

LIFETIME INCOME GUARANTEES AREN'T FREE: UNDERSTANDING THE VALUE OF LIFETIME INCOME INSURANCE

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Retirees who withdraw income from traditional investments face many risks, including the risk of an unknown lifespan, unknown investment returns, inflation risk, and health risk. These risks complicate a retiree's financial ability to maintain a consistent lifestyle and standard of living. The ability to spend a fixed amount from an investment portfolio can be affected by a poor sequence of investment returns and/or living to an advanced age. This risk means that all retirees face the possibility of having to cut back on their desired lifestyle to avoid running out of money.

What if a retiree could instead buy insurance to protect their income against sources of risk? Some annuity products offer this unique form of long-term income insurance through a guaranteed lifetime withdrawal benefit (GLWB) or guaranteed minimum withdrawal benefit (GMWB). Insurers collect a premium each year from retirement savings and, in return, offer the security of a minimum income guarantee for life.

By paying the GLWB insurance premium, a retiree transfers the risk of a long life and/or poor investment returns to an institution that can pool risk among retirees. Without this insurance, some cohorts who experience low investment returns would face the possibility of depleting savings to maintain their desired lifestyle, while others would be more fortunate and receive higher investment returns. The GLWB premiums allow the insurance company to pool risk and investment and guarantee a consistent payment to all cohorts.

Economists like to note that there is no such thing as a “free lunch.” Academic studies of annuities that provide income protection through a minimum income benefit illustrate the benefits of transferring these important income risks to an insurance company, and the costs to an insurance company of providing this guarantee to consumers. Annuities that offer a lifetime income benefit allow retirees who experience low investment returns to spend far more each year, resulting in an expected average welfare improvement among retirees who buy the insurance premium (Horneff, Maurer, Mitchell and Rogala, 2015). Milevsky and Salisbury (2006)¹ estimate that it would cost an institution between 0.73% and 1.6% per year of insurable assets to purchase derivatives that can hedge against the risk of promising a minimum lifetime income from a portfolio of risky investments.

Through no fault of their own, some retirees will simply choose to retire in the wrong year, for example right before a recession or a global health pandemic. By doing so, they could face the prospect of spending far less than they hoped. Some retirees, particularly those who are risk averse and fear the prospect of a significant lifestyle decline, would be better off transferring this risk through insurance. An annuity that provides a lifetime income benefit allows a retiree to spend more when investment returns are lower than expected without the fear that by living well they risk cutting back later in retirement.

1. Milevsky, Moshe A., and Thomas S. Salisbury. 2006. “Financial Valuation of Guaranteed Minimum Withdrawal Benefits.” *Insurance Mathematics and Economics* 21-38.

The cost of providing a minimum lifetime income benefit on an investment portfolio is often mischaracterized as an “expense” or a “fee,” and not as an insurance premium. An expense or fee is a reduction in investment value in exchange for an immediate service (e.g., the sale of a financial product or the costs of managing a retiree’s investments). Alternatively, a premium is a payment made to an insurance company with the expectation that a portion of these payments will be returned through claims made to insureds who experience a random negative event.

Consider the value of property insurance to a homeowner. Each year, the homeowner pays \$2,000 for an insurance premium that protects against the risk of total loss from a fire. The insurance company may pay out claims that average \$1,500 per policy. The difference between the cost of paying claims to policyholders and the premiums paid is referred to as the insurance load, which is required to compensate the insurance company for the costs of creating and distributing the policy. In this example, the load is 25%. The policyholder is still better off paying the insurance load because it avoids a significant negative financial outcome (the loss of a home) that occurs because of a risk that cannot be controlled.

The homeowner’s insurance premium should not be seen as a fee comparable to a fee charged by a financial adviser. By charging annuity owners for the GLWB rider, an insurance company can expect to make future payments to annuity owners who deplete their investment accounts and must rely on continued lifetime income from the insurer. In contrast, an investment portfolio managed by an adviser is subject to market and longevity risks with no guarantee that a retiree will be able to withdraw a minimum income over their lifetime.

