In less than a decade, target-date funds have cemented their place as the preferred investment for workers in the United States who are saving for retirement. More than 80% of plan sponsors offer target-date portfolios. Research suggests that target-date portfolios will capture 88% of new contributions and more than 35% of total defined-contribution assets by the end of 2019 (Cerulli Associates, 2014).

A number of attributes make target-date funds attractive: They are often cost-effective; they integrate sophisticated techniques in a simple package; they perform well when designed correctly; and they can serve as a qualified default for retirement plans. Most importantly, target-date strategies are appropriate options for a much larger portion of plan participants, relative to a stable-value fund or a static 60/40 target-risk portfolio.

What’s more, target-date funds appear to be among the most effectively used investments in the fund industry. Figure 1 compares average annual returns with Morningstar Investor Returns, or average asset-weighted annual returns, which are more indicative of the average investor’s experience with a particular investment. As the average return gap shows, actual investor returns for target-date funds have outpaced category averages over the last 10 years through December 2014. That’s good news for investors who rely on target-date funds for their retirement plans.

Not on the Same Path
Assets in target-date mutual funds reached $700 billion in January 2015, dominated by three companies: Fidelity, T. Rowe Price, and Vanguard. Combined, they control 71% of the assets in target-date mutual funds, at 26%, 18%, and 27%, respectively. While the target-date oligopoly still commands significant market share, their total share is down from its peak of 86% in 2003. At the same time, other providers, such as J.P. Morgan, American Funds, Principal Funds, and TIAA-CREF, continue to gain market share. The total share of assets held by the top three providers will likely continue to decline as plan sponsors look for target-date solutions beyond what is offered by their record-
Beyond Target-Date: Allocations for a Lifetime

keeper. In fact, we believe increased pressure on recordkeepers helps maintain an open playing field that doesn’t favor the recordkeeper’s in-house target-date offering.

The increasingly diverse target-date funds on the market display an increasingly diverse set of glide paths. Glide paths track equity exposure levels for each retirement-year-based fund within a target-date fund family. The typical assumption is that the glide path will gradually reduce its equity allocation as the years progress to the retirement date. The decisions and methodologies about how to do this differ markedly across the provider landscape, varying from approaches rooted in sophisticated theory to rules of thumb such as the “100-minus-your-age” approach. Despite their significant differences, virtually all glide paths have one thing in common: Their equity allocation declines as the retirement year approaches.

Significant differences also exist within the equity and fixed-income portfolio allocations of target-date strategies, something we refer to as the intra-stock and intra-bond asset allocations. Within equities, for example, there are material differences in the allocations to domestic versus international, value versus growth, and large cap versus mid cap or small cap. The dispersion in allocation to U.S. large-cap equities was 27 percentage points, the highest among the sub-asset classes considered. Within bonds, there are significant differences in the use of asset classes such as cash, high-yield debt, international bonds, and Treasury Inflation-Protected Securities. Use of alternative investments is also growing, with asset classes such as real estate and commodities receiving increased allocations.

Most target-date funds embrace actively managed funds for their security selections. However, the Morningstar 2015 Target-Date Landscape report notes that passive strategies have received an increasing share of assets as investors seek lower-cost target-date solutions. Average asset-weighted costs of target-date mutual funds have declined from 102 basis points in 2010 to 78 basis points in 2014.

The Morningstar Lifetime Allocation Index Family

We created the Morningstar Lifetime Allocation Indexes to provide investors with a way to evaluate and compare their choice of target-date funds in order to save for a specific retirement date and beyond. These “lifetime” indexes represent an excellent blueprint for target-date strategies and are ideal for benchmarking a range of target-date funds.
Glide Paths With a Total Wealth Approach

Our method for creating glide paths builds on the asset-allocation expertise in Morningstar’s Investment Management group and applies a total wealth approach. When determining the optimal portfolio for investors, we take a holistic view of their total wealth so we can construct the most appropriate glide path based on the total value and risk attributes of the different assets owned by that investor.

Our total wealth approach considers assets that are often overlooked, like human capital and pension wealth. Human capital can be thought of as the mortality-weighted net present value of an individual’s future wage income, where pension wealth represents assets like Social Security retirement benefits and defined-benefit pensions. While it is intuitive to separate pensions into another category given the high certainty of the income stream, we think of pensions as deferred labor income, which makes them a form of human capital.

