Allianz Life Insurance Company of North America

WHITE PAPER

Measuring retirement income outcomes

Redefining retirement success by highlighting the role of annuities in employer-sponsored plans to effectively manage risks, enhance portfolio sustainability, and improve participant outcomes.

By Matt Gray and Meghan Nykorchuck

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ALLIANZ CENTER FOR THE
FUTURE OF RETIREMENT™

Contents

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With more than 25 years in the financial services industry, Matt has broad experience in guaranteed solutions that can help consumers protect and improve their retirement outcomes. Since 2019, he has led the entry of Allianz into employer markets through partnerships with industry leaders and organizations focused on helping in-plan customers achieve improved retirement outcomes.

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Meghan brings a diverse range of experience to her current role with the Allianz Center for the Future of Retirement™. Leading Defined Contribution (DC) Insights, Meghan is dedicated to advancing research and thought leadership to drive meaningful change for the millions of Americans saving through their employer-sponsored plan. She is driven by a desire to make a positive impact through actionable research and accessible communications, helping more Americans achieve the dignified retirement they deserve.

Redefining retirement success

During working years, the main goal of a retirement portfolio is to benefit from market growth, often taking on more risk early to achieve higher returns. This strategy allows time to recover from market downturns before retirement. However, as retirement nears, portfolios face increased risks such as sequence of returns risk (early market downturns depleting assets), longevity risk (outliving assets), and inflation risk (diminishing income purchasing power).

To manage these risks, retirees are often advised to withdraw conservatively, typically around 4% from portfolios of stocks and bonds. Despite this, retirement income often remains vulnerable to market changes. A market decline can worsen these risks, making it hard to stretch savings or forcing larger withdrawals to keep up with inflation, further draining assets. **This raises an important question: What defines success in retirement?**

Retirement success isn't just about having a lot of money; it's about maintaining a lifestyle while managing key retirement risks. To achieve this, it's important to reconsider the tools used to protect assets and help participants reach their retirement income goals. Annuities can be a valuable addition to a retirement portfolio, offering a level of diversification that traditional investments can’t provide: guaranteed income for life. In some cases, this guarantee may help other assets pursue higher growth objectives. This is possible because the guaranteed income from the annuity can be used for these expenses, relieving the pressure on other investments.

→ The following scenarios will show how different annuity products can improve retirement outcomes.

Case studies

The case studies in this paper were conducted using the Allianz Portfolio Impact Report (PIR) tool, which is used to model the probability of achieving different retirement goals with hypothetical portfolios and 5,000 Monte Carlo simulations. The PIR tool is used to show how adding an annuity to a portfolio may quantitatively improve the likelihood of portfolio success. The PIR tool is not intended as an individualized financial planning tool.

The tool was developed by Allianz Investment Management U.S. LLC (AIM US), which is a wholly owned subsidiary of Allianz Life Insurance Company of North America (Allianz) and provides hedging and investment management services for the broader Allianz Group. AIM US is an experienced team of investment professionals that provides active diversification, strong risk modeling, and extensive capabilities for real-time risk monitoring, managing $160 billion in assets in our general account portfolio.[1]

Capital market assumptions

Based on J.P. Morgan's 2025 Long-Term Capital Markets Assumptions[2]

Equity	
US Large Cap	Total returns: 6.70% Dividend yield: 1.60% Volatility: 16.26%
Global Equity	Total returns: 8.10% Dividend yield: 2.83% Volatility: 17.61%
EM Equity	Total returns: 7.20% Dividend yield: 2.80% Volatility: 21.08%
Bonds	
	Yield: 4.60% **Volatility:** 4.52%
Correlation	
US Large Cap	Global Equity: 88% EM Equity: 74% US Bond: 26%
Global Equity	EM Equity: 86% US Bond: 30%
EM Equity	US Bond: 29%

METHODOLOGY

1. Success is measured as having the desired income goal at the end of the stated investment horizon. This goal increases annually with inflation.
2. Hypothetical outcomes were derived from 5,000 Monte Carlo simulations.
   – No advisory fees or taxes are reflected.
   – Bond yields are mean reverting.
   – Equity dividends are reinvested continuously.
   – Bonds are zero-coupon with a constant 7-year maturity.
   – Monthly income goal is not changed as account balances decrease.
   – Annuities are given first priority as an income source, followed by the sale of securities.
   – Securities are sold in proportion to asset class account values.

