T. Rowe Price

Building next-generation target date strategies through personalization

From the Field
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Key Insights

- Advances in recordkeeping technology have created opportunities for greater personalization of target date strategies to reflect the needs and preferences of individual investors.
- In this paper, we introduce a utility-based glide path model that expands on the traditional target date approach to make a life-cycle investing strategy more dynamic and personalized.
- Our analysis suggests these improvements could support substantial potential gains in risk-adjusted retirement spending, especially when a dynamic spending rule is included.

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This article is a summary of "Personalized Target Date Funds," published in *The Journal of Portfolio Management.*

Target date funds (TDFs) have become incredibly popular retirement saving options in the United States. Initially introduced in 2000, assets under management reached a record USD 3.5 trillion at year-end 2023.[1]

In part, this growth is a product of the spread of defined contribution (DC) plans as the primary retirement savings vehicles for many U.S. employees. DC plans shift responsibility for portfolio construction to individual plan participants, requiring them to choose from a varied menu of investment options.

But many DC plan participants lack the expertise required to make informed investment choices. Inertia often leads many participants to stick with their plan's default option, which, historically, was often a low-yielding money market fund or other conservative vehicle that delivered poor long-term returns and failed to provide the portfolio growth needed to meet their retirement objectives.

[1] 2024 Target-Date Strategy Landscape, Morningstar, March 26, 2024.

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Recognizing this challenge, the Pension Protection Act of 2006 allowed plan sponsors to automatically enroll employees in their DC plans with a multi-asset investment vehicle as the default option. TDFs emerged as a popular default option choice for plan sponsors because of their designation as qualified default investment alternatives (QDIAs) by the U.S. Department of Labor.[2]

Target date (TD) portfolios are designed to align with a participant's expected retirement date, with the asset allocation shifting along a pre-set "glide path" as the investor grows older. Typically, the TD glide path provides greater exposure to stocks when participants are early in their careers and then shifts the allocation toward bonds as retirement approaches. This approach seeks to optimize investment outcomes based on the individual's time horizon.

What the critics say

Despite their commercial success and popularity, TDFs have been the target of several criticisms:

1. **A downward glide path is not optimal:** Some analysts have suggested that different glide path shapes—such as stock allocations that rise rather than decrease over time—might produce better outcomes.

2. **TDFs are not adequately diversified:** Some critics contend that TDFs can leave investors overexposed to equity risk. It's even been suggested that investors might be better off investing their portfolios in Treasury inflation protected securities (TIPS). But low TIPS returns likely would require investors to increase their contributions or lower their retirement expectations.

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3. **Adaptive strategies can deliver better outcomes:** Some analysts argue that more dynamic approaches—such as glide paths that shift in response to market changes—might perform better.

4. **TDFs aren't personalized enough:** While TDF glide paths adjust risk exposure based on retirement age, other factors—such as wealth, income, education, and individual risk tolerance—also need to be taken into account, some critics argue.

We believe that TDFs have demonstrated their practical effectiveness in the real world. Their simplicity and regulatory advantages have made them attractive for both nonprofessional investors and plan sponsors, allowing the latter to focus on their core businesses.

In weighing the strengths and weaknesses of the TD concept, it's important to consider the real world alternative—which, in many cases, consists of DC plan participants self-allocating their portfolios among plan offerings covering a potentially bewildering array of asset classes, styles, and investment strategies. Most people do not have the expertise required to make these investment choices.

By contrast, studies indicate that TD adoption typically has led plan participants to hold more age-appropriate portfolios. Target date portfolios also have been shown to reduce idiosyncratic risk, with low-cost portfolios potentially enhancing retirement wealth significantly over the long term.[3]

A downward-sloping TD glide path also is supported both by common sense and solid theoretical foundations. As individuals near retirement, they typically become more risk averse. A downward-sloping glide path aligns with this natural tendency. Decades of academic research have emphasized that reducing equity exposure is rational for investors as they age given the declining value of their human capital.

