TIAA-CREF Institute

The Performance of TIAA's Traditional Retirement Annuity for Selected Investment Cohorts, 1970 – 2005 through 2013

Research from the TIAA-CREF Institute
November 2015

About the research

The study summarized here – The Performance of TIAA's Traditional Retirement Annuity for Selected Investment Cohorts, 1970 – 2005 through 2013 by David F. Babbel, Miguel Herce and Mark F. Meyer of Charles River Associates – compares investment portfolios[1] with and without TIAA's Traditional Retirement Annuity (TIAA Traditional RA). The analysis gauged the performance of a buy-and-hold strategy for various diversified portfolios beginning at successive five-year intervals (i.e., "cohorts") dating back to 1970.

Using various measures of financial performance, the researchers demonstrate that adding a deferred annuity like the TIAA Traditional RA to a retirement income portfolio improved the portfolio's overall financial performance over the period studied.

To download the full report, click the link above or go to: **www.tiaa-crefinstitute.org/public/pdf/Babbel_06.pdf**

During the period studied, the TIAA Traditional RA had both a higher return and lower variability than money market instruments and intermediate-term government bonds.

The retirement income needs of the average U.S. worker have never been met, and were never designed to be met, exclusively by Social Security. In 2013, the Federal Poverty Level Guideline for a family of two was $1,292.50 per month[2] – almost exactly the average benefit Social Security recipients received that year. Moreover, as defined contribution (DC) plans continue to replace defined benefit (DB) plans, retirees face substantial financial market risk to their non-guaranteed retirement savings, as the period of late 2007 to early 2009 painfully demonstrated.

This situation has led to growing worry among the general public that a retirement income crisis is unfolding in the U.S., while also heightening interest in lifetime income options that can enhance retirement security. To evaluate the use of one such option – the TIAA Traditional RA – during the accumulation phase of a retirement income portfolio, researchers at Charles River Associates analyzed the TIAA Traditional RA's historical performance relative to that of other investments commonly found in DC plans. The results show that, compared to fixed-income alternatives, the TIAA Traditional RA, based on its total interest crediting rates, has returned the most consistent upside with the least amount of volatility or downside risk over the past four decades.

Sharpe and Sortino Ratios: Annual Returns for 1970 to 1980 Investment Cohorts*

	Large Stocks	Small Stocks	Long-Term Corp. Bonds	Long-Term Gov't Bonds	Interm.-Term Gov't Bonds	TIAA Trad. RA
1970 Cohort						
Sharpe Ratio	0.281	0.397	0.274	0.259	0.264	1.133
Sortino Ratio	0.467	0.915	0.641	0.656	0.587	9.851
1975 Cohort						
Sharpe Ratio	0.353	0.494	0.301	0.293	0.286	1.127
Sortino Ratio	0.600	1.190	0.710	0.763	0.642	10.361
1980 Cohort						
Sharpe Ratio	0.358	0.405	0.470	0.457	0.485	1.716
Sortino Ratio	0.613	0.929	1.715	1.792	1.316	16.593

* The Sharpe ratio measures how well an investor is compensated per unit of risk taken. The Sortino ratio is based on the Sharpe ratio and gives the actual rate of return in excess of the risk-free rate per unit of downside risk. In this analysis, the risk-free rate is the money market return. **Higher ratios indicate greater return for the same level of risk**. Each cohort's data span the period from March of the indicated year through December 2013.

