Three Tips for Evaluating Target Date Solutions

Helping plan sponsors identify solutions fit for purpose.

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KEY INSIGHTS

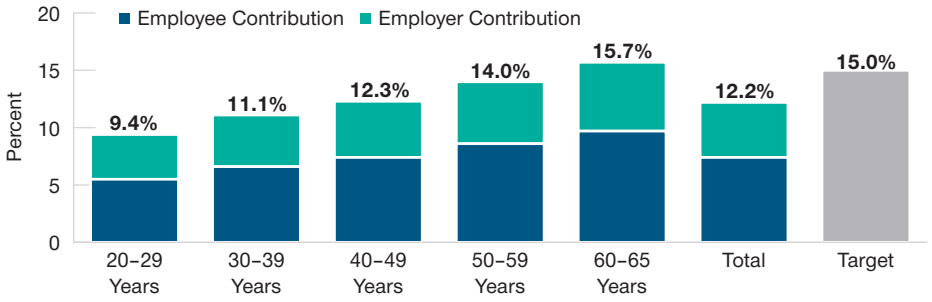
- Target date solutions are a central lever in defined contribution plans used to help participants seek successful retirement outcomes.
- Plan sponsors are examining target date solutions more thoroughly, with an emphasis on identifying solutions that are fit for their specific purpose.
- We believe the importance of making an appropriate choice should not be underestimated and offer three tips to help plan sponsors in the assessment process.

Plan sponsors increasingly recognize the critical role that the qualified default investment alternative (QDIA) plays in helping many of their participants seek successful retirement outcomes. As a result, more sponsors are playing closer attention to the evaluation and selection of target date solutions—by far the most commonly used QDIA in defined contribution (DC) plans.

This paper offers three key tips designed to help plan sponsors on their journey of evaluating target date solutions, with an emphasis on identifying solutions that are fit for purpose—i.e., those that are most suitable for their plan's specific objectives and preferences.

Savings Rates May Be Too Low

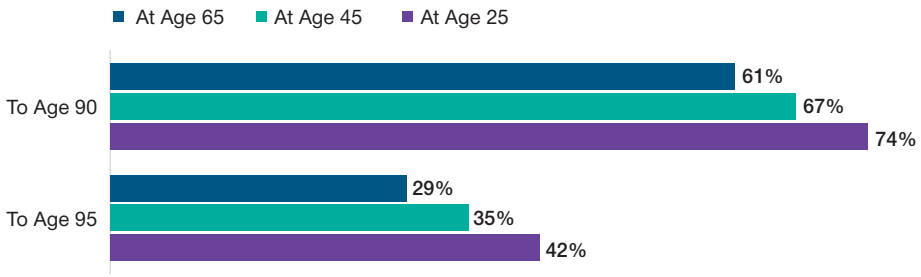
(Fig. 1) Average contribution rates as % of salary in T. Rowe Price-administered DC plans.



As of December 31, 2020.
Source: T. Rowe Price Retirement Plan Services, Inc.

Many Participants Can Expect Lengthy Retirements

(Fig. 2) Probability of at least one member of a couple living to age 90 or 95.



As of August 31, 2021.
Sources: Society of Actuaries and T. Rowe Price.

61%

Actuarial chance at age 65 of one member of a couple living to at least age 90.

We think it can be a valuable exercise for plan sponsors to take a step back and carefully evaluate the target date solutions in their plans to ensure they still are aligned with the plan's objectives, the investment committee's beliefs and preferences, the characteristics of the participant population, and the needs of the covered workforce.

As a solutions provider, T. Rowe Price begins every client engagement by asking about plan objectives, with an emphasis on understanding what the sponsor is seeking to achieve with their QDIA.

