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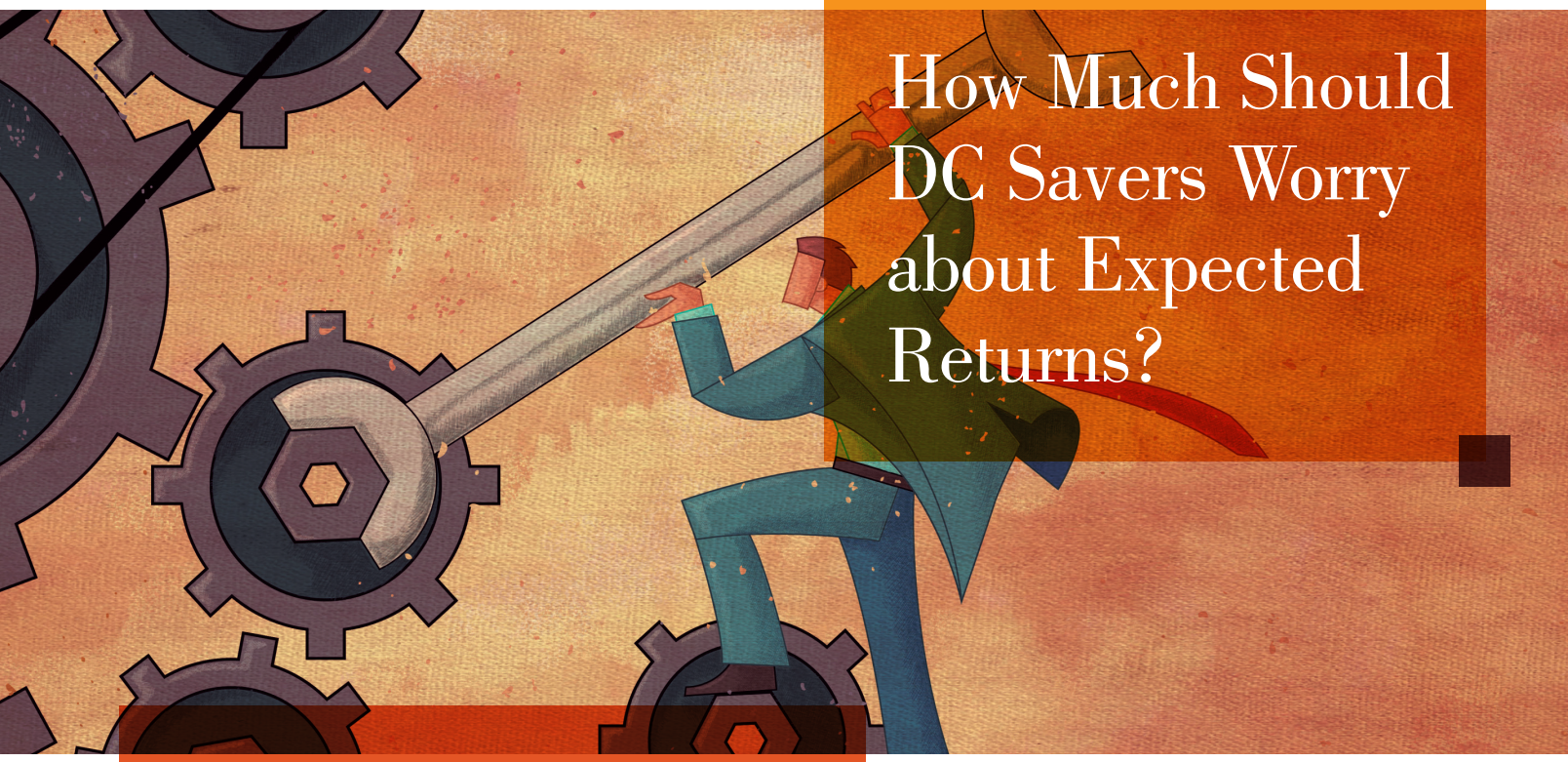

How Much Should DC Savers Worry about Expected Returns?

ANTTI ILMANEN, MATTHEW RAUSEO, AND LIZA TRUAX

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How Much Should DC Savers Worry about Expected Returns?

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Overview

In the 10 years or so since the implementation of the **Pension Protection Act of 2006**, sponsors of defined contribution (DC) retirement plans have made great progress in shifting the focus away from self-directed fund choices to the expected outcomes for participants, mostly through the use of target-date funds and other default portfolios. Plan sponsors have also increased participation and savings rates through automatic enrollment and auto-escalation of contributions.

