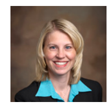
Evolution With Purpose

An Informed, Research-Based Approach to Better Retirement Outcomes

July 2020



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KEY INSIGHTS

- Glide paths underlying target date solutions must represent multiple life-cycle phases leading up to and through a participant's retirement because they are the most commonly used qualified default investment alternative in defined contribution plans.
- There is value in evolving the way glide path strategies are assessed relative to the evolving retirement needs of participants.
- It is equally valuable for plan sponsors to consider the multiple forms of "risk" that are present within the retirement life cycle and to understand the corresponding trade-offs of mitigating each of these risks.
- Taking the time to assess the relative importance of each phase of a glide path will allow plan sponsors to understand the proportional impact on outcomes for retirement savers.
- Evolving the glide path assessment process may help plan sponsors ensure that target date products and their glide paths are well understood and chosen in accordance with their plans' long-term goals and their participants' retirement needs.

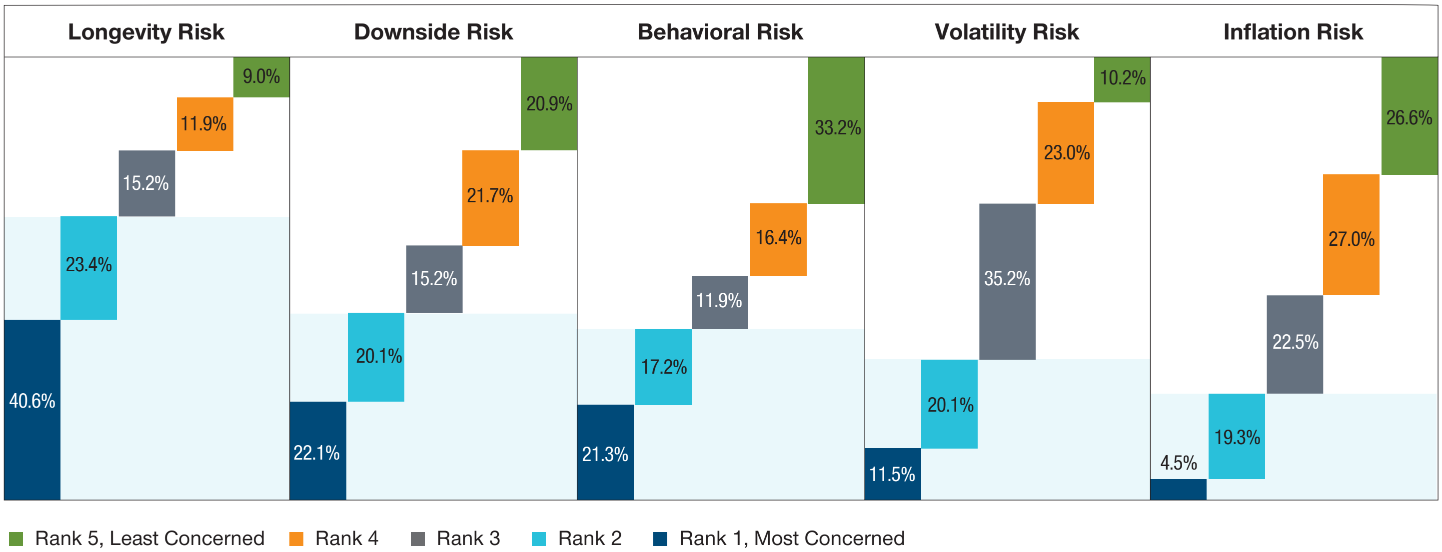
The role of a plan sponsor requires decision-making that has a critical impact on the retirement outcomes of their participants. These decisions require careful evaluation that is both complicated, and vital to get right. Recent T. Rowe Price research indicates that plan sponsors have a sharpened focus on delivering better retirement outcomes for participants. Last year, we published a paper called "Three Questions Today for Better Outcomes Tomorrow" to begin to distill the complex evaluation process of assessing a qualified default investment alternative (QDIA) solution into a few key questions.

- Who are you solving for?
- How do you define and prioritize risk to deliver better retirement outcomes?
- What role do you want your plan to have in your workforce's retirement journey?

While the three questions posed in that paper go a long way toward helping sponsors focus on the fundamental elements of QDIA assessment, this paper addresses the glide path phases underlying target date solutions. In this paper, we posit that the glide path evaluation process may need a second look to ensure past processes do not leave participants vulnerable to a

(Fig. 1) Risks Are Varied and Require Careful Consideration

In our survey, we asked: In your role as a defined contribution (DC) plan fiduciary, please rank the risks as outlined below that you are most concerned about for your participants.



Source: T. Rowe Price. Results are from 244 respondents.* Percentages may not total 100 due to rounding.

shortfall in retirement. We are committed to putting plan sponsor needs, and the needs of participants, first. Therefore, we encourage the plan sponsor community to ensure that their process adapts to changing retirement needs and to consider the different glide path phases in proportion to their relative impact on outcomes. This paper is designed to provide plan sponsors with key considerations to help tackle the retirement challenge today and into the future.

Defining "Risk" in QDIA Assessment

The definition and interpretation of "risk" is complex. However, surprisingly, risk is often thought about in a linear way. What we mean by this is that the equity allocation in a QDIA assessment is commonly presumed to be a one-to-one relationship between higher-equity and volatility or downside risk—particularly leading up to retirement. We believe that this approach oversimplifies the complexity of the various risks retirement savers face. In fact, this approach can result in both missed opportunity and inadvertently introducing other risks without fully understanding the trade-offs. A cornerstone of our ongoing research has been studying the way plan sponsors think about risk on behalf of their plan participants. Our findings over the last several years have revealed that longevity risk continues to surface as the primary risk of most concern by plan sponsors. Longevity risk in this study is defined as participants having a shortfall in retirement or an insufficient amount of funds to rely on through retirement. Furthermore, higher-equity allocations and corresponding growth can be key to combating longevity risk. Figure 1 shows that 40.6% of plan sponsors rank longevity risk as the source of greatest concern for their participants, and an additional 23.4% rank it as their secondary risk. Longevity risk is ranked at a higher concern than downside risk, volatility risk, participant behavioral risk, and inflation risk.