A fundamental part of our total wealth approach requires an understanding of how an individual’s wealth changes over that person’s lifetime. For example, the total wealth of younger investors is almost always dominated by human capital, as depicted in Figure 3. As individuals age, they tend to save money for retirement, accumulating financial assets and accruing benefits in pension plans such as Social Security. In other words, most investors convert a portion of their salary over time into financial capital by saving and accruing pension benefits, which can be used to fund retirement.

Human capital is a relatively bondlike asset. We say “relatively” because the risk of human capital varies across business cycles, by job skills, and by the individual’s occupation or industry. Our research suggests that human capital is approximately 30% stocklike and 70% bondlike. Individuals with riskier human capital who have jobs in cyclical industries should have more-conservative portfolios, and individuals with secure jobs and stable incomes can invest in more-aggressive portfolios.

Younger workers have higher weights to human capital as a function of their total wealth. Because human capital is untradeable, from a total wealth perspective these young workers have an overweighting to a bondlike asset. That’s why their financial assets should be invested more aggressively to achieve a more balanced risk level from a total wealth perspective. When the relative value of human capital (as a percentage of total wealth) declines as the individual ages, financial capital needs to be invested more conservatively to balance the risk of the total wealth.

Risk tolerance and risk preference are often used interchangeably, but we treat these as two related, but different, concepts. Risk tolerance should be driven by risk capacity and risk preference. Risk capacity is an investor’s ability to take on risk given the composition of his or her total wealth, while risk preference is the individual’s desire to take on risk. These two types of risk combine to determine the most appropriate total wealth allocation.

In an operationalized version of Modern Portfolio Theory, we approximate the high-level stock/bond split using an approximation of a global market portfolio as the target reference portfolio for an investor with average risk capacity and average risk preference. By altering our assumptions around the reference portfolio, different levels of risk capacity, and different risk preferences, we can produce many potential glide paths. By assuming a more stocklike reference portfolio combined with high risk capacity and high risk-preference assumptions, we arrive at an aggressive glide path appropriate for investors with relatively high risk capacity and high risk preference. Conversely, by assuming a more stocklike reference portfolio combined with a relatively low risk capacity and low risk preference, we arrive at a conservative glide path appropriate for investors with relatively low risk capacity and low risk preference.

By design, our three Morningstar Lifetime Allocation Index glide paths are appropriate for a wide range of investors. We use a target-date version of the Morningstar Style Box™ to illustrate appropriate glide path “styles” (conservative, moderate, or aggressive). In this case, we replace the traditional dimensions of valuation (value—growth) and size (large—small) with the two key factors driving risk tolerance: risk preference and risk capacity (as proxied by the riskiness of human capital).

Of course, age determines where someone fits along a glide path. But within our total wealth framework, risk capacity and risk preference are keys to determining the most appropriate glide path, as demonstrated in Figure 4.

**Our Asset-Allocation Approach**

Using our total wealth approach, we first create the stock/bond allocation for an investor and then determine the asset-class targets for the portfolio. We use some of the most advanced asset-allocation techniques to determine these weights. Three examples include: our proprietary approach to formulating capital market assumptions; how we incorporate non-normal returns and downside risk in the portfolio optimization routine; and how we build portfolios based on the specific objectives of the investor.

**Capital Market Assumptions**

Capital market assumptions are effectively an investor’s “best guess” about the future outcomes associated with investing in different potential asset classes and how those investments will interact when combined into a single asset allocation or portfolio.

Morningstar is an industry leader in generating return forecasts; our building-block methodology functions as a reliable framework for estimating capital market assumptions for key asset classes.

Recent improvements to our approach include introducing a supply-side model so we can more accurately incorporate valuations into our forecasts. Additionally, we have developed a methodology to forecast the higher moments associated with return distributions, such as skewness and kurtosis. We discuss this in greater detail in our 2015 working paper, “The Economic Value of Forecasting Left-Tail Risk” by James Xiong, Tom Idzorek, and Roger Ibbotson.

