Executive summary. Target-date funds (TDFs) are designed to address a particular challenge facing many retirement investors: constructing a professionally diversified portfolio. Many investors lack time or interest when it comes to investment or retirement planning. They can become overwhelmed by the choice of investments available in a retirement plan lineup. TDFs are designed to help long-term investors achieve their goals and overcome these challenges. Vanguard TDFs are constructed on a number of investment best practices—the principles of asset allocation, diversification, transparency, and maintaining a balance among risk, return, and cost. Vanguard TDFs offer a straightforward design coupled with a high degree of transparency, low investment costs, and broad-based exposure to major asset classes, which help maximize the usefulness of these funds for investors.
The use of TDFs in employer-sponsored and individual retirement plans has expanded dramatically over the past ten years—and for good reason. TDFs can help investors construct well-diversified portfolios—critical to achieving retirement readiness—while simplifying the investment process. TDFs can also provide a sensible default investment option that plan sponsors can use in conjunction with plan design strategies to improve participant portfolio diversification, enrollment, and savings rates.

TDFs are designed to address a particular challenge facing many retirement investors: constructing a professionally diversified portfolio. As academic and Vanguard research indicates, many investors lack time or interest when it comes to investment or retirement planning. Even a motivated retirement saver may make portfolio errors or fail to manage the portfolio’s strategy effectively over time. TDFs address these challenges by simplifying the asset allocation decision for the investor. After making the decision to invest in a TDF, subsequent decisions about portfolio construction and ongoing and life-cycle rebalancing are delegated to the fund’s portfolio manager.

**Asset allocation glide path**

At its most fundamental level, the investment case for TDFs rests on two key strategic principles: that there are significant potential rewards for taking market risk, and that younger investors are better able to withstand that risk than older investors because a larger percentage of their total wealth is in human capital versus their financial holdings.

In our view, two important considerations justify an expectation of an equity risk premium. The first is the historical record: In the past, and in many countries, stock market investors have been rewarded with such a premium. Figure 1 shows historical returns on equities in excess of returns of nominal U.S. bonds over various time periods from 1926 through 2011.

The data in Figure 1 show that stocks have provided higher average returns than bonds at all horizons—albeit with a greater propensity to underperform by significant amounts over shorter time frames. Historically, bond returns have lagged equity returns by about 4–5 percentage points, annualized—amounting to an enormous return differential in most circumstances over longer time periods. Consequently, retirement savers investing only in “safe” assets must dramatically increase their savings rates to compensate for the lower expected returns those investments offer.

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1 For a more detailed discussion of these issues, please see Utkus and Young (2004 and 2009) and Choi et al. (2006).

2 The expectation of a long-term equity risk premium is also corroborated by Dimson, Marsh, and Staunton, who show positive historical risk premiums for equities, over bonds, in 19 countries since 1900.
The second reason is forward-looking and theoretical: The long-term outlook for global corporate earnings, despite today’s enormous short-term challenges, remains positive. The fact that some investors are questioning the outlook for equities, in light of the existence of some risks, is precisely why those who do invest in stocks should expect to earn higher average returns over the long run than investors who choose less volatile investments.

The second strategic principle underlying our glide-path construction—that younger investors are better able to withstand risk—recognizes that an individual’s total net worth consists of both their current financial holdings and their future work earnings. For younger individuals, the majority of their ultimate retirement wealth is in the form of what they will earn in the future, or their “human capital.” Therefore, a large commitment to stocks in a younger person’s portfolio may be appropriate to balance and diversify risk exposure to work-related earnings (Viceira, 2001; Cocco, Gomes, and Maenhout, 2005).3

Although the “human capital” theory doesn’t explicitly state how quickly equity exposure should diminish without the addition of a variety of assumptions and caveats, it does support the theoretical concept that equity allocations should decline with age to help manage risk through time. A topic of widespread debate remains what level of equity exposure may be appropriate to diversify investors’ human capital. There is no universally accepted optimal answer; ultimately, this is a fiduciary decision that sponsors have to make for their participants and individual investors must make for themselves.

Glide-path construction approach

A portfolio’s asset allocation—the percentage of a portfolio invested in various asset classes such as stocks, bonds, and cash investments—is the most important determinant of the return variability and long-term performance of a broadly diversified portfolio engaging in limited market-timing (Davis, Kinniry, and Sheay, 2007; Brinson and Hood, 2006). For that reason, Vanguard’s TDF portfolio glide path, illustrated in Figure 2, represents a strategic asset allocation to a broadly diversified set of asset classes—not a tactical asset allocation philosophy.4

Vanguard TDFs take a long-term, strategic approach and are built to be highly diversified and low-cost, which are keys to long-term investing success. The asset allocation glide path was designed to help a typical investor who maintains a reasonable savings rate to reach his or her retirement investment goals while bearing what we believe to be an appropriate level of risk at each stage of the life cycle.

As described earlier, the human capital theory supports a significant commitment to equities for young individuals, declining to a more modest allocation as one approaches retirement and eventually leaves the workforce. Vanguard TDFs maintain a significant level of equity exposure (90%) to age 40 because one’s “human capital” remains so dominant over the small balances in financial capital.

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3 For a more detailed discussion of these issues, see Bennyhoff (2008) and Ameriks, Hess, and Donaldson (2008).
4 Tactical asset allocation is a type of dynamic asset allocation that actively and systematically adjusts the strategic portfolio mix of an entire TDF allocation based on relative short- to intermediate-term market conditions. Such an approach attempts to add value beyond that of a baseline strategic asset allocation by altering systematic risk factors and overweighting asset classes that are expected to outperform on a relative risk-adjusted basis in the near term. For a more detailed discussion of these issues, see Stockton and Shtekhman (2010).
during the early stages of asset accumulation. After age 40, the equity allocation continues to decline up to age 72 to compensate for the shifting balance between human and financial capital.

To help meet retirees’ need for diversification and growth potential for a significant number of years in retirement to offset inflation, Vanguard TDFs offer significant equity exposure at an investor’s designated retirement year—50%, which is gradually reduced over the next seven years to 30% and remains constant thereafter. This allocation to equities recognizes that most pre-retirees and recent retirees still have the ability to alter their retirement plans—though far less than younger investors—if absolutely necessary and that modest exposure to equities can diversify their portfolios and help them realize their long-term goals. In addition, most retirees have a substantial portion of their wealth in the form of relatively safe, inflation-adjusted Social Security benefits, which should be diversified with some exposure to the equity markets.5

**Simulated outcomes and measures of success**

As part of the process of evaluating and identifying an appropriate glide path given this theoretical framework, we ran various financial simulations using the Vanguard Capital Markets Model. We

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examined different risk-reward scenarios and the potential implications of different glide paths and TDF approaches.

For example, Figure 3 illustrates three different glide paths, including Vanguard’s TDF glide path, beginning with varying levels of significant equity exposure and ending at retirement with ranges of more moderate levels of equity exposure.

Figure 4 compares the glide paths under a baseline simulation yielding a predictable outcome. The more aggressive the glide path, the greater the wealth accumulation, on average.
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