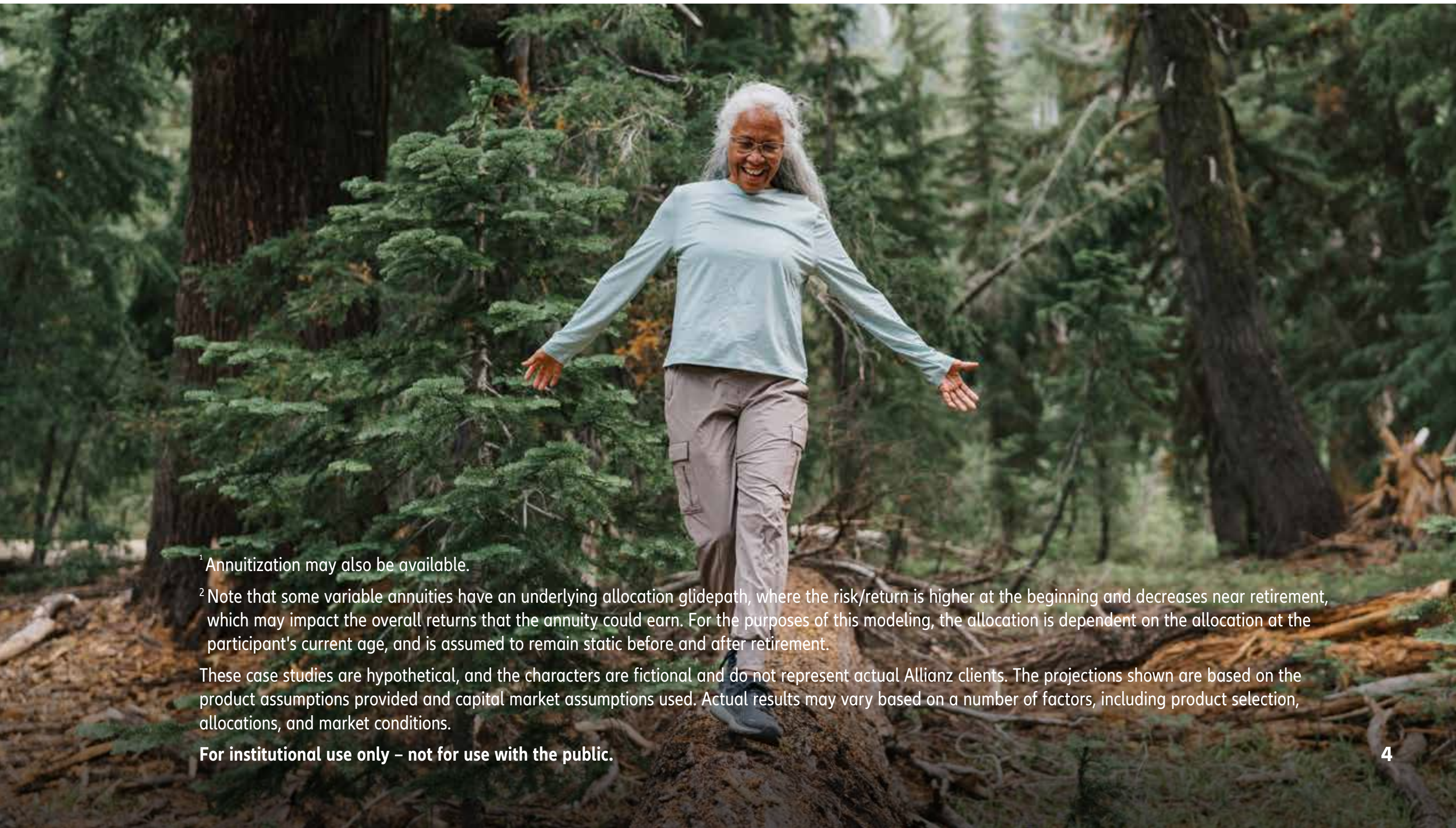
[1] Source: Internal analysis as of 12/31/2024

[2] J.P. Morgan is not responsible for the calculations used in this analysis.

PRODUCT ASSUMPTIONS

This analysis considers one portfolio without an annuity and three that each include an allocation to a different annuity product. Below are the assumptions used for each of the three annuity products. Each hypothetical annuity product described is intended to serve as a representation of annuity offerings available in the defined contribution market. These hypothetical products do not correspond to any specific annuity offered by any particular provider. The details provided should not be construed as a definitive guide to any single annuity product, and potential buyers are encouraged to consult with a financial advisor or insurance professional to explore specific options that best suit the needs and circumstances of a particular retirement plan.

Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual product fee: 0.50% **Protection of principal:** 100% **Annual cap:** 6.00% **Withdrawal rate:** 5.20% **Income:** Guaranteed Lifetime Withdrawal Benefit (GLWB)[1]	**Annual product fee:** Implicit **Protection of principal:** 100% **Fixed rate:** 4.80% **Annuity payout rate:** 7.84% **Annual income increase:** 1% **Income:** Annuitization	**Annual product fee:** 1.30% **No protection of principal** **Investment mix:**[2] • Age 55: 58% equity, 40% bond, 2% cash • Age 57: 58% equity, 40% bond, 2% cash • Age 62: 43% equity, 39% bond, 18% cash **Withdrawal rate:** 5.00% **Income:** Guaranteed Lifetime Withdrawal Benefit (GLWB)[1]



[1] Annuitization may also be available.

[2] Note that some variable annuities have an underlying allocation glidepath, where the risk/return is higher at the beginning and decreases near retirement, which may impact the overall returns that the annuity could earn. For the purposes of this modeling, the allocation is dependent on the allocation at the participant's current age, and is assumed to remain static before and after retirement.

These case studies are hypothetical, and the characters are fictional and do not represent actual Allianz clients. The projections shown are based on the product assumptions provided and capital market assumptions used. Actual results may vary based on a number of factors, including product selection, allocations, and market conditions.