While all five of these risks matter in retirement planning and glide path evaluation and construction, this research illustrates that the various types of risks are not created equal

We believe that taking a linear approach to assessing risk oversimplifies the complexity of the various risks retirement savers face. Linear thinking may result in both missed opportunity and inadvertently introducing other risks without clarity of the trade-offs.

— **Lorie L. Latham, CFA®**
Senior Defined Contribution Strategist

in terms of their impact on retirement preparation. We believe a constructive way of accounting for each risk is for sponsors to develop their own hierarchy of risk prioritization in QDIA assessment. Ranking risk based on their plan's objectives and priorities will help sponsors make informed decisions.

Longevity Risk Matters

Building on our findings that longevity risk is a #1 or #2 ranked concern by 64% of our plan sponsor respondent profile, there are many reasons why longevity risk may have their attention. We offer two likely influences below.

Retirees Face High Probability of Living Decades in Retirement

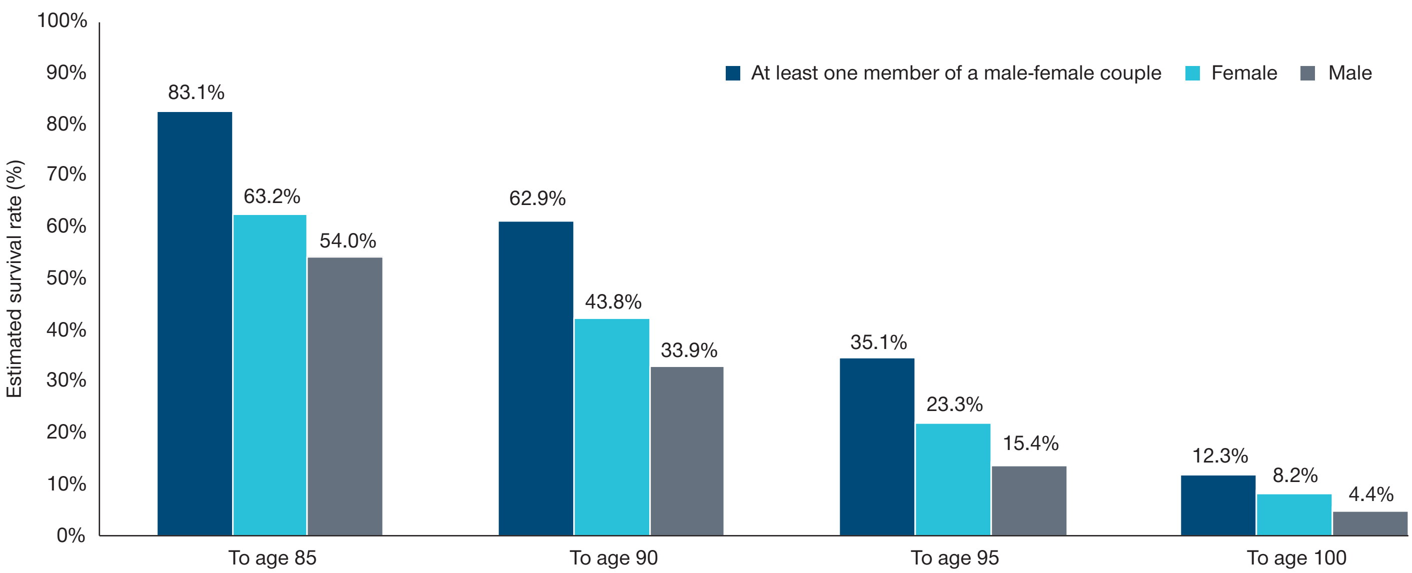
Figure 2 shows data sourced from the Society of Actuaries. The bar chart clusters represent five-year increments. The dark blue bar in each cluster shows the odds of one person in a couple living to various ages. The chart reveals a high probability of one person in a couple living up to two or two-and-a-half decades into retirement (82.5% probability of living to age 85 and 60.7% probability of living to age 90). The bottom line is that retirement assets need to sustain individuals for decades into retirement to avoid a shortfall.

The Growing Funding Gap of Retirement Savers

Social Security is often presumed to have a primary role in closing the income gap for most individuals. However, we studied more carefully the role Social Security will play across income quintiles. Figure 3 illustrates Social Security replacement rates divided into earnings quintiles and is charted based on a targeted 75% income replacement. The light blue segments of the bar chart illustrate the funding gap within each quintile. Studying funding gaps in this way reveals that we can expect Social Security to provide a good portion of the targeted income for lower-income quintiles. However, it also shows that the

(Fig. 2) Actuarial Estimates of Expected Survival at Age 65[1]