In ***How Much Should DC Savers Worry about Expected Returns?***, published in Fall 2016 issue of ***The Journal of Retirement*** authors **Antti Ilmanen**, **Matthew Rauseo**, and **Liza Truax** demonstrate that DC participants are still not saving nearly enough. They propose an analytical framework that incorporates the lower expected returns participants are likely to realize over the mid- to long term, and they suggest that sponsors consider the additional return potential of a portfolio that invests beyond traditional asset classes.

Practical Applications

- **Historical returns are misleadingly high when estimating future returns.** The strong returns of the markets since the early 1950s are unlikely to be repeated in the next decade given current low yields on both stocks and bonds.
- **The trade-off between investment returns and savings is surprisingly large.** Given a 2% reduction in expected annual portfolio returns, maintaining a participant's retirement income requires contribution rates to potentially double over the course of one's working life.
- **Traditional asset classes may not offer enough return.** Investors may supplement their portfolios by adding to returns through increased diversification beyond traditional asset class exposure, and by including alternative investments and alpha from active management

Practical Applications Report

Over the last decade, defined contribution (DC) retirement plans have been shifting away from self-directed fund choices to focus on the expected outcomes for plan participants, mostly through the use of target-date funds and other default portfolios. Sponsors have also increased participation and savings rates through automatic enrollment and auto-escalation of contributions. However, there are still concerns over the adequacy of planning for the long term.

Past performance is not an indicator of future results. The STRONG historical returns following the 1950s are not a benchmark for the current era.

Key Definitions

Alpha

The excess risk-adjusted return of an investment relative to a benchmark index. A layer of returns for DC participants—the portion of returns that is derived from idiosyncratic investment processes (i.e., active management). Although strategies generating consistent alpha are hard to find, in addition to higher returns, true alpha is uncorrelated with beta and so potentially provides important diversification advantages.

Alternative investments

Alternative assets constitute a additional layer of returns available to DC plan participants on top of major asset-class returns (or beta). They include factor or style premia such as value, momentum, and quality, and extend to classic hedge fund strategies such as managed futures and global macro.

Expected returns

Expected returns are the returns on investment for various asset classes expected to be realized over the mid to long-term future (in contrast to historical returns). Assuming forecasts of expected return are realistic and well informed, they can provide superior analyses of the savings rates required to achieve desired retirement outcomes.

Retirement income exchange rate

The trade-off between a reduction in expected return and the corresponding increase in a participant's saving rate necessary to support a constant retirement income replacement ratio.

Retirement Income Replacement Ratio (RR)

An estimate of the percentage of a participant's final working income that he or she can expect annually in retirement. RR is the total of distributions from retirement savings, Social Security, and investments outside a participant's retirement plan.

Antti Ilmanen and **Matthew Rauseo** of **AQR**, and **Liza Truax** of **HBS** consider the realism of assumptions underlying the structure of many DC plans. "In talking to our clients who are managing defined benefit plans, endowments, foundations, and sovereign wealth funds, one concern we hear consistently is how low market returns, which many investors are expecting for years to come, will affect their plans to meet their liabilities," observes Rauseo.

> "Many plan sponsors and consultants think that if you have the right savings rate, the rest will work out. This work emphasizes the importance of investment returns, and that with lower returns, the levels of saving people may need are so high that they may not achievable."
>
> —Matthew Rauseo

"For DC plans, that translates into income available at retirement, and how much each participant has to save to get there," he explains, "but the idea has not received much attention. Many plan sponsors and consultants think that if you have the right savings rate, the rest will work out. This work emphasizes the importance of investment returns, and that with lower returns, the levels of saving people may need are so high that they may not be achievable," Rauseo elaborates.

PAST RETURNS MAY BE TOO OPTIMISTIC

From 1951 to 2015, the S&P 500 returned 7.4% annually, while 10-year US Treasury bonds earned 2.2%, making for a blended return on a 60/40 portfolio of 5.6%. Many sponsors and consultants routinely apply such historical returns in calculating how much participants need to save to reach a desired income level (the Retirement Income Replacement Ratio, or RR).

But decades of strong markets have driven asset valuations to such high levels that historical returns will not likely repeat in the future. Anchoring projections on historical results may present a picture that is far too rosy for current and future cohorts: "Past market returns were high partly because starting yields for both stocks and bonds were higher. In other words, the assets versus fundamentals were cheaper than they are today," the authors note.

Accordingly, sponsors, consultants, and participants all need to reassess expected returns for the coming 10 to 20 years, and evaluate what levels of retirement plan contributions will be necessary. Ilmanen and his team offer a base case for returns of just 5% annually for US stocks, and 1% for 10-year Treasuries, or 3.5% annually on a blended portfolio—two percentage points below the historical record.

