T. Rowe Price

2024

A 5-Dimensional Framework to Understand Retirement Income Needs and Solutions

Jessica Sclafani, CAIA, Senior Defined Contribution Strategist

Taking plan sponsors' temperatures on retirement income

71% The **demographics of our plan participants are older** now versus 10 years ago.[1]

69% We **want more participants to keep their DC balances in our plan** after they retire.[1]

68% More participants **are keeping their DC balances in our plan** after retirement.[1]

[1] T. Rowe Price, 2024 DC Plan Sponsor Considerations and Actions on Retirement Income. Q28. Percentages reflect respondents that "strongly agree" or "somewhat agree" with each statement.

Following through on "You should stay!"

For plan sponsors who want to retain retirees, **what actions have they taken?**

Understand the landscape

48%

Contacted **record keeper** to discuss features, services, and solutions.[1]

46%

Contacted **consultant** to discuss features, services, and solutions.[1]

Update plan design

32%

Update distribution options to allow more **flexible access** to savings[1]

Innovate

29%

Asking providers to evolve/create **new capabilities**[1]

[1] T. Rowe Price, 2024 DC Plan Sponsor Considerations and Actions on Retirement Income. Q20. "What actions have you taken or are you considering taking in regard to retirement income solutions for your plan?" Results reflect percentage of respondents who answered "taken action" for the specific response.

Where might we be headed?

Most appealing solutions to deliver retirement income to participants[1]

		% Plan Sponsors ("most appealing")
1.	An investment that incorporates a partial guarantee	29%
2.	Target date investment w/ embedded annuity feature	27%
3.	Target date investment w/ embedded managed payout feature (non-insured)	20%
4.	Managed account (w/ guaranteed income component, insured)	18%
5.	In-plan deferred income annuity (DIA)	16%
6.	Annuity portal (access to out-of-plan annuities)	15%
7.	In-plan immediate annuity	14%
8.	Standalone managed payout investment	13%
9.	Managed account (w/ income planning feature, non-insured)	13%
10.	Dynamic or dual QDIA	9%

Results suggest a preference for **multi-asset solutions** that include a retirement income component.

[1] T. Rowe Price, 2024 DC Plan Sponsor Considerations and Actions on Retirement Income. Q24. "How appealing are each of the following strategies or solutions for the delivery of retirement income to your participants?" Percentages reflect respondents that answered "most appealing."

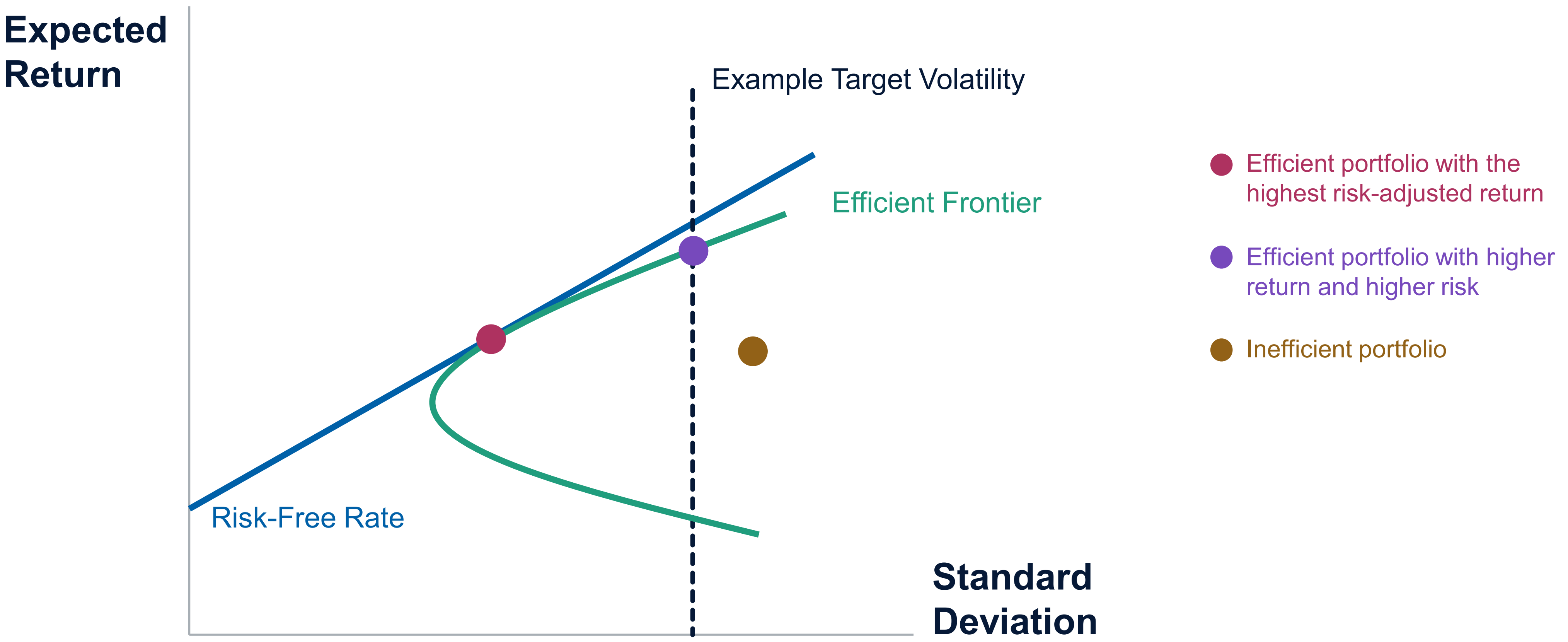
Retirement income objectives can be quantified