In this research brief, we provide an overview of annuity products that provide a lifetime income benefit. We demonstrate that the lifetime income guarantee offered through GMWB insurance takes away the risk of outliving savings for retirees who receive lower than expected investment returns. By paying insurance premiums, a retiree who experiences a bear market is able to avoid

the need to cut back on lifestyle spending and the anxiety of facing a higher risk of failure. We also show that compensation paid to advisors who sell annuities that offer lifetime income protection is often less than the present value of advisor compensation on managed investment portfolios that do not provide protection against the risk of outliving savings

UNDERSTANDING LIFETIME INCOME INSURANCE

The majority of academic studies on the potential benefits of annuitization focus on relatively basic immediate income annuities in which a consumer pays a premium and receives a lifetime income guarantee from an insurance company. Research on the benefit of immediate annuities finds that retirees who annuitize can receive a 25% to 50% increase in welfare by transferring longevity risk to an insurance company (Davidoff, Brown and Diamond, 2005, Maurer, Mitchell and Dus, 2008²).

Single-premium immediate income annuities (SPIAs) represent a relatively small fraction of total annuities sold. For example, immediate annuities represented only approximately 2.5% of total annuity sales in 2021 (\$6.4 billion of the \$254.6 billion).³

SPIAs have been relatively unpopular among consumers because they require an irrevocable decision that that involves significant behavioral challenges (Brown, Kling, Mullainathan and Wrobel, 2008).⁴ The purchase requires a significant transfer of wealth to an insurer, resulting in a decrease in balance sheet assets that can be psychologically difficult to accept for households who have spent decades building retirement savings, view the premium cost as a wealth loss, and have trouble estimating the value of future guaranteed payments.

In response to consumer hesitancy to pay an annuity premium, an increasing number of products have been introduced which provide some amount of guaranteed (or protected) lifetime income, and allow the consumer some access to the premium, i.e. are not irrevocable.

2. Davidoff, Brown and Diamond, 2005: www.aeaweb.org/articles?id=10.1257/000282805775014281

and Horneff, Maurer, Mitchell and Dus, 2008: <https://www.sciencedirect.com/science/article/abs/pii/S0167668707000571>

3. <https://insurancenet.com/innarticle/2021-annuity-sales-highest-since-the-great-recession-sri-reports>.

4. Brown, Kling, Mullainathan and Wrobel, 2008: <https://www.aeaweb.org/articles?id=10.1257/aer.98.2.304>

One popular example of this annuity product structure that provides a guaranteed lifetime income on an investment portfolio is a “guaranteed lifetime withdrawal benefit” (GLWB) rider, which is also commonly referred to as a “guaranteed minimum withdrawal benefit” or GMWB.

A lifetime income benefit is common in both variable annuities (VAs) and fixed indexed annuities (FIAs). So-called investment subaccounts are held by the insurer but can be withdrawn by the consumer in these insurance products. However, the investments need not necessarily be held in subaccounts. An insurance company can provide a lifetime benefit outside the portfolio through a contingent deferred annuity (CDA) in which an insurance company receives an annual premium in exchange for a promise that the retiree can withdraw a certain amount from their investments each year until death.

The existence of a CDA clarifies the value to a consumer, and cost to an insurance company, of the lifetime insurance benefit. The insurer provides a guarantee that represents a potentially significant future liability in the form of a stream of lifetime income, even if the insured’s investment accounts are depleted as a result of poor investment returns and a long lifespan. No financial institution would be willing to provide such a potentially costly guarantee without some form of compensation for bearing the potential liability.

It is not appropriate to characterize payment for this guarantee as a “fee” comparable to an asset management fee that provides no such liability.

HOW A GLWB WORKS

Introduced in the 1990s, GLWBs allow access to the contract value and guarantee a minimum level of lifetime income. The income provided by the GLWB is calculated using a so-called “benefit base” or “income base.” The benefit base is multiplied by the payout rate to determine the minimum amount of income that can be withdrawn from the annuity each year. For example, if the benefit base is \$400,000 and the payout rate is 5%, then a retiree can withdraw \$20,000 from the annuity each year for life.

The contract value reflects the balance of the investment account. Like any investment account, the con-

tract value decreases when income is withdrawn from the annuity. The lifetime income insurance premium is also withdrawn from the contract value to cover the insurance company’s costs of providing the guarantee.

The payout rate is based on the age of the annuitant at the time of the first withdrawal, or the younger of the two annuitants if the guarantee covers the lifetime of a couple. Because the income guarantee can be expected to last longer when offered to a younger individual, the payout rate will reflect the actuarial cost of providing lifetime income. Thus, GLWB payout rates typically increase at older ages at varying increments (for example, 5% at age 65 and 5.5% at age 70) and will be higher for single versus joint annuitants. It is also worth noting that women generally do not receive a lower payout rate despite a longer expected lifespan.

