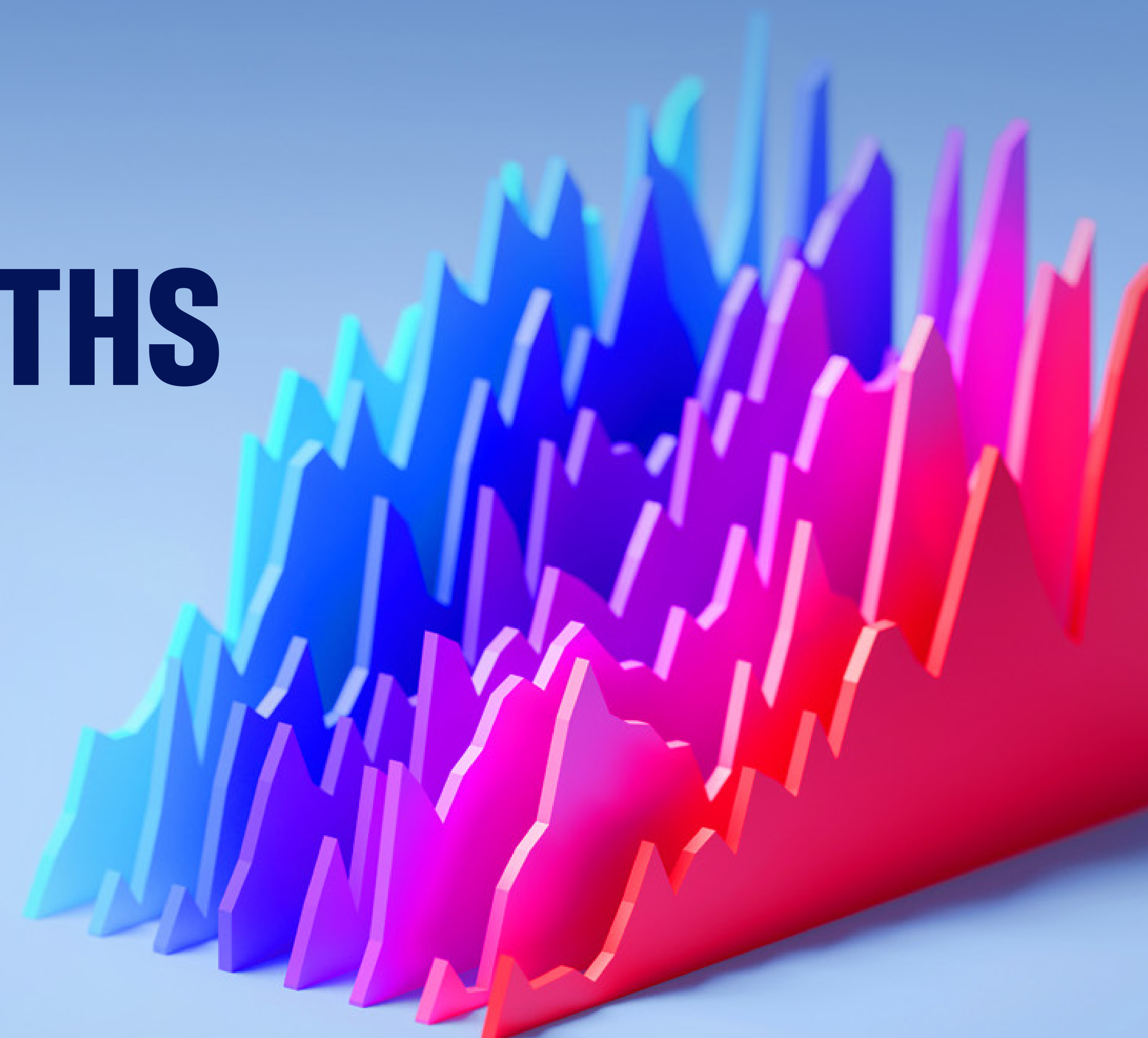
IMPROVING RETIREMENT OUTCOMES

THE IMPACT OF TIAA TRADITIONAL* IN QUALIFIED DEFAULT TARGET-DATE GLIDEPATHS

Charles Rivers Associates Analysis

UPDATED 2025



TIAA Institute

*TIAA Traditional is issued by Teachers Insurance and Annuity Association of America (TIAA), New York, NY.