5 Key attributes of the “in-retirement experience”

Attribute	Definition	Real-life meaning
Longevity risk hedge	Portfolio duration/planning horizon	How many years will my retirement savings last?
Level of payments	Income yield	What will the amount of my annual income be?
Volatility of payments	Income volatility	How much can my “pay checks” change from year to year?
Liquidity of balance	Asset liquidity	If a need arises, how much of my savings can I access?
Unexpected balance depletion	Asset preservation	How high is the risk of my money running out earlier than planned?

Source: T. Rowe Price.
See Appendix and Additional Disclosure for more information.

Accumulation is 2-dimensional



For illustrative purposes only

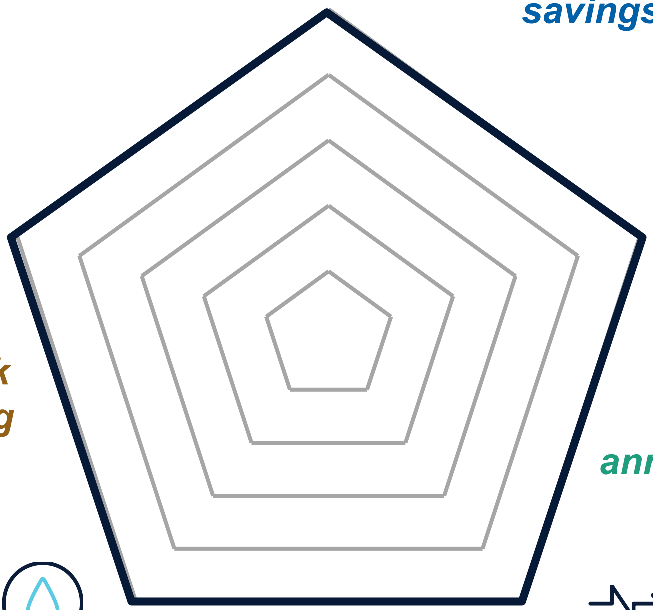
Decumulation is 5-Dimensional

Longevity Risk Hedge

"How many years will my retirement savings last?"

Unexpected Balance Depletion

"How high is the risk of my money running out earlier than expected?"



Level of Payments

"What will the amount of my annual income be?"

Liquidity of Balance

"If a need arises, how much of my savings can I access?"

Volatility of Payments

"How much can my 'paychecks' change from year to year?"

For decumulation, **five factors** must be considered.