The benefit base is typically calculated using the highest contract value at each previous anniversary date, also known as the high-water mark. Some GLWB products increase the benefit base using guaranteed crediting rates that provide a minimum guaranteed increase in the benefit base over time.

For example, if a male retiree, age 65, invested \$100,000 in a GLWB with a 5% payout rate, he would be guaranteed at least \$5,000 per year for life ($\$100,000 \times 5$ percent = \$5,000). He could continue to receive \$5,000 each year even if the underlying contract value falls to zero. If the annuity portfolio value were to increase to \$110,000 on an anniversary date, the benefit base would “step up” to \$110,000 and the guaranteed lifetime income amount would increase to \$5,500 ($\$110,000 \times 5$ percent = \$5,500) and remain the minimum income, unless a new high-water mark is achieved. The benefit base and corresponding income level could increase again if the portfolio value reached a new high on a future anniversary date.

There are a variety of expenses common to GLWB products which generally fall into the categories of investment expenses, such as contract administration fees, and a GLWB rider fee (lifetime income insurance). Fees on investments and contract administration fees can be compared to asset management and mutual fund or ETF fees on non-annuity investments. The rider “fee”, however, represents the costs of insurance and is better thought of as an expense, not a fee.

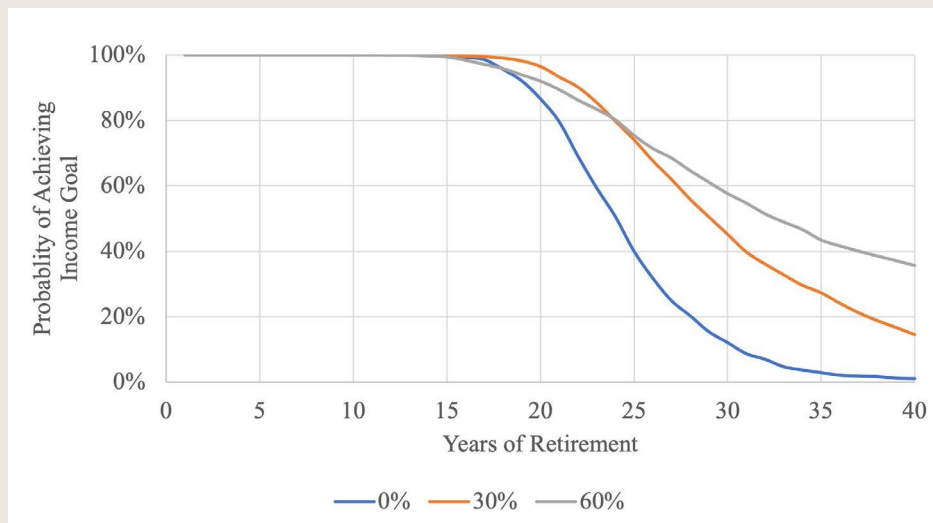


EXHIBIT 1. *Probability of Meeting Income from GLWB Based on Length of Retirement*

The value of the income benefit provided by the GLWB varies based on the calculation used to estimate the lifetime income guarantee. For example, a more expensive insurance premium is needed to cover the costs of a more generous step-up in the benefit base which provides a higher lifetime income guarantee. Because the mechanics of GLWBs are complex, lower “fee” products may provide less value than higher “fee” products if the payout rate, step-up frequency, and underlying portfolio options are more attractive.

ESTIMATING THE VALUE OF A GLWB

The value of lifetime income insurance can be demonstrated by simulating what happens to a retiree who withdraws an income from investments when portfolio returns and lifespan are unknown. By simulating 1,000 hypothetical retirements through a procedure known as a Monte Carlo analysis, we can show the likelihood that a retiree will run out of money trying to maintain a consistent lifestyle.

For the analysis, we assume that average expected nominal returns on stocks and bonds are 8.5% and 3.5% with standard deviations of 18% and 6%, respectively. The

correlation is assumed to be zero between stocks and bonds and returns are assumed to be normally distributed. Mortality rates are based on the Society of Actuaries 2012 Individual Annuity Mortality Table with full mortality improvement to 2022 and through retirement.

