# Vanguard Investment Perspectives

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Interest in so-called smart beta strategies has been growing with some investors. Often referred to as rules-based strategies, these investments technically track an index but take active bets against the market.

In this edition of *Vanguard Investment Perspectives*, we explain what smart beta is and why it shouldn't be considered a substitute for broad-market-cap index strategies. We also tackle several other topics of interest to institutional investors and retirement plan sponsors, including:

**Avoiding investment fads.** Many investors gravitate to the latest "hot" investment idea, only to end up disappointed. We explain why this happens and how investors can steer clear.

**Alternatives and nonprofits.** Despite the successful adoption of alternative investments by a few prominent endowments, organizations must understand the role alternatives would play in their portfolios when considering these strategies.

**Target-date decision-making in a changing environment.** With the proliferation of different target-date investment approaches, now may be a good time for sponsors to evaluate how these different strategies work and whether they should make a change in their plan lineups.

**New mortality tables and their effect on DB investment decision-making.** Learn how defined benefit (DB) plan sponsors should respond to the increasing longevity of their participants and how these trends are decreasing funded status and lengthening the liability duration in many DB plans.

Drawing on the technical knowledge and client experiences of our long-tenured experts, we hope our research helps address your needs as institutional investors and retirement plan sponsors.

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## Is there a better way to index?

What is "smart beta"? That's a good question and some would even argue that the term is misleading. The answer depends on who you ask. Despite the proliferation of products and the growing investor interest in such strategies, confusion abounds with respect to what these strategies are and what they're not.

For example, Vanguard commissioned a survey in 2014 of institutional plan sponsors and consultants on the topic of smart beta. When asked the question "Which statement best reflects your firm's view of smart beta investing?," the responses varied: "it's low-cost alpha," "it's a version of indexing," "[it's] part of the evolution of indexing," "it's higher-cost indexing." While consensus clearly doesn't exist, surveys of institutional consultants and investors across the world confirm the growing global interest in exploring smart beta strategies.[1]

Adding to the confusion is the fact that smart beta strategies cannot be singularly classified. For example, some strategies focus on a single criterion such as dividends, GDP, or volatility. Others use multiple criteria. The common denominator, however, is that each strategy reflects a deviation in some respect from a market-cap-weighted benchmark. But why?

Much of the initial interest seemed to be a reaction to the 2000–2002 bear market, the so-called "tech wreck" or TMT (tech, media, and telecom) bubble. This global equity market decline featured sensational losses by many of the world's largest companies, leading to the assertion that traditional market-cap indexes can be improved upon by divorcing a security's weight in an index from its capitalization weight in a market. Soon thereafter, alternatively weighted indexes and then products—mainly exchange-traded funds (ETFs)—were introduced.[2]

Since then, the recent popularity in indexing has made it even more attractive to position a product as indexed. Add to that the expectation for future returns lower than historical averages, and the idea of a better way to index becomes more appealing. However, the question remains: Is there really such a thing as a better way to index?

### A refresher on beta and indexing

Traditionally, the term beta has been used to describe the risk-and-return attributes of a particular asset class. Accordingly, beta in the traditional sense is synonymous with "the market," such as the stock or bond market.

Beta's meaning has evolved over time to include other identifiable risk factors such as size and style or even particular countries or market sectors. And, indexes have therefore been created to intentionally capture these diverse betas. Given this evolution, an index could thus best be described as a group of securities, as defined by an index provider, that's intended to capture the beta of a market or market segment.

Investors cannot invest directly in an index, and instead must rely on investable products that seek to track the index as closely as possible. An indexed investment strategy—via a mutual fund or an ETF, for example—reflects implementation costs (transaction costs, operational expenses, trading frictions, and so on) and, therefore, should provide investors with the best proxy for achievable or investable beta. It's thus incumbent upon investors seeking to capture beta to: (1) ascertain which type of beta they're interested in; (2) determine which index most accurately represents that targeted beta; and (3) identify and then invest in an appropriate product that seeks to track that index.

1 See Spence Johnson in Europe and UK; BMO Asset Management in Canada; Pensions and Investments in Asia; AXA Investment Managers in Australia; and Cogent Research in the United States.

2 Arnott, 2006 and Hsu, 2006.

## Link between beta and market cap

Once the target market for an index has been defined, the index must be weighted according to market capitalization[3] so that it represents the risk-and-return characteristics (or beta) of that market or market segment. This concept is well-established in capital market theory and is easily explained by the formula for market capitalization:

Market capitalization = Shares outstanding x Price per share

Although a company controls the number of shares outstanding, the critical factor is the price per share, which is influenced solely by market participants. Price reflects a powerful mechanism collectively used by market participants to establish and change views about a company's future performance (including the issuance or retirement of shares). As a result, relevant information is continuously incorporated into stock prices through investor trading, which is then reflected in market capitalization.

Market-cap-weighted indexes therefore always reflect the consensus investor estimate of each company's relative value at every moment and of how the average investor has performed for a specific targeted beta.

## Smart beta is an active choice

Because current price reflects every possible factor that's used by any investor to estimate a company's value, a market-cap-weighted index also represents a true multifactor approach—indeed, an all-factor approach (**Figure 1**)—to investing and an ex-ante (forward-looking), theoretical mean-variance-efficient portfolio.[4] Any deviation from market-cap weighting within a targeted beta presumes that the collective valuation processes used by investors in that market are flawed.

This argument is based on the fact that investment performance can be deconstructed into three parts: the portions of return attributable to beta, to market-timing, and to security selection.[5] The latter two are specific to active management. Indexes using alternative weighting processes inherently presume that better risk-reward characteristics are available than those used by traditional market-cap-weighted benchmarks, which reflect prices set by all market participants.

In the process, beta thus gets redefined to that set by the specific index provider. The decision to reweight the securities within a targeted beta deviates from market beta and introduces an aspect of active

Figure 1. A market-cap-weighted index is an "all-factor" index


Source: Vanguard.

3 Sharpe, 1991.

4 It is important here to differentiate between an ex-ante (forward-looking) optimal portfolio and an ex-post (after-the-fact) optimal portfolio. Hindsight tells us we can construct any number of portfolios that would have been more efficient than the market portfolio over any particular period. This is because, in hindsight, we know with 100% certainty which stocks deviated from intrinsic value and which stocks did not. However, because forward-looking security prices are unpredictable and buyers must exactly offset sellers, the market-cap portfolio must be an ex-ante optimal portfolio. In an extreme example, should all investors execute a dividend-maximization strategy, not only would the prices of dividend stocks get bid up, thus driving yields down, but the market portfolio would become that very dividend-maximization portfolio.

5 Brinson, Hood, and Beebower, 1986 and 1991.

management (security selection). Active risk can best be defined as any risk that's not market risk. Active risk may be obtained by varying security weights within a benchmark or investing in securities that aren't in the benchmark. The active risk inherent in these approaches is demonstrated in **Figure 2**.

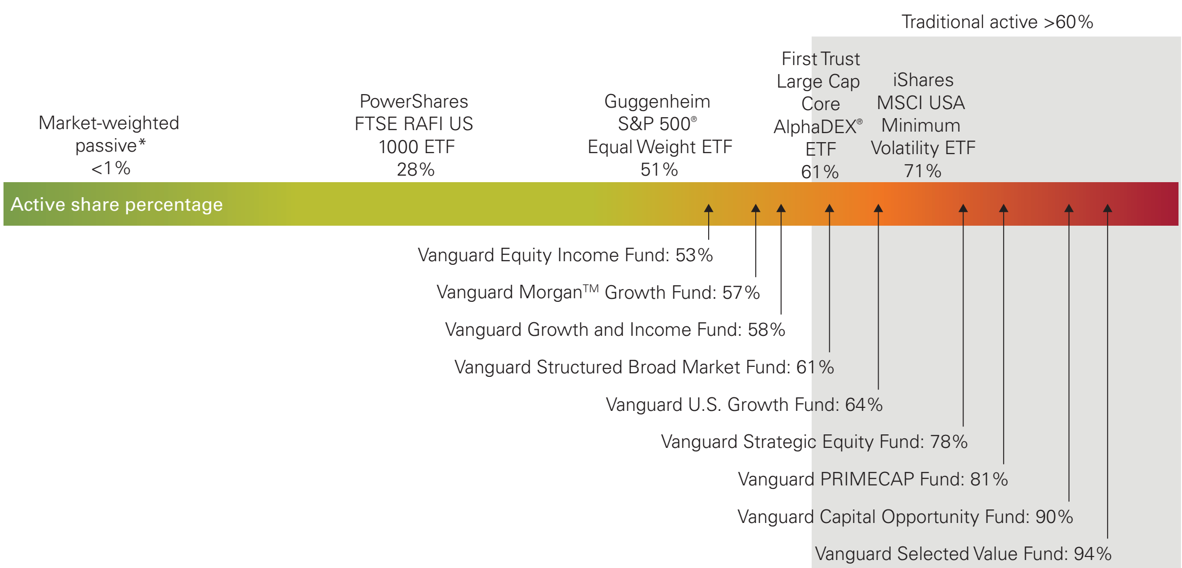
The key difference between alternative indexes above the spectrum line in Figure 2 and traditional active strategies below the spectrum line is that for creators of alternative indexes, the decision to deviate from a market-cap-weighted index occurs before implementation rather than during implementation, as is customary with traditional active managers. In this way, alternative indexes are rules-based and therefore may be passively managed against. This means that although not active in terms of ongoing management, the decision to reweight the benchmark's securities, by definition, reflects a primary component of active risk.