While we understand there is no one "right" answer to this question, there are a few baseline facts that we believe are important to review, as they underscore the deepening challenge of helping participants reach their retirement goals:

- The U.S. has a savings shortfall. A savings rate equal to 15% of salary is widely considered the minimum necessary to build an adequate retirement nest egg. However, T. Rowe Price's recordkeeping data suggest that employee deferrals and employer contributions combined are falling well short of this mark, except in the age 60 to 65 cohort (Figure 1).
- People are living longer in retirement. Although the COVID-19 pandemic temporarily reversed the longer-term trend, life expectancy for older Americans has been rising steadily for decades. A growing number can expect to live well into their 90s (Figure 2).
- Spending needs in retirement can be uncertain. Figure 3 shows that about three-quarters of retirees have faced one or more spending shocks—such as unexpected health care costs or uninsured property losses—in retirement.

These facts emphasize the importance of making plan decisions that solve for the financial challenges future retirees will face as well as a growing need for sponsors to consider how their benefit structures fit into their overall workforce management policies.

We believe that our ongoing client engagements have enabled us to identify potential opportunities to have a positive impact on the target date evaluation process. We focus here on three specific tips to help sponsors consider critical inputs that are fundamental to selecting a solution fit for purpose but that are easy to overlook or may not be well understood.

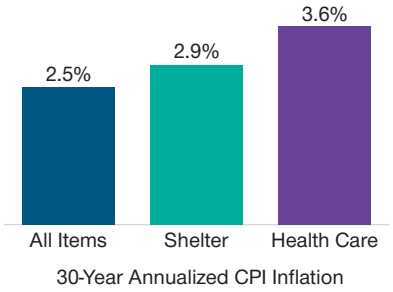
We think these insights could prove helpful for plan sponsors reevaluating their existing QDIA offering, for sponsors seeking to add a target date strategy to their existing lineup, or for those who simply recognize that their plan and their workforce needs both have evolved in ways that require a deeper examination of their plan structure.

> It's hard to know where you're going if you don't know your destination.
>
> — **Wyatt Lee**
> *Head of Target Date Strategies*

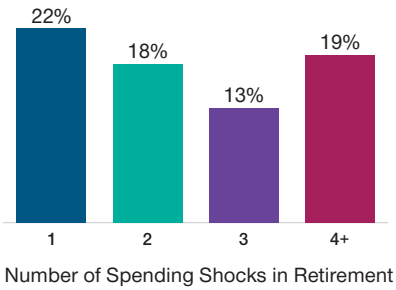
Spending Needs in Retirement May Be Uncertain

(Fig. 3) Inflation rates and spending shocks in retirement.

Main components of retirement spending historically have grown faster than headline inflation.



72% of retirees have experienced one or more spending shocks.



Inflation data as of September 30, 2022. Spending shock data as of December 31, 2020.
Sources: U.S. Bureau of Labor Statistics and Society of Actuaries.

TIP #1 Use Key Inputs to Inform Glide Path Selection

In our view, there are two important sets of inputs that should inform the overall target date glide path selection process:

- **Plan objectives.** A critical first step is to identify priorities—the specific goals the plan sponsor is solving for.
- **Plan characteristics.** Plan characteristics—such as salary levels, deferral rates, and employer contributions—offer a baseline for evaluating the current retirement preparedness of plan participants.

Plan Objectives

Despite the importance of starting with an analysis of plan objectives, we often see this step skipped for a straight-line focus on the decision whether to employ active or passive building blocks for the management of target date portfolios. We believe this represents a missed opportunity that can lead to subpar decisions. Or as our head of target date strategies, Wyatt Lee, says, "It's hard to know where you're going if you don't know your destination."

We believe one of the key target date trade-offs that sponsors need to consider is whether their primary focus is on helping participants achieve their long-term retirement income goals, or on seeking to minimize balance variability at any one point in time—such as at retirement or during short-term episodes of market volatility.

In other words, what is the most important retirement outcome sponsors want participants to be able to achieve? Is the sponsor primarily concerned about seeking to limit the risk that participants might suffer unexpected losses near retirement? Or are they more concerned about participants being able to support their long-term retirement income needs?