When estimating the possible retirement income paths from an investment portfolio that does not include lifetime income insurance, a 50-basis point investment fee, which reflects the average mutual expense ratio in 2021,⁵ and an industry-average⁶ 100-bps assumed advisor fee are applied each year.

Imagine beginning retirement with a portfolio of \$500,000. Initially, the retiree hopes to spend 5%, or \$25,000 from these investments. They can invest either 0% in stocks (100% in bonds for safety), 30% in stocks, or 60% in stocks. Each year, the retiree’s financial advisor rebalances the portfolio and the withdrawal amount matches the amount the retiree could have withdrawn from a variable annuity GLWB (at least \$25,000, but occasionally more if the GLWB receives a step-up). How long will the savings last?

Exhibit 1 illustrates the perils and benefits of accepting greater investment risk. Portfolios with a higher

5. <https://www.ici.org/news-releases/22-news-trends>

6. <https://smartasset.com/financial-advisor/financial-advisor-cost>

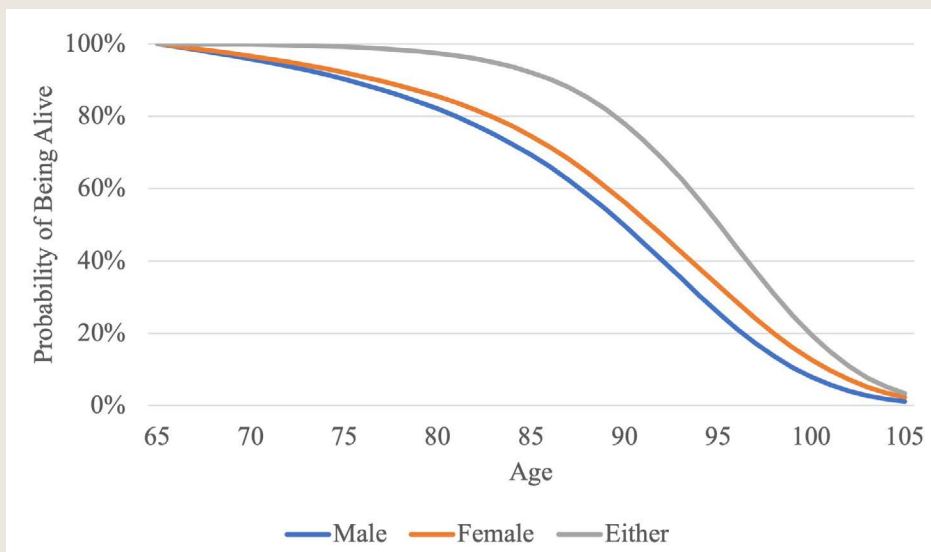


EXHIBIT 2. *Probability of Being Alive by Age for Healthy Men, Women, and Couples*

percentage of stocks begin to fail earlier in retirement than portfolios with less investment risk. Nearly 10% of individuals who retired at age 65 with a 60% stock allocation will run out of savings before they reach their 85th birthday. While bond investments are less volatile, they are in fact less safe when funding an income into late retirement. 60% of bond only portfolios have run out after 25 years.

Retirees with enough wealth to consider the assistance of a financial professional can expect to live years longer than an average American. Insurance statisticians recognize this fact and can predict the likelihood that a healthy individual, the type who purchases retail annuities, will live to a given age. Exhibit 2 shows the likelihood that a 65-year-old male, female, and opposite-sex couple will be alive at a specific age. For example, at age 85, 69% of men, 75% of women, and 92% of couples will still be alive.

Exhibit 1 and 2 illustrate how many portfolios will have been depleted funding an annual spending goal and how many retirees will be alive at a given age. This is the risk faced by all retirees who use investments to fund a lifestyle. If an individual does not know how long retirement will last, even a conservative 5% nominal withdrawal rate will eventually deplete a portfolio. Taking

greater investment risk leaves those who experience a poor sequence of investment returns early in retirement with the difficult choice of either cutting back spending or facing a higher possibility of running out of savings.

Imagine retiring with \$500,000 on January 1. Monte Carlo analysis suggest that there is a 90% chance that a 60% stock portfolio will be able to produce \$25,000 of income each year for 30 years. By January 1 the next year, a bear market has left the portfolio with only \$400,000 after funding \$25,000 of living expenses. There is now only a 73.9% chance that the retiree will be able to safely withdraw \$25,000. Are retirees comfortable with a more than 1 in 4 chance of running out over 30 years?

