

## ICI VIEWPOINTS

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## The Fact(or)s Matter When Measuring TDF Performance

By Hammad Qureshi, James Duvall, and Shelly Antoniewicz

Target date funds (TDFs)<sup>1</sup> have steadily become a mainstream option among retirement investors,<sup>2</sup> with some academics describing TDFs as “one of the most important financial innovations for the typical American retail investor” in recent decades.<sup>3</sup>

These strategies, which are popular for their broad diversification and automatic rebalancing over time,<sup>4</sup> are garnering attention in Washington as regulators evaluate their status as a default investment option in 401(k) plans. They’ve also come into focus, as the dominant performance trends of recent years—e.g., equities over bonds, US over international, and mega-cap tech above all else—have caused some observers to question the attractiveness of TDFs and balanced funds in general. Adding to the debate, a working paper by Massa et al. (2022) purports that TDFs underperform to a staggering degree.<sup>5</sup>

However, when fully accounting for investment exposures, [our research](#) reveals that TDFs perform as well as other mutual funds on a risk-adjusted basis, consistent with research from published academic papers.<sup>6</sup> It’s crucial for policymakers to consider these findings as they assess the merits of target date strategies as default investment options, particularly in a long-term context.

“...when fully accounting for investment exposures, our research reveals that TDFs perform as well as other mutual funds on a risk-adjusted basis....”

## Why Factors Matter

Academic researchers have long studied fund performance, often using factor models to assess risk-adjusted returns—essentially, the difference between a fund’s actual returns and its estimated benchmark’s returns, adjusted for risk.<sup>7</sup> Risk-adjusted returns are important because they provide a standardized measure of performance, making it possible to compare outcomes across different types of investment strategies.

But they’re only reliable when a fund’s factors—exposures to various asset classes and associated risks—are properly accounted for. If significant factors are misidentified or omitted, estimated benchmark returns—and consequently, a fund’s risk-adjusted results—will be inaccurate, leading to erroneous conclusions about fund performance. That appears to be the case with the working paper by Massa et al.

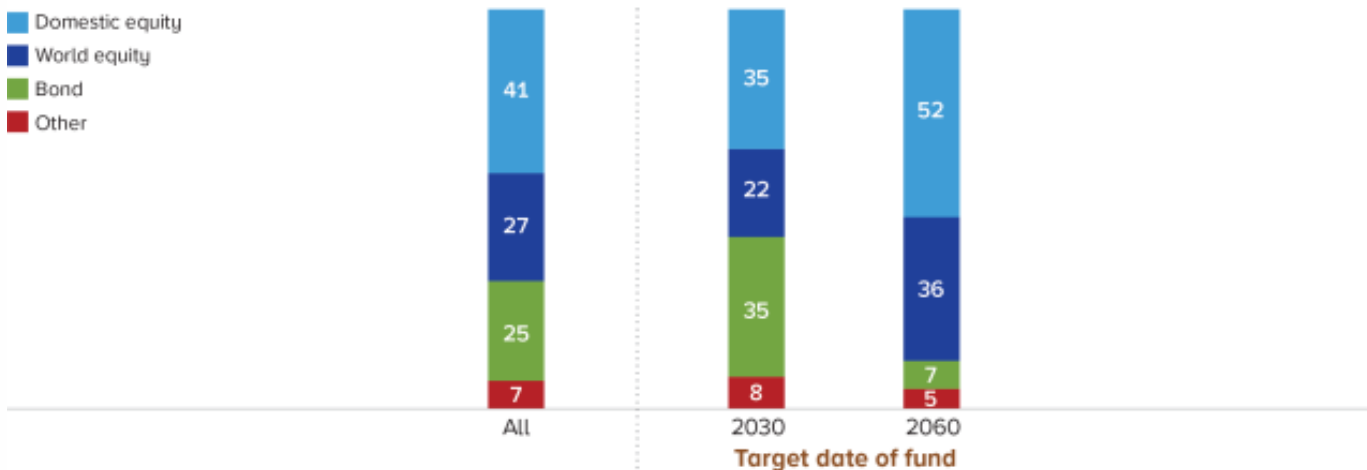
## International Equity Exposure Is Important When Measuring TDF Performance

Why does Massa et al. find that TDFs underperform? Taking a closer look, we see that their study does not account for international exposures, even though TDFs have meaningful allocations to international investments (Figure 1).