Most sponsors are likely to place high importance on both objectives. However, from an investment perspective the two goals are somewhat at odds—a target date glide path that seeks the portfolio growth needed to help fund adequate retirement income may increase the risk of short-term balance variability, while a glide path that seeks to reduce balance variability could lead to slower growth and less income in retirement.

This inherent trade-off is central to the target date evaluation process, in our view. A higher focus on maximizing spending power ultimately will suggest a more growth-oriented glide path (i.e., one with a higher equity allocation).

> In our recent surveys, 64% of plan sponsors and 67% of consultants ranked longevity risk as either their first or second highest concern.[1]

Looking Beyond Market Risk

The word "risk" historically has been anchored to market risk, either absolute volatility (standard deviation) or deviation relative to a benchmark (tracking error). But we fundamentally believe this is an oversimplification—one that could leave DC plans exposed to other risks that can materially impact retirement outcomes.

The reality is that risk comes in many forms, and the relative importance placed on these risks can vary across investment audiences.

Our studies of plan sponsor and consultant attitudes have shown that longevity risk—defined as the risk of participants outliving their resources—is a leading concern for both groups. In our recent surveys, 64% of plan sponsors and 67% of consultants ranked longevity risk as either their first or second highest concern.[1]

Prioritizing longevity risk should not suggest that other risks don't matter. Rather, we believe that sponsors who understand the full range of risks that should be considered and the relevant trade-offs between them will be in a better position to apply a more informed approach to target date evaluation.

Alternatively, a relative focus on managing variability around retirement and/or over short time horizons will tend to suggest a less growth-oriented glide path (i.e., lower equity).

We encourage our clients to aim for balancing the two objectives relative to the plan objectives in order to assess trade-offs and choose an appropriate glide path.

Plan Characteristics

Key plan characteristics also should play a vital role in informing the target date evaluation process. These characteristics influence cash flows both into and out of the plan and help determine how well positioned participants are to achieve their retirement goals. They also directly impact the glide path design that is most compatible with the plan's objectives:

Salaries: Other things being equal, higher pay levels may result in a higher equity glide path. Generally, those with higher salaries will have a higher income replacement rate to target and, thus, may need more portfolio growth.

Participant deferrals: Relatively lower employee deferral rates also may result in higher equity glide paths due to the need for growth to help offset lower savings.

Employer contributions: Larger employer contributions may result in a lower equity glide path as the higher level of savings from employers may offset the need for growth.

TIP #2 Think Beyond the Averages

Designing a glide path to serve an entire plan population is inherently challenging, because it's a solution for *all* when the participant population is likely to be heterogeneous—characteristics such as earnings, savings behavior, and behavioral preferences can, and typically do, vary. The goal, then, is to select

[1] Source: T. Rowe Price. Plan sponsor views collected from a survey of 451 plan sponsors conducted in November/December 2019 and reported in "Evolution With Purpose: An Informed, Research-Based Approach to Better Retirement Outcomes," T. Rowe Price Retirement Insights, July 2020. Consultant views collected from T. Rowe Price's 2021 DC Consultant Study, fielded from September 20, 2021, to November 8, 2021. Responses came from 32 consulting and advisory firms with more than 33,000 plan sponsor clients and more than USD 7.2 trillion in assets under advisement.

> Rather than constructing glide paths for a mythical 'average' participant, we believe it is more effective to use statistical distributions...

Inputs Matter

Glide path assessment is an iterative process. In this paper, we focus on primary inputs. However, there are additional contributing factors that underpin those inputs. In our view, plan sponsors should ask themselves the following questions as part of the assessment process:

- Do you prefer that participants keep assets in the DC plan after retirement?
- Do you prefer greater consistency of returns and portfolio balances, or are you comfortable with some variability to achieve different outcomes?
- Are you primarily focused on long-term market cycles, or are you more sensitive to short-term market events? What is the target spending horizon for participants? Is the primary objective to set participants up for a lengthy retirement, or are DC benefits intended to be supplemental?

Of course, this is by no means an exhaustive list. Every sponsor will have their own inputs and insights.

a glide path that is robust enough to accommodate those differences.