While cutting spending from \$25,000 to \$21,000 brings the chance of success back up to an 88.7%, the retiree could worry less now that savings would run out, but would need to be willing to cut spending and reduce their standard of living to maintain a similar degree of confidence. The insurance provided through a GLWB eliminates the risk of needing to cut spending in the face of a random loss.

If instead an annuity was purchased with a \$25,000 GLWB, a retiree could continue spending at least \$25,000 free of the worry and risk of running out of sav-

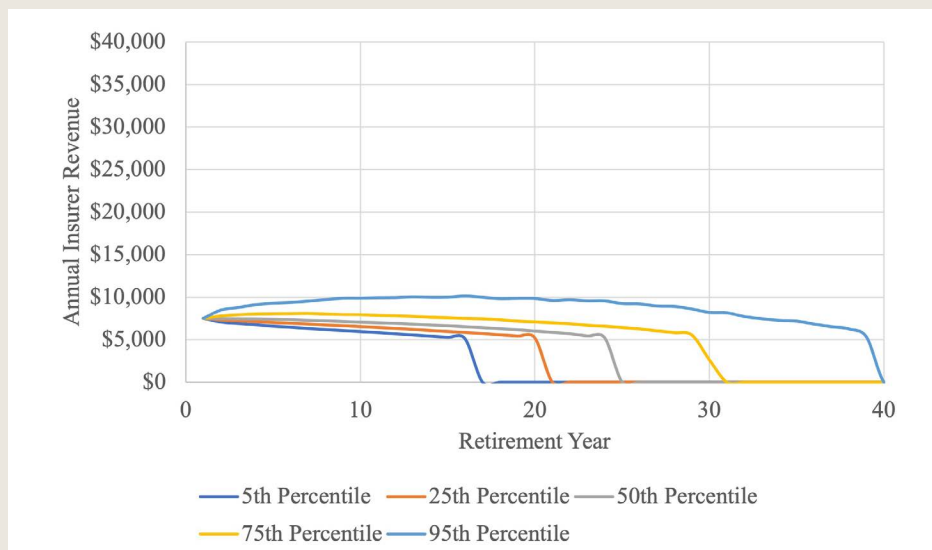


EXHIBIT 3. Annual Insurance Premiums Collected on a GLWB Policy

ings and continuing to enjoy an expected and planned for lifestyle. The insurance company now bears the risk of significantly higher failure from lower-than-expected investment returns.

The insurer bears the responsibility for stepping in and making lifetime minimum income payments for retirees who are unlucky. The dollar values of this insurance protection can be estimated in order to demonstrate the expected value of the GLWB benefit.

WHAT IS THE VALUE OF THE LIFETIME INCOME BENEFIT?

Insurance claims on a lifetime income guarantee are paid when the retiree’s investment balance runs out. The insurer then continues to make income payments for the life of the retiree who no longer has the means to generate a desired lifestyle.

Many retirees won’t require a claim because the retiree will not outlive their savings. For these retirees, a \$25,000 annual income can be easily withdrawn from a \$500,000 investment portfolio because investments either perform well or because retirement doesn’t last that long. Some of these retirees could have funded their \$25,000 income goal for far less than \$500,000.

For other retirees, the initial \$500,000 investment will not be enough to fund the \$25,000 income goal. They may need \$600,000, \$700,000 or more to withdraw the guaranteed minimum income that would have been provided by a GLWB over their lifespan.

In the following analyses, we estimate the balance that would have been needed at retirement to generate the same overall economic value of lifetime income for a 65-year-old male. We assume a contract value insurance premium of 1.5% and step-ups in the income base. The premium is levied on the liquidation value of the policy, which will fall over time as income and insurance premiums are withdrawn.

Exhibit 3 shows the insurance premiums generated from the GLWB policy by year of retirement at various distributions in simulated retirements. Less fortunate retirees in the 5th percentile will only pay the insurance premiums for about 15 years before depleting their contract value and relying on the insurer to continue making income payment. The median retiree will make premium payments for about 25 years, or roughly the median longevity.