Meet Dana

PARTICIPANT ASSUMPTIONS

Dana is a hypothetical participant who is 10 years away from retirement and has $500,000 saved in her employer-sponsored retirement plan.

Dana

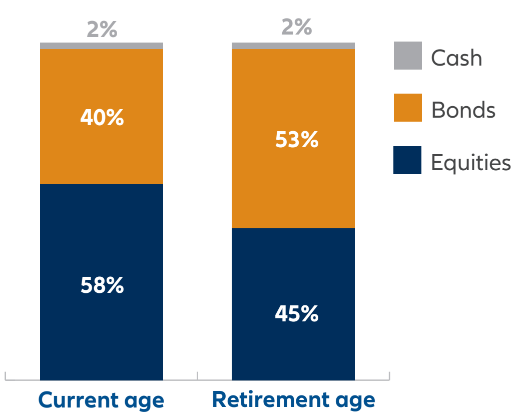
Current age: 55	**Retirement age:** 65	**Salary:** $100,000
Retirement savings rate: 12%	**Current contributions:** $12,000/year[1]	
Current retirement plan balance: $500,000	**Outside asset value at retirement:** $50,000	
Annual income goal from retirement plan assets: $36,000/year	**Income inflation:** 2.4%	
Target replacement rate:[2] 69% Includes an estimated monthly Social Security benefit of $2,500, along with a 5% withdrawal from external assets, in addition to the income generated from her retirement plan assets.		

PORTFOLIO ASSUMPTIONS

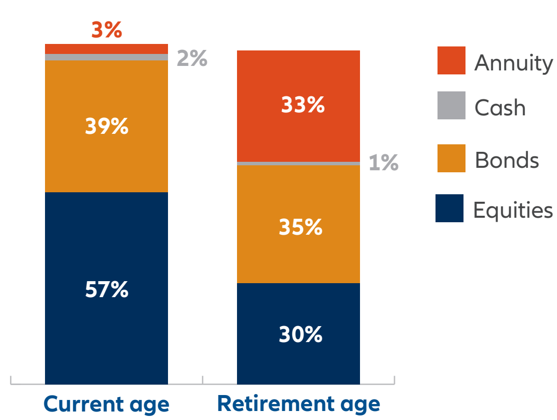
This analysis evaluates the impact of incorporating annuities by comparing a non-annuity portfolio with three distinct portfolios, each featuring a different annuity product. Dana's hypothetical non-annuity portfolio, composed of equities, bonds, and cash, adopts a progressively conservative approach as she approaches retirement.

The three hypothetical portfolios with annuities use the same portfolio allocation mix, differing only in the specific annuity product used. The portfolios with an annuity also become more conservative with age, adding in an additional layer of diversification with an annuity. Note that as annuity allocations increase, the allocations to equities, bonds, and cash are reduced proportionally.

Portfolio without an annuity[3]



Portfolio with an annuity[3]



[1] 3% contribution increase per year assumed.

[2] Target replacement rates are based on estimates included in Understanding the Benefits, Social Security Administration, 2025.

[3] Values have been rounded.

Dana's retirement outcomes

PROBABILITY OF SUCCESS

Probability of success represents the likelihood of a desired outcome, such as achieving a desired income goal, occurring in a series of events. This analysis looks at the probability of success of the four portfolios in reaching Dana's annual income goal of $36,000 from her retirement plan assets. This goal does not include other sources of income like Social Security or assets she has outside her plan.

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Probability of success for reaching annual income goal of $36,000	83%	94%	93%	78%
Comparison of probability of success to non-annuity portfolio	-	11 percentage point increase	10 percentage point increase	5 percentage point decrease

These results point to the importance of protection from market downturns in enhancing the probability of success:

- **Allianz Lifetime Income+® and the hypothetical fixed annuity** would boost Dana's probability of success by 11 and 10 percentage points respectively compared to her non-annuity portfolio. Fixed and fixed index annuities offer a 0% floor and/or a guaranteed fixed rate of return, which acts as a safeguard against market downturns.[1] This feature is key to maintaining the stability of funds and can significantly increase the likelihood of meeting income goals.
- **Variable annuities,** with their direct market investments, may offer potential for higher growth.[1] However, the hypothetical variable annuity would reduce the probability of achieving Dana's income goal by 5 percentage points compared to the non-annuity option and by 16 percentage points compared to fixed and fixed index annuities. The absence of a floor can heighten vulnerability to market downturns, potentially compromising income stability.

Key takeaways:

Fixed and fixed index annuities can provide a dependable strategy for achieving retirement income goals. They offer complete protection from market downturns, ensuring that annuity allocations will never decrease in value due to market drops. As a result, they are typically able to provide higher levels of guaranteed income during market downturns, enhancing the likelihood of meeting income targets. This can make them an attractive option for individuals seeking reliable retirement income.

[1] Fees and charges may still reduce the contract values.

Variable annuities (VAs) may perform well in strong market environments and could outperform forward-looking capital market assumptions used in these examples. It is important to note that no single product may be most effective in all market environments.

