

Standard target date funds vs. enhanced target date strategies



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Executive summary

This brief focuses on the potential for an enhanced target date strategy that has evolved to provide for even better outcomes. Specifically, we examine the impact of substituting a fixed annuity for the bond allocation in a typical target date fund, both with and without lifetime income or annuitization at the point of retirement.

Introduction

Target date funds are designed to invest based on a participant's age and assumed year of retirement. The target date fund is adjusted over the years, making it an easy way for participants help stay on track with their investment strategy with an appropriate level of risk/reward throughout their lifetime. However, the value of a target date fund is not guaranteed at any time. The "target date" part of a target date fund represents an approximate date when investors may plan to begin withdrawing from the fund.¹ An enhanced target date strategy can be thought of as being similar to a typical off-the-shelf target date fund except it allows plan sponsors to tailor the strategy to their plan's specific needs or desires.

Keep in mind that the objective of our analysis is to compare the lifetime outcomes of different retirement strategies holding all key aspects the same. For each retirement strategy, we assume the individual starts at age 35, makes the same annual contributions until he/she reaches retirement age 65, and then has the same annual retirement expenses that need to be paid until he/she dies. Obviously an individual's outcomes can be improved by making higher contributions, or delaying retirement, or reducing expenses. However, it would not be a fair comparison to make any of these changes to one particular retirement strategy and not to the others. The point of our analysis is to determine the most effective retirement strategy for a given set of attributes.

Enhanced target date strategy without lifetime income

The first strategy we will examine is one where the individual uses a deferred fixed annuity as a substitute for bond allocations but does not annuitize any of his/her accumulations in retirement. At TIAA, our most commonly utilized deferred fixed annuity is called the TIAA Traditional annuity and has been in existence since the company was established nearly a century ago in 1918.



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In general, fixed annuities offer stable investment performance with low volatility and high risk-adjusted returns compared to bond investments. This largely stems from the requirement that the insurance company must guarantee a minimum interest crediting rate each period.

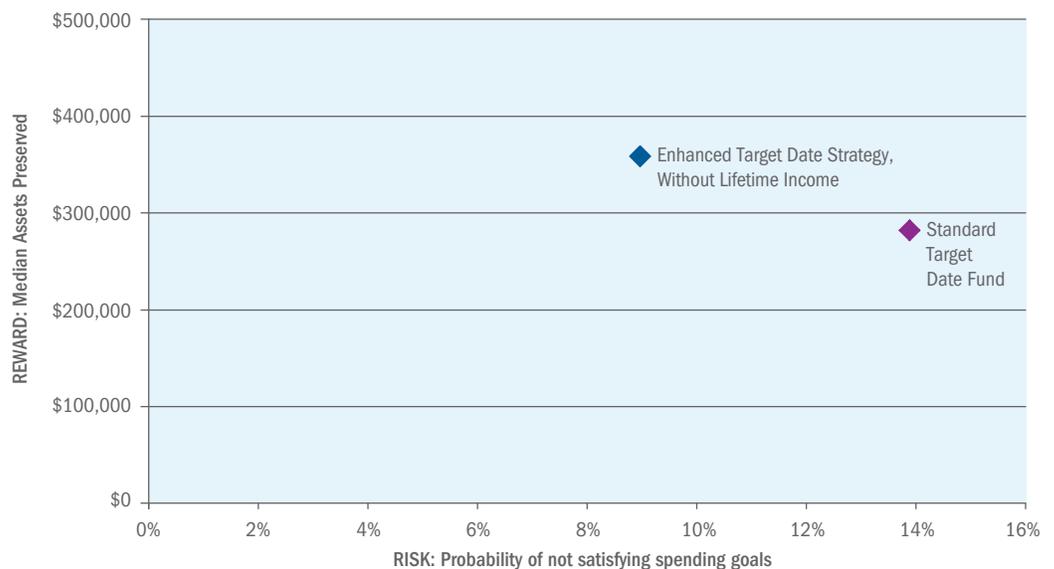
Using independent third party capital market assumptions supplied by Morningstar for different asset classes, including for the TIAA Traditional annuity, and running thousands of Monte Carlo simulations through our financial planning software we get the resulting outcomes shown in Chart 3.1 below. The capital market assumptions consist of the expected returns, volatilities, and correlations for the various assets.

The two strategies shown in Chart 3.1 are applied to a target date fund with a fairly typical glide path and an enhanced target date strategy that uses the exact same glide path except that it uses the TIAA Traditional annuity in place of the bond allocations. We can see that the strategy (without any annuitization at retirement) will have the desirable effect of both reducing risk and increasing reward. For this reason, this strategy may be considered superior to the ordinary target date fund that uses bonds.

This result is not altogether surprising considering the appealing risk-adjusted returns for deferred fixed annuities relative to fixed income instruments. However, it is useful to be able to confirm this in a clear, concise and holistic manner.

Fixed annuities offer stable investment performance with low volatility and high risk-adjusted returns compared to bond investments.