## Are cap-weighted indexes inefficient?

Proponents of strategies using rules-based methodologies for constructing indexes believe that market-cap weighting inherently overweights overvalued stocks and underweights undervalued stocks, exposing investors to potentially lower returns with increased risk. If cap-weighted indexes were inefficient and easily bested by underweighting the largest companies, it should be simple to identify a majority of actively managed funds that consistently outperform, because active managers would only have to underweight or avoid the largest stocks in order to outperform their benchmark. However, when we inspected the data compiled from existing Vanguard research, we found this not to be the case.

A simple test for the claims of mispricing examines whether the returns of rules-based index strategies can be explained by several common risk factors in the equity market. In **Figure 3**, we implement the basic three-risk-factor model from Fama and French (1993) and Carhart (1997), displaying the t-statistics for the style-adjusted alphas on a 36-month rolling basis. These values can be interpreted as the return left over after accounting for the portfolio's exposure to market, size, and value risk factors. None of the rules-based strategies examined in this example produced style-adjusted alphas that were consistently and significantly different from zero, thus indicating that their outperformance relative to cap-weighted benchmarks can be explained by size and value tilts within the market.

Figure 2. Just how active is smart beta?




* Average active share of the following three ETFs: Vanguard Russell 1000 Index ETF, iShares Russell 1000 ETF, SPDR Russell 1000® ETF.
Source: Vanguard, based on data from Morningstar.

## Implications for investors

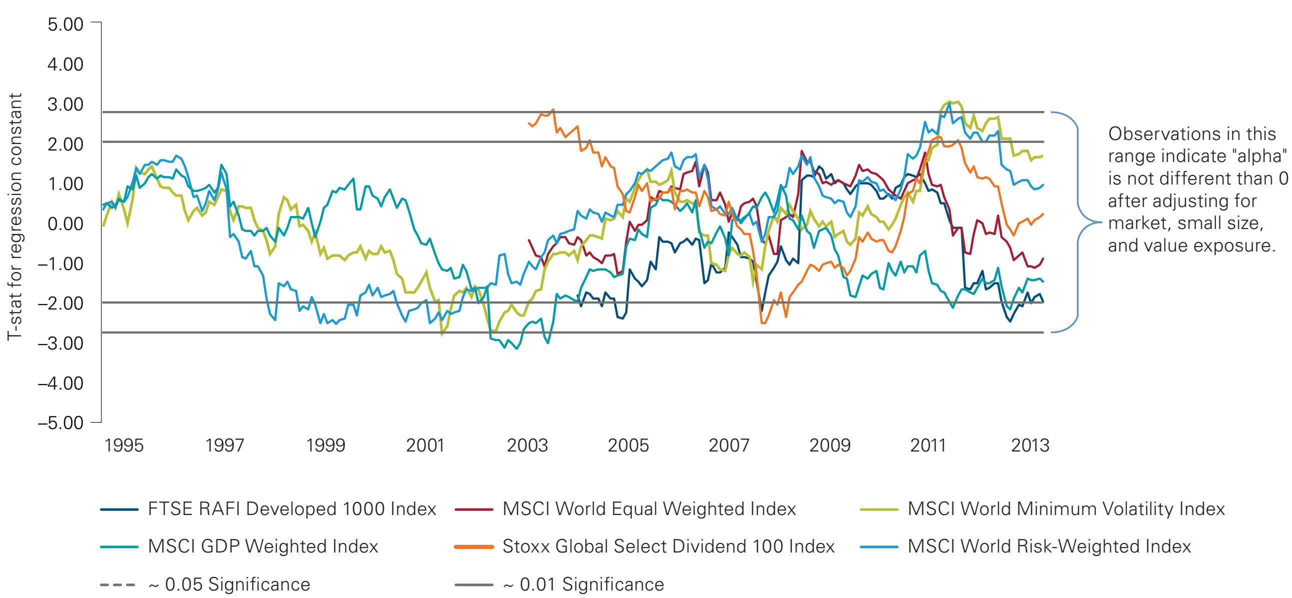
An index is a group of securities chosen to represent an unbiased view of the risk-and-reward attributes of a market or a portion of a market. Vanguard believes that indexes should be constructed according to the market capitalization of the underlying constituents.

But a small minority of the investment community has criticized the use of market-cap-weighted indexes based on perceived inefficiencies. Our analysis has shown that smart beta strategies: (1) are best described as passive, rules-based investment strategies that focus on a small number of factors; (2) have not successfully captured market inefficiencies consistently across time; and (3) have demonstrated systematic tilts over time toward smaller-cap stocks and value stocks because of significant weighting differences from market-cap-weighted indexes.

Although rules-based indexes are portrayed as a viable replacement for market-cap-weighted indexes to achieve market beta, rules-based strategies are built on one or several active decisions occurring before the creation of the index. The active decisions are reflected in security weights that can be significantly different from the targeted benchmark. The net result of these security and sector weights has been a systematic bias toward the value stocks and smaller stocks within the targeted benchmarks for most (if not all) smart beta strategies.

For investors considering adding smart beta strategies to their portfolios, it's crucial that they realize that smart beta strategies are active bets against the market and don't offer broad exposure to the markets. There may be a role for smart beta strategies as alternatives to some active strategies, particularly if the other active strategies are higher cost. But Vanguard believes that smart beta shouldn't be a substitute for broad-market-cap indexing strategies, which often serve as the core of investors' portfolios. Without such an understanding of these differences, investors run the risk of selecting an investment strategy that doesn't fit their needs or objectives.

Figure 3. After accounting for size and value tilts, any alpha disappears




Notes: Chart displays t-statistic for constants (style-adjusted alphas) from a 36-month rolling regression of the returns of each alternative index on the three Fama-French risk factors as discussed in Fama and French (1993) and Carhart (1997). A value outside of the significance bands would indicate a regression constant (alpha) that's statistically different from zero at that given significance level. Data as of June 2014.

Sources: Vanguard, based on data from Morningstar, Inc., and the website of Kenneth French: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

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## Avoiding ‘investment catnip’: A road map for identifying and selecting enduring investment ideas

Too often, trendy new investing ideas turn out to be catnip for investors—a distraction that’s pleasing on the surface and difficult to ignore but offering little long-term benefit.

Why are investors led astray by such ideas?

When assessing new strategies and opportunities, investors can often jump to conclusions about the future and can focus too much on potential outcomes. This investment approach is unlikely to lead to investment success and may prove disappointing.

Rather than focusing solely on potential outcomes, the key to separating enduring investment themes from those destined to be fads is to evaluate an idea on the drivers of investment performance and how the idea fits within your established guidelines for achieving your goals. Performance drivers are the underlying factors that lead to outperformance or underperformance of an idea, strategy, or product over time. These drivers have a direct impact on the chances of investors meeting their investment goals.

### A cautionary tale for investors

During the 1960s and 1970s, many investment professionals recommended a healthy portfolio allocation to the Nifty Fifty stocks, a group of 50 popular large-cap stocks. They argued that these companies were solid buy-and-hold growth stocks and would provide perpetual returns.

The Nifty Fifty are credited with propelling the bull market of the early 1970s. But the subsequent long bear market that lasted until 1982 caused valuations of these Nifty Fifty stocks to tumble. Because of their subpar performance, the widespread appeal of these stocks is often cited as an example of unrealistic investor expectations.

Why didn’t the Nifty Fifty perform as advertised and fulfill investor expectations?