GUARANTEED INCOME IN DEPLETED PORTFOLIO

Traditionally, scenarios are evaluated with a binary measure of success: Either the income goal is met, or it is not. However, not all probabilities of success are created equal.

	No annuity		Allianz Lifetime Income+® fixed index annuity		Hypothetical fixed annuity		Hypothetical variable annuity	
	Success	Fail	Success	Fail	Success	Fail	Success	Fail
Portfolio value >$0	83%	17%	94%	6%	93%	7%	78%	22%
Annual income goal = $36,000	$36,000	$0	$36,000	$19,509	$36,000	$10,828	$36,000	$6,414
Percent of income goal	100%	0%	100%	54%	100%	30%	100%	18%

This analysis points to the impact of guaranteed lifetime income in addressing retirement risks and ensuring a level of lifelong financial stability:

- **Without an annuity, Dana's portfolio risks complete depletion** and would leave her without any annual income. In contrast, all three annuity types – fixed, fixed index, and variable – would provide a guaranteed income stream for life, even if her balance reaches $0.
- **Specifically, with Allianz Lifetime Income+®, even in scenarios where the portfolio fails, the average annual income would be $19,509, which is 54% of her target annual income.** This is significantly higher than the average income that would be provided by a fixed annuity, which would be $10,828 per year, and a variable annuity, which would offer $6,414 per year in similar circumstances.

Key takeaways:

In scenarios where Dana's portfolio would have been depleted, portfolios that include an annuity could provide a clear advantage: a guaranteed stream of retirement income for life. Unlike the hypothetical portfolio without an annuity, Dana would have continued to receive annuity payments or lifetime withdrawals to cover some or all essential expenses throughout her retirement.

SHOCKED MARKET SCENARIO

In addition to offering guaranteed lifetime income, it's important to consider how an annuity can protect against a major market downturn. The analysis below examines Dana's probability of success and annual income if she faces a one-time market shock at age 65, with declines of -40% in US Large Cap, -50% in Global Equity, -60% in EM Equity, -10% in US Bond, and a 200% increase in volatility.

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual income at age 65 No market shock, 95% probability of success	$29,400/year	$35,400/year	$35,100/year	$28,200/year
Annual income at age 65 Market shock, adjust income for 95% probability of success	$20,700/year	$28,800/year	$28,800/year	$21,600/year
Comparison of annual income to non-annuity portfolio Market shock, adjust income for 95% probability of success	-	39% increase	39% increase	4% increase
Probability of success Market shock, maintain annual income goal of $36,000	42%	78%	74%	42%

In a shocked market scenario, there are clear benefits to having an annuity in the portfolio to provide a level of protection against losses due to the market drop.

- **Allianz Lifetime Income+®** stands out, as it would provide the highest probability of success in maintaining Dana's original annual income goal of $36,000, at 78% – 36 percentage points higher than the non-annuity portfolio and the hypothetical variable annuity.
- The **hypothetical fixed annuity** also would have demonstrated substantial benefits with a 74% probability of success.
- **Both the hypothetical fixed annuity and Allianz Lifetime Income+®** would offer the same adjusted income level in the event of a market shock – **a 39% increase over the non-annuity portfolio and a 33% increase over the hypothetical variable annuity.**
- Although the **hypothetical variable annuity** does not improve the probability of reaching the $36,000 goal compared to the non-annuity portfolio, it would offer a **modest 4% increase in annual income when adjusted for a market shock.**

Key takeaways:

The fixed and fixed index annuities, with their 0% floor and/or guaranteed fixed rate of return, would have delivered more significant improvements in the event of a severe market downturn. These annuities offer a valuable safeguard, ensuring full protection of the annuity’s value from market risk.

MEDIAN LEGACY VALUE

When planning for retirement, individuals often aim to achieve their income goals while also considering the legacy they wish to leave for their heirs. An effective way to evaluate retirement strategies is by assessing the impact of different annuity options on the median legacy value.

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual income	$36,000/year	$36,000/year	$36,000/year	$36,000/year
Probability of success	85%	95%	95%	79%
Median legacy value at age 95	$1,729,892	$2,539,886	$2,129,074	$1,432,205
Comparison of median legacy value at age 95 to non-annuity portfolio	-	47% increase	23% increase	17% decrease

The results show the impact of managed growth potential on the median legacy value.

- **Allianz Lifetime Income+® fixed index annuity** would deliver the most substantial enhancements, achieving a **47% increase over the non-annuity portfolio,** a **19% increase compared to the hypothetical fixed annuity,** and a **77% increase over the hypothetical variable annuity.**
- The **hypothetical fixed annuity** also would boost the median legacy value, offering a **23% increase** relative to the non-annuity portfolio. In contrast, the **hypothetical variable annuity** would result in a **17% reduction in median legacy value** compared to the non-annuity portfolio.
- **Direct market participation in non-annuity and variable annuity portfolios exposes investments to market volatility, which can adversely affect legacy value.** Additionally, higher fees associated with variable annuities may further diminish the amount that can be passed on to beneficiaries. Conversely, fixed and fixed index annuities offer protection against market downturns, helping to minimize the risk of loss and providing opportunities for growth. By covering a larger portion of the income goal, they reduce the need to draw from the remaining portfolio.