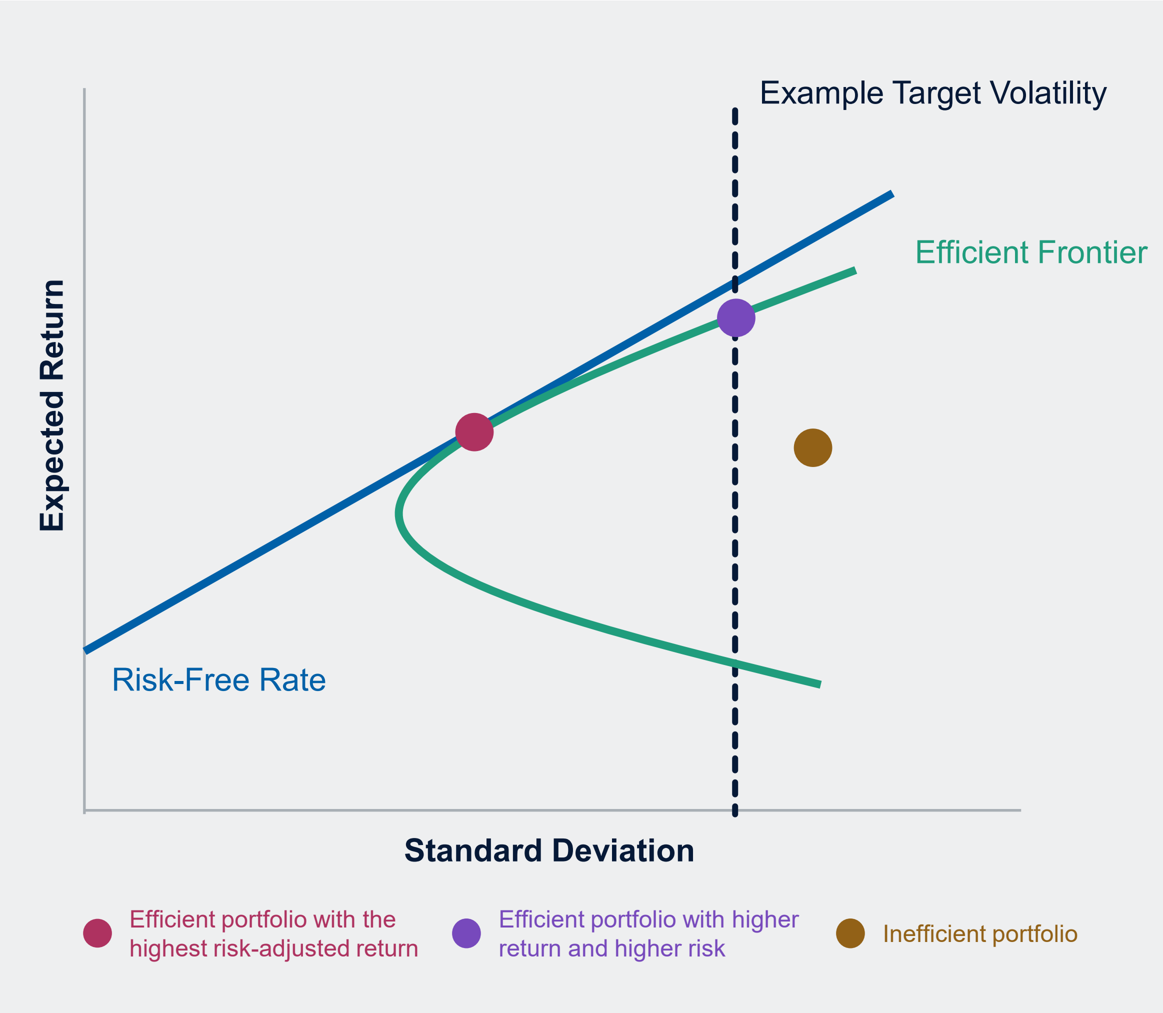
To gain any additional performance on one factor, one must sacrifice benefits elsewhere.

Example: Higher **level of payments** may require more risk, increasing the likelihood of **unexpected balance depletion**.