With prior strong performance of these securities and as investment professionals were singing the praises of these companies, it’s understandable that many investors chose to buy these stocks to achieve short-term objectives. But a deeper understanding of the drivers influencing the price increases of these stocks might have given investors reason for pause. Many of the companies’ price/earnings (P/E) ratios had grown considerably larger than their historical averages. Rather than simply projecting historical performance to continue, astute investors would have noticed this large discrepancy and considered the risks involved in investing in companies with such inflated prices relative to earnings.

### A road map for success

The Nifty Fifty story is a classic example of an investment concept in which investors focused too much on outcomes based on prior results and not enough on performance drivers. While not all new investment ideas lack merit, too often innovations address a current need or represent a supposedly “perfect answer” to the challenges of the recent past.

Rather than just looking at how a strategy has performed, investors need to identify how an investment fits into their portfolios by analyzing its sources of performance. To accomplish this, investors should adopt a comprehensive decision-making framework for analyzing investments as opposed to a more intuitive approach (**Figure 1**). By developing a firm understanding of the assumptions driving an investment idea through a comprehensive approach, investors can avoid emotional decisions based on historical outcomes or future projections.

Vanguard recommends three steps to determine whether a new idea is enduring or investment catnip.

- Establish clear investment goals.
- Set clear guidelines for achieving these goals.
- Determine whether a new idea will help you achieve your goals based on its drivers of success.

The first step is to think about why you're considering an investment idea. Investors want solutions that can help them achieve their specific goals, such as saving for retirement or buying a home. What these goals are is a question that each investor must answer.

An investor's goals facilitate the creation of guidelines for decisions he or she makes. These guidelines, which include an investor's return objectives, time frame, and tolerance for risk, help investors develop a framework, which they hope will lead to achieving their investment goals.

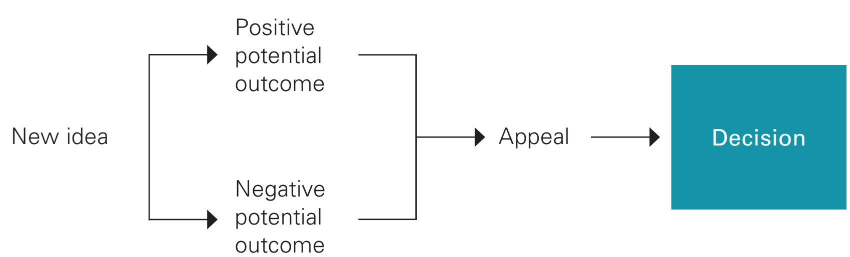
Once an investor has determined the goals that an investment decision will impact and the guidelines for achieving those goals, the final step is to analyze a new idea from the perspective of whether it will help achieve this objective.

For example, let's consider an investor whose goal is to purchase a home in five years and who needs to achieve an annual return of 6% over that time. Assume this investor is comfortable with a 5% probability of having a negative return over this time frame. This investor's goal, time frame, return objective, and risk tolerance provide the framework for analyzing a new investment idea.

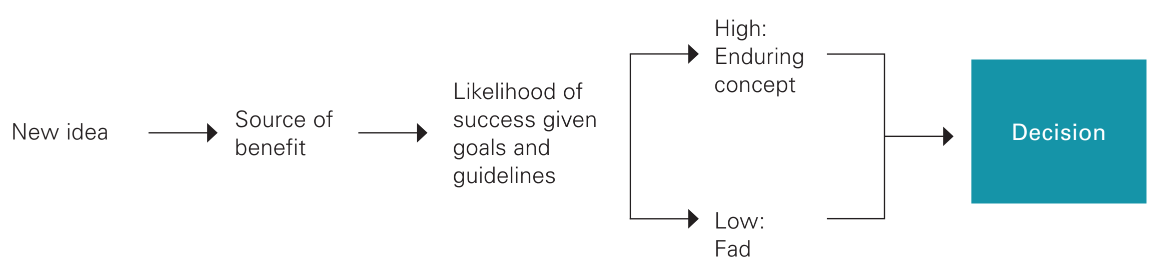
In the case of someone during the early 1970s planning to buy a home in five years, a 6% return might have looked achievable if they had invested a large portion of their portfolio in the Nifty Fifty. However, investors need to look beyond past performance and market headlines. A closer inspection of these investments should have given any investor with this goal and a relatively low risk tolerance considerable hesitation absent justification for these companies' high valuations.

Figure 1. Investment selection from a behavioral perspective

Intuitive analysis




Comprehensive analysis



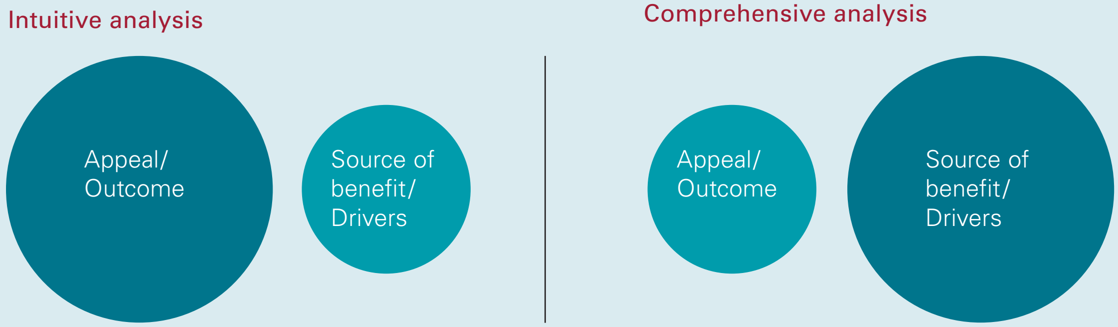

Source: Vanguard.

## A closer look at investment selection from a behavioral perspective

In his book, *Thinking, Fast and Slow*, Nobel Laureate Daniel Kahneman describes two interactive approaches to analysis—intuitive analysis and comprehensive analysis.

**Figure 2. Two types of analysis**

Framing an investment assessment with a focus on the potential outcome is risky.




Source: *Thinking, Fast and Slow.* Daniel Kahneman, 2011.

Investors prone to intuitive analysis often jump to conclusions. Like many investors who invested in the Nifty Fifty stocks at their peak valuations, they tend to rely heavily on preconceived beliefs to make decisions. These investors frequently make decisions without fully understanding the drivers of potential outcomes. That's what happened to many who overweighted the Nifty Fifty stocks without understanding the implications of the P/E ratios of these stocks returning to normal levels.

Intuitive analysis is dominated by the appeal of potential outcomes of an idea, rather than truly focusing on understanding the sources of its benefits. The notion of perpetually increasing stock prices relative to earnings that the Nifty Fifty promised seemed very appealing to someone seeking higher returns.

By seeking to make a more objective decision supported by as much information as possible, investors who take a comprehensive approach analyze investment ideas based on the drivers of an idea's benefits. A comprehensive analysis helps investors frame potential outcomes under various market and economic scenarios. An investor approaching a decision in this fashion might have noted that increases in the stock prices of the Nifty Fifty might not have been sustainable based on growth in earnings and historically high P/E ratios.

## What an enduring investment concept looks like

In contrast to the Nifty Fifty and other investment ideas that didn't turn out to be enduring because they failed to meet investor expectations, portfolio rebalancing is a concept that has passed the test of time.

In his seminal book, *A Random Walk Down Wall Street,* Burton Malkiel outlines the benefits of rebalancing. According to Malkiel, rebalancing simply involves bringing the proportions of portfolio assets devoted to different asset classes (for example, stocks and bonds) back to an allocation suited to an investor's age and capacity for risk.[1] Rebalancing helps investors stay on course in meeting the guidelines they've set for their portfolios.

If an investor begins with a portfolio of 60% equities and 40% bonds that evolves into a portfolio of 70% equities and 30% bonds because of the performance of these two asset classes, the investor now has a very different portfolio from a risk perspective. If a 60–40 portfolio still offers the best chance of achieving its goals based on the investor's acceptable risk level, then rebalancing back to a 60–40 portfolio makes sense.

What distinguishes an enduring investment theme, such as portfolio rebalancing, from the Nifty Fifty and others that ultimately failed to perform as promised? Most enduring investment ideas tend to be longer-term strategies that contribute to a strategic asset allocation. For example, Vanguard research has shown that the primary goal of a rebalancing strategy is to minimize risk relative to a target asset allocation, rather than to maximize returns.[2] In contrast, the majority of a portfolio's risk-and-return characteristics are determined by its asset allocation.[3]

In contrast, strategies, such as the Nifty Fifty, that focus on the success of the strategy itself rather than success within a portfolio context, tend to fall into the investment catnip or fad category. While these strategies may perform well in certain market environments, that's not the case in all or even most market environments.