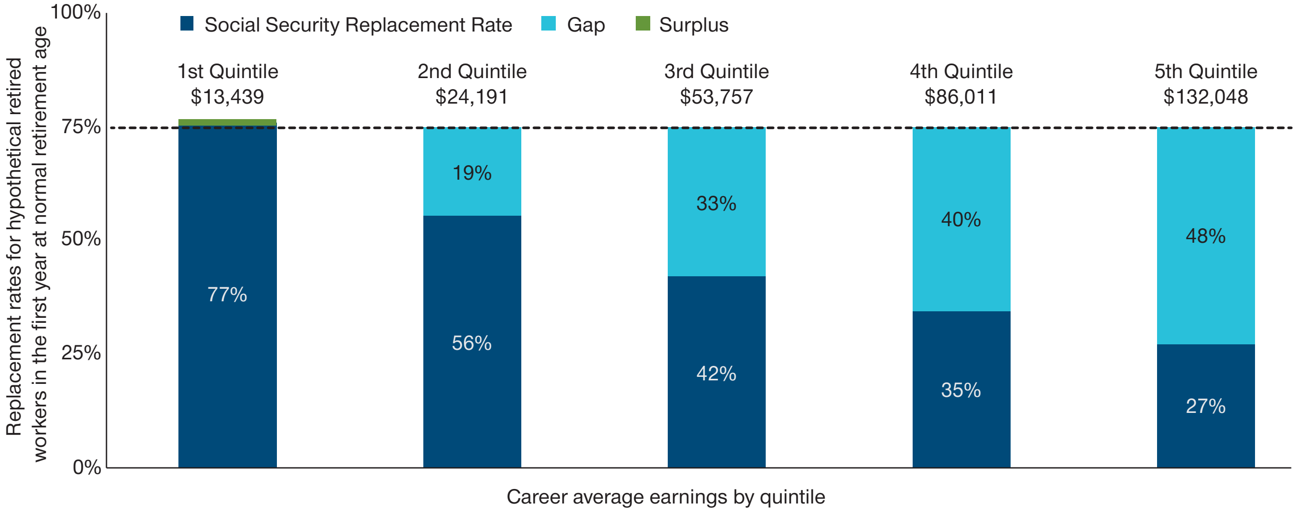
The data reveal a high probability of one person in a couple living for decades into retirement.



Source: Society of Actuaries. Analysis by T. Rowe Price.
[1] Estimates developed by T. Rowe Price based on the Society of Actuaries RP-2014 Mortality Table, which reflects the mortality experience of participants in U.S. pension plans, along with the most recent mortality improvement schedule file (MP-2019).

(Fig. 3) Social Security Replacement Rates

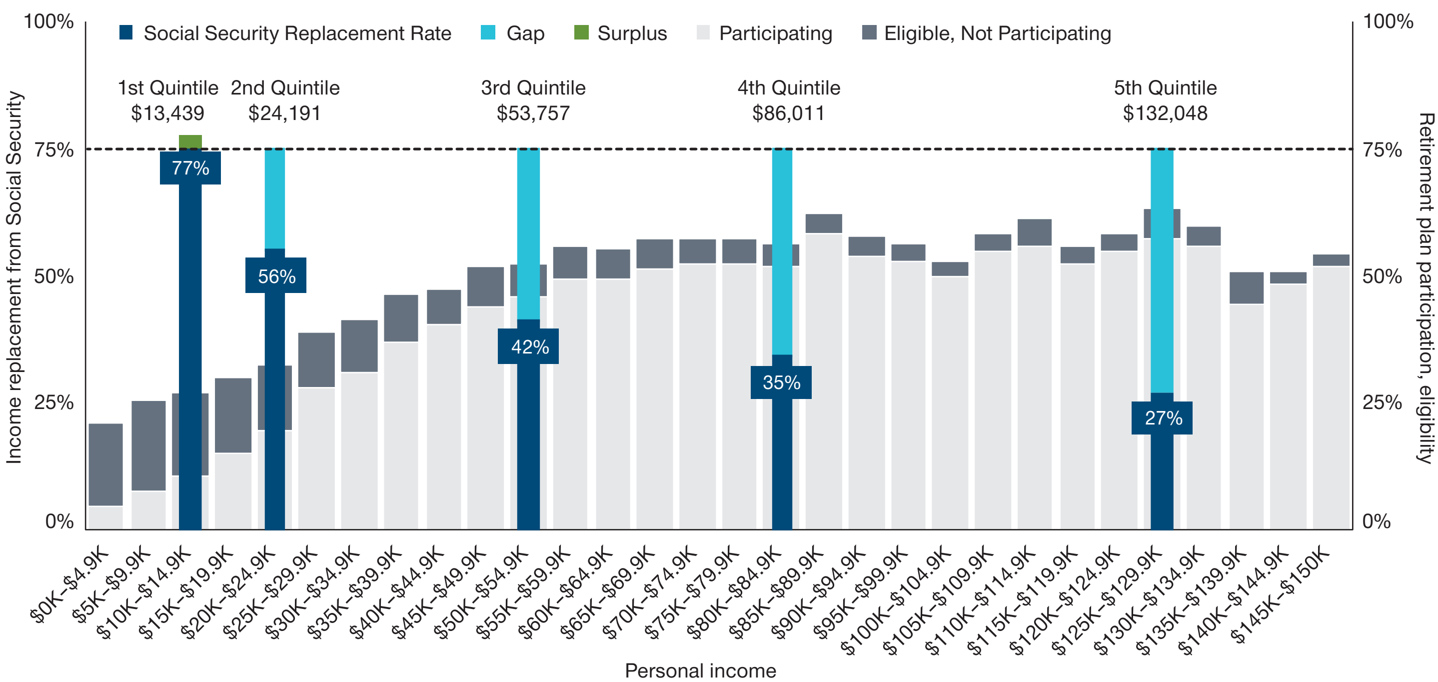
Social Security replacement rates by income quintile and implied gaps at targeted 75% replacement



Clingman, M., Burkhalter, K., and Chaplain, C. (April 2020), Replacement Rates for Hypothetical Retired Workers. Actuarial Note 2020.9. Social Security Administration, Office of the Chief Actuary. On the Web at: ssa.gov/OACT/NOTES/ran9/an2020-9.pdf.

(Fig. 4) Social Security Replacement Rates

Social Security replacement[1] and retirement plan access by income[2]



[1] Clingman, M., Burkhalter, K., and Chaplain, C. (April 2020), Replacement Rates for Hypothetical Retired Workers. Actuarial Note 2020.9. Social Security Administration, Office of the Chief Actuary. On the Web at: ssa.gov/OACT/NOTES/ran9/an2020-9.pdf.

[2] ASEC 2018, IPUMS-CPS. University of Minnesota, ipums.org.

middle- to higher-income quintiles will experience a much higher funding gap.