Many target date providers respond to this challenge by designing solutions that use the characteristics of a *hypothetical average participant* as key design inputs. These averages are assumed to represent the center of the plan population—and, thus, provide the most appropriate representation for participants as a whole.

The drawback of this approach is that it assumes there is an actual "average" person, which is far from ideal for participants who are not well represented by the hypothetical averages, particularly those who are more financially vulnerable.

Rather than constructing glide paths for a mythical "average" participant, we believe it is more effective to use statistical distributions of key characteristics *across* the assumed plan population—representing the full curve of those values, not just a single point. Figure 4 offers a visual representation of this concept.

T. Rowe Price's asset allocation research team used scenario analysis to compare the two approaches. Based on the assumed characteristics of a hypothetical plan population, they generated two different glide paths—one using simple averages as inputs and the other incorporating the statistical distributions of those values across the hypothetical population.[2]

Looking Beyond the "Average" Plan Participant

(Fig. 4) Hypothetical glide paths based on simple averages and on plan distributions.

Averages-based glide path
Designed for the "average particpant." Simple mathematical averages taken from plan population for key inputs.

Distributions-based glide path
Based on distributions of values for key inputs across the plan population.

Incorporates more "non-central" members of the plan population and their need for higher growth.

Source: T. Rowe Price.

[2] Please see the Appendix for a description of the study methodology.

As can be seen in Figure 5, the most striking difference was that the glide path based on simple averages featured a lower equity allocation. This was because a glide path optimization exercise reflecting average values may not account for individuals on the lower or higher ends of the earnings and/or savings spectrums. But these are the participants who are more likely to be vulnerable in terms of income replacement and, thus, most in need of the long-term growth potential that a higher equity glide path can provide.

Indeed, when our research team looked at hypothetical outcomes in our scenario tests, they found that the distributions-based glide path significantly outperformed in terms of both asset accumulation at retirement and consumption replacement during retirement. In fact, in 76% of the 10,000 scenarios we tested, portfolio values at retirement were higher for the distributions-based glide path compared with the averages-based one.

The point here is not to make the case one way or another for a higher or lower equity glide path. But we do believe that using inputs that represent the full characteristics of a plan population results in a more realistic analysis and is more likely to reflect the needs of participants who might otherwise be underserved.

TIP #3 Align Implementation to Plan Goals and Beliefs

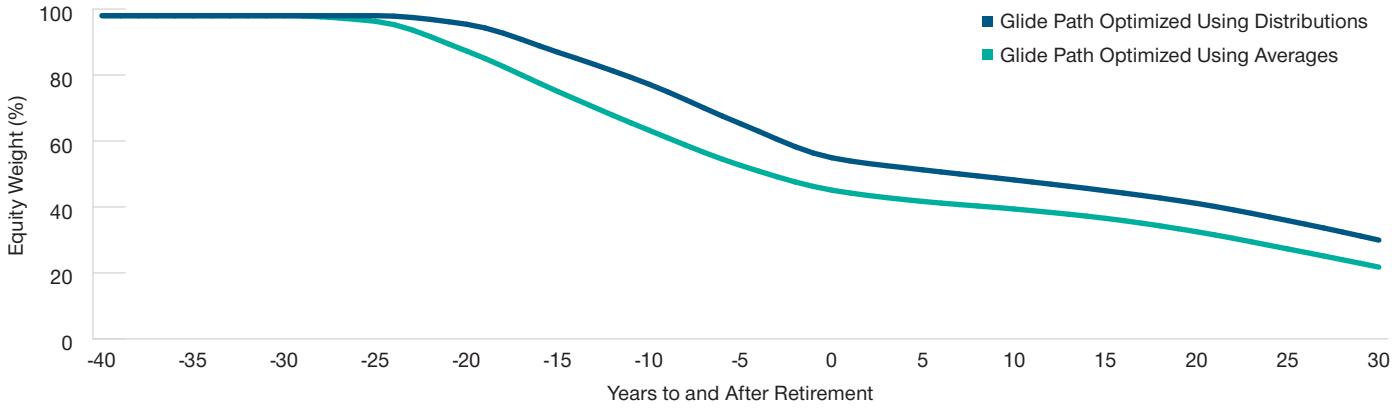
Earlier we mentioned that we often see clients begin their target date selection process by weighing the relative merits of active versus passive implementation. We hope our first two tips made the case for taking a step back and first considering the key inputs—and how those inputs are represented in a glide path design. However, it also is true that the decision to use either active or passive building blocks can materially impact retirement outcomes.