Retirement literature and conventional wisdom holds that in order to sustain their standard of living in retirement, retirees need to replace between 75% and 90% of their final working income (the authors choose an RR of 75% for their modeling). Assuming historical returns of 5.5% per year on a blended portfolio[1] and the purchase of a 25-year annuity at retirement, they reckon participants can reach 75% replacement with consistent annual contributions during the working years of 8% of compensation. For many, that level can be comfortably reached with a 6% contribution from salary, plus an employer contribution of 2% or 3%. But considering the same scenario with a 3.5% annual return demonstrates that there is good reason for reflection.

SMALL CHANGES IN RETURNS UPSET THE RESULTS

By building those reduced expectations into a DC retirement simulation, Ilmanen, Rauseo, and Truax produce drastic results. "It's a 'power of compounding' story, and the concepts behind this are pretty well understood," notes Rauseo: "But even so, you can be surprised with the results."

> "You need to understand the range of returns available. Calculating from an average isn't good enough, because the sequence of markets matters, and participants only have one shot at saving for retirement."
>
> —Matthew Rauseo

They posited an "exchange rate" that equates returns and contributions with a 75% income replacement ratio, and found that reducing annual return by one percentage point, from 5.5% to 4.5%, requires three percentage points more in annual contributions. The exchange rate increases with greater changes in returns, rising to 3%–4% if returns come in at just 2.5% per year. The authors emphasize that if the market does not perform to expectation in delivering retirement security, participants must shoulder more themselves.

ADD IN THE RANDOMNESS OF MARKETS

Another shortcoming of conventional wisdom is calculating outcomes over long periods from an average annual return. The timing of favorable and unfavorable market environments can materially impact retirement wealth. A big market drop suffered early in a saver's career can be restored through greater contributions or better returns later on. For someone about to stop drawing a salary, there are fewer opportunities and less time to recoup a large loss.

The authors expanded their model to include the randomness of markets, and a measure of good and bad luck, assuming annual volatility of returns at 15% for stocks and 5% for bonds.

When the lower expected returns were applied to the model with uncertainty, troubling results appeared: To reach a 75% replacement ratio, even the lucky cohorts must save closer to 12% per year. Moreover, participants with a median level of luck have to save 15%, and those investing in an unfavorable series of markets would need 20% savings to stay at 75% replacement—a level that would be challenging for most people, at best. "You need to understand the range of returns available," says Rauseo. "Calculating from an average isn't good enough, because the sequence of markets matters, and participants only have one shot at saving for retirement," he adds.

[1] The blended portfolio referenced above, and in the paper, consists of allocations to 60% S&P 500 and 40% U.S. 10-year bonds, rebalanced monthly. Returns are excess of CPI. Historical returns through December 2015.

BROADENING INVESTMENT OPPORTUNITIES

To help develop a strategy to meet the prospective needs of retirement, the authors lay out an asset structure in three layers. The first is the market returns, or beta, of traditional assets such as equities and Treasury bonds. Credit bonds and commodities should be considered as well, to diversify the traditional asset classes.

Second are alternative investments—factor or style premia such as value, momentum, and quality across markets in long-only or long/short strategies. Other alternatives are classic hedge fund strategies such as managed futures and global macro. As these strategies are beyond the sophistication of most participants, they are most efficiently deployed within target-date funds.

Third is alpha, or the incremental return earned by active investment strategies. "Alpha exists, but is hard to identify ahead of time," notes Rauseo. "If sponsors think they can find alpha, they should allocate portfolio assets to active strategies."

Beyond encouraging greater savings rates, sponsors can add to the effort by broadening the scope of their plans' investment offerings to increase expected return, and by diversifying in these ways. Confronting the realities of today's markets, "DC plan portfolios need to look more like those of sophisticated institutions and include a wider range of strategies," notes Rauseo.

The THREE LAYERS of asset structuring:

1. Market returns of traditional assets (beta)
2. Alternative investments
3. Alpha—incremental return gained through active investment strategies

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Antti is a principal of **AQR Capital Management** and manages the firm's Portfolio Solutions Group, advising institutional investors and sovereign wealth funds and developing the firm's broad investment ideas. Before joining AQR, Antti spent seven years as a senior portfolio manager at Brevan Howard, a macro hedge fund, and a decade in a variety of roles at Salomon Brothers/ Citigroup. He began his career as a portfolio manager at Suomen Pankki, the central bank of Finland.

Antti has published extensively in finance and investment journals, and received both **Graham and Dodd** and **Bernstein Fabozzi/Jacobs Levy** awards for his articles. He scored a rare double in 2012, winning both the top and runner-up award for best articles (**The Death of Diversification Has Been Greatly Exaggerated** and ***The Norway Model***). Antti also authored ***Expected Returns: An Investor's Guide to Harvesting Market Rewards*** (Wiley, 2011), a broad synthesis of the central issues of investing.

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