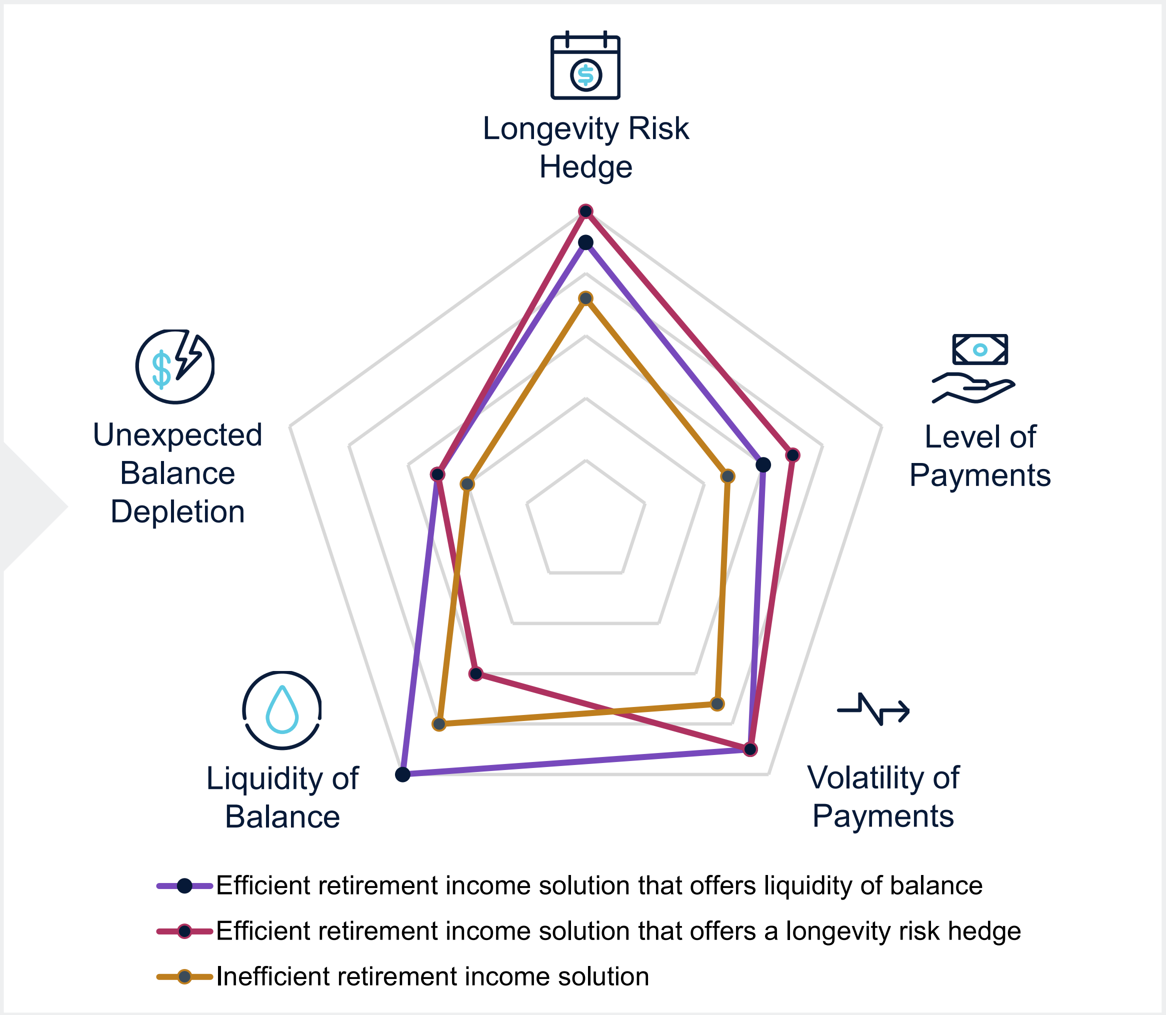
Example: To hedge against **longevity risk**, one may need to sacrifice **liquidity**.