Premiums collected by the insurer are then used to pay retirement income claims when the retiree’s investment account falls to zero. The value of these income claims

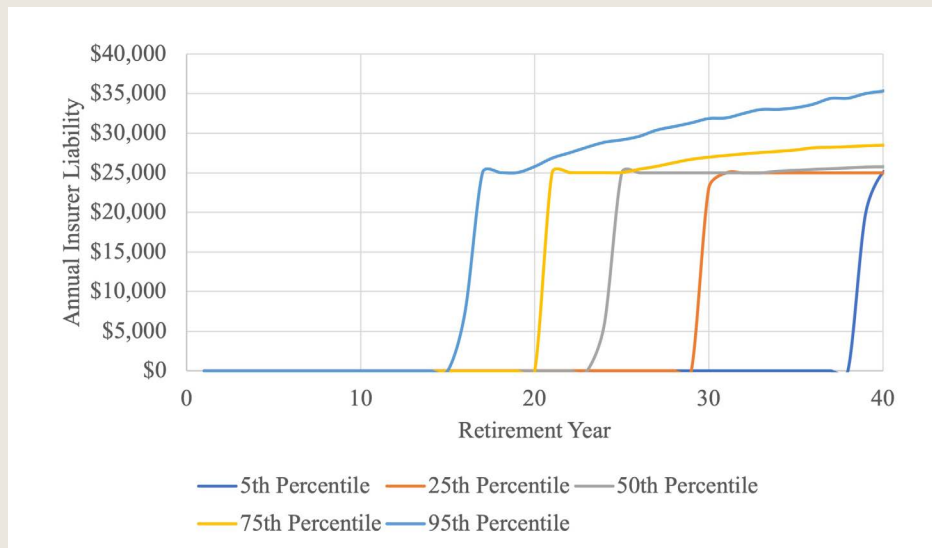


EXHIBIT 4. *Income Paid by Insurer from GLWB Guarantee to Retiree*

is shown in Exhibit 4. In the simulations where the cost of producing the same amount of income as a variable annuity exceeds \$500,000, the insurance company subsidizes the retiree’s income. This subsidy represents the return of a portion of the cost of providing lifetime income through the GLWB rider.

Exhibit 4 illustrates the how distribution of claim amounts is going to vary depending on realized longevity among retirees, as well as investment returns. The insurer will pay significant income claims to retirees in the 5th percentile of outcomes upon depletion of their contract value after 15 years. At the 25th percentile (75th percentile of claims), the insurance company will need to withdraw money from reserves to pay claims after just 20 years. At the median longevity, the insurance company will have just begun to make income payments and more fortunate retirees will not receive insurance claims until late in retirement when they have only a small probability of still being alive.

These examples illustrate how GLWBs allow retirees to transfer the risk of a poor sequence of investment returns and a long life to an insurance company using a GLWB. Insurers collect far less in premiums from retirees that experience lower investment returns than they pay out in the form of claims. Fortunate retirees pay the premium for the peace of mind of knowing that they

can continue to spend a guaranteed minimum amount in retirement.

The subsidy from those that experience higher investment returns to those retirees with less investment return is the essence of the value of insurance, and the premium covers the cost of providing this value. Risk transfer allows all retirees to live their desired lifestyle free of the ever-present possibility that the cost of funding their income goal will be far higher than they had expected.

COMMISSION VS. FEES FOR LIFETIME INCOME

Compensation for annuities is often in the form of a one-time commission. For example, a financial professional may collect 6% of the initial purchase price as compensation for the sale of a variable annuity, which is paid by insurer (versus a deduction from the premium). Investment advisers often levy a fee on the balance of a retiree’s investment portfolio. As previously mentioned, these fees average 1% of assets under management.

At first glance, a financial professional’s compensation via a 6% one-time commission from the insurer appears considerably higher than an annual ongoing

Panel A: \$5,000 Income					Panel B: \$6,000 Income					Panel C: \$7,000 Income				
		RETIREMENT PERIOD					RETIREMENT PERIOD					RETIREMENT PERIOD		
		20	30	40			20	30	40			20	30	40
RETURN (%)	2	10.2	10.3	10.3	RETURN (%)	2	8.7	8.7	8.7	RETURN (%)	2	7.6	7.6	7.6
	4	11.0	11.5	11.5		4	9.6	9.7	9.7		4	8.3	8.3	8.3
	6	11.7	13.8	14.7		6	10.4	11.3	10.3		6	9.1	9.2	9.2
	8	12.3	15.2	17.3		8	11.1	13.0	14.2		8	9.9	10.9	11.9
	10	12.7	16.4	19.3		10	11.7	14.4	16.5		10	10.6	12.5	13.8