But, before addressing this topic, it's worth a reminder that, in reality, there is no such thing as a purely "passive" target date solution. The decisions applied across the board in target date designs—such as the shape of the glide path and the level of diversification within the asset mix—are *active* decisions.

Accordingly, our third tip focuses on the building blocks used for the underlying investment strategies within the target

Averages-Based Glide Paths Tend to Feature Lower Equity Levels

(Fig. 5) Glide paths based on average earnings and preferences and on distributions of those values within a hypothetical plan population.[1]

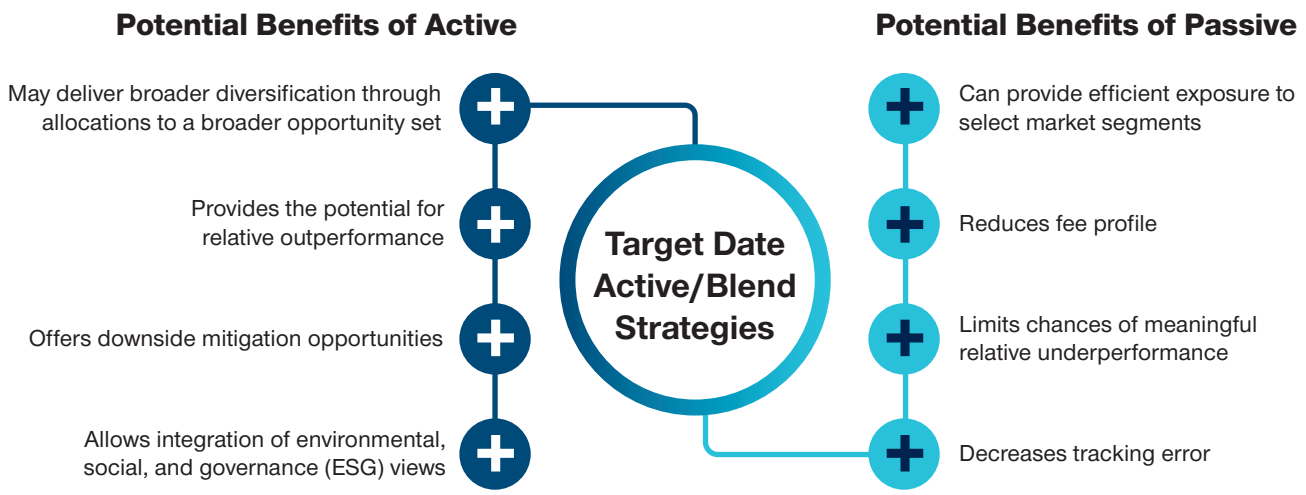


Source: T. Rowe Price.

[1] The results shown above are hypothetical, do not reflect actual investment results, and are not a guarantee of future results. See Additional Disclosures. See the Appendix for a description of the study methodology and the hypothetical participant demographic and behavioral values modeled in the simulations.

Managing the Trade-Off Between Active and Passive

(Fig. 6) Possible advantages of active and passive target date strategies.



Source: T. Rowe Price.

date portfolio and the corresponding trade-offs involved in active versus passive decisions.

In our experience, it is common for the active versus passive investment discussions to focus narrowly on cost. A target date solution implemented entirely with passive vehicles should be cheaper than an active or blend strategy, reflecting the lower management costs of simply seeking to track the performance of a market benchmark. But we believe the evaluation needs to go deeper and examine the potential trade-offs involved in active versus passive decisions. More specifically, we believe the emphasis should be on the value-for-cost equation and how it fits with the sponsor's objectives for a target date solution.

One driver of a narrow focus on cost has been an assumption that the Employee Retirement Income Act of 1974 (ERISA) somehow requires plan sponsors to prioritize the use of passive investments and to seek the lowest-cost providers. In fact, ERISA dictates nothing of the sort. It describes a need for plan sponsors to seek costs that are "reasonable."[3]

Figure 6 summarizes some of the potential benefits of both active (left) and passive (right) strategies. Whether sponsors choose a purely active or purely passive approach, or a combination of both (often referred to as a blend strategy), we believe it is imperative that sponsors carefully consider their own beliefs and objectives relative to these techniques.

The Bottom Line

At T. Rowe Price, we think of retirement planning as the long game. Accordingly, the goal of our work is to help plan sponsors and their financial professionals make sound long-term decisions that are in the best interests of their plans and their participants.

In keeping with this philosophy, we offer the following action items for plan sponsors to consider:

[3] For more on this topic, please see: Alison V. Douglass, The Misperception of Fiduciary Risk and Active Management in DC Plans: A Legal Perspective, Goodwin LLP, March 17, 2017. The contents of the paper, which was sponsored by T. Rowe Price, are for informational purposes only and not for the purpose of providing legal advice. The analysis and conclusions are solely those of the author.

1. First think about your objectives, then consider the characteristics of the plan population. Finally, consider how the combination of these inputs collectively can inform the selection of a glide path fit for purpose.
2. Think about the *distributions* of key characteristics across your plan's population, rather than relying on simple averages.
3. Be mindful of the trade-offs when evaluating active versus passive implementation approaches.

Methodological Appendix

To measure the potential benefits of using distributions-based inputs rather than simple averages when designing target date glide paths, T. Rowe Price conducted an analysis of potential retirement outcomes for a hypothetical DC plan population using a Monte Carlo simulation exercise. The analysis is from January 2020.

The analysis was based on a hypothetical population of 10,000 plan participants, with demographic and behavioral characteristics that primarily reflected six key inputs:

1. First year career salary;

2. first year deferral rate;

3. a risk aversion parameter;

4. a time preference parameter (a measure of the individual's expected retirement time horizon);

5. a depletion aversion parameter (a measure of the minimum "buffer level," or percentage of wealth, that an individual wishes to maintain to avoid depleting assets);

6. a goal preference parameter, reflecting the degree that a participant wishes to prioritize consumption replacement versus stability of wealth.

The last four inputs constituted the "preference parameters" used to model participant behavior.

Career salaries were sampled by a model that was calibrated to the participant universe in T. Rowe Price's recordkeeping database of defined contribution plans. This model used a salary rank (drawn for each hypothetical participant from a simple random sample) that was specified for the first working year (at age 25) and that influenced career salary growth in subsequent years. At each age, the nominal salary level was determined by a Gaussian mixture model (a mixture of normal random variables). This age-conditional Gaussian mixture model also was calibrated to our recordkeeping database.

Deferral rates were modeled similarly to salaries, as a function of age and age-relative salary rank based on our recordkeeping database. A deferral rate rank for each individual was sampled in the first working year, and this determined the deferral rate trajectory at each subsequent age. The model determining the exact deferral rate in a given year was a probit model (a discrete choice model with underlying normality assumptions) that was fitted to the participants in our database. An individual's position in the hierarchy of deferral rates was modeled as constant throughout time.

The value of the risk aversion parameter was required to be positive and, theoretically, could have been arbitrarily large, with higher values representing larger levels of risk aversion. Practically, values between 0 and 8 for this parameter were commonly used. The value of the time preference parameter ranged between 0 and 1 and represented a discount factor on future utility from consumption. This discount factor sets

the expected planning horizon, with a value of 1 representing an indefinitely long retirement and 0 representing no expected postretirement life span.

The depletion aversion parameter ranged between 0 and 1 and represented a percentage of wealth as previously described. The goal preference parameter also ranged between 0 and 1, with 1 representing consumption replacement as the sole objective and 0 representing stability of wealth as the sole objective.

In optimizing glide paths for our hypothetical plan population, two alternative methodologies were employed:

- The first approach was based on arithmetic mean values for the initial salary, deferral rate, and preference parameters of the 10,000 hypothetical participants in the model.
- An alternative "robust" analysis attempted to capture plan heterogeneity by basing key inputs on distributions of the key parameters within the hypothetical population. For modeling purposes, these distributions were specified in statistical terms.

The preference parameters (risk aversion, time preference, depletion aversion, and goal preference) for each hypothetical participant in the model were drawn from beta distributions, which were described by two shape parameters. The parametric values for the preference beta distributions were as follows:

- A risk aversion parameter of 1 + 4*X, where X was drawn from a Beta(2.5,2.5) distribution with a mean of 3.0 and a standard deviation of 0.82.
- A time preference parameter drawn from a Beta(38.675,1.325) distribution with a mean of 0.967 and a standard deviation of 0.03.
- A depletion aversion parameter drawn from a Beta(27.0,3.0) distribution with a mean of 0.9 and a standard deviation of 0.054. The depletion aversion parameter for each hypothetical participant is then applied with a weight that is inversely related to the expected proportion of the individual's consumption (based on salary) that is nondiscretionary spending. After applying these weights, the depletion aversion parameter values have a mean of 0.113 and a standard deviation of 0.054.
- A goal preference parameter drawn from a Beta(5.5,4.5) distribution with a mean of 0.55 and a standard deviation of 0.149.

The following inputs were used for the key demographic parameters when optimizing the averages-based glide path:

- starting salary: USD 41,988;
- starting deferral rate: 6.0%;
- annual salary growth: randomized (mean annual growth 1.06%), based on participant data;
- change in the deferral rate: one increase, from 6.0% to 7.0% in the 30th working year.

The risk aversion, time preference, depletion aversion, and goal preference parameters in the averages-based design were the arithmetic means for the beta distributions described above, which were based on the sample values for the 10,000 hypothetical participants.

In our study, separate Monte Carlo analyses were used to determine the recommended glide path weights for a hypothetical population described by the distributions outlined above and for a separate hypothetical population described by the arithmetical averages for those same inputs.

Subsequently, we generated two sets of 10,000 potential retirement outcomes for the two glide paths over the same "test scenario" set of individuals representing the same heterogeneous inputs as the sample used to construct the distributions-based glide path. The same heterogeneous test scenario set was used to compare outcomes of the two glide paths in order to simulate exact participant-to-participant comparisons across our hypothetical populations.

For each scenario in the test set, we measured the potential relative performance, positive or negative, of the distributions-based glide path versus the comparable averages-based glide path along two critical outcome metrics: annual consumption replacement during retirement and asset values at retirement. Both values are expressed in percentage terms: A positive percentage indicated a scenario in which the distributions-based glide path outperformed, while a scenario in which the averages-based glide path outperformed resulted in a negative percentage.

For each year in the assumed postretirement time horizon, the relative scenario results were ranked in quintiles—corresponding to the scenarios at the 10th, 25th, 50th, 75th, and 90th percentiles in outcomes, with the 10th percentile indicating the lowest relative performance and the 90th percentile the highest relative performance by the distributions-based glide path.

It should be noted that the specific scenarios represented by these percentile rankings changed each year over the course of the time horizon modeled, producing considerable variability from year to year in the actual dollar consumption amounts represented by those rankings, although less so in the percentage differences between the averages-based and the distributions-based glide paths.

Additional Disclosure

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:

- Underlying economic and behavioral inputs, including savings rates and cash flows, are generated from a structural model built up from factors relating to both financial markets and the broad economy as well as data calibrated based on T. Rowe Price's recordkeeping platform's participant population.
- The mortality weighting is sourced from the Society of Actuaries. Retirement age is assumed to be 65 years old.

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.
- 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 10,000 scenarios. 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.

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