Chart 3.1 – Standard target date fund vs. enhanced target date strategy without lifetime income



Enhanced target date strategy with lifetime income

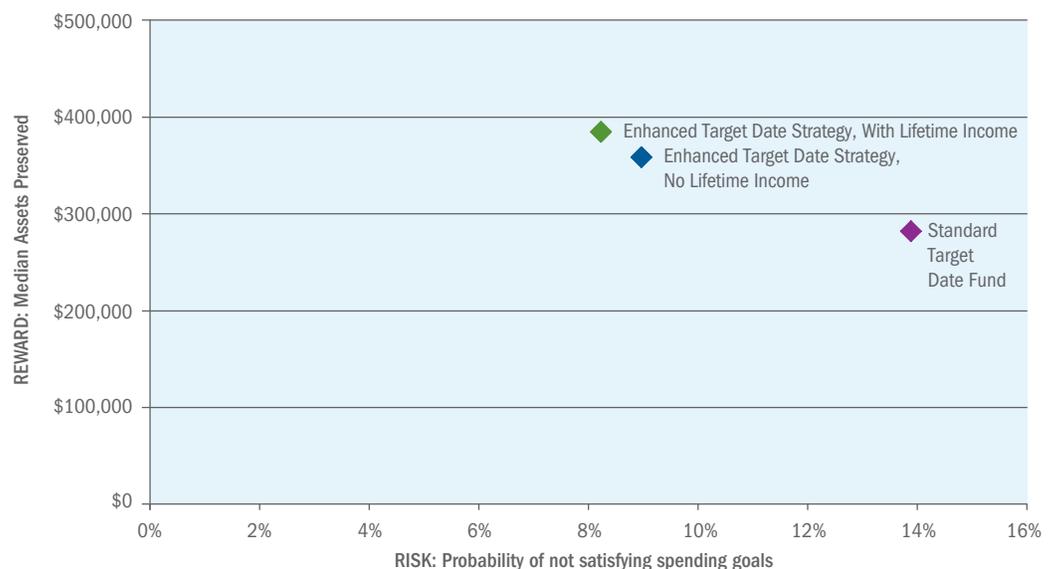
The next logical step is to examine whether annuitization will further improve the retirement outcomes for the custom target date strategy. Using a reasonable assumption for annuity payout rates in the future, the resulting outcomes are shown in Chart 3.2 below. Here the benefits of annuitization improve outcomes even more in both reducing risk and increasing reward. This validates both the views of the financial experts and academic research which consistently shows that individuals should convert a portion of their wealth into guaranteed income to reduce longevity risk (the risk of outliving your money). What is especially noteworthy as well as a bit counterintuitive is that annuitization can also result in increasing the amount of assets preserved which can be used for other purposes or left to heirs. This is because the lifetime income from a fixed annuity like TIAA Traditional can provide a reliable stream of income during both good and bad markets. During a market downturn, this allows individuals to refrain from having to draw from non-annuitized assets that have lost value.

The results of this analysis are not inconsequential. Based on the parameters used in this illustration, risk was reduced by 41% (from 14.1% to 8.3%) and reward increased by 34% (from \$284k to \$381k) by moving from a typical target date fund to enhanced target date strategy with annuitization.

Note that the decision to annuitize is an individual choice. Here we assume that the individual annuitized the TIAA Traditional holdings and kept the other holdings liquid. The results provided in the charts here show that using a custom target date strategy that includes a deferred fixed annuity such as the TIAA Traditional annuity may be superior to a typical target fund even without any annuitization. However, if individuals were to exercise their right to annuitize their annuity accumulations, then they should experience even better retirement outcomes.

The benefits of partial annuitization further improve outcomes by reducing risk and increasing reward. Based on the parameters used in this illustration risk was reduced by 41% and reward increased by 34% by using the custom strategy with partial annuitization.

Chart 3.2 – Standard target date fund vs. enhanced target date strategy



Standard target date funds vs. enhanced target date strategies

Methodology

The information discussed in Charts 3.1 and 3.2 compares a hypothetical target date fund to an enhanced target date strategy with the same allocations, except TIAA Traditional was substituted for all the bond allocations and either held or annuitized at retirement. This comparison is provided for educational purposes only to help you understand and evaluate various options. You are solely responsible for evaluating and acting upon the education and information contained in this comparison. This is not a recommendation by TIAA of a particular investment strategy. Nothing in this illustration is an offer to buy, sell or hold securities or other investments. Past performance is no guarantee of future results. **The hypothetical projections included within this comparison do not include fees and expenses of the investments modeled which can materially impact returns.**