A different evaluation framework is required for decumulation

Accumulation is **2-D**



Decumulation is **5-D**

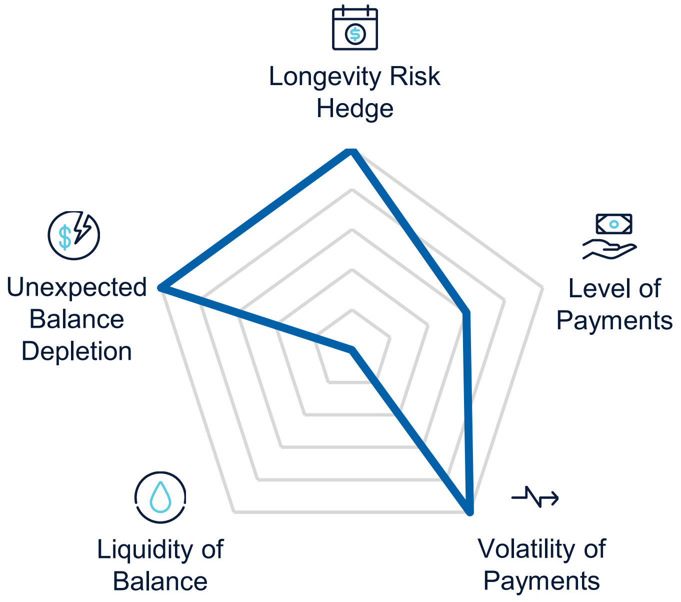


Source: T. Rowe Price. For illustrative purposes only. Not representative of an actual investment.
See Appendix and Additional Disclosure for more information.

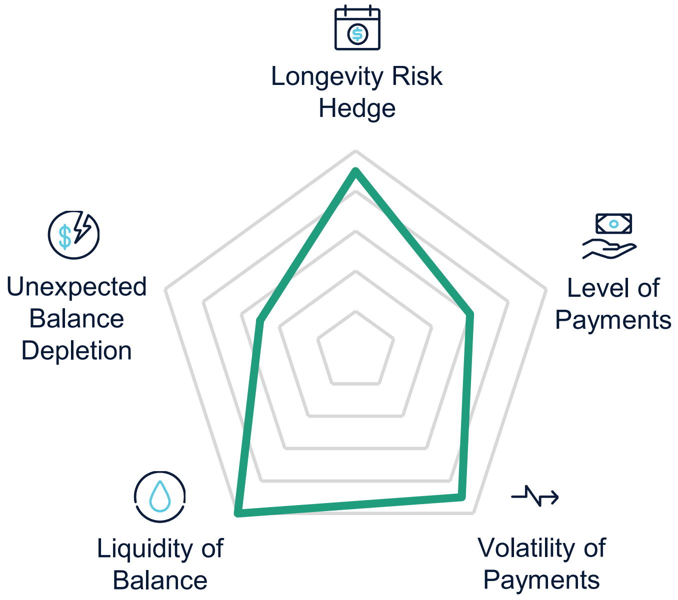
Retirement income solutions through a 5-D lens