Key takeaways:

Fixed index annuities offer protection from market drops and growth potential, efficiently managing risk to help enhance future median legacy value and provide a more substantial legacy for beneficiaries. Specifically, the Allianz Lifetime Income+® fixed index annuity earns interest based on positive market movements, subject to a cap or other limiters. It also includes two increasing income features through its Lifetime Income Benefit that offer the potential for compounding growth on the lifetime income over time, which would have allowed for more of the rest of the portfolio to be left to accumulate over time, and would have resulted in the sizeable increase in median legacy value at age 95.

Measuring success: Important considerations for evaluating retirement income products

When evaluating retirement income products, it's essential to consider both quantitative and qualitative measures to understand their overall value. While all modeled annuities demonstrated value in one or more outcome measures, some outperformed others in hypothetical scenarios.

CONSIDERING QUANTITATIVE MEASURES

Reframing retirement success to focus on asset sustainability and risk resilience provides a robust framework for quantitatively evaluating outcomes. Key measures such as probability of success, guaranteed income in a depleted portfolio, impact of a market shock, and median legacy value offer insights into the quantitative value of integrating an annuity into a portfolio.

- **Probability of success:** This measure assesses the likelihood of maintaining income throughout retirement. Both fixed index and fixed annuities demonstrate significant improvements, with a 10 percentage point increase in this case study, thereby enhancing portfolio sustainability.
- **Guaranteed income in a depleted portfolio:** All three annuities – fixed index, fixed, and variable – demonstrate value by providing a guaranteed income stream that cannot be outlived, ensuring consistent retirement income.
- **Market shock scenario:** In this scenario, all three annuities outperform the non-annuity portfolio. Fixed index and fixed annuities offer more pronounced enhancements, with a 36% increase in annual income when adjusting their income goal for a 95% probability of success during a market shock. This underscores the resilience provided by the 0% floor protection on the income in safeguarding against market volatility.
- **Median legacy value:** The fixed index annuity, Allianz Lifetime Income+®, shows the most significant improvement, with a 50% increase in median legacy value at age 95 compared to the non-annuity portfolio. This highlights its growth potential of the income benefit and positive impact on legacy planning.

These quantitative measures are important as they provide tangible evidence of how annuities can enhance portfolio sustainability and resilience over the course of retirement. Understanding these outcomes helps explain the value of certain product structures. By understanding these metrics, plan fiduciaries can make informed decisions about the effectiveness of different annuity structures in quantitatively enhancing participant outcomes within their plans.

CONSIDERING QUALITATIVE MEASURES

The qualitative features of annuities significantly impact their overall value proposition. Carefully consider which features are most important for the various participants in your or your clients' retirement plans.

Key qualitative features

Feature	What to consider
Access to cash value	**Annuitization vs. Guaranteed Lifetime Withdrawal Benefits** **Annuitization** is the process of converting a sum of money into fixed payments that are received for life. However, annuitization is an irreversible decision and, once selected, that person is no longer able to access the cash value of their annuity. In contrast, a **Guaranteed Lifetime Withdrawal Benefit (GLWB)** lets someone receive retirement income from their annuity while still having access to the cash value. This means they can take out some or all of the money even after retirement payments begin. Most GLWB products available in the Defined Contribution (DC) market don't have withdrawal fees, but a market value adjustment may apply for certain withdrawals above the guaranteed amount. In the DC market, most **fixed annuities require annuitization** to start income. While many **fixed index annuities and variable annuities provide the option of a GLWB** alongside annuitization, offering a broader range of choices for managing retirement income.
Flexibility and control	**Starting age for retirement income** The age at which annuity payments can begin varies by product. Some products allow payments to start immediately upon retirement, often after age 59½. While others may require deferring payments until a later age. Additionally, there might be a maximum age by which payments must start. Understanding these age-related requirements for each specific product is important. **Flexibility of retirement income payments** With annuitization, once the decision is made, the income stream becomes fixed. In contrast, a GLWB often offers more flexibility. Some GLWB products may offer the option to skip taking retirement income in years where it is not needed and the ability to access those funds later on. Such flexibility can be beneficial in managing financial needs and changing priorities over time. Some products may also allow the retirement income to increase each year depending on return, bonus, or market environment.
Seamless portability	**Individual vs. group contract** In the Defined Contribution market, most products designed to be offered within an employer-sponsored retirement plan are **group contracts.** To move an annuity from a group contract to an IRA, conversion to an individual contract is required. Conversion may alter fees, benefits, and/or features. An **individual contract** is able to move to an IRA without changing any fees, benefits, or features. The Allianz Lifetime Income+® Annuity stands out as it is an individual contract that can be offered within an employer-sponsored retirement plan.

Overall, these qualitative features significantly impact the participant's experience with the annuity. While some annuity products may perform well in quantitative measures, qualitative restrictions, such as a requirement to annuitize, may offset these advantages. A holistic evaluation of annuity products, considering both quantitative performance and qualitative features, is important to ultimately delivering value to participants.