Even strategies that claim to be based on portfolio-related concepts, such as portable alpha, may prove difficult to replicate over the long term. In the case of portable alpha, portfolio managers try to separate alpha from beta by holding securities that differ from those in a market benchmark. Derivatives often are used to produce alpha (e.g., the fund manager's security or asset class selection skill, independent of market beta, be it positive or negative). Portable alpha's allure is that it promises to deliver positive returns regardless of market conditions. By hedging away market exposure, the alpha generated by a skilled fund manager can be generated whether markets are positive, negative, or just volatile.

But the results produced from this strategy have been mixed at best. When the managers were wrong, the magnitude of the error was significant. In fact, there really hasn't been a set of managers able to add long-term value. There has been no consistent alpha waiting to be transferred onto a stock or bond exposure.

1 Malkiel (1973).
2 Jaconetti, Kinniry, and Zilbering (2010).
3 Wallick, et al (2012).

Figure 3. Other prominent examples of investment fads and enduring concepts

| Idea | Category | Description/Rationale | Outcome |
|---|---|---|---|
| 130/30 funds | Fad | Use leverage to pick stocks investors think will outperform and go short with stocks expected to underperform. | When quantitative models lagged in the latter part of the last decade, investors in 130/30 portfolios lost twice—the additional long positions lagged the short positions, producing negative alpha. |
| Emerging markets | Enduring | Markets just entering the global arena and don't meet the criteria to be considered developed economies, but can add diversification benefits to a portfolio of global equities. | Investing in individual emerging market countries can be risky. But because individual emerging markets are relatively uncorrelated, the risk of investing across all developing countries is much less. In addition, because of the unique development patterns of these countries, a modest allocation to emerging markets has helped investors diversify the returns of developed international and U.S. markets. |
| Emerging markets | Fad | Stocks of companies in emerging markets are positioned as offering potentially high returns because of higher expected growth. | Emerging markets have periodically underperformed their developed market counterparts during periods of high growth. Vanguard research has shown that expectations for growth are already reflected in prices.[4] |
| Passive investing | Enduring | An investment strategy that attempts to track a specific market index as closely as possible after accounting for all expenses. | In addition to avoiding some of the difficulties of achieving outperformance with active management, passive investing can provide several other benefits for investors including predictability, diversification, and style consistency.[5] |
| Portfolio insurance | Fad | Marketed as a way to synthetically replicate a put option on a portfolio, this strategy allows investors to increase exposure to stocks while they rise in value. This exposure would then be unwound as the performance of stocks weakened. | This approach assumed continuous liquid markets. When stocks opened considerably lower on October 19, 1987, and continued to fall, portfolio insurance failed as investors could not get out of their positions quickly enough. |

Source: Vanguard.

4 Davis, et al (2013).
5 Philips, et al (2014).

## Conclusion

The lessons learned from investors' experiences with the Nifty Fifty, portable alpha, and portfolio rebalancing highlight the importance of distinguishing between new investment concepts that are enduring and those that may turn out to be fads.

The most effective way to identify new investment ideas that prove enduring is to understand the drivers of their benefits and not focus exclusively on potential outcomes. Newer concepts such as liquid alternatives and unconstrained bond funds are now being widely discussed in investment circles. The process described in this paper should provide investors with a solid framework for analyzing such ideas.

If investors clearly define their goals, have a firm grasp of the guidelines that increase the potential for success, and understand the circumstances under which an idea may fail, they can make an educated decision and better position themselves to achieve their investment goals.

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## Alternatives: An investing framework for nonprofits

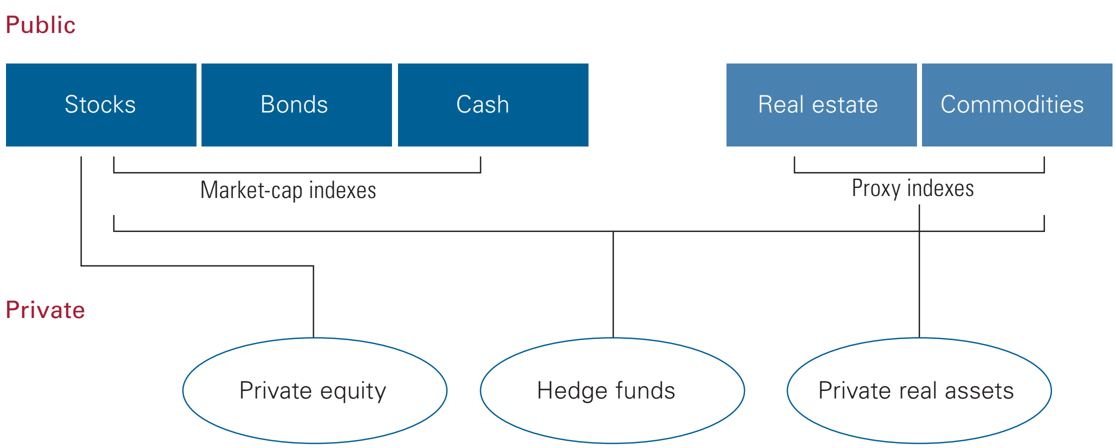
Prominent university endowments continue to make headlines with their remarkable performance and sophisticated strategies that often incorporate alternative investments, leaving many nonprofit investment committees eager to replicate their achievements. For those considering this approach, it's helpful to understand how alternatives might fit into an organization's portfolio.

### The true nature of alternatives

Alternative investments are often defined as hedge funds, private equity, and private real assets. Contrary to the opinion of many, these alternatives aren't separate asset classes, but private versions of asset classes available in public markets: stocks, bonds, cash, real estate, and commodities.

When thinking about alternative investments, two major relationships are worth noting: the one between asset classes, and the other between asset classes and private investments (See **Figure 1**). While stocks, bonds, cash, real estate, and commodities are each a distinctive asset class available through viable, publicly accessible index proxies, private forms of these asset classes are different.[1] Indeed, private equity is an extension of public equity. Private real assets are most typically a form of real estate or commodities (e.g., direct purchase of office buildings, farmland, and oil and gas partnerships). Hedge funds, for their part, can have a myriad of underlying investments and are simply a form of delivery rather than a separate asset class.

Figure 1. The relationship of asset classes to alternative investments




Source: Vanguard.

1 See Philips et al. 2011 and Stockton 2007 for further discussion on public methods of obtaining exposure to real estate and commodities, respectively.

This framework has several implications for nonprofits, which should be aware of these key factors when considering the use of private investments.

- **Access.** Finding private investments can be difficult because, unlike public investments, there is no widely available marketplace where business is transacted. Indeed, the legal structure of these investments often leads to restriction of these investments to accredited investors.[2] Many private investments have high minimum investment thresholds, and some funds have limited capacity or are closed to new investors.
- **Transparency.** Private investments have limited requirements on disclosures. As a result, it can be difficult to know what investments are held by private managers. In addition, rules on performance calculations and the valuing of securities holdings are not nearly as stringent. All of this complicates ongoing manager due diligence and lowers confidence in the interpretation of reported results.
- **Legal position.** Private investments are often structured with the manager as the general partner and the investors as limited partners. As the name suggests, limited partners have limited legal rights, which can be an issue if a questionable situation arises.
- **Liquidity.** Private investments are not actively traded. Whereas public investments trade on a public exchange or over-the-counter, there's virtually no secondary market for private investments. Private investments typically must be held to maturity (which can be 10+ years in the future) or require extensive notice to the manager to disgorge. This can be a significant consideration for investors who may want to terminate a manager, frequently spend from their portfolio, and/or regularly rebalance to maintain their target asset allocation outlined in their investment policy statement. In some cases, the liquidity profile can change based on the market environment. For example, in the global financial crisis of 2008–2009, it was difficult, if not impossible, to obtain liquidity from private equity funds, and numerous hedge funds and private real estate funds delayed redemption requests by investors.
- **Manager selection risk.** Unlike public investments, gaining systematic exposure to an asset class through private investments is not feasible. As a result, manager selection is a critical necessity, not a choice, in these categories. The due diligence process is far more complex, and ending up with underperforming managers can have a much more severe impact on portfolio results.
- **Fees.** The costs of private investments are often markedly higher than for actively managed public equity funds, which raises the bar necessary for success.[3] In some cases, the fee structure can be complicated, and the performance-based fee is often assymetric, meaning the private manager shares fund gains with the limited partners but is not penalized when there are fund losses.[4]

2 Often the number of accredited investors for a specific offering is limited to 99 or less by regulation. In the United States, an accredited investor is someone who has a net worth over $1 million (excluding the value of primary residence) or earned income exceeding $200,000 ($300,000 together with a spouse) in each of the prior two years, and reasonably expects the same in the current year.