TIAA CREF
Financial Services

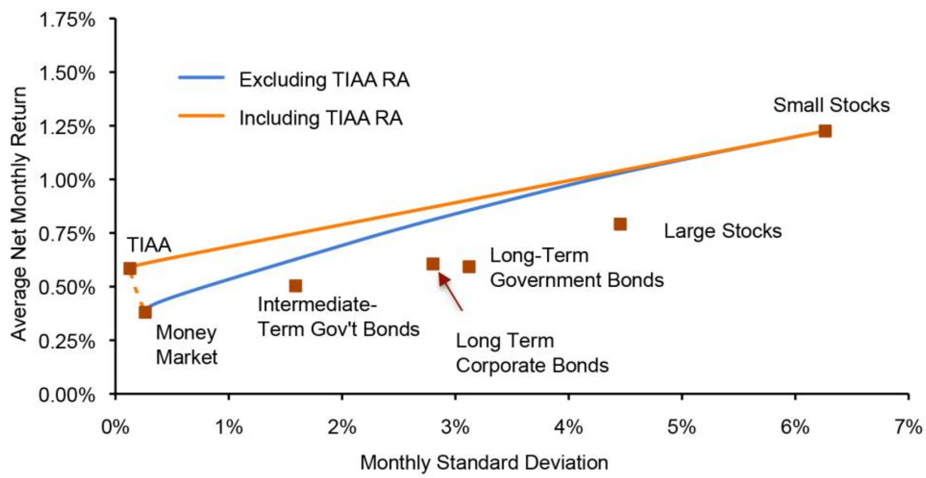
Higher returns, lower variability

As shown on the prior page, the Sharpe ratio values for the five asset classes other than TIAA Traditional RA are mostly clustered together. However, these values for TIAA Traditional RA returns are at least two times greater than those of the next highest asset class. This pattern is even more pronounced for the Sortino ratio. The high Sortino ratio assigned to the TIAA Traditional RA asset class, relative to those assigned to other asset classes, results from the fact that throughout the entire 526-month period under consideration, the risk-free rate exceeded the TIAA Traditional RA credited rate for only 60 months (or 11.4% of the number of monthly observations), and even then by small amounts.

The TIAA Traditional RA pushes out the efficient frontier

The analysis also showed that, across all investment cohorts considered, the TIAA Traditional RA returns exhibited both a higher mean return and lower volatility than money market or intermediate-term government bond returns, (with the exception of intermediate-term government bonds for the 2005 cohort). This feature can be seen in the graph below, in which two efficient frontiers are plotted: one including all seven asset classes in the study and one that excludes TIAA Traditional RA returns. Adding the TIAA Traditional RA improved the expected return for every level of risk.

Efficient Frontiers for Alternative Asset Classes (March 1970 – December 2013)



One reason for the TIAA Traditional RA's higher returns is that the assets backing its guarantees are longer-dated, less-liquid, higher-yielding securities, compared to money market and short-term fixed-income alternatives. Also, the TIAA Traditional RA has a minimum guaranteed rate and can never have a negative return.

About TIAA Traditional RA

The TIAA Traditional RA is a deferred fixed annuity first introduced in 1918, making it one of the world's longest continuously offered annuity products. During the retirement savings accumulation phase, TIAA Traditional RA participants can contribute premiums on a regular basis (e.g., monthly) and receive interest credits according to the rates declared by TIAA.

For more information

To learn more about converting savings to income in retirement, please go to www.tiaa-crefinstitute.org > Research > Lifetime Income & Retirement Security.

[1] The investment portfolios consisted of various combinations of money market, intermediate-term and long-term bonds, and small and large U.S. stocks, with and without the TIAA Traditional RA.

[2] See **http://aspe.hhs.gov/poverty/13poverty.cfm**, accessed on 7/14/15.

While some characteristics of TIAA Traditional and bond funds/money market instruments are similar, when they are owned within a tax-qualified retirement plan, there can be substantial differences in investment objectives, costs and expenses, liquidity, default risk, guarantees, and fluctuation of principal or return. TIAA Traditional is not a security and does not have any explicit expense charges. The TIAA Traditional guarantee is based upon the claims paying ability of TIAA, while bonds held by bond funds are typically backed by the credit of the issuer or underlying cash flows from other assets. Bond funds and money market instruments are more liquid than TIAA Traditional. TIAA Traditional provides the ability to annuitize and receive guaranteed lifetime income (based upon TIAA's claims paying ability); bond funds and money market instruments do not provide a lifetime income option. Past performance is no guarantee of future results. Consider all available options, not just historical performance and all differences between various options to decide which one is suited for your goals.