Hypothetical solutions with attribute scores

Simple Immediate Annuity



Endowment Type Strategy with Income Option

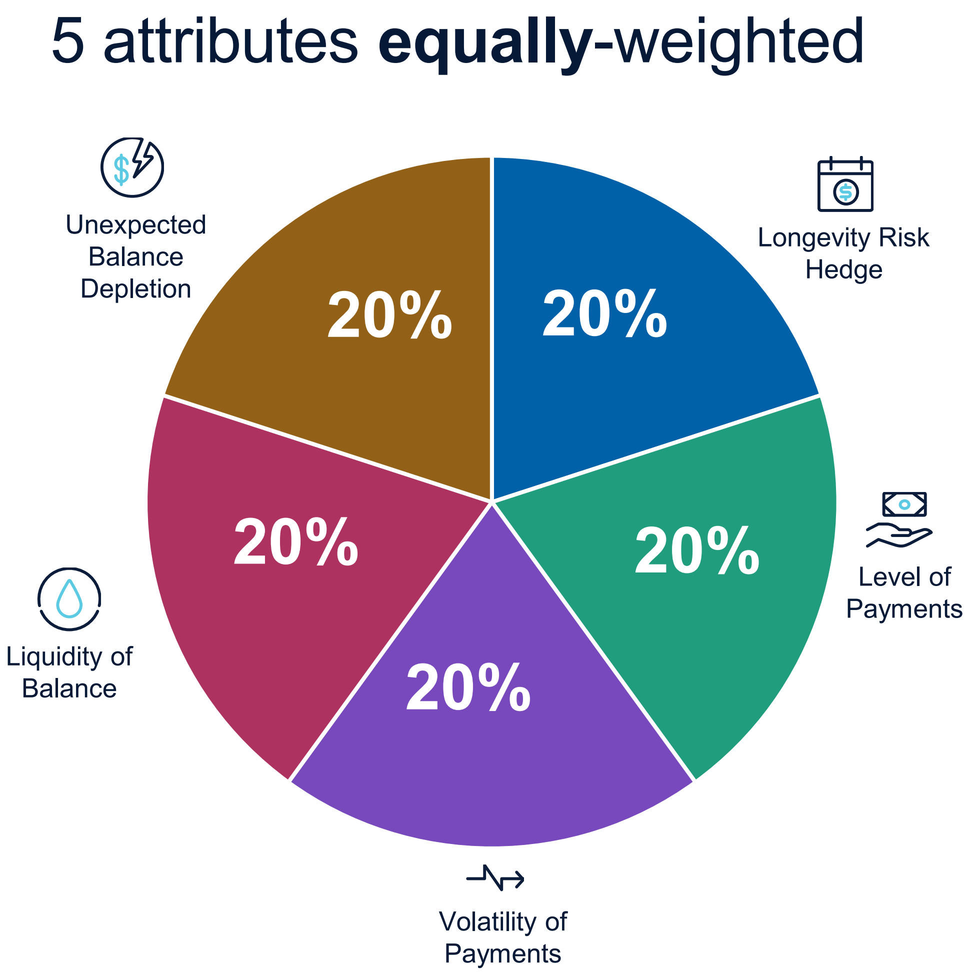


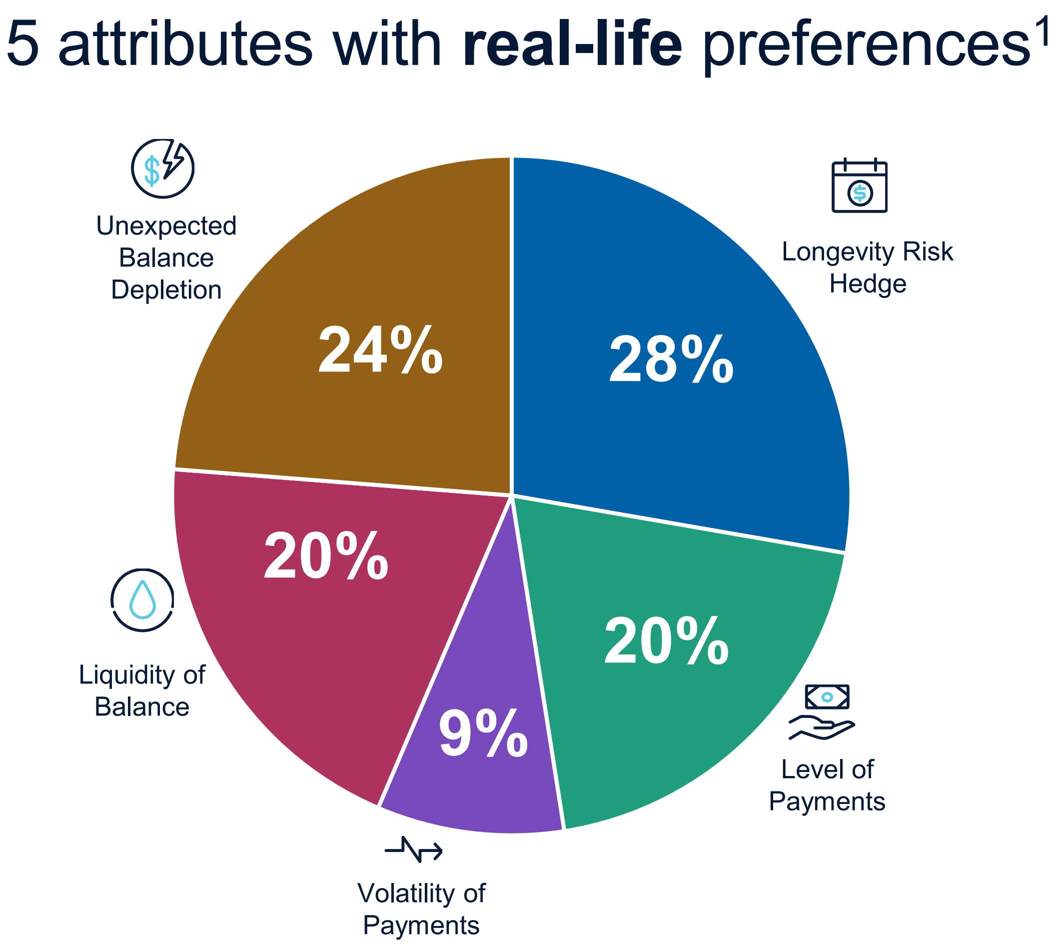
Balanced Mix of Drawdown Strategy and Annuity

A 5-D approach offers a common framework to compare retirement income solutions.