3 At the end of 2013, the median actively managed public mutual fund expense ratio was 1.11%, and the median Vanguard active mutual fund costs were 0.28%. This compares with the average hedge fund management fee of 1.52% and an incentive fee of 18% of profits over prespecified return levels (according to Hedge Fund Research, as of June 2013).

4 In fact, the SEC mandates that if a traditional active mutual fund manager has a performance fee, it must be structured symmetrically. As a result, public equity and fixed income managers are rewarded for outperformance and also penalized for underperformance.

## Assessing alternatives' performance

Some nonprofits view alternative investments as increasingly essential to their portfolios—either as a way to increase the return of their portfolio or as beneficial diversifiers. But one of the challenges in assessing attributes of private investments is the lack of clear data.

Private investment performance data is voluntarily reported to data providers, making the collective results of any alternative "index" selective, not universal. For some types of private investments, the data can be backfilled (that is, when private investment funds are permitted to submit performance history when they first report to a database), potentially skewing the results. The data can also suffer from survivorship bias, meaning that funds that drop out of the database no longer count toward historical results.[5] Private investments can also include the use of leverage (borrowed funds). In addition, private investment pricing is most often appraisal-based, as opposed to marked-to-market on a daily basis, which can effectively lead to a lag or smoothing effect in reported returns and a potential understatement of the true volatility and correlation of the investment. Given these data challenges, it's worth noting that measuring private data to public data isn't an apples-to-apples comparison. Indeed, a recent study found that 50% of the hedge funds studied did not report their results to any of the voluntary alternative data providers.[6] Any investor that is reviewing category level, private investment performance figures, whether in a research paper, presentation slide, brochure, blog post, or web article, should make sure that they are aware of how biases like these are being accounted for in the analysis.

On the surface, it seems daunting to extract value from private investments as the average hedge fund or private equity fund has been outperformed by the public markets (Bhardwaj & Shanahan et al. 2010). Private investments have had a very wide dispersion of returns between managers and there's no prudent, investable proxy index to obtain systematic results. Yet some investors have been successful with private investments, most notably large university endowments.

Two studies, Lerner, Schoar, and Wongsunwai (2007), and Lerner, Schoar, and Wang (2008), found that some endowments have excelled at selecting alternative managers. Similarly, Brown, Garlappi, and Tiu (2010) posit that endowments have exhibited an ability to successfully select active managers across all asset classes. The 2012 Yale Endowment Annual Report identifies that the school's outstanding long-term returns from private investment-dominated portfolios were driven overwhelmingly (80%) by their ability to select strong-performing managers, not by selecting a superior asset allocation.[7]

Vanguard's own analysis on the topic (Wallick, Wimmer, Balsamo, 2014), deconstructed endowment results and found that they were highly skewed by size, with the largest endowments on average doing extremely well, the mid-size endowments exhibiting mixed results, and the smallest endowments doing more poorly.

In fact, the Vanguard research found that it was not an allocation to alternatives, on average, that led to outperformance, but the ability to select the successful alternative manager that resulted in success. The largest endowments, those with $1 billion in assets or more, have been successful; others have met with weaker results. This is meaningful because while large endowments constituted more than 70% of all endowment assets, they represented less than 10% of all endowments by count. In other words, we found that, on average, most endowments have not done well using alternative investments.

5 See Bhardwaj 2010 for more information on some of these biases.

6 See Aiken, Clifford, Ellis 2013 for further detail.

7 For the 20 years ending June 30, 2012, 4.1% of Yale's annual 5.1% of outperformance (relative to the average Cambridge Associates endowment) was driven by manager selection; the remaining 1.1% came from asset allocation decisions.

## Assessing alternatives' role as diversifiers

Sometimes hedge funds are positioned as benefiting investors by diversifying a portfolio. Vanguard examined this thesis by comparing the correlation of hedge funds of funds with a passive balanced 60% stock, 40% bond benchmark. We found that, perhaps surprisingly, most hedge funds of funds had a relatively positive correlation to this common mix of public investments. In fact, more than 70% of the hedge funds of funds had a positive correlation of 0.50 or greater, meaning that most have moved in the same direction as the balanced benchmark most of the time.

In addition, when comparing the correlation of private and public equity, it's perhaps unsurprising that a very high correlation was found between the two. They both represent equity ownership of corporations, and public equity market trends highly influence the valuations of firms that private equity funds both acquire and sell via private transaction or IPO (Shanahan et al. 2010). If the best-performing private equity funds between January 2001 and December 2013 are analyzed, the correlation was 0.80.[8] We also tested the relationship between public and private equity markets by using pooled private equity fund data. In the aggregate, venture capital, mezzanine, and buyout firms had a correlation of 0.70, with both the Nasdaq and the S&P 500, from June 1987 to June 2009.

## In search of success

Some nonprofits have been successful using alternative investments. These few, most notably large university endowments, have been able to select successful alternative managers by combining these factors:

- **Considerable investment expertise.** The largest university endowments have significantly more investment professionals on staff than the average endowment. The average endowment has less than one person working full time on investments. However, those endowments with more than $1 billion average ten people working on investments. The top ten individual schools employ, on average, 25 people full time on the topic, and the largest single university endowment has nearly 100 people on staff in its investment office (Sources: Vanguard research and NACUBO-Commonfund Study of Endowments, 2009–2013).
- **Privileged access.** Larger university endowments have been investing in alternative investments longer than many other institutional investors. Because private investments are restricted to a limited number of qualified investors and often limit their assets under management, once attractive investors have been found by a manager, particularly those with the ability to make sizable investments, further access to subsequent investors may not be as compelling as it would be for public investments. To the extent that any performance persistence exists in private investments, this first-mover advantage would be valuable.[9] Also, fund minimums can be extremely high, up to $1 billion (Sources: Lipper, TASS), effectively making them uninvestable for smaller investment pools. Additionally, some have speculated that alumni networks provide elite university endowments with unique access (Lerner 2008) and that there could also concurrently be value in the reputational benefits private alternative investment managers gain by providing access to these same historically successful investors with a strong brand association.
- **Strong pricing power.** The largest endowments, because of both their size and reputations, are often able to influence pricing. In combination with their years of investing expertise, this pricing power gives them a strong position in negotiating fees and allows them to avoid more expensive fund-of-funds structures.

8 Preqin, from December 2000 to March 2013, using quarterly returns of the top quartile funds indexed to the U.S. Total Stock Market spliced index.
9 See Harris et al. (2014), Eling (2009), and Kaplan and Schoar (2005) for discussions on performance persistence of private equity and hedge funds.

## Implications for portfolio construction: Applying a bottom-up approach

Strategic asset allocation is traditionally thought of as a top-down process based on the premise that the choice of broad asset classes drives most of the variation in portfolio returns (not sub-asset allocation decisions, tactical/dynamic tilts, or manager selection).[10] As a result, many investors have become conditioned to think of proper portfolio construction as always and only involving a top-down process. Given that private investments are all actively managed, with an extremely wide range of potential results, it is prudent for investors to consider hedge funds, private equity, and private real assets in a bottom-up fashion (See **Figure 2**).

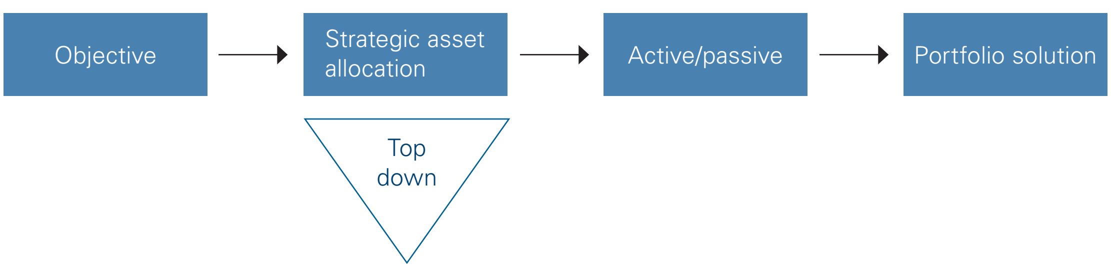
This approach would lead nonprofits to avoid designating a percentage allocation to private alternative investments no matter what. Instead, there are a number of important factors that should help drive the bottom-up decision on both the inclusion and size of private investments in a well-diversified portfolio:

### Conviction

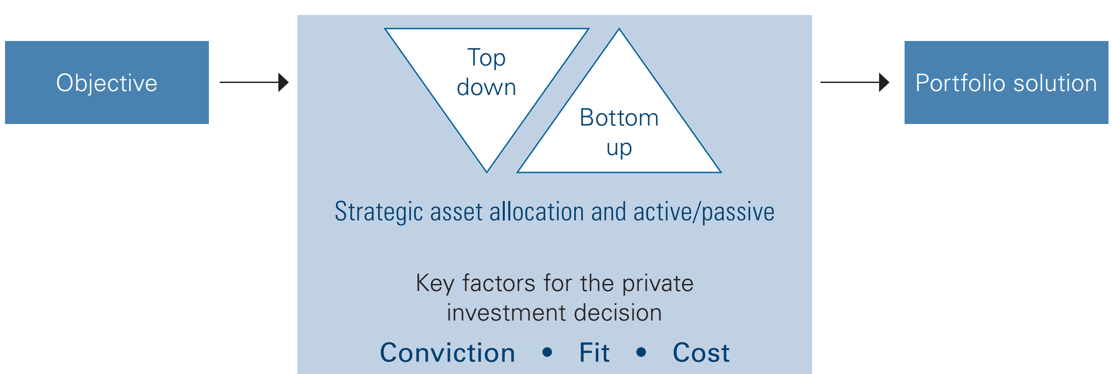
- Does the organization have the requisite expertise necessary to identify and access high-quality managers?
  - Governance capabilities (insourced and outsourced): Is the infrastructure in place to conduct the proper level of due diligence, cash-flow management, risk management, reporting, and rebalancing?
- Are there private investments available now with an attractive value proposition?
- Stakeholder comfort (e.g., committee, board, donors):
  - How much patience will these groups have if a private investment is not performing well?
  - What will be the time/resources required to educate them up front and periodically update them on results over time?
- How long is the organization expecting to hold the investments?

**Figure 2. Alternative investments in the portfolio construction process**

Portfolio construction process when only public investments are considered




**Portfolio construction process when private investments are considered**




Source: Vanguard.

10 See Wallick, Shanahan, Tasopoulos, Yoon (2012) for a further discussion on strategic asset allocation.

Fit

- What would be prudent to liquidate in order to fund the purchases?
- What will the role of each of the funds be?
- How will they impact the return sources and various risk exposures of the overall portfolio?
- Will the weights be meaningful enough to make a difference but not too large to really harm the portfolio if results do not turn out as expected?
- Will the resulting portfolio align within the parameters defined in the Investment Policy Statement?
  - Portfolio-level liquidity, leverage, transparency, and derivatives

Costs

- What are the direct costs (e.g., management fees, performance fees, exit fees, and consultant fees)?
- What are the indirect costs (e.g., reporting, custody, internal oversight, manager search)?

It is important to point out that many of these factors are qualitative rather than quantitative in nature. Therefore, the process by which the decision is made combines both art and science. In addition, this framework also implies that the prudent portfolio weight of different categories of private investments will vary from client to client based on their unique circumstances, mission, organizational structure, and network. In other words, there is no "one size fits all" percentage allocation for all endowment and foundation portfolios.

Lastly, this framework also suggests that investors who consider private investments in their potential opportunity set must blend a bottom-up manager selection approach with the top-down asset allocation decisions. For example, if there are no currently available private investment managers with whom the investor has strong conviction, then avoiding private investments is the appropriate approach for the time being and can be reassessed at a later time. Also, if an investor employs private investments with risk exposures that change dynamically over time (e.g., equity beta), then the due diligence process must also be dynamic, as the investor will have to decide if a change in exposure by one manager necessitates an adjustment in some other part of the portfolio while considering the costs and other implications of such an adjustment.

## The allure of the outlier

There is an intuitive appeal to thinking that holding more types of investments provides more diversification. Newspaper and financial website headlines that give praise to the top-performing private alternative investment managers of the recent past add to the level of desirability given the potential portfolio benefits (creating an allure for what are really outlier results). In these circumstances, it's important not to confuse the dispersion of returns (the distance between the best- and the worst-performing funds) with the probability of selecting a winning fund. In fact, there's no relationship between the two concepts. Higher dispersion simply implies that an investor must be prepared for a wider array of possible results and nothing more. The ability to be successful using active investments within any category depends on something different—the ability to pick talented managers at a reasonable cost and remain patient.

For all these reasons, Vanguard finds that public, market-cap-weighted index funds are a valuable starting point for investors. They have provided broadly diversified, highly transparent, low-cost, and extremely competitive performance over time.[11] Private alternative investments have, on average, shown no greater probability of success than public active funds and should be treated with an even greater level of scrutiny before committing capital. Their use should be based on an investor's ability to excel in the three factors mentioned previously—expertise in selection, effective access, and pricing power.

11 See Philips et al. (2014) and Wallick et al. (2014) for more details.

## Next steps with alternatives

Overall, Vanguard's belief is that the use of private alternative investments by nonprofits is not an asset allocation decision, but one of manager selection. Because private alternatives are active investments with significant manager risk, limited transparency and liquidity, and high fees, bottom-up manager selection, not top-down percentage allocation, is a prudent approach when considering using them. The conviction in manager due-diligence ability and access should be combined with portfolio-level fit and expected costs in order to determine inclusion and size of any private investment position(s). For many nonprofits, the challenges surrounding private investments can be significant. Those that have been successful with private investments have had three key attributes: expertise, access, and pricing power. Rather than focusing on high-cost and complex alternative investments which, on average, have underperformed public markets, small- and medium-size endowments may want to consider focusing the majority of their attention on the important role that low-cost index and active public investments can play in their portfolios.

*Note: This article is adapted from a much more extensive forthcoming paper from Vanguard Investment Strategy Group.*

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## TDF investment decision-making for an evolving environment

The target-date fund (TDF) investment landscape has changed considerably over the last decade. The proliferation of target-date assets under management parallels, in a way, the growing number of available TDF investment options. A recent survey of defined contribution (DC) plan sponsors showed that the likely action they expected to take regarding their TDFs wasn't to change them, but rather to comprehensively review them, especially when it comes to a TDF's glide path and investment managers.[1] This makes sense. Due diligence dictates that plan sponsors regularly review their plan's lineup.

With a variety of TDF investment approaches available, now is a good time for plan sponsors to step back and be aware of how these approaches might apply to—or affect—decisions about TDFs that were made years ago, as well as for sponsors considering adding TDFs to their lineups.

Among the various characteristics to evaluate, there are three major ones among the many TDFs available that tend to differ widely and can meaningfully impact outcomes. They are[2]:

- Tactical versus strategic asset allocation among the major asset classes.
- Sub-asset allocation, or diversification within the major asset classes.
- An active versus a passive, or indexing, investment approach.

A thorough review of each, when taken together, contributes to plan sponsors' cost-benefit analysis of the target-date investments being reviewed or considered, and how they help meet the objectives they expect the TDFs to achieve.

### Tactical versus strategic asset allocation

A TDF's glide path should reflect a balance of longevity, market, and inflation risks. Given that asset allocation is the primary driver of any portfolio's return-variability for broadly diversified portfolios over time, the construction and stability of a TDF glide path, along with how it accommodates risk, is critically important.

**Tactical asset allocation.** Some TDF providers take a tactical approach to glide path allocation, actively and systematically adjusting the strategic portfolio mix of the entire TDF allocation, based on relative short- to intermediate-term market conditions. This approach attempts to add value beyond that of a baseline strategic asset allocation by altering risk factors and overweighting asset classes that are expected to outperform on a risk-adjusted basis.

While tactical asset allocation may allow adjustments based on market dynamics, a plan sponsor's due diligence and analysis should take into account the distribution of possible outcomes, not just the possibility for gains.

*Investments in Target Retirement Funds are subject to the risks of their underlying funds. The year in the fund name refers to the approximate year (the target date) when an investor in the fund would retire and leave the workforce. The fund will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. An investment in the Target Retirement Fund is not guaranteed at any time, including on or after the target date.*

1 Aon Hewitt, *2014 Hot Topics in Retirement: Building a Strategic Focus*, 2014.

2 For a full list of due diligence criteria, please reference Vanguard, *Evaluating target-date funds: A fiduciary's guide,* 2014.

In addition, transaction costs associated with more frequent asset allocation adjustments should be considered. Vanguard research has shown that value-add from this type of approach has been inconsistent and challenging.[3] Lastly, transparency could also be an issue.