Conrad S. Ciccotello
UNIVERSITY OF DENVER

Miguel Herce
CHARLES RIVER ASSOCIATES INTL.

Mark Meyer
CHARLES RIVER ASSOCIATES INTL.

2025 Update

An independent study[1] conducted by Charles River Associates found that adding guaranteed products to target-date glidepaths tended to improve retirement outcomes. Analyzing 27 different scenarios using 49 years of data, the researchers found that replacing part of the fixed income bond allocation with a fully-liquid TIAA Traditional guaranteed product improved participant outcomes both to and through retirement in the majority of cases. The 2025 research update added three years of data, 2022 to 2024 to only the retirement portion of the study, now incorporating 52 years of data.

The results are driven by a number of factors. During working life, participant exposure to interest rate risk is reduced because unlike bond funds, a guaranteed product always has a positive return. In addition, TIAA Traditional has a long history of strong crediting rates during accumulation, higher annuity income for long-term contributors at retirement, and post-retirement annuity income raises. The combination of these factors tended to result in higher participant balances at retirement, with even larger differences in asset balances through retirement.

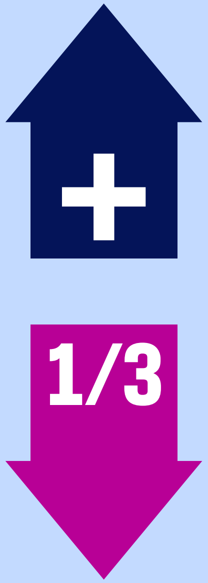
The question

Does replacing part of the fixed income bond allocation with TIAA Traditional, a guaranteed product, within a qualified default target-date glidepath improve retirement outcomes?

Results

Glidepaths with TIAA Traditional tended to have higher balances at the end of both the accumulation and income distribution phases.

TIAA TRADITIONAL IMPROVED OUTCOMES DURING ACCUMULATION



The monthly return of TIAA Traditional is **consistently positive.**

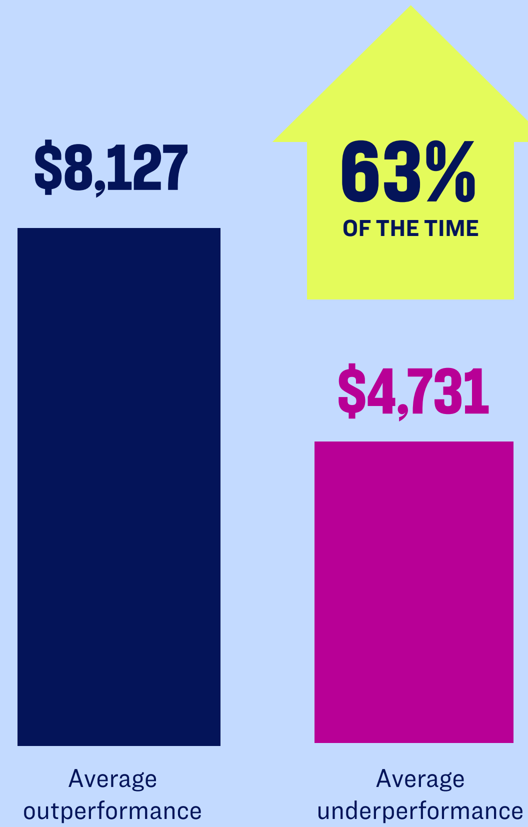
Conversely, bonds had **negative returns** about 1/3 of the time.

A better way to hold fixed income

By replacing some of the fixed income bond allocation with TIAA Traditional, participant **exposure to interest rate risk was reduced**. The monthly return of TIAA Traditional was always positive, while bonds had negative returns about 1/3 of the time.

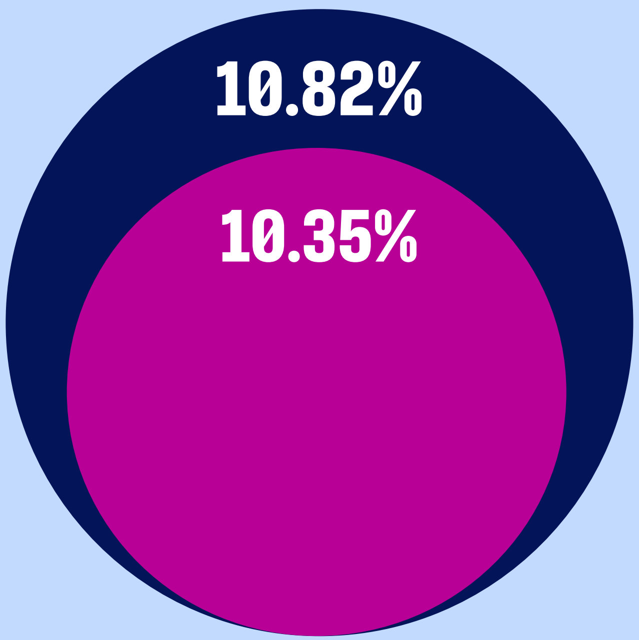
Higher balances for participants at retirement