**Optimal Asset Allocations in a Non-Normal World**

We have pioneered substantial improvements to traditional mean-variance optimization, which we refer to as Markowitz 2.0. Traditional mean-variance optimization relies on the first two moments of the return distribution, mean and variance, which is appropriate only if returns are normally distributed (the bell curve). Incorporating the higher moments associated with return distributions leads to important differences in the overall asset allocations and the relative attractiveness of individual asset classes. We do this by changing the optimization objective function so it no longer focuses solely on total risk (standard deviation) but “tail risk,” also called downside risk. We optimize asset allocations to minimize the impact of returns below a certain threshold with mean conditional value at risk (or mean-CVaR). A mean-CVaR approach combined with other techniques to minimize estimation error, such as resampling, can yield materially different portfolios than those designed using traditional mean-variance optimization, as noted by Xiong and Idzorek (2011).

**Efficient Retirement Portfolios**

The investment management process has traditionally focused on determining the optimal portfolio allocation without considering the risks associated with funding the goal (or the retirement income liability). For example, inflation is a key risk that should be explicitly modeled when determining the
optimal allocation for a retiree, as retirees generally want to generate income from a portfolio for life. Optimization routines that incorporate the risk of the liability are referred to as liability-driven or liability-relative investing. Though traditionally applied in the defined-benefit pension space, this approach is increasingly being used to build income strategies for retirees. It leads to an asset-allocation policy that is more likely to increase in value when the net present value of the liability is increasing, for example during periods of high inflation or falling interest rates. In the absence of new funding cash flows, the asset allocation should be more capable of maintaining its real purchasing power throughout retirement.

The allocations throughout Morningstar Lifetime Allocation Indexes are based on a liability-relative version of our advanced mean-CVaR framework. The investor’s total portfolio consists of financial and human capital (the asset side of the balance sheet) and the investor’s retirement income liability. The difference between the value of the assets and the value of the liabilities represents the surplus or deficit. This leads to certain types of asset classes being favored for older investors, including shorter-duration bonds, high-credit-quality bonds, TIPS, large-cap domestic stocks, and REITs. Other asset classes are favored for younger investors, including long-term nominal bonds, domestic small-cap stocks, international stocks, and emerging-markets stocks.

The Three Glide Paths for our Lifetime Allocation Indexes
Built on the research principles discussed here, the Morningstar Lifetime Allocation Index family includes indexes that match three closely examined risk profiles representing three unique glide paths: conservative, moderate, and aggressive. Each glide path consists of approximately 13 target-date indexes, ranging from a 2060 retirement date to a 2000 retirement date (for investors already in retirement), as well as a final income index representing the end of a given glide path. Figure 5 shows how the intra-stock and intra-bond allocation evolves across the index family.

The sophisticated methodologies embedded in the Morningstar Lifetime Allocation Index family are designed to lead to better risk-adjusted performance over time. The Morningstar Lifetime Allocation Index family went live in February 2009 with a back history to December 1998. In Figure 6, we plot the ranges of returns for all target-date fund share classes with at least 10 years of history, by quartile, along with the returns for the aggressive, moderate, and conservative Morningstar Lifetime Allocation Indexes. It is clear there is a wide dispersion in performance. In most cases, the Morningstar Lifetime Allocation Indexes have performed quite well. Keep in mind, however, that indexes don’t have any fees associated with them and it’s not possible to invest directly in them.
Beyond the Numbers

Investors in the United States are increasingly relying on target-date strategies to fund their retirement. These portfolios are a vital part of the future security of millions of workers. We believe that the Morningstar Lifetime Allocation Index family offers a useful yardstick for investors to benchmark the diverse choices they are offered to save for retirement. Our index family reflects Morningstar’s best research, our deep understanding of the needs of individual investors, and our commitment to building benchmarks that encapsulate our best thinking.

Morningstar’s Investment Management group includes Morningstar Associates, LLC, Ibbotson Associates, Inc., and Morningstar Investment Services, Inc., all registered investment advisors and wholly owned subsidiaries of Morningstar, Inc. All investment advisory services described herein are provided by one or more of these registered investment advisor subsidiaries.

Source: Morningstar data from April 1, 2005, through March 31, 2015