Additional case studies

Many retirement plans are comprised of a diversity of plan participants, each with their own individual circumstances. The next section will introduce two hypothetical participants with different financial situations compared to Dana. This will demonstrate how incorporating three types of annuities affects their retirement portfolios. The results will be summarized, as many conclusions align with those observed in Dana's case.

Meet Henry

PARTICIPANT ASSUMPTIONS

The second participant, Henry, earns $85,000 annually and has $275,000 in retirement assets, which is significantly less than Dana's $500,000, just 55%. At the same time, his annual income goal is $24,000, adjusted for inflation, starting in 10 years, which is 66% of Dana's annual income goal.

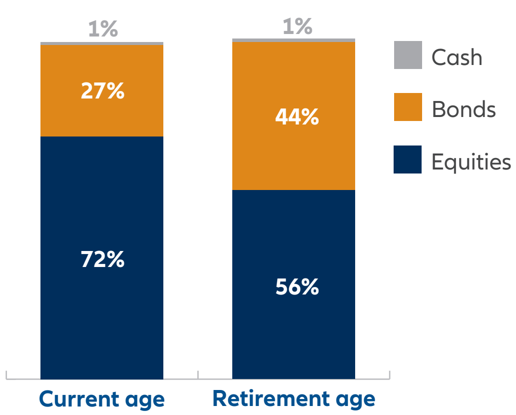
Henry

Current age: 57	**Retirement age:** 67	**Salary:** $85,000
Retirement savings rate: 10%	**Current contributions:** $8,500/year[1]	
Current retirement plan balance: $275,000	**Outside asset value at retirement:** $75,000	
Annual income goal from retirement plan assets: $24,000/year	**Income inflation:** 2.4%	
Target replacement rate:[2] 71% Includes an estimated monthly Social Security benefit of $2,700, along with a 5% withdrawal from external assets, in addition to the income generated from his retirement plan assets.		

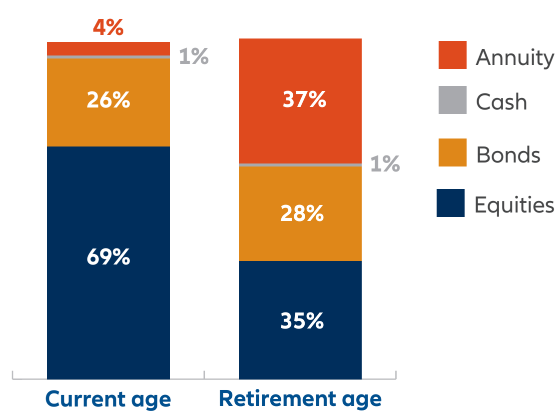
PORTFOLIO ASSUMPTIONS

While his exact allocation percentages differ, Henry's hypothetical non-annuity portfolio is composed of equities, bonds, and cash, and adopts a progressively conservative approach as he approaches retirement, like Dana's. The three hypothetical portfolios with annuities use the same portfolio allocation mix, differing only in the specific annuity product used. Again, as annuity allocations increase, the allocations to equities, bonds, and cash are reduced proportionally.

Portfolio without an annuity[3]



Portfolio with an annuity[3]



[1] 3% contribution increase per year assumed.

[2] Target replacement rates are based on estimates included in Understanding the Benefits, Social Security Administration, 2025.

[3] Values have been rounded.

Henry's retirement outcomes

PROBABILITY OF SUCCESS

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Probability of success for reaching annual income goal of $24,000	75%	86%	86%	65%
Comparison of probability of success to non-annuity portfolio	-	11 percentage point increase	11 percentage point increase	10 percentage point decrease

- While Henry's probability of success would be lower than Dana's, the **Allianz Lifetime Income+® and the hypothetical fixed annuity have a larger impact** and would boost Henry's probability of success by 11 percentage points compared to his non-annuity portfolio.
- Similar to Dana, the **hypothetical variable annuity** would reduce Henry's probability of achieving his annual income goal.

GUARANTEED INCOME IN DEPLETED PORTFOLIO

	No annuity		Allianz Lifetime Income+® fixed index annuity		Hypothetical fixed annuity		Hypothetical variable annuity	
	Success	Fail	Success	Fail	Success	Fail	Success	Fail
Portfolio value >$0	75%	25%	86%	14%	86%	14%	65%	35%
Annual income goal = $24,000	$24,000	$0	$24,000	$13,609	$24,000	$7,733	$24,000	$4,658
Percent of income goal	100%	0%	100%	57%	100%	32%	100%	19%

- **If the portfolio without an annuity fails,** Henry would receive no annual income. The portfolio would be completely depleted. In contrast, all three annuity portfolios – fixed, fixed index, and variable – would offer a guaranteed income stream for life, even if his balance reaches $0.
- **With Allianz Lifetime Income+®, Henry's average income in fail scenarios would still be over half (57%) of his annual income goal** at $13,609/year. In comparison, the fixed annuity would provide an average income of $7,733/year, which is just under one-third of his annual income goal, while the variable annuity would offer an average of $4,658/year.