Source: T. Rowe Price. For illustrative purposes only. Not representative of an actual investment. This analysis contains information derived from a Monte Carlo simulation. This is not intended to be investment advice or a recommendation to take any particular investment action. See Appendix and Additional Disclosure for important information.

Theory to reality: Retirement income preferences revealed





Quantifying participant preferences allows us to identify how participants would spend their savings to create desired in-retirement experiences.

[1]T. Rowe Price, 2024 Exploring Individuals' Retirement Income Needs and Preferences. Data do not add to 100% because of rounding. See Appendix and Additional Disclosure for more information.

T.RowePrice

Thank You

CCON182420_2023-2024

Study Methodologies

T. Rowe Price, 2024 Exploring Individuals' Retirement Income Needs and Preferences. Data reflect responses from 2,582 individual investors age 40 to 85 that were currently enrolled in a DC plan and had at least $100,000 saved in their plan accounts. The survey was fielded December 2023 through February 2024.

The methodology used for our hypothetical case study is a proprietary method developed by T. Rowe Price that combines traditional quantitative investment research techniques, such as Monte Carlo simulations, and a quantitative marketing research method commonly used to understand consumer preferences. Fees and other expenses associated with actual products were not considered in our analysis.

The methodologies used in this study included theoretical economic tradeoff analysis, Monte Carlo simulation-based quantitative investment analysis, and classic quantitative marketing research methods.

Key Evaluation Metrics

For participant acceptance:

- Coverage ratio of an approach to retirement income solutions: percentage of participants in the plan that are willing to accept at least one product in the approach as their retirement income solution.
- Number of products: number of retirement income products in each approach.
- Acceptance rates for the same products in different approach: percentage of participants in the plan that are willing to accept the same product when offered in different approaches.
- Relative importance scores: the proportional impact that each attribute had on a respondent's choices. For example, in Figure 6, on average, men and women would rank longevity risk hedge as more important than the other attributes provided in the study. However, where they differed was for unexpected balance depletion, which was ranked as more important by females than males. The importance score is a relative measurement, so the sum of the impacts from all five attributes is normalized to 100% and the results are expressed as percentages.

For efficiency:

- The set of metrics for the five attributes.
- The metric set varied from a basic set (as illustrated in Fig. 1) to more comprehensive sets with multiple metrics for each attribute.
- All five attributes were evaluated jointly to make efficiency determinations, based on the more efficient definition.

Additional Disclosures

Monte Carlo simulations model future uncertainty. In contrast to tools generating average outcomes, Monte Carlo analyses produce outcome ranges based on probability—thus incorporating future uncertainty.

Material assumptions include:

- Multiple capital market assumptions were used in the analysis to assess the performance of hypothetical products under different market environments.

Material limitations include:

- The analysis relies on assumptions, combined with a return model that generates a wide range of possible return scenarios from these assumptions. Despite our best efforts, there is no certainty that the assumptions and the model will accurately predict asset class return ranges going forward. As a consequence, the results of the analysis should be viewed as approximations, and users should allow a margin for error and not place too much reliance on the apparent precision of the results.
- **Users should also keep in mind that seemingly small changes in input parameters, including the initial values for the underlying factors, may have a significant impact on results, and this (as well as mere passage of time) may lead to considerable variation in results for repeat users.**
- Extreme market movements may occur more often than in the model.
- Market crises can cause asset classes to perform similarly, lowering the accuracy of our projected return assumptions and diminishing the benefits of diversification (that is, of using many different asset classes) in ways not captured by the analysis. As a result, returns actually experienced by the investor may be more volatile than projected in our analysis.
- Asset class dynamics, including, but not limited to, risk, return, and the duration of “bull” and “bear” markets, can differ from those in the modeled scenarios.
- The analysis does not use all asset classes. Other asset classes may be similar or superior to those used.
- Fees and transaction costs are not taken into account. Outcomes illustrated could differ if fees associated with actual investing were assumed.
- The analysis models asset classes, not investment products. As a result, the actual experience of an investor in a given investment product may differ from the range of projections generated by the simulation, even if the broad asset allocation of the investment product is similar to the one being modeled. Possible reasons for divergence include, but are not limited to, active management by the manager of the investment product. Active management for any particular investment product—the selection of a portfolio of individual securities that differs from the broad asset classes modeled in this analysis—can lead to the investment product having higher or lower returns than the range of projections in this analysis.