**Figure 1**  
**TDFs Have Substantial Exposure to International Stocks**

*Percentage of total holdings, data centered around June 2024*

### Underlying investment category



Source: ICI calculations of publicly available SEC Form N-PORT data

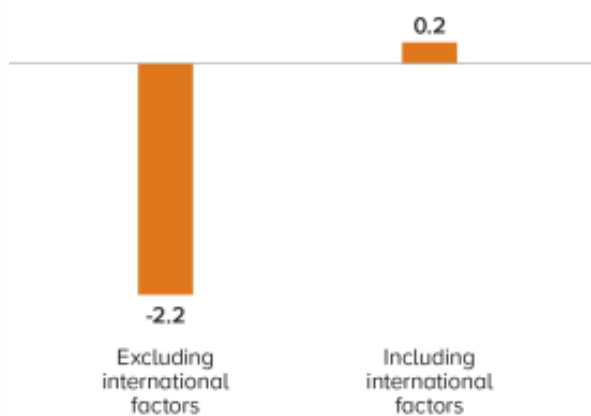
Such an omission is problematic because, as illustrated in Figure 2 (left panel), a factor model that excludes TDFs’ international exposures shows a misleading underperformance of 2.2 percent.<sup>8</sup>

By contrast, we use both US and international factors to account for TDFs' domestic and international equity allocations and find that these funds' gross risk-adjusted returns are 0.2 percent (Figure 2, left panel), which is in line with performance estimates for other mutual funds in empirical studies.<sup>9</sup> In other words, TDFs perform as well as other mutual funds on a risk-adjusted basis when one accounts for their substantial exposure to international stocks. It's essential to recognize this fact given the significant outperformance of US stocks relative to international stocks since the global financial crisis (Figure 2, right panel). Failure to account for this differing performance creates the potential for false takeaways about long-term performance.

## Figure 2

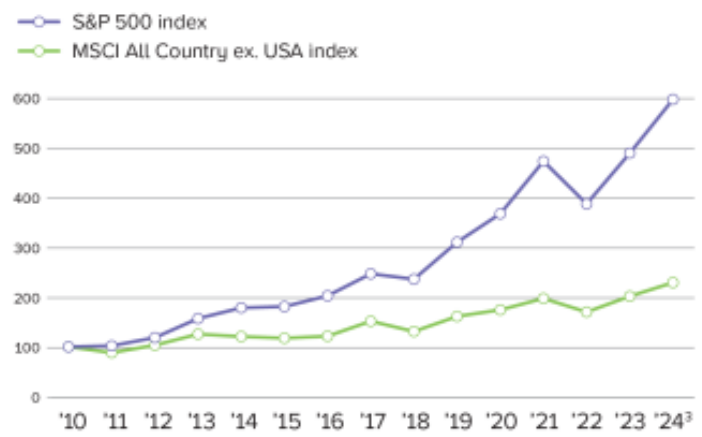
### International factors matter to risk-adjusted performance of TDFs...

Gross annual risk-adjusted return, percent<sup>1</sup>



### ...because US stocks have significantly outperformed international stocks since the global financial crisis.

Year-end level,<sup>2</sup> 2010 to 2024



<sup>1</sup> Data are estimated over the period between 2010 and 2020. For more information, see in Qureshi (2024) at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4618120](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4618120).

<sup>2</sup> Indexes are set to 100 at year-end 2010.

<sup>3</sup> Year-to-date, as of September 30, 2024.

Source: ICI calculations of ICI, CRSP, Morningstar, and Refinitiv data

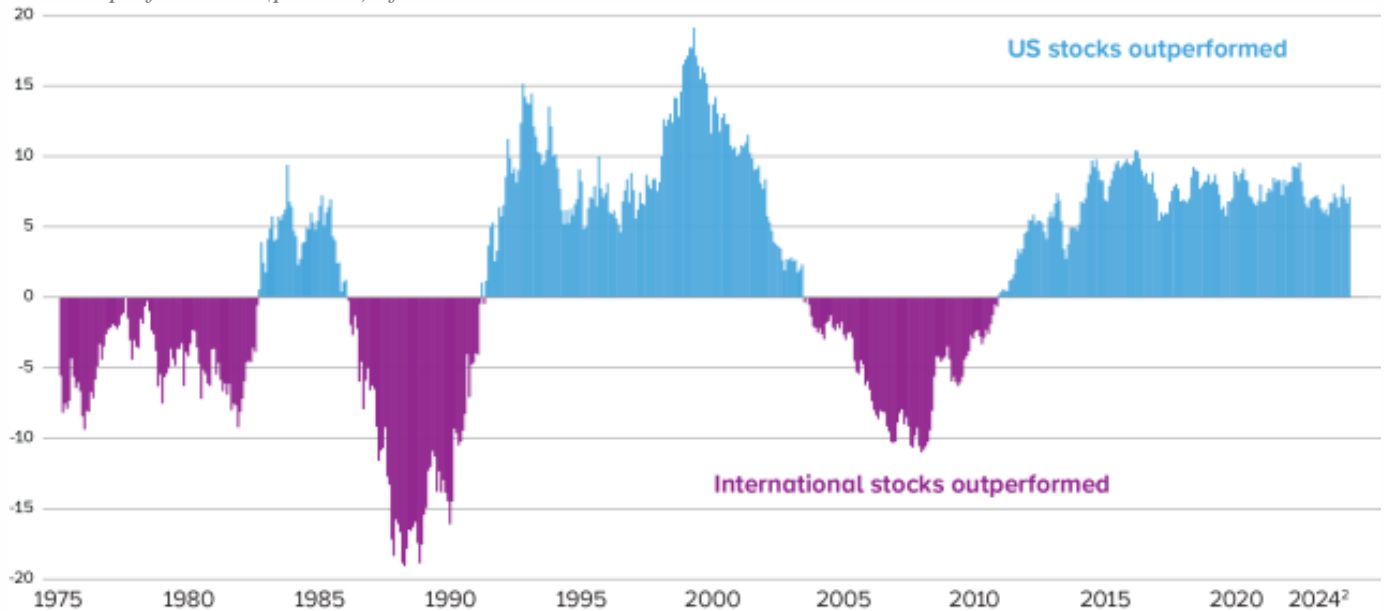
Nevertheless, the recent divergence in performance between US stocks and international stocks may raise the question of why TDFs have any international exposure. The answer is that there are clear diversification benefits to holding both US and international stocks over the long run. Over the past five decades, there have been periods when US stocks outperformed and other periods where international stocks outperformed (Figure 3). Indeed, this is why many financial advisors recommend international exposure in long-term portfolios. It's this broad diversification, combined with automatic rebalancing over time, that has helped fuel the widespread adoption of target date strategies.