**Strategic asset allocation.** Vanguard Target Retirement Funds do not make tactical glide path shifts. Instead, they take a long-term strategic approach and are built to be highly diversified and low-cost—proven keys to long-term investing success. This helps typical plan participants who maintain a reasonable savings rate reach their retirement goals with an appropriate level of risk as they and the glide path move toward retirement. This approach is grounded in extensive research that found strategic allocations drive 90% of long-term return variability. Tactical strategies have the opportunity to add value at the margin but involve incremental oversight and can be costly.[4]

What's more, a tactical approach doesn't have the same transparency issues as a strategic approach, and it avoids transaction costs that will create a performance drag without any assurance that plan participants will benefit. These attributes are especially important, given that a growing share of plan participants are enrolled in TDFs automatically as the plan's qualified default investment alternative (QDIA). And with Department of Labor (DOL) regulations specifically calling for plan fiduciaries to provide ongoing monitoring of their plans' QDIA, a strategic approach can make this monitoring less complicated and more clear-cut.

## Sub-asset allocation: A diversifier, but with the potential for greater risk

Most TDF asset allocations have one thing in common: domestic and international equities (large-, mid-, and small-capitalization), domestic and international bonds, and cash. This is where the similarity generally ends, because the way nonequity assets are allocated—with the intent of diversifying the funds' market risk, which is the largest source of volatility in a TDF—can differ significantly.

**Assumptions about nonequity holdings.** While some may assume that all nonequity holdings are invested in investment-grade bonds, this isn't always the case. Relative to market cap, many TDFs are over-exposed to corporate bonds at the expense of being underexposed to government bonds. In addition, not all nonequity holdings are investment-grade bonds.[5] These could be a mixture of below-investment-grade U.S. and emerging market high-yield bonds, floating-rate bonds, and commodities.

Many TDFs are overexposed to corporate bonds and underexposed to government bonds in the belief that this provides greater efficiency from a risk-return perspective. Other sub-asset class deviations are made with the intention of improving overall diversification. The idea here is to combine asset classes that are more volatile and whose returns are less than perfectly correlated with one another. This kind of viewpoint extends to other nonequity asset classes such as commodities, REITs, and the like, which are expected to outperform high-quality government and mortgage-backed bonds.

3 Vanguard, *A primer on tactical asset allocation strategy evaluation*, Stockton and Shtekhman, 2010.
4 Vanguard, *Principles for investment success*, 2013.
5 Vanguard, *The case for index-fund investing*, Philips, Kinniry, Schlanger, and Hirt, 2014.

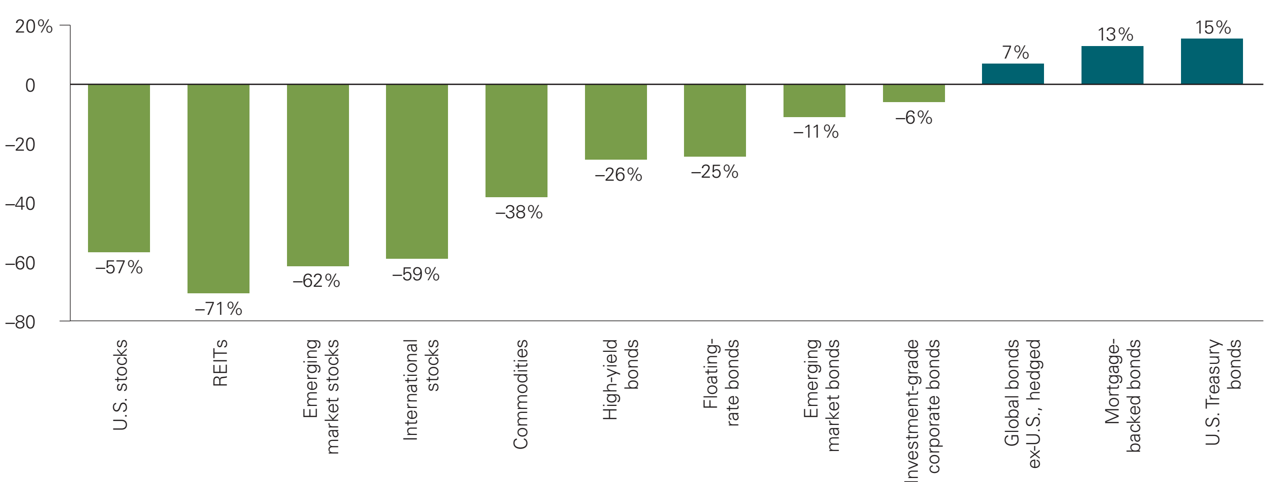
Figure 1 illustrates the effects of this kind of thinking in the equity bear market from October 2007 to March 2009, and what it implies about the nature of sub-asset allocations. High-quality bonds provided a positive return, while other nonequity allocations produced losses. At a time when an equity diversifier was called for, these nonequity allocations displayed equitylike volatility.

**Vanguard assumptions.** By comparison, Vanguard TDFs are constructed so that nonequity investments reflect a market-cap-proportional allocation to U.S. and international nominal government, mortgage-backed, and investment-grade corporate bonds. This reflects the belief that the expected return premium associated with non-investment-grade bonds isn't enough compensation for risking an overallocation to them.

The Vanguard approach can best be defined as one of *constant debate—not constant change.* Key topics are routinely debated and asset allocations are constantly challenged to help ensure that the sound structure of Vanguard TDFs remains intact, or whether changes should be considered. A case in point: A recent debate looked at high-yield bonds to determine if they would add value. Vanguard views bonds as a kind of shock absorber—particularly in times of stress. High-yield bonds would take away from this because of the correlation of the credit spread with equity markets, and the decision was made not to include them.

**Participant considerations.** Participant behavior during volatile periods should also prominently figure in ongoing debates about sub-asset allocation. Vanguard seeks to provide an investment designed to balance the risk-return trade-off across the entire glide path and not just to maximize return. For plan fiduciaries, we consider this is a more prudent approach than being overexposed to asset classes that may behave like equities in a turbulent market and thus affect participants' retirement readiness. Fiduciaries' due diligence must take into account how much risk a TDF's glide path is taking on, its equitylike exposure, and its reliability as a diversifier when diversification matters tremendously to how well a portfolio achieves its long-term objectives while minimizing the risk it's exposed to.

Figure 1. Cumulative sub-asset-class returns, October 9, 2007–March 9, 2009




Notes: Returns for U.S. stocks, international stocks, and REITs represent price returns. Returns for commodities and bonds represent total returns. Benchmarks: U.S. stocks—MSCI US Broad Market Index; international stocks—MSCI All Country World ex USA Index; emerging market stocks—MSCI Emerging Markets Index; REITs—FTSE NAREIT Equity REITs Index; commodities—Dow Jones-UBS Commodity Index; emerging market bonds—J.P. Morgan Emerging Markets Bond Index Global; high-yield bonds—Barclays U.S. Corporate High Yield Bond Index; floating-rate bonds—Credit Suisse Leveraged Loan Index; investment-grade corporate bonds—Barclays U.S. Corporate Bond Index; global bonds ex-U.S., hedged—Barclays Global Aggregate Index ex USD, hedged; mortgage-backed bonds—Barclays U.S. Mortgage Backed Securities Bond Index; Treasury bonds—Barclays U.S. Treasury Bond Index.

Sources: Vanguard and Thomson Reuters Datastream.

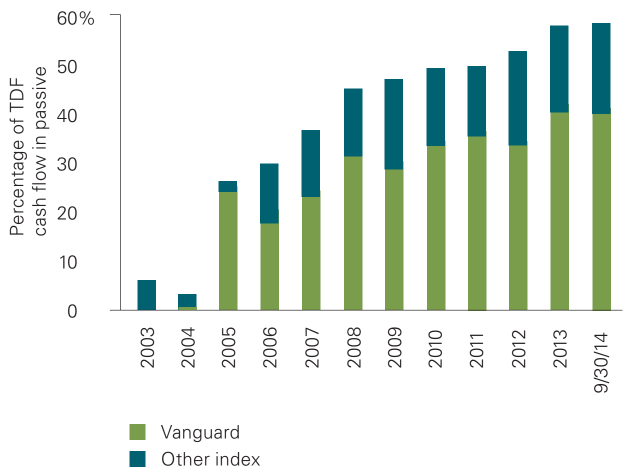
## Active versus passive

For the first time in 2012, passive—or index—cash flows into TDFs exceeded active flows, and this trend continued throughout 2013 (see **Figure 2**). Debate about both approaches has ramped up and the growing popularity of a passive approach has been propelled in part to avoiding some of the risks all investors were exposed to in the turbulent markets that preceded the comeback of the equity market.

Figure 2. Index-based target-dates are taking hold and Vanguard is the leader

Vanguard's Target Retirement Fund & Trust (TRF/T) cash flow market share over the last 12 months was 39%.