This comparison evaluates retirement income strategies using Monte Carlo analysis, which is a statistical modeling technique that forecasts a set of future outcomes based on the variability or randomness associated with historical occurrences. This approach is used to determine the probability or likelihood of a particular outcome based on a range of potential investment outcomes. This analysis is not a guarantee, prediction or projection of any particular result, and actual results may vary materially. A Monte Carlo analysis is performed by running each investment alternative against 10,000 hypothetical financial market scenarios. This simulation is designed as an alternative to using constant rates of inflation and constant investment returns during each year of the analysis. To project estimated income and assets over a stated time frame, Monte Carlo simulations use estimated returns for each asset class, as well as an estimated inflation rate. Each of the options presented are run through the same series of simulations, allowing comparisons to be made between them. The Annuity 2000 merged gender mortality table with one year setback was used to model mortality, and asset returns were modeled stochastically assuming a multivariate lognormal distribution using Morningstar's 2019 capital market assumptions (CMAs). Morningstar provides a term structure on expected returns based on supply-driven building blocks. This means that there are three sets of expected returns: (1) for years 0-10, (2) for years 11-20, and (3) for years 21+. The first two investment horizons (0-10 years and 11-20 years) are conditional upon the current market environment, whereas the last horizon (years 21+) is independent of any given market environment and more geared towards a very long investment horizon. The forward looking volatilities and the correlation matrix remain the same for all three horizons. Inflation is determined through a stochastic process and it is modeled using a multivariate lognormal distribution and correlations to other asset classes. **In the simulations, yearly inflation can range from negative (deflation) to double-digit inflation.** In this illustration, all dollar amounts are stated in real (today's) dollars.

Contribution Assumption: During the accumulation phase when the participant is still working it is assumed that the individual contributes \$5,000 each year (adjusted for inflation on an annual basis) before reaching an assumed retirement age of 65.

Retirement Expense Assumption: During the retirement phase which begins at the assumed retirement age of 65, the amount of retirement expense needs that must be covered by the retirement nest egg is \$14,000 each year (adjusted for inflation on an annual basis). In the Target Date Plus concept where the annuitized payment didn't meet the annual expense need, the additional income was taken via a systematic withdrawal from the remaining account balance. For the Custom Target Date strategy it is assumed that the fixed annuity portion of 48% just before retirement was annuitized on a single life at the forward looking rate, and the remaining portion of the model was invested in equities.

After annuitization, TIAA Traditional does have the potential to offer increases in annuity payments in subsequent years subject to the approval of TIAA's Board of Trustees, though it is not guaranteed. Over the period from 2001-2015 these increases have averaged 60bps. Although this is less than the annual inflation rate of about 2.2% over the same period, it is still useful as a partial offset against the effects of inflation. These post-annuitization increases were modeled as a constant 0.60% each year.

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Hypothetical Asset Allocations for Target Date Fund

The glide path utilized is a typical allocation. In the enhanced target date strategy, it is assumed that the fixed annuity replaces the bonds, international bonds and TIPS within the allocation across all ages. The allocation at age 75 is the final allocation and was used for all ages over 76. See below for details in the allocation used in the simulation.

TIAA Lifecycle Index Funds

Years to Retirement	Age (Retire at 65)	U.S. Equity	Intl Equity	Fixed Income	TIPS	Short-Term Fixed Income	Total Equity	Total Fixed Income
45	20	66.5%	28.5%	5.0%	0.0%	0.0%	95.0%	5.0%
40	25	65.7%	28.1%	6.2%	0.0%	0.0%	93.8%	6.2%
35	30	64.7%	27.8%	7.5%	0.0%	0.0%	92.5%	7.5%
30	35	63.9%	27.4%	8.7%	0.0%	0.0%	91.3%	8.7%
25	40	63.0%	27.0%	10.0%	0.0%	0.0%	90.0%	10.0%
20	45	57.4%	24.6%	18.0%	0.0%	0.0%	82.0%	18.0%
15	50	51.8%	22.2%	26.0%	0.0%	0.0%	74.0%	26.0%
10	55	46.2%	19.8%	30.0%	2.0%	2.0%	66.0%	34.0%
5	60	40.6%	17.4%	34.0%	4.0%	4.0%	58.0%	42.0%
0	65	35.0%	15.0%	38.0%	6.0%	6.0%	50.0%	50.0%
-5	70	31.5%	13.5%	39.0%	8.0%	8.0%	45.0%	55.0%
-10	75	28.0%	12.0%	40.0%	10.0%	10.0%	40.0%	60.0%
-15	80	28.0%	12.0%	40.0%	10.0%	10.0%	40.0%	60.0%
-20	85	28.0%	12.0%	40.0%	10.0%	10.0%	40.0%	60.0%
-25	90	28.0%	12.0%	40.0%	10.0%	10.0%	40.0%	60.0%
-30	95	28.0%	12.0%	40.0%	10.0%	10.0%	40.0%	60.0%

Note: The figures above represented a hypothetical target date fund glide path, based on the TIAA-CREF Lifecycle Index Funds strategic allocations with an assumed retirement age of 65.



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¹ As with all mutual funds, the principal value of a target date fund isn't guaranteed at any time, including at the target date, and will fluctuate with market changes. However, you are not required to withdraw the funds at that target date. After the target date has been reached, some of your money may be merged into a fund with a more stable asset allocation. Target date funds share the risks associated with the types of securities held by each of the underlying funds in which they invest. In addition to the fees and expenses associated with the target date funds, there is exposure to the fees and expenses associated with the underlying mutual funds.

You should consider the investment objectives, risks, charges and expenses carefully before investing. Please call 877-518-9161 or go to TIAA.org/prospectuses for current product and fund prospectuses that contain this and other information. Please read the prospectuses carefully before investing.

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