SHOCKED MARKET SCENARIO

The analysis below examines Henry's probability of success and annual income if he faces a one-time market shock at his retirement age of 67, with declines of -40% in US Large Cap, -50% in Global Equity, -60% in EM Equity, -10% in US Bond, and a 200% increase in volatility.

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual income at age 67 No market shock, 95% probability of success	$16,800/year	$20,400/year	$21,000/year	$15,900/year
Annual income at age 67 Market shock, adjust income for 95% probability of success	$11,400/year	$16,200/year	$16,800/year	$12,240/year
Comparison of annual income to non-annuity portfolio Market shock, adjust income for 95% probability of success	-	42% increase	47% increase	7% increase
Probability of success Market shock, maintain annual income goal of $24,000	34%	64%	63%	30%

- If Henry lowers his annual income target following a market shock to maintain a **95% probability of success, the hypothetical fixed annuity would offer the highest annual income at $16,800** per year, closely trailed by Allianz Lifetime Income+® at $16,200 per year. However, if he maintains his original, higher annual income goal of $24,000, the Allianz Lifetime Income+® Annuity would slightly edge past the fixed annuity in terms of the probability of success due to its increasing income features. Notably, both the Allianz Lifetime Income+® Annuity and the fixed annuity would exhibit success rates almost double that of the non-annuity portfolio at 34%.

MEDIAN LEGACY VALUE

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual income	$24,000/year	$24,000/year	$24,000/year	$24,000/year
Probability of success	75%	86%	86%	65%
Median legacy value at age 95	$830,329	$1,127,971	$1,004,545	$548,911
Comparison of median legacy value at age 95 to non-annuity portfolio	-	36% increase	21% increase	34% decrease

- Similar to Dana, **Allianz Lifetime Income+® would have the most significant impact on Henry's median legacy value,** with a 36% increase over the non-annuity portfolio, a 12% increase over the hypothetical fixed annuity, and a 106% increase over the hypothetical variable annuity.

Meet Jennifer

PARTICIPANT ASSUMPTIONS

Jennifer, the third participant, earns a salary of $175,000 and saves 9% annually. She has the largest retirement portfolio, with $819,809 in assets, and plans to retire in five years. Due to her significant outside assets valued at $981,916, Jennifer has set a lower income goal of $48,000 for annual income from her retirement plan assets.

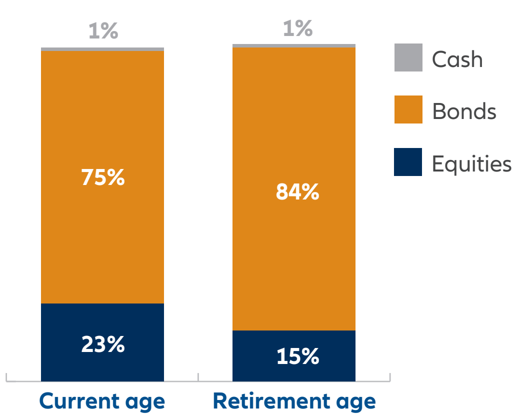
Jennifer

Current age: 62	**Retirement age:** 67	**Salary:** $175,000
Retirement savings rate: 9%	**Current contributions:** $15,750/year[1]	
Current retirement plan balance: $819,809	**Outside asset value at retirement:** $981,916	
Annual income goal from retirement plan assets: $48,000/year	**Income inflation:** 2.4%	
Target replacement rate:[2] 79% Includes an estimated monthly Social Security benefit of $3,500, along with a 5% withdrawal from external assets, in addition to the income generated from her retirement plan assets.		

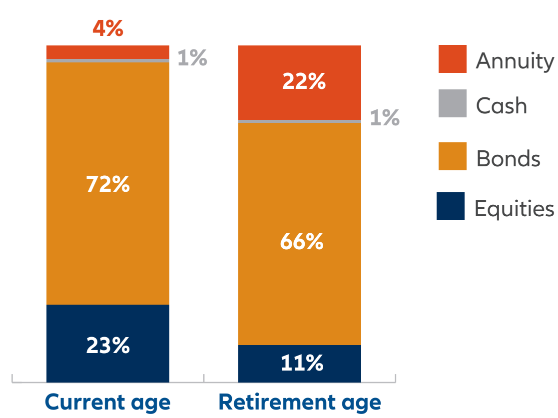
PORTFOLIO ASSUMPTIONS

Like the previous scenarios, Jennifer's hypothetical non-annuity portfolio is composed of equities, bonds, and cash, and adopts a progressively conservative approach as she approaches retirement. The three hypothetical portfolios with annuities use the same portfolio allocation mix, differing only in the specific annuity product used. Once again, as annuity allocations increase, the allocations to equities, bonds, and cash are reduced proportionally.

Portfolio without an annuity[3]



Portfolio with an annuity[3]



[1] 3% contribution increase per year assumed.

[2] Target replacement rates are based on estimates included in Understanding the Benefits, Social Security Administration, 2025.

[3] Values have been rounded.