TRF/T assets totaled approximately $284B as of September 2014




Sources: Vanguard and Morningstar, as of September 30, 2014. Vanguard Target Retirement Trusts are not mutual funds. They are collective trusts available only to tax-qualified plans and their eligible participants. The collective trust mandates are managed by Vanguard Fiduciary Trust Company, a subsidiary of The Vanguard Group, Inc.

Indexing has been instrumental in reducing surprises in investment performance and controlling risks by offering broad diversification. While active management does offer the opportunity to outperform the market, it can involve higher additional risks, including manager risk and security selection. But risk isn't the only reason fiduciaries should consider why and how each approach might accommodate the objective they've established for their TDF.

**Cost differential.** Costs are one of the few things investors can control: The lower the cost, the lower the hurdle for investment performance and how it affects an investor's wealth accumulation over a lifetime. In fact, cost is one of the items singled out by the DOL that needs serious consideration by plan sponsors. Thus, costs should always be part of plan fiduciaries' ongoing due diligence, especially when changes to a TDF glide path or asset mix are contemplated. They should be firmly convinced that any such changes, which include adding alternative or more costly asset classes, justify their greater costs, and recognize their potential to both improve as well as undermine participants' retirement readiness.

The cost advantage of a lower-cost index approach is especially important for TDFs and their popularity as a QDIA. By comparison, while actively managed funds do have the opportunity to outperform the market, they also typically come with higher management fees and higher transaction costs because of generally higher asset turnover to achieve the outperformance goal. The difference in costs can be startling, as illustrated in **Figure 3**.

And, for clients with $100M+, Vanguard Target Retirement Trusts can be even lower-priced than the Target Retirement Funds. (Contact a Vanguard representative to discuss.)

Figure 3. Average TDF expense ratios, 2013

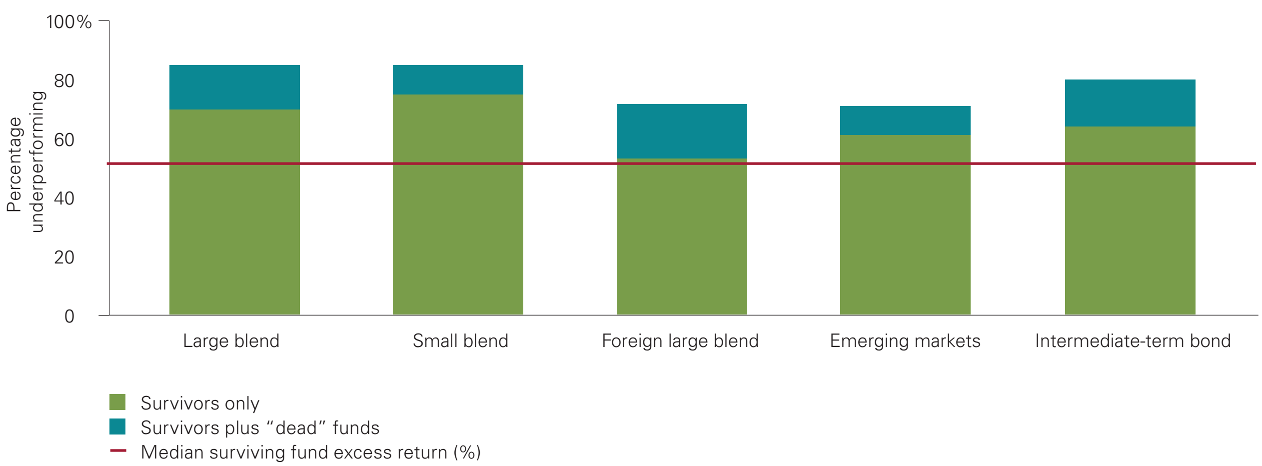
| | |
|---|---|
| Vanguard Target Retirement Funds | 0.17% |
| All TDFs | 1.03 |
| Index TDFs | 0.65 |
| Active TDFs | 1.05 |


Source: Morningstar Direct, October, 2014.

**About performance.** Vanguard strongly believes that any risks investors bear should be expected to produce a compensating return through time, and that diversified, broad-based index exposures are precisely this kind of compensated risk. Some active managers can, of course, add value, but outperformance can't be guaranteed. **Figure 4** provides a sense of how active management has performed, on average, across common asset classes and sub-asset classes, compared with the average index fund counterpart. If nothing else, it illustrates how difficult it can be for active managers to outperform their indexed peers: More than 50% of the surviving active managers included in the illustration underperformed the average return of low-cost index funds in all five style categories.[6] Active funds can, of course, serve an important role in a portfolio, but Vanguard believes that low-cost index funds are a reasonable starting point in the context of a diversified portfolio like a TDF.

**Transparency.** The decision to adopt any TDF is a fiduciary act and involves ongoing monitoring responsibilities. Index funds provide transparent investment options that result in high efficiency and broad diversification. They also offer plan sponsors and participants investments that can succeed over the long term. An active approach requires continuous monitoring of performance, changes to any sub-asset allocations, turnover, and the like. An index's transparency is a benefit to not only plan fiduciaries, but plan participants as well because of its clear and direct approach to the investment philosophy and assumptions that underlie it. This makes for easier participant education and communications.

**Figure 4. Percentage of active funds underperforming the average return of low-cost index funds**
Ten years ended December 31, 2013




Notes: Index funds are represented by those funds with expense ratios of 20 basis points or less (1 basis point equals 1/100 of 1%) as of December 31, 2013. As shown in Figure 13 on page 16 of *The case for index-fund investing* (Vanguard, Philips, Kinniry, Schlanger, and Hirt, 2014), an investor's experience in index funds is directly related to the expense ratio. As a result, we deemed a cutoff of 20 basis points as a reasonable limit for expenses. All performance numbers cover the ten years ended December 31, 2013, and include both surviving and "dead" (i.e., funds that were merged or liquidated) funds. For this analysis, we were limited in our evaluations by the existence of both index and active funds in each market. As a result, we focused on large-cap blend stocks, small-cap blend stocks, foreign developed markets stocks, emerging markets stocks, and U.S. diversified bonds. Please note that other time periods applied to this study; for information on the results for the 1-, 3-, 5-, and 15-year periods ended December 31, 2013, see Figure 12 on page 15 of *The case for index-fund investing*.

Sources: Vanguard and Morningstar, Inc. Data as of December 31, 2013.

6 Vanguard. *The case for index-fund investing*, Philips, Kinniry, Schlanger, and Hirt, 2014.

### Investment approaches and sponsors' key TDF selection criteria

In a 2014 proprietary survey of plan sponsors conducted by Vanguard in conjunction with Greenwich Associates, DC plan sponsors were asked to rank the importance of various selection criteria for TDFs. The top two by far were performance and cost.

Both were addressed here, with information, research, and data that can help sponsors as they select or review TDFs:

- That an active approach, on average, has underperformed an index approach.
- That cumulative sub-asset class returns can display greater volatility in times of stress.
- That costs make a substantial difference in terms of how much of a portfolio's gains are reflected in participants' accounts.

### The growing importance of TDFs

**Explosive popularity and assets.** Target-date funds may have gotten off to a slow start since the first one was launched in 1993, but that hasn't been the case in recent years. Target-date assets under management have increased by almost 600% since 2006, when the Pension Protection Act of 2006 (PPA) gave its blessings to target-date funds (TDFs) as an appropriate qualified default investment alternative (QDIA) for defined contribution (DC) plans. By the end of 2013, TDF assets rose to $850 billion (Sources: Vanguard, Morningstar). What's more, according to a March 2014 report by Cerulli Associates, more than one-third of all 2013 contributions to 401(k) plans went into TDFs.

**Increased use as a QDIA requires ongoing monitoring.** Further, target-date investments have become the go-to QDIA for most plan sponsors. Of the 1,900 plans and 3.4 million participants included in Vanguard's seminal *How America Saves 2014*, 70% of plans designate a QDIA, with 91% of those choosing a TDF. These figures are up from 58% and 80%, respectively, from 2009. Department of Labor (DOL) regulations specifically call for plan fiduciaries to provide ongoing monitoring of the QDIA.

## Living longer: Good.
## Its effect on DB plan costs: Not so good.

Imagine all the medical advances that have been made since the start of the new millennium and how they've helped us live longer and healthier lives. Now ask: When was the last time mortality data was changed? The answer: The start of the millennium.

Defined benefit (DB) plan sponsors are guided by mortality and projection tables developed and issued by the Society of Actuaries (SOA) to calculate their plan's funded status