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### Figure 3

## US and International Stocks Have Outperformed Each Other Over Time

Relative performance (percent) of US versus international stocks<sup>1</sup>



<sup>1</sup> Relative performance is estimated as the difference between 5-year rolling average returns of the S&P 500 Index and those of the MSCI World ex USA Index. Positive values indicate outperformance of US stocks, while negative values indicate outperformance of international stocks.

<sup>2</sup> Year-to-date, as of September 30, 2024.

Source: Based on Hartford Funds white paper, "US and International Markets Have Moved in Cycles"

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## Need for High Quality Research on TDFs

Because academic research often feeds into policy proposals, it's crucial that assessments of TDF effectiveness be conducted carefully and reviewed with a critical eye. As regulators evaluate TDFs and their role in 401(k)s, we urge them to fully vet any academic papers presented to them and focus on those that paint a complete picture of funds' risk/return characteristics.

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### Notes

[1] TDF structures include both collective investment trusts and mutual funds. Our analysis focuses on mutual fund TDFs, and all references to TDFs in this *ICI Viewpoints* specifically refer to mutual fund TDFs.

[2] Often designed with retirement savers in mind, the current widespread use of TDFs stems in part from their use as a qualified default investment alternative (QDIA) in retirement plans, particularly 401(k) plans. Nearly nine in 10 401(k) plans offer TDFs, and more than two-thirds of 401(k) plan

participants invest in them. For more information, see [Quick Facts on Target Date Fund Use in Retirement Plans](#).

[3] Parker, Schoar, and Yang (2023), “Retail Financial Innovation and Stock Market Dynamics: The Case of Target Date Funds,” *Journal of Finance* 78(5).

[4] TDFs manage all asset allocation decisions for investors by rebalancing their diversified portfolios over time—each TDF has a “glide path” that becomes less focused on growth and more focused on income as the fund approaches and passes its target date. For more information, see [Quick Facts on Target Date Funds](#).

[5] Massa, Moussawi, and Simonov (2022), “The Unintended Consequences of Investing for the Long Run: Evidence from the Target Date Funds,” Working Paper.

[6] Elton, Gruber, Souza, and Blake (2015), “Target Date Funds: Characteristics and Performance,” *The Review of Asset Pricing Studies*, 5(2), 254-272. Shoven and Walton (2021) “An Analysis of the Performance of Target Date Funds,” *The Journal of Retirement* 8(4), 43–65.

[7] Risk-adjusted returns can be calculated using funds’ actual returns before expenses (“gross returns”) or returns after expenses (“net returns”). In general, mutual fund expenses reduce risk-adjusted returns by approximately the fund’s expense ratios. For example, if a fund has a *gross* risk-adjusted return of 0.3 percent and an expense ratio of 0.2 percent, its *net* risk-adjusted return would be around 0.1 percent.

[8] The net annual risk-adjusted return excluding international factors was -2.7 percent. This estimate is in line with the estimates in Figure 4 of Massa et al. (2022).

[9] We estimate net risk-adjusted returns of -0.3 percent, which are in line with average expense ratios of TDFs. Empirical studies on mutual fund performance generally show that mutual funds’ gross risk-adjusted returns are close to zero while net risk-adjusted returns are lower by an amount roughly equal to the funds’ expense ratios.

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