Jennifer's retirement outcomes

PROBABILITY OF SUCCESS

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Probability of success for reaching annual income goal of $48,000	86%	97%	98%	71%
Comparison of probability of success to non-annuity portfolio	-	11 percentage point increase	12 percentage point increase	15 percentage point decrease

- Due to her substantial savings, Jennifer's probability of success is the highest of all three hypothetical participants. However, both **Allianz Lifetime Income+® and the hypothetical fixed annuity** would still **enhance her probability of success by 11 to 12 percentage points respectively** compared to the non-annuity portfolio, while the **hypothetical variable annuity** would reduce her probability of success by 15 percentage points.

GUARANTEED INCOME IN DEPLETED PORTFOLIO

	No annuity		Allianz Lifetime Income+® fixed index annuity		Hypothetical fixed annuity		Hypothetical variable annuity	
	Success	Fail	Success	Fail	Success	Fail	Success	Fail
Portfolio value >$0	86%	14%	97%	3%	98%	2%	71%	29%
Annual income goal = $48,000	$48,000	$0	$48,000	$16,623	$48,000	$10,897	$48,000	$5,895
Percent of income goal	100%	0%	100%	35%	100%	23%	100%	12%

- **If the portfolio without an annuity fails,** Jennifer would receive no annual income. The portfolio would be completely depleted. All three annuity portfolios – fixed, fixed index, and variable – would offer a guaranteed income stream for life, even if her balance reaches $0.
- **With Allianz Lifetime Income+®, Jennifer would receive an average income of $16,623 in scenarios where her portfolio fails, which is over a third (35%) of her annual income goal.** The fixed annuity in these scenarios would provide an average income of $10,897/year and the variable annuity would offer an average of $5,895/year.

SHOCKED MARKET SCENARIO

The analysis below examines Jennifer's probability of success and annual income if she faces a one-time market shock at her retirement age of 67, with declines of -40% in US Large Cap, -50% in Global Equity, -60% in EM Equity, -10% in US Bond, and a 200% increase in volatility.

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual income at age 67 No market shock, 85% probability of success	$48,300/year	$52,320/year	$52,080/year	$45,840/year
Annual income at age 67 Market shock, adjust income for 85% probability of success	$38,700/year	$44,400/year	$44,700/year	$38,160/year
Comparison of annual income to non-annuity portfolio Market shock, adjust income for 85% probability of success	-	15% increase	16% increase	1% decrease
Probability of success Market shock, maintain annual income goal of $48,000	14%	62%	57%	9%

- If Jennifer maintains her annual income goal, **her probability of success would be highest with Allianz Lifetime Income+®, at 62%, over 4x the portfolio without an annuity.** The hypothetical fixed annuity follows with a 57% probability of success.
- If Jennifer adjusts her income goal for an 85% probability of success, **Allianz Lifetime Income+®** and the **hypothetical fixed annuity** would increase her annual income by **15% and 16%,** respectively. The hypothetical variable annuity would decrease annual income by around 1% compared to the non-annuity portfolio.

MEDIAN LEGACY VALUE

	No annuity	Allianz Lifetime Income+® fixed index annuity	Hypothetical fixed annuity	Hypothetical variable annuity
Annual income	$48,000/year	$48,000/year	$48,000/year	$48,000/year
Probability of success	86%	97%	98%	71%
Median legacy value at age 95	$488,202	$923,430	$780,249	$353,613
Comparison of median legacy value at age 95 to non-annuity portfolio	-	89% increase	60% increase	28% decrease

- Again, **Allianz Lifetime Income+®** would have the most significant impact on Jennifer's median legacy value, **offering a remarkable 89% increase** over the non-annuity portfolio. It also would provide an 18% increase compared to the hypothetical fixed annuity and an impressive 161% increase over the hypothetical variable annuity.

Summary of insights

IMPACT OF ANNUITIES ON RETIREMENT PORTFOLIOS

The scenarios illustrate the positive effects that incorporating annuities into retirement portfolios could have for three hypothetical individuals. Portfolios with Allianz Lifetime Income+® and hypothetical fixed annuities would have consistently showed significant improvements over non-annuity portfolios. While the variable annuity generally would have underperformed compared to non-annuity options, it still would have provided value through a guaranteed income stream that cannot be outlived. Additionally, the variable annuity and Allianz Lifetime Income+® offer greater flexibility compared to fixed annuities, thanks to their qualitative features.

IMPORTANCE OF INDIVIDUALIZED RETIREMENT PLANNING

Another key aspect is the tailored allocation mix for each participant, considering factors like portfolio balance, salary, years until retirement, and external financial assets. This personalization would have resulted in distinct asset allocations for each hypothetical participant, such as Jennifer's 22% annuity allocation at retirement age compared to Henry's 37%.

This level of personalization can be achieved through self-directed allocations, where individuals manage their own portfolio allocation decisions, or via professional advice, such as managed account services that make investment decisions on behalf of participants. This contrasts with traditional target date funds, which provide uniform allocations along a glidepath for all participants within the same age cohort. While convenient, the target date approach may fail to accommodate the diverse and unique needs of individual retirees.

Overall, as demonstrated in the three different scenarios, some level of personalization is a key to ensuring that, when appropriate for their unique financial situations and long-term objectives, individuals receive an annuity allocation that helps enhance their retirement outcomes.

Let's work to enhance participant outcomes, together

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