At the end of the accumulation phase, qualified target-date glidepaths with **TIAA Traditional outperformed in 17 out of 27 scenarios.**[5]



TIAA Traditional improved the risk-return trade-off

Adding TIAA Traditional to a target-date glidepath meant participants could realize **higher returns for the same amount of risk** or, equivalently, the same return with less risk.[4]



HIGHER RETURNS WITH TIAA TRADITIONAL

Adding TIAA Traditional could realize a higher return, with the same risk

- With TIAA Traditional
- Without TIAA Traditional

TIAA TRADITIONAL IMPROVES OUTCOMES DURING RETIREMENT

Income per $100,000 with and without TIAA Traditional[7]

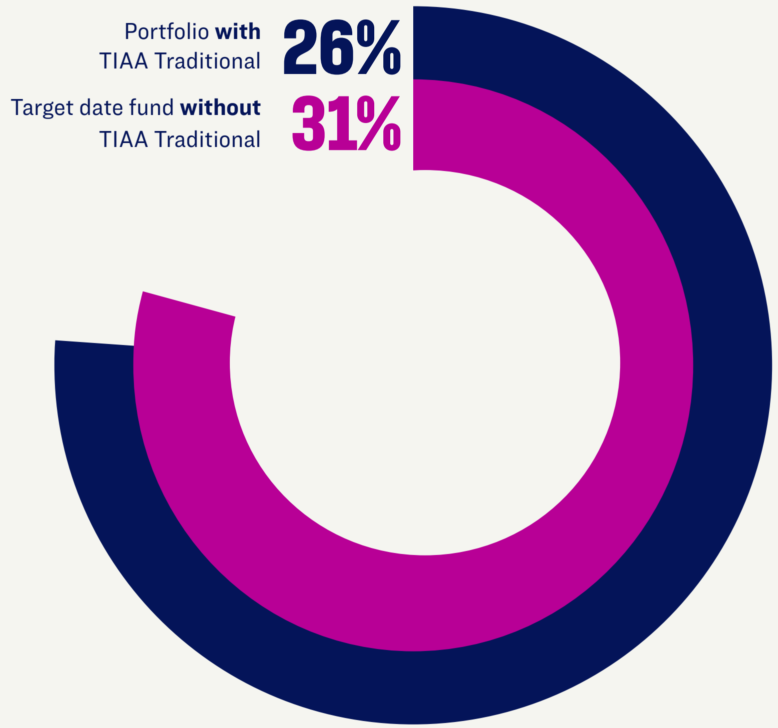
$9,400 **With TIAA Traditional**

$7,900 **Without TIAA Traditional**

Bigger retirement checks with TIAA Traditional for long-term contributors

TIAA may distribute excess profits back to plan participants, resulting in **bigger retirement checks** for long-term contributors through the TIAA Loyalty Bonus℠.[6]

PERCENTAGE OF ASSETS ANNUITIZED TO ACHIEVE THE SAME LEVEL OF GUARANTEED LIFETIME INCOME



To generate the same guaranteed retirement checks, the standard target-date glidepath used more assets[8]

TIAA Traditional left participants with larger estates[9]

$88,879
Average outperformance

$13,451
Average underperformance
(in the few cases of underperformance)

93% The target-date glidepaths with TIAA Traditional had **higher estate balances** in the vast majority of scenarios.

To learn more about how TIAA Traditional improved outcomes to and through retirement, visit the **TIAA Institute** website to read the executive summary.

Endnotes

1 "A Lifecycle Analysis of the Performance of TIAA's Traditional Annuity in a Target Date Fund," (2023) by Conrad Ciccotello (University of Denver), Miguel Herce (Charles Rivers Associates), and Mark Meyer (Charles River Associates).