Modeling assumptions:

- The primary asset classes used for this analysis are stocks and bonds. An effectively diversified portfolio theoretically involves all investable asset classes including stocks, bonds, real estate, foreign investments, commodities, precious metals, currencies, and others. Since it is unlikely that investors will own all of these assets, we selected the ones we believed to be the most appropriate for long-term investors.
- The analysis includes 100,000 scenarios for each financial market return regime. Multiple regimes are analyzed. Withdrawals are made annually at the beginning of each year.
- **IMPORTANT**: The projections or other information generated by T. Rowe Price regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. The simulations are based on assumptions. There can be no assurance that the projected or simulated results will be achieved or sustained. The charts present only a range of possible outcomes. Actual results will vary with each use and over time, and such results may be better or worse than the simulated scenarios. Clients should be aware that the potential for loss (or gain) may be greater than demonstrated in the simulations.
- The results are not predictions, but they should be viewed as reasonable estimates.

Important Information

The principal value of the target date strategies is not guaranteed at any time, including at or after the target date, which is the approximate year an investor plans to retire (assumed to be age 65) and likely stop making new investments in the fund/trust. If an investor plans to retire significantly earlier or later than age 65, the target date strategies may not be an appropriate investment even if the investor is retiring on or near the target date. The target date strategies' allocations among a broad range of underlying T. Rowe Price stock and bond portfolios will change over time. The Retirement Funds, Retirement Trusts, Retirement Blend Trusts, and Retirement Hybrid Trusts (Retirement Glide Path Strategies) emphasize potential capital appreciation during the early phases of retirement asset accumulation, balance the need for appreciation with the need for income as retirement approaches, and focus on supporting an income stream over a long-term retirement withdrawal horizon. The Target Funds (Target Glide Path Strategies) emphasize asset accumulation prior to retirement, balance the need for reduced market risk and income as retirement approaches, and focus on supporting an income stream over a moderate postretirement withdrawal horizon. The target date strategies are not designed for a lump-sum redemption at the target date and do not guarantee a particular level of income. The key difference between the Retirement Glide Path and the Target Glide Path is the overall allocation to equity; although they each maintain significant allocations to equities both prior to and after the target date, the Retirement Glide Path maintains a higher equity allocation, which can result in greater volatility over shorter time horizons. Diversification cannot assure a profit or protect against loss in a declining market.

This material is being furnished for general informational and/or marketing purposes only. The material does not constitute or undertake to give advice of any nature, including fiduciary investment advice, nor is it intended to serve as the primary basis for an investment decision. Prospective investors are recommended to seek independent legal, financial and tax advice before making any investment decision. T. Rowe Price group of companies including T. Rowe Price Associates, Inc. and/or its affiliates receive revenue from T. Rowe Price investment products and services. **Past performance is not a reliable indicator of future performance.** The value of an investment and any income from it can go down as well as up. Investors may get back less than the amount invested.

The material does not constitute a distribution, an offer, an invitation, a personal or general recommendation or solicitation to sell or buy any securities in any jurisdiction or to conduct any particular investment activity. The material has not been reviewed by any regulatory authority in any jurisdiction.

Information and opinions presented have been obtained or derived from sources believed to be reliable and current; however, we cannot guarantee the sources' accuracy or completeness. There is no guarantee that any forecasts made will come to pass. The views contained herein are as of the date written and are subject to change without notice; these views may differ from those of other T. Rowe Price group companies and/or associates. Under no circumstances should the material, in whole or in part, be copied or redistributed without consent from T. Rowe Price.

The material is not intended for use by persons in jurisdictions which prohibit or restrict the distribution of the material and in certain countries the material is provided upon specific request. It is not intended for distribution to retail investors in any jurisdiction.

USA—Issued in the USA by T. Rowe Price Associates, Inc., 100 East Pratt Street, Baltimore, MD, 21202, which is regulated by the U.S. Securities and Exchange Commission. For Institutional Investors only.

202405-3832019
CCONO182420