Furthermore, a deeper look at this data—and layering in information about individuals who are participating in the DC system (see light gray bars in Figure 4)—shows that, broadly, individuals in the DC system tend to be the middle- and higher-income quintile workers. This is important for plan sponsors overseeing DC plans because it reveals a higher funding gap for their employees. While there are certainly many more factors that may be influencing why sponsors are prioritizing longevity risk as a key concern, expected length of retirement and income funding gaps are likely foundational concerns. It should be no surprise that longevity risk ranked as a top concern by sponsors for their participants.

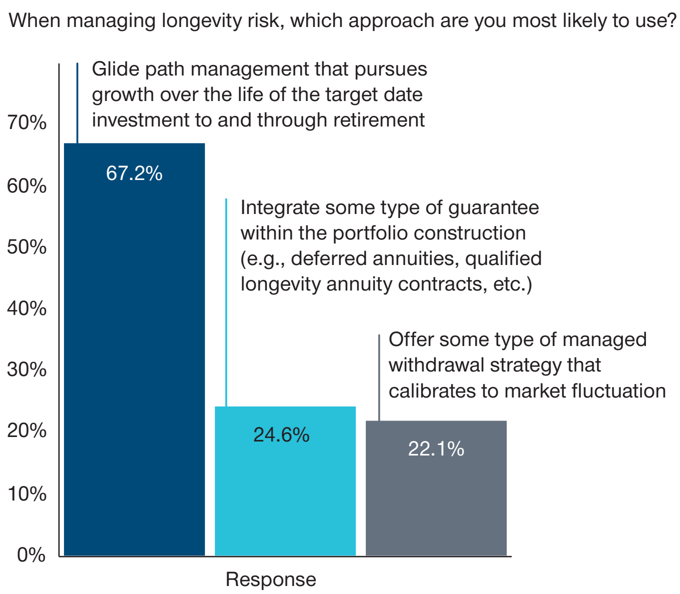
Solving for Longevity Risk

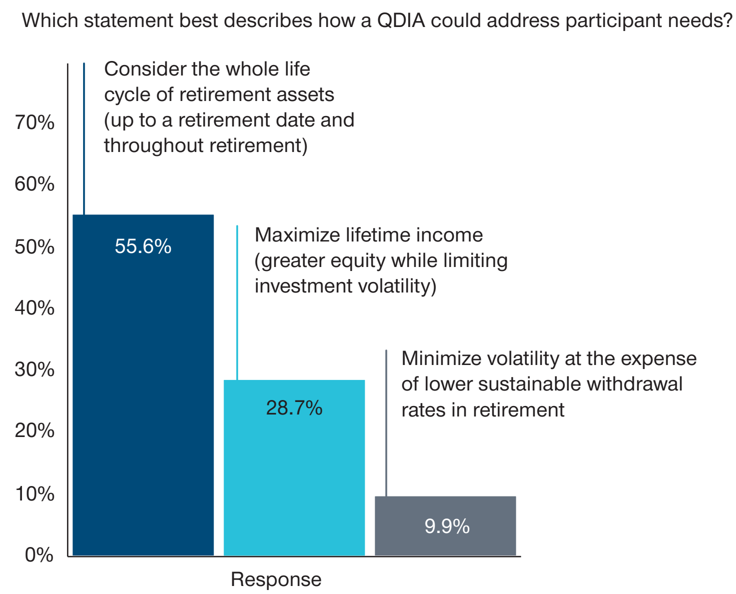
We also researched the way sponsors may pursue solving for longevity risk to help close the retirement funding gap. In a blind research study of plan sponsors, we asked sponsors what approaches they were most likely to use to solve for longevity risk (see Figure 5). There is a growing tendency for many in the retirement industry, particularly after the passage of the SECURE Act, to assume that the solution to overcoming longevity risk is the use of guarantees or annuities. However, our sponsor community resoundingly indicated a different opinion. Figure 5 reveals that only about a quarter of sponsors indicated that they would take the approach of using some type of guarantee to manage longevity risk. In fact, more than two-thirds, or 67.2%, believe that glide path management that pursues growth over the life of the investment to and through retirement is the approach they most likely will use to combat longevity risk.

In this same study, we learned that over half of sponsors (55.6%) say that they believe focusing on the whole life cycle

(Fig. 5) Managing Longevity Risk

In our survey, we asked about the QDIA's role in solving for longevity risk.

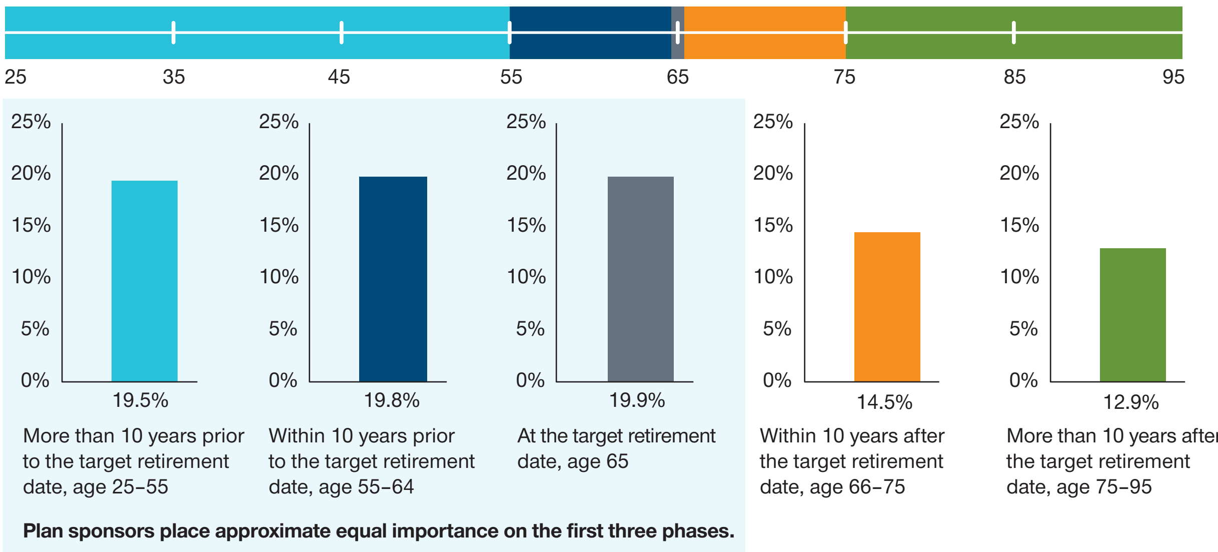




Source: T. Rowe Price. Results for "When managing longevity risk, which approach are you most likely to use?" are from 244 respondents. Results for "Which statement best describes how a QDIA could address participant needs?" are from 223 respondents.*

(Fig. 6) Should Attention Be Evenly Divided?