2 Low volatility is a core characteristic of guaranteed annuity products.

3 Monthly returns are calculated by assuming a single deposit at the start of the 30-year period and then calculating the return based on end of month accumulations. The Bloomberg U.S. Aggregate Bond Index (the "Bond Index") has no expenses subtracted from its returns. TIAA Traditional does not have any explicit expense charges but may impose surrender charges on certain withdrawals. There are substantial differences between intermediate-term bond indices and fixed annuities, including differing investment objectives, costs and expenses, liquidity, safety, guarantees or insurance, and fluctuation of principal or return. It is not possible to directly invest in an index. Past performance is not a guarantee of future results. There is no assurance that additional amounts above the TIAA Traditional Annuity's guaranteed minimum rate will be declared in the future. See the Important Disclosures slide in this section for additional information.

4 Findings from Babbel et al. (2022) with optimal portfolio construction comparing the impact of when TIAA Traditional becomes available for the portfolio either keeping the annual return constant and seeing the impact on risk (standard deviation) or keeping the standard deviation constant and seeing the impact on average return from 1973 to 2021. The portfolio without TIAA Traditional is 40.25% U.S. Small-Cap, 42.38% U.S. Long-term Government Bonds, and 17.36% Money Market. The portfolio with TIAA Traditional at the lower return-lower standard deviation is 39.41% U.S. Small-Cap, 23.73% U.S. Long-term Government Bonds, 36.86% TIAA Traditional SRA. The portfolio with TIAA Traditional at the higher return-higher standard deviation is 43.83% U.S. Small-Cap, 26.39% U.S. Long-term Government Bonds, 29.79% TIAA Traditional SRA. The following indices were used for the respective asset classes: U.S. Small-Copt, Directional Fund Advisors U.S. Micro Cap; Long-term US Government Bonds, Barclays 20+ Treasury Bond Fund index and Morningstar's Ibbotson SBBI Long-term Government Bond returns; ICE Bank of America Merrill Lynch US 3-Month Treasury Bill Index and Ibbotson SBBI 3-Month Treasury Bill returns. Babbel, D., Ciccotello, C., Herce, M., and Meyer, M (2022). A cohort analysis of the investment performance of TIAA Traditional Annuities during working life. TIAA Institute Research Dialogue, No. 184.

5 Findings from "A Lifecycle Analysis of the Performance of TIAA's Traditional Annuity in a Target Date Fund" (2023), by Conrad Ciccotello (University of Denver), Miguel Herce (Charles Rivers Associates), and Mark Meyer (Charles River Associates). The analysis uses 27 scenarios varying starting and ending periods between 1973 and 2021. The analysis compared balances at the end of the accumulation phase between the two portfolios.

6 Lifetime income payments from TIAA Traditional may include a TIAA Loyalty Bonus℠, which is discretionary and determined annually.

7 Data as of October 1, 2023. These hypothetical examples are based on 67-year-olds selecting single-life annuity with a ten-year guarantee retiring 10/1/2023. The 9.4% income rate represents a hypothetical career contributor and assumes 30 years of level monthly contributions to TIAA Traditional through September 2023. The 7.9% income rate represents a new money contributor and assumes a transfer into TIAA Traditional in 2023. This is for illustrative purposes only and is not intended to predict or project performance of any account. Actual returns will vary.

Any guarantees under annuities issued by TIAA are subject to TIAA's claims-paying ability. Guaranteed minimum payment is based on new contributor. TIAA Traditional Annuity interest and income benefits include guaranteed amounts plus additional amounts as may be declared on a year-by-year basis by the TIAA Board of Trustees. The additional amounts, when declared, remain in effect through the "declaration year," which begins each March 1 for accumulating annuities and January 1 for payout annuities. Additional amounts are not guaranteed beyond the period for which they are declared. Retirement check refers to the annuity income received in retirement. Guarantees of fixed monthly payments are only associated with TIAA's fixed annuities. Lifetime income payments from TIAA Traditional may include a TIAA Loyalty Bonus℠, which is discretionary and determined annually.

