RETIREMENT INCOME INSTITUTE
Alliance for Lifetime Income

Who Should Read This Insight:
Financial professionals, life insurance companies, annuity manufacturers, retirees, retirement investors

Institute Research Agenda Topic:
New takes on the annuity puzzle

Insight: USING PROSPECT THEORY TO EXPLAIN ANNUITY AND INSURANCE MARKET PUZZLES

Definitions of **bold key terms** are at the end of this article.

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Authors, Titles and Publication Dates of the Articles Addressed in the Insight
Gottlieb, Daniel. 2012. "Prospect Theory, Life Insurance, and Annuities." Wharton School Research Paper 44, Wharton School of the University of Pennsylvania, Philadelphia, PA.

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IDEAS IN THIS INSIGHT YOU CAN PUT INTO ACTION

Daniel Gottlieb's research findings suggest the following: (1) Potential **retirement investors'** aversion to losing their investment in an **annuity** (known as loss aversion) may explain the under-**annuitization** of wealth by consumers, because they are concerned they might die soon after purchase, and so have experienced a financial loss. (2) Loss aversion may also explain why working-age consumers purchase insufficient amounts of life insurance. (3) The puzzle of why elderly people hold too much life insurance may be explained by their risk-seeking behavior with losses—that is, they accept greater volatility and uncertainty with investments in exchange for a higher expected return because they want to try to recoup losses. This is particularly true for those who have held their insurance policies for many years and so have invested a large amount of money in their purchase. (4) Risk-seeking behavior with losses may prevent individuals from liquidating their life insurance (which pays beneficiaries only when the insurance owner dies), even when they have purchased an annuity (which pays as long as the annuity owner lives), if they are loss averse and the fees charged for the purchase of an annuity are not too large. (5) Demand for annuities with guarantees, such as a guarantee to make annuity payments for a certain period, or refund options may also be explained by consumer loss aversion. Based on the author's findings, we suggest the exploration of a hybrid product that provides consumers with life insurance when they are working age, and then converts to an annuity later in life, when the consumer retires.

PRINCIPAL INSIGHTS

Economic theory suggests that working-age individuals with dependents should purchase enough life insurance to ensure their dependents are financially secure in the event of their untimely death. Economic theory also suggests that retirees should purchase annuities to protect themselves against the risk of outliving their assets, known as longevity risk. Demand for both life insurance and annuities is inconsistent with the predictions of economic theory, however, which presents many puzzles. The author identifies five of these puzzles: (1) few individuals purchase annuities, (2) working-age individuals do not purchase sufficient amounts of life insurance, (3) retirees own too much life insurance, (4) many of those who have purchased annuities also hold life insurance, and (5) most annuity policies have clauses that guarantee a minimum repayment. Gottlieb's article uses a model of demand for life insurance and annuities, based on prospect theory, to explain each of these five distinct puzzles.

Prospect theory has three key features that help it explain these puzzles. First, the theory defines consumer preferences in terms of gains and losses. An example is people's different behavior when faced with either gaining or losing $10. Second, consumers are loss averse: they prefer to avoid financial losses rather than to acquire equivalent financial gains. For example, a loss-averse consumer thinks that it is better not to lose $10 than it is to gain $10. Third, consumers are reluctant to risk losing their gains, but accept greater volatility and uncertainty with investments in exchange for a higher expected return to try to recoup losses.

Purchasers of annuities make an initial payment in exchange for a stream of payments that continue throughout their retirement. An individual who dies soon after entering the contract has experienced a loss on the contract—that is, that consumer received less money from the stream of payments than was paid to buy the annuity. A consumer who lives a long time after entering the contract experiences a gain, however, because the consumer receives more money than was paid for the annuity. Gottlieb explains that, since consumers are loss averse, the potential loss when buying an annuity leads them to under-**annuitize** their wealth. Furthermore, as time passes and annuity owners collect their payments, they continue to under-annuitize their wealth because they are reluctant to take risks with their gains, in this case the annuity payments they have received.