EXHIBIT 5 Initial Commission to Generate Equivalent Income/Balance Assuming a 1% Annual Fee

1% fee, and critics of annuity products often compare this one-time fee to the much lower ongoing fee applied to investment assets. However, this comparison is incorrect and misleading, since an ongoing fee deducted from client assets continues throughout retirement and, in present value terms, can be considerably higher than the up-front commission paid by the insurer from its general revenue on an annuity. While management of an investment portfolio to provide annual income can require ongoing advising services, a financial product can also provide a lifetime income without the need for ongoing portfolio management. If the retiree’s primary goal is to create income from retirement investments, it makes sense to compare the amount withdrawn from the portfolio to fund advisor compensation from asset fees and commissions to determine which model best supports this financial goal.

Let’s assume a retiree has a choice between paying a lump sum fee at retirement for income guidance for the entire length of retirement or an on-going fee that is 1% of assets. It is possible to determine the equivalent initial commission (applied to the balance at retirement) that can result in the same income level and final balance level for a given set of assumptions.

For our analysis, we vary the assumed length of retirement (20, 30, or 40 years), the assumed nominal withdrawal amount (\$5,000, \$6,000, or \$7,000 from a \$100,000

initial balance), and the portfolio return (2% to 10%, in 2% increments). The average expected length of retirement for a 65-year-old male is 25 years, 26.4 years for 65-year-old women, and 30 years for a couple.

Results in Exhibit 5 show the present value equivalent of a 1% annual asset fee applied to \$25,000 of annual income and \$30,000 of annual income at various portfolio return levels. At a 5% initial withdrawal rate and a 6% portfolio return, a retired couple will pay 13.8% of the present value of their portfolio in fees to an advisor. If the advisor encourages the retiree to withdraw a higher percentage of their wealth to fund income, the cost will be less because the higher income will reduce future wealth values.

Investment management and annuities require very different levels of management by financial advisors. An annuity is more of a “set it and forget it” approach to retirement income. The retiree simply withdraws the guaranteed minimum withdrawal benefit amount each year and the portfolio requires no ongoing maintenance. However, selling assets and withdrawing income from a portfolio on a periodic basis can require more active, ongoing advisor services. The higher present value cost of an advised portfolio suggests that retirees will pay more of their retirement wealth while bearing greater income risk from a managed investment portfolio than from a variable annuity with a GLWB.

CONCLUSIONS

A guarantee isn't free. The cost of a guaranteed minimum withdrawal benefit is an insurance premium that pays for a valuable lifetime income guarantee. Using simulations, we show how retirees can pay a modest premium expense early in retirement to avoid the risk of running out of savings late in retirement. The risk of either low investment returns or a long lifespan is faced by all retirees; however, there are ways to reduce or mitigate this risk. The GLWB allows a retiree to transfer this risk to an insurance company.

What is the value of a retirement income approach that includes a GLWB? Retirees that experience negative returns early in retirement must choose between maintaining their desired lifestyle and accepting a much higher possibility of running out of savings later in retirement or cutting back on spending to maintain an acceptable possibility of failure. A GLWB transfers this risk of lower than expected asset returns to an institution so that the retiree can avoid cutting back on spending, knowing that the insurer will continue to support his or her lifestyle throughout retirement.

The purpose of insurance is to prevent a significant loss of wealth. In retirement, this loss can be characterized as the loss of wealth needed to fund a desired lifestyle. For many retirees, it is worth giving up a small share of wealth early in retirement through insurance for a significant increase in peace of mind and a guaranteed (or protected) stream of income.

Characterizing the insurance cost as a “fee” comparable to fees on professionally managed portfolios that do not incorporate lifetime income protection is incorrect and misleading. Asset managers are not willing to provide the same lifetime income protection to retirees. Commission costs on GLWB products are generally less than the present value cost of creating an unprotected retirement income plan using asset-based fees. Academic researchers, financial professionals, journalists, and policy makers must do a better job of educating and informing the public about the risks of running out of money in retirement and how retirees can insure against those risks.

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