8 Findings from "A Lifecycle Analysis of the Performance of TIAA's Traditional Annuity in a Target Date Fund" (2023), by Conrad Ciccotello (University of Denver), Miguel Herce (Charles Rivers Associates), and Mark Meyer (Charles River Associates). At retirement, in the glidepath portfolio with TIAA Traditional the amount of TIAA Traditional accumulations was annuitized with a single-Life annuity with a 10-year guarantee period. In the glidepath portfolio without TIAA Traditional an equivalent amount was annuitized at market rates with a single-life annuity with a 10-year guarantee from the fixed-income allocation to match the income from the glidepath portfolio with TIAA Traditional. Each time the glidepath portfolio postretirement annuity income raises, additional annuity income was purchased from the glidepath portfolio without TIAA Traditional so the income in retirement remained the same across the two portfolios. The analysis then compared the percent of assets annuitized to achieve the same level of guaranteed lifetime income.

9 Findings from "A Lifecycle Analysis of the Performance of TIAA's Traditional Annuity in a Target Date Fund" (2023), by Conrad Ciccotello (University of Denver), Miguel Herce (Charles Rivers Associates), and Mark Meyer (Charles River Associates). With the non-annuitized assets remaining invested in retirement, the analysis compared how much estate (non-annuitized accumulated balance) remains at the end of the retirement between the two glidepath portfolios.

DISCLOSURES

This material is for informational or educational purposes only and is not fiduciary investment advice, or a securities, investment strategy, or insurance product recommendation. This material does not consider an individual's own objectives or circumstances which should be the basis of any investment decision.

Annuity contracts may contain terms for keeping them in force. TIAA can provide you with costs and complete details.

TIAA Traditional is a fixed annuity product issued through these contracts by Teachers Insurance and Annuity Association of America (TIAA), 730 Third Avenue, New York, NY, 10017: Form series including but not limited to: 1000.24; G-1000.4; IGRS-01-84-ACC; IGRSP-01-84-ACC; 6008.8. Not all contracts are available in all states or currently issued.

Any guarantees under annuities issued by TIAA are subject to TIAA's claims-paying ability.

TIAA Traditional is issued by Teachers Insurance and Annuity Association of America (TIAA), New York, NY.

This Institute grant sponsored academic paper was written by third-party economists at Charles Rivers Associates and the University of Denver. It uses historical data and conducts financial performance analyses for research purposes only. It is not representative of an actual product offering nor does it provide investment analysis of a product that is offered.

The analysis compares the investment performance and retirement income generating capacity two hypothetical target-date fund strategies. The approach is for research purposes only and not meant to convey performance from any existing product. Per the Investment Company Act of 1940, an annuity cannot be part of a mutual fund. However, an annuity can be included in a collective investment trust (CIT) or a managed account within a target-date framework.

TIAA may establish additional amounts of interest and income benefits above contractually guaranteed levels. Additional amounts are not guaranteed beyond the period for which they are declared.

Fixed annuities and bonds are distinct financial products. Both provide reliable credited interest and income, but may not protect against inflation. **A fixed annuity** is an insurance contract issued by an insurance company offering tax-deferred guaranteed interest accumulation, principal protection, guaranteed income for a specific period or for life to protect against longevity risk, and may include a death benefit. Guarantees are subject to the financial strength of the insurer. Some fixed annuities are complex, with additional benefits available for an extra cost, and have liquidity restrictions or charges. The **TIAA Traditional fixed annuity** expenses are reflected in its credited rate - there are no additional fees and charges. TIAA may increase income throughout retirement. A **bond** is a market-based investment issued for a specified duration that is more liquid than most annuities, has transparent pricing/yield data, disclosed expenses, and is subject to credit risk of the issuer. There is a wide variety of credit qualities and maturities available and flexibility in choice of issuer, maturity, and duration. Principal is usually returned upon maturity, but bond value can fluctuate and be subject to volatility risk due to interest rate changes, market sentiment and bond duration sensitivity. Income from some bonds may be tax-exempt. Bonds do not protect against the risk of outliving your savings and include risk you cannot reinvest at similar/better rates when a bond matures. Bonds have no death benefit but can be passed directly to heirs with a step-up basis.

The **Bloomberg U.S. Aggregate Bond Index** reflects the average experience (including expenses) of only the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market. Over the long-term, the credited interest rates of TIAA Traditional have been similar to returns of this Index, with less volatility due to the diversified investments of TIAA's large general account which support TIAA's fixed annuity credited rate, and which invests in nearly every type of portfolio asset available in the market, not just the bond market. You cannot invest in an index; nor can you invest in TIAA's general account.

TIAA Institute