When consumers purchase an insurance policy, they make an initial payment in exchange for payments to a beneficiary (e.g., a spouse, children) after the policy owner's death. Similar to purchasing an annuity, the policy holder and beneficiaries face two possibilities: experiencing a gain or experiencing a loss. When it comes to life insurance, however, the consumer and beneficiaries experience a gain if the purchaser dies in the near term and a loss if the purchaser lives for many years. Faced with the possibility of experiencing either a loss or a gain, prospect theory predicts that loss-averse consumers will underinvest in life insurance. As time passes, consumers that live long enough experience a loss on their purchase. Gottlieb explains, however, that, because consumers are willing to accept volatility and uncertainty when it comes to a gain, they are reluctant to liquidate their life insurance policies, and end up being over-insured when they reach old age.

Purchasing a life insurance policy is theoretically the same as selling an annuity, as someone can sell their current or future annuity payments for a lump sum of cash immediately or at a future payout date. For this reason, consumers should not buy both an annuity and life insurance at the same time. Many purchasers of annuities also hold life insurance policies, however. As described above, consumers' risk-seeking behavior with losses explains their reluctance to liquidate their life insurance policies, even though the better financial decision would be to liquidate the policy rather than to hold on to it in hopes of a payoff that would avoid a loss of the premiums that have already been paid. The author finds this decision-making continues even when insurance policyholders have purchased an annuity, if they are sufficiently loss averse and the fees charged for the purchase of an annuity (known as loads) are not too large.

Finally, Gottlieb uses prospect theory to explain the puzzle of why the majority of annuities sold in the United States have guarantee clauses or refund options. A guarantee clause promises to continue making payments for a certain period, even if the **annuitant** dies, in which case the payments would be made to a beneficiary. For most guarantee clauses, this period is 10, 15, or 20 years. A refund option reimburses beneficiaries with the uncollected payments if the annuitant dies soon after purchasing the annuity contract. The purchase of annuities with these features is puzzling for two reasons: (1) There are other products with the same level of risk that offer superior payouts. (2) These annuities have reduced coverage during an initial period, meaning the cost of purchasing an annuity with a guarantee or refund option reduces the amount of money paid out during the period the annuity covers. The author explains demand for annuities with these features, despite their downsides, using the proposition of prospect theory that consumers are loss averse, and therefore prefer to avoid losses.

It is possible that a hybrid product could be developed that provides consumers with additional life insurance when they are working age, and then converts to an annuity later in life, when the consumer retires. A hybrid annuity–life insurance product could address the five puzzles described in this insight. It could lead to greater purchases of annuities in general (puzzle #1), it could increase the purchase of annuities among working-age individuals (puzzle #2), it could decrease the number of retirees who hold too much life insurance (puzzle #3), it could address the desire among some consumers to hold both life insurance and an annuity (puzzle #4), and it could address loss aversion by offering a guarantee or refund option (puzzle #5). A hybrid product would thus provide workers with a greater amount of life insurance during their working years when life insurance is more important in case of early death and would then convert into an annuity that would make retirees more annuitized when guaranteed lifetime income is more important. Furthermore, converting from a life insurance product to an annuity could prevent retirees from being over-insured.

To learn more, visit the Retirement Income Institute at
www.allianceforlifetimeincome.org/retirement-income-institute

KEY TERMS ARE SOURCED FROM THE ALLIANCE FOR LIFETIME INCOME'S ANNUITIES LANGUAGE GLOSSARY AND INVESTOPEDIA

Annuitant: *A person who will receive the income payments from an annuity. (They could be the direct owner of the annuity or another person chosen by the direct owner, and they are the person whose lifetime income the payments are based on.)*

Annuitization: *The process of converting an investment into a series of periodic income payments by buying an annuity or beginning an income flow from an annuity.*

Annuitize: *When you turn your current account balance into a series of periodic income payments, either for a specific period of time or for your whole life.*

Annuity: *A financial product that can offer protected lifetime income and even potentially grow your money.*

Retirement investor: *Someone who invests his or her own retirement savings, regardless of type.*

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