Depending on the provider, TD products available in the market today typically are also well diversified across asset classes, including U.S. domestic and international markets; sizes and styles; and fixed income sectors. While off-the-shelf TD glide paths typically do not directly include illiquid alternatives such as private equity due to recordkeeper platform constraints, they generally offer a diverse investment mix.

The debate over exposure to equity risk is nuanced and depends on factors such as risk tolerance and how a life-cycle model of investing is constructed. But the same research that supports a downward sloping glide path also generally supports a relatively high allocation to stocks, especially early in one's career, to generate the long-term returns necessary to achieve retirement goals.

[2] QDIAs provide plan sponsors with a "safe harbor" from fiduciary liability for accounts in which participants control the investment of assets. However, plan sponsors remain liable for the prudent selection and monitoring of a QDIA option.
[3] Mitchell, Olivia S., and Utkus, Stephen P., 2022, "Target Date Funds and Portfolio Choice in 401(k) Plans," Journal of Pension Economics and Finance, 21: 519-536. DOI:10.1017/S1474747221000263.

An adaptive and personalized target date strategy

There is a broad consensus within the investment industry that more adaptive and personalized TD strategies can improve lifetime experiences for retirement investors. Recent advances in the use of personalized accounts (i.e., managed accounts) on DC platforms have made a number of improvements possible.

The model we have developed for a personalized TD strategy makes use of the wealth of data now available for managed accounts on DC platforms. Use of recordkeeping data eliminates the need for individual engagement, although participants who are willing to engage can provide more detailed inputs, such as individual risk tolerances and information on external assets.

A key contribution in our model is a novel multi-attribute utility function that allows us to ask the most basic question: What goal are we trying to achieve in designing a TD strategy?

For most investors, the ultimate goal is to maximize risk-adjusted consumption over their entire life cycle. Our innovation is to account for the fact that most individuals also derive satisfaction or security merely from holding wealth. This preference often goes beyond their desire to fund lifetime consumption or leave an inheritance. Hence, in our model, wealth has utility beyond its usual definition as the present value of future consumption.

To develop an adaptive and personalized glide path, we first solved for the optimal allocation to stocks and bonds at each point in time. We simultaneously sought to optimize consumption decisions in case guidance on future spending potential is needed.

To this end, we used a multi-attribute utility function to maximize lifetime utility based on three basic assumed preferences: for higher lifetime consumption, lower balance variability, and less risk in achieving those first two objectives.

We then used Monte Carlo simulation to generate scenarios for economic growth, inflation, asset returns, salary evolution, and Social Security benefits.[4] This allowed us to simulate 10,000 possible lifetime experiences for each participant in our study, capturing the uncertainty and risk inherent in investment decisions. Overall, we believe our model provides a comprehensive approach that takes into account individual preferences, economic factors, salary dynamics, Social Security benefits, and tax implications.

Does personalization lead to superior outcomes?

Using our models, we sought to evaluate the utility gained from a personalized target date glide path compared with an industry standard glide path. Anonymous data from plan participants in T. Rowe Price's recordkeeping platform—including current ages, deferral rates, employer match rates, salaries, and account balances—were utilized.

Our analysis found substantial benefits from personalization compared with an off-the-shelf industry product that followed the S&P Target Date Index glide path and included a 4% spending rule. The study also found benefits in our approach when compared with an equity-matched glide path that controlled for the benefits of merely increasing stock allocations via personalization.

> "The next stage in TDF evolution will be to introduce further personalization beyond age....

Conclusion

Despite criticisms, TDFs remain a popular choice among plan sponsors. Regulatory guidance supports their use as QDIAs, and a downward-sloping glide path aligns with the natural risk aversion observed in self-directed participants as they age.

The next stage in TDF evolution will be to introduce further personalization beyond age, including dynamic allocation and spending capabilities and, perhaps, guarantees where appropriate. We believe our model is an important steppingstone in this direction.

[4] See Additional Disclosures for important information.

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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. The projections are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. The simulations are based on assumptions and present only a range of possible outcomes. Additional detail on the study and methodology is available upon request.

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Risks: The principal value of target date strategies is not guaranteed at any time, including at or after the target date, which is the approximate date when investors plan to retire (assumed to be age 65). A particular level of income is not guaranteed.

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