In our survey, we asked: Please indicate the relative importance of each of the five phases of the retirement life cycle.



Source: T. Rowe Price. Results are from 244 respondents.*

is most preferred for a QDIA to meet participant needs, and only about 10% indicate a pure preference for minimizing volatility.

Glide Path Assessment Needs to Evolve

There are many levers that contribute to better retirement outcomes. It goes without saying that saving—participating in a plan and deferring enough money—is the baseline. However, the next step is to consider the investment strategies positioned to grow the assets in an optimal way. Target date solutions are the most frequently used default solution in DC plans; thus, we believe it is valuable to more deeply explore these investments and their underlying glide paths.

To better understand the way plan sponsors think about the assessment of a glide path, we took a typical life-cycle timeline for a glide path and divided it into phases, as shown in Figure 6. The phases include the first 30 years of saving (light blue), the 10 years leading up to retirement (dark blue), the year in which the participant retires (gray), the 10 years postretirement (orange), and the latter stage of retirement (green). We then asked sponsors to weight the relative importance within these phases of balancing growth and volatility when going through a glide path assessment. Our findings revealed that sponsors place approximately equal importance on the first three phases—the first 30 years of accumulation, the 10 years before retirement, and the year in which the participant retires (the phases shaded in Figure 6). They place considerably less relative weight on the postretirement phases.

Figure 7 is a visual depiction of the breakdown of the first three phases, with each box representing one year.

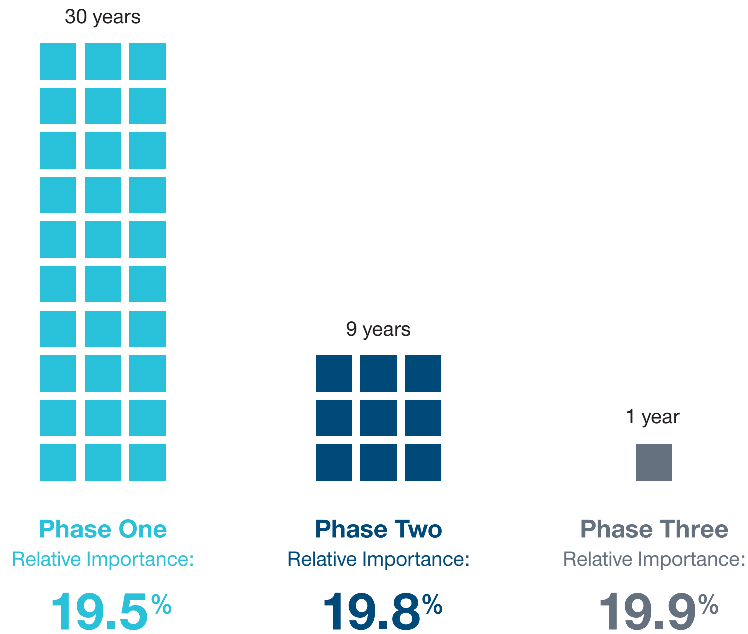
Phase One: The First 30 Years

The first 30 years of accumulation is a lengthy time horizon. Although it is reasonable to assume that the first decade in this initial phase may be associated with low savings rates and account balances, as participants' careers advance, the next couple of decades typically result in increased savings.

> The decade of compounding leading up to retirement is critical and has the potential to substantially impact the retirement landing point and postretirement balance. It's important to have substantial equity allocations during this time to take advantage of compounding and hopefully lower longevity risk.
>
> — **Kim DeDominicis**
> *Portfolio Manager, Multi-Asset*

(Fig. 7) Assessing Glide Path Phases

Should attention be evenly divided?



Source: T. Rowe Price. Results are from 244 respondents.*

Furthermore, there is broad industry agreement that "growth" in the form of the pursuit of equity risk premia should be maximized during this phase for a retirement saver.

Phase Two: The Decade Leading Up to Retirement

This phase offers 10 years of compounding at a time when a retirement saver is likely in their highest-balance, highest-earning, and highest-saving years. Many individuals may also take advantage of catch-up contributions during this time. If you also factor in the fact that individuals can expect to live for decades into retirement, this is a critical compounding phase. De-risking too soon during this period may erode a person's ability to make their money last through retirement.

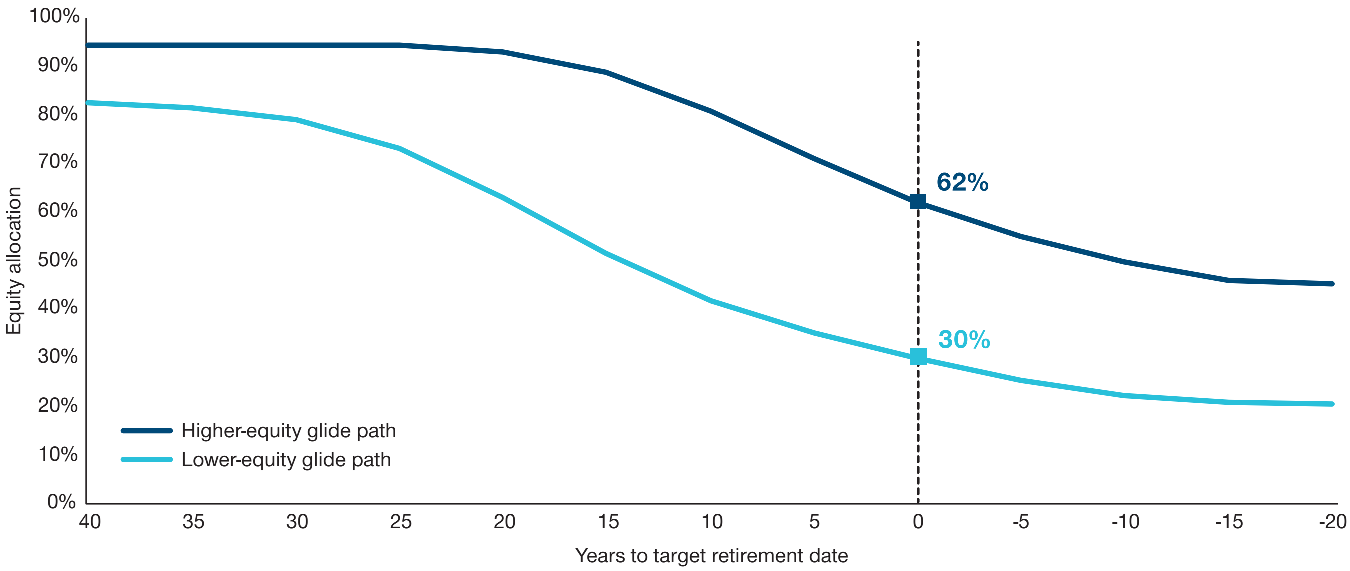
Phase Three: One Year Before Retirement

The single year in this visual, or the year in which the participant plans to retire, emphasizes the short time horizon and raises the question of whether this single point on the timeline should be allotted as much relative importance as phases one and two. Participants generally do not take all their assets out of the market on the day they retire. There is also an emerging trend of people who phase into retirement, or gradually wind down their working life. Furthermore, if a market downturn occurs at exactly the point of retirement, it's reasonable that individuals will naturally adapt their withdrawal strategy as the market recovers. Markets run in cycles, and during downturn scenarios, recoveries historically happen within reasonable time frames.

Proportional Impact of Glide Path Phases

We believe starting with a plan sponsor's plan objectives is the first step to evaluating a QDIA. We also believe risk mitigation should not be managed in a linear manner. Thus, assigning a hierarchy or weighting to each of your plan objectives can be helpful. Using

(Fig. 8) Hypothetical Glide Paths



Hypothetical glide path equity allocations are detailed at the end of this paper. They are not representative of any T. Rowe Price product.

plan objectives as the foundation helps a plan sponsor study the trade-offs when developing the risk hierarchy. This is critical because the trade-offs in risk assessment should be well understood and considered in the context of objectives and their impact on outcomes. We outline an example below to offer a clearer perspective of what we mean by proportional impact on outcomes.

Figure 8 shows two hypothetical glide paths and their equity allocations over a 60-year time horizon. Higher-equity glide paths are often referred to as "aggressive," and lower-equity glide paths are often referred to as "conservative." However, the following analysis will show you an alternative interpretation.

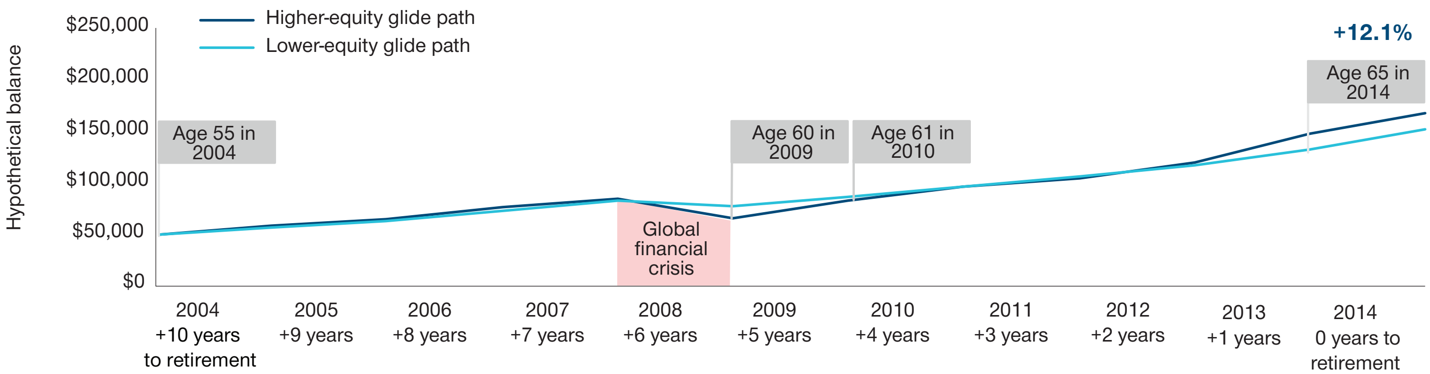
We explored the impact of the glide path phase of the decade leading up to retirement over a realistic time horizon that includes a challenging market cycle. We selected the time horizon starting in 2004 with a target retirement date of 2014 (see Figure 9). This time frame captures the global financial crisis (GFC), arguably one of the more challenging events in market history. We assume a starting value of $50,000 at the age of 55 with 6% annual deferral rates. During the period from 2004 through the end of 2007, the higher-equity glide path (dark blue line) is performing above the lower-equity glide path (light blue line). Then, at five years in, by the end of 2008, the S&P 500 was down over 37%, with the GFC correction resulting in a drop relative to the lower-equity glide path. Given greater equity exposure, the higher-equity glide path participant was down 14% (-$12,086) compared with the lower-equity glide path participant.

Moving out another year, by the end of 2009, we see a rebound over that period, and the gap is narrowed to -3.4% (-$3,267) compared with the lower-equity glide path participant.

By age 65 in 2014—less than five years after the market bottomed in February 2009—the higher-equity glide path participant was +12.1% ahead of the lower-equity glide path participant. It's important to note that we started with a conservative balance, we only assumed a 6% deferral, no catch-up contributions, no active management, no tactical adjustments, and no relative diversification distinctions. If the deferral

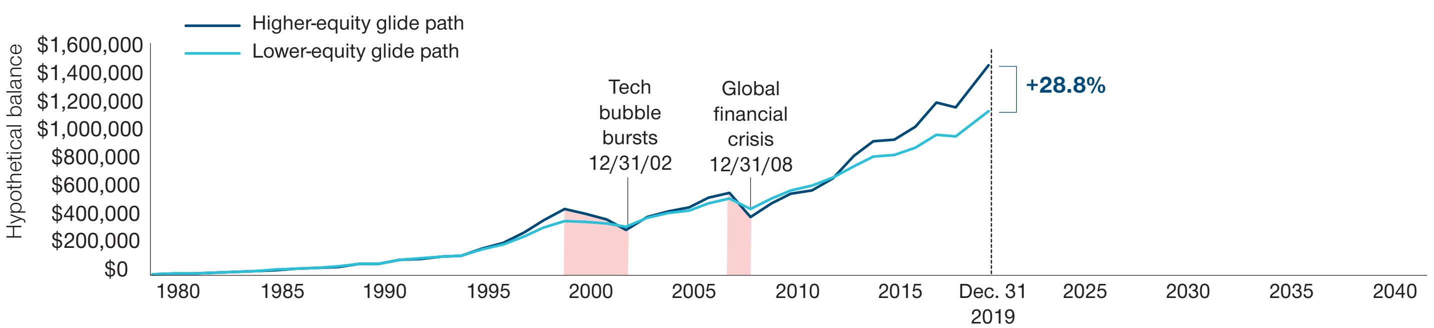
(Fig. 9) Hypothetical Returns of Two Participants Over Ten Years

Time period 2004-2014 beginning at age 55



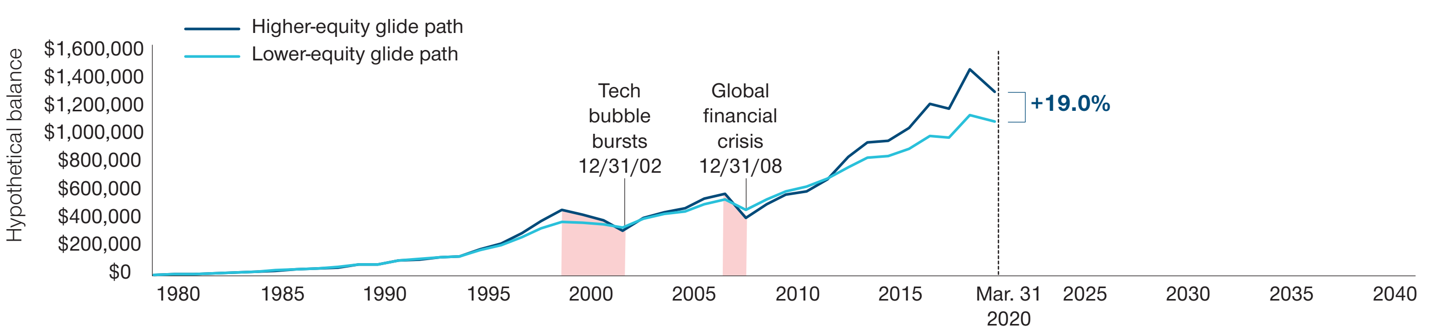
(Fig. 10) Hypothetical Balance History Over 40 Years

Through December 31, 2019



(Fig. 11) Hypothetical Balance History Through Recent Market Downturn

Through March 31, 2020



Assumes equity allocations equal to two hypothetical glide paths ("higher-equity" and "lower-equity") displayed in Figure 8 and detailed at the end of this paper. Values are consistent with two hypothetical participants who would have begun contributions on 12/31/1979 (at age 25) and ended contributions on 12/31/2019 (at age 65). Historical equity returns are based on the annual performance of the S&P 500 Total Return (USD) Index. Historical returns for the remainder of the portfolio (i.e., the portion not allocated to equity investments) are based on the annual performance of the Bloomberg Barclays U.S. Aggregate Bond Total Return (USD) Index. Assumes annual rebalancing and contributions equal to 6% of pretax income, made at the beginning of each year. Income assumptions: ages 24–34: $45,552; ages 35–44: $54,444; ages 45–54: $54,028; ages 55–64: $54,756. Income values are based on median wages reported by the U.S. Bureau of Labor Statistics, Economic News Release, Q4 2019. On the Web at: bls.gov/news.release/wkyeng.t03.htm. See the end of this paper for additional information on back-tested results. **Past performance is no guarantee of future results.**

> We believe that it is important to consider the proportional impact of the various risks within the phases leading up to retirement. The critical point here is to encourage sponsors to understand how you prioritize risk and, most importantly, let that guide your glide path assessment.
>
> — **Kim DeDominicis**
> *Portfolio Manager, Multi-Asset*

amount had been more or any of the other factors had been different, that 12.1% could have been even greater.

If we continue this analysis, it is likely no surprise that when comparing these two illustrative glide paths, the higher-equity glide path participant prevails over longer periods of time as well. Figure 10 illustrates that when this same analysis is played out over the last 40 years, the higher-equity glide path results in a +28.8% higher ending balance. This time horizon also includes a couple of significant market events—the collapse of the technology bubble in 2000 and the global financial crisis in 2008.

A higher-equity allocation often leads to better outcomes over longer time frames, but what if we encounter unexpected volatility and short-term downside? We continued our analysis to include the most recent challenging market cycle—the first quarter of 2020. This time period includes the most dramatic market turbulence to date associated with the coronavirus pandemic. In Figure 11, you can see that there remains a meaningful difference of +19.0% for the higher-equity glide path participant—translating to a higher balance in retirement and, therefore, the opportunity for higher retirement income levels.

In this example, the decade of compounding leading up to retirement has a substantial impact on the retirement landing point and postretirement balance—resulting in lower longevity risk.

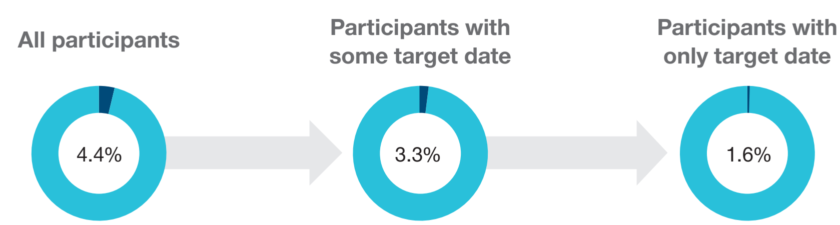
The Reality of Participant Behavioral Risk

In periods of heightened market volatility, participant behavioral risk—or the risk of a participant making a poor investment decision at the wrong time—often comes into focus. The most recent market cycle accompanying the coronavirus pandemic has been an extreme event; thus, we have studied participant exchange behavior from our recordkeeping system during this cycle.

Individuals who are defaulted into a strategy via automatic enrollment arguably may be less likely to react or exchange their assets. Individuals who selected a strategy themselves may be more likely to revisit that choice during times of heightened volatility. This hypothesis is supported in Figure 12, which illustrates a comparison of (1) exchange activity among 100% of participants, (2) those participants invested partially in a target date product, and (3) those participants 100% invested in a target date product. As shown in the series of charts, only 4.4% of all participants exchanged assets during the period between February

(Fig. 12) Participant Exchange Behavior

Participant exchange incidence by target date allocation



Only 4.4% of participants in the T. Rowe Price recordkeeping system executed an exchange

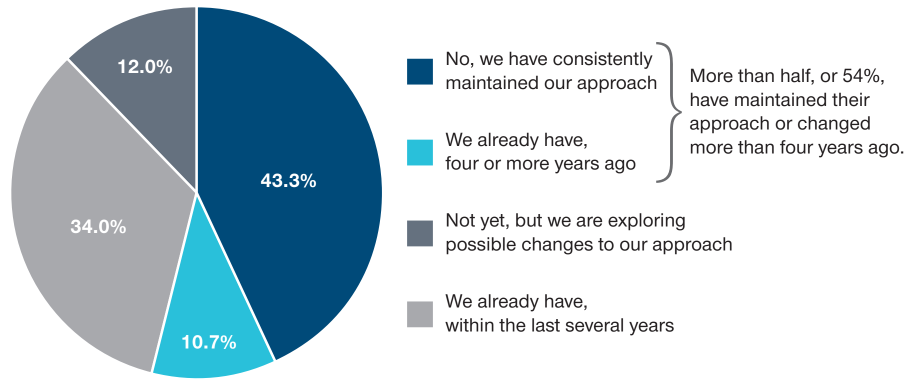
Only 3.3% of participants with any target date allocation executed an exchange

Only 1.6% of participants with an all target date allocation executed an exchange

Source: T. Rowe Price Retirement Plan Services, Inc. Data from February 24–May 29, 2020.

(Fig. 13) An Opportunity for Sponsors to Revisit QDIA Assessment?

In our survey, we asked: Have you changed your approach to QDIA assessment since you selected one for the first time?



Source: T. Rowe Price. Results are from 326 respondents.*

24 and May 29, 2020. However, when we look at the subset of participants who held some target date investments, 3.3% exchanged investments over the same period. Lower still, only 1.6% of participants who held only target date investments exchanged investments despite the ongoing health crisis and significant market volatility over the period. The bottom line is that exchange activity is low among participants and very low among those who are 100% invested in a target date investment.

This data should bring peace of mind to sponsors using a QDIA default to target date solutions due to evidence that participants are more likely to stay the course through a volatile market cycle.

Conclusion: Should Sponsors Revisit Their Approach to Glide Path Assessment?

At a minimum, we believe sponsors would be well served to consider whether the way they approach glide path assessment is aligned with their plan objectives. All roads lead to the QDIA being one of the most important decisions in DC plan oversight, and target date solutions are the primary QDIA option. We learned in our research that there may be opportunity for sponsors to take a second look. We asked if they have changed the way they assess their QDIA, and Figure 13 reveals that 12% are considering change, and 34% have changed in the last several years. However, we also learned that 10.7% changed their approach more than four years ago, and 43.3% indicated they have maintained the same approach when the default was first incepted. Now may be an opportune time to revisit your committee's approach to glide path assessment to ensure it is delivering on expectations for the long term.

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Survey Methodology:

*Survey conducted by P&I Content Solutions Group during November and December 2019, and statistical analysis conducted by Signet Research, Inc. Survey population includes 451 corporate, nonprofit, and government plan sponsors. Plan assets: 52% less than $500 million, 7% between $500 million and $1 billion, 34% between $1 billion and $15 billion, and 7% more than $15 billion.

Equity allocation detail for higher-equity and lower-equity glide paths:

	+40 Years	+35 Years	+30 Years	+25 Years	+20 Years	+15 Years	+10 Years	+5 Years	0 Years	-5 Years	-10 Years	-15 Years	-20 Years
Higher-Equity Glide Path	94%	94%	94%	94%	93%	89%	81%	71%	62%	55%	50%	46%	45%
Lower-Equity Glide Path	82%	82%	79%	73%	63%	52%	42%	35%	30%	26%	22%	21%	21%

Back-Tested Results:

The results shown are based on the application of an investment model over historical time periods and do not represent the actual returns of any T. Rowe Price product or strategy. The results shown are hypothetical, do not reflect actual investment results, and are not a guarantee of future results. Back-tested results were developed with the benefit of hindsight and have inherent limitations. Results do not reflect actual trading or the effect of material economic and market factors on the decision-making process. Certain assumptions have been made for modeling purposes that may not be realized. Management fees, transaction costs, taxes, potential expenses, and the effects of inflation have not been considered and would reduce returns. Results have been adjusted to reflect the reinvestment of dividends and capital gains. Actual results experienced by clients may vary significantly from the results shown.

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