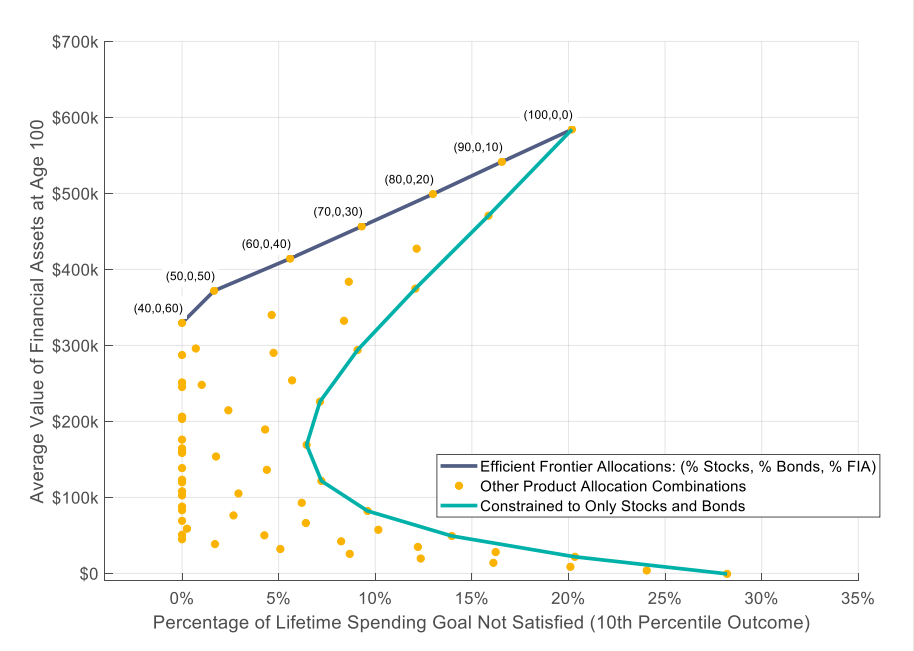

EXHIBIT 7. *Efficient Frontier for Retirement Income*

assets are allocated to the FIA and the remaining 40% is invested as 100% stocks. This allocation avoids shortfall at the 10th percentile and averages about $330,000 of legacy assets at age 100. From here, as the initial allocation shifts from FIA to stocks along the frontier, shortfall risk increases along with higher average legacies, providing the retiree with different options between risk and return. The efficient frontier continues to the point with 100% stocks (no bonds or annuities), which provides the highest average legacy of about $580,000, but with the risk that about 20% of the spending goal cannot be met if markets perform poorly in retirement.

Bonds are not on the efficient frontier. They do not serve a useful role for meeting spending goals in the optimal retirement income portfolio. Meeting more spending and preserving more assets means moving in the upper-left hand direction, and the shark-fin shape of the frontier shows how combinations of stocks and the FIA beat combinations of stocks and bonds. The stock-bond only allocations are specifically highlighted with the cyan colored curve. These points are the least efficient options. Any allocation that shifts from bonds to the FIA will improve the efficient frontier outcomes from the lifetime spending perspective, which is consistent with our earlier efficient frontier analysis as well. Nothing is sacrificed for meeting the retirement spending goal and supporting legacy in an efficient manner when the annuity is used.

The reason that partial annuity allocations can improve these financial outcomes is because they are more effective at meeting spending, which reduces the distribution pressure on remaining investment assets and allows them to focus more on growth. With investments only, the initial spending goal requires a 4% distribution. But consider an allocation of 40% to the FIA. Its payout rate is 5.5%, which is $2,200 from a $40,000 allocation. The remaining investments now need to fund $1,800 from $60,000. This is a 3% initial distribution rate. Early on, relatively more of the spending comes from the annuity and less from the rest of the unprotected investments.

This lower spending rate helps to sustain non-annuity assets longer and leaves them less exposed to the sequence-of-returns risk. The lower spending rate reduces pressure on the investment portfolio, providing more opportunity to grow. Though the unprotected

investments will likely be responsible for covering more of the inflation adjustments, as the benefit base cannot be expected to grow fast enough to keep pace with ongoing inflation, we can observe from the simulations that the lower initial distribution rate more than compensates for the inflation pressures. It is the reason that legacy values are higher. In the bifurcated approach of a partial annuity strategy, annuities provide stronger support for spending while remaining investments can be better positioned for growth and legacy since they face less distribution pressure. On the efficient frontier, stocks and the risk-pooled income more than offset the rider fee for the annuity to provide a larger net legacy after meeting lifetime spending goals.

CONCLUSIONS

In the context of protection as an asset class, annuities offer two different avenues for contributing to the better financial outcomes for household financial planning. In a modern portfolio theory investing framework, structured annuities create the potential to produce a more attractive range of investment returns and can be treated as asset classes available for the asset allocation decision. For retirement income, the overlay of a lifetime income benefit on the annuity provides a more efficient means for meeting a lifetime spending goal while also preserving assets for legacy. We have two viable frameworks for thinking about annuity protections as an asset class.

Annuities offer protections in household portfolios in various ways. They offer tax deferral unlike investment assets held in taxable accounts that face ongoing taxes on their growth. Because of the ability to better manage downside risk, annuities also help owners avoid panic during market downturns, there enabling them to stay the course with their investing strategies. Also, an FIA serves as a bond alternative by providing principal protection and offers a less risky investment experience than bonds facing the risk of loss when interest rates rise. Protection has an important role to play in household financial planning, which is why it is important to recognize protection as an asset class.

AUTHOR

Wade D. Pfau, Ph.D., CFA, RICP, is a research fellow with the Retirement Income Institute, and a co-founder of RISA, LLC, and RetirementResearcher.com. He is a professor of practice and past program director of the Retirement Income Certified Professional designation at The American College of Financial Services. His newest book is Retirement Planning Guidebook: Navigating the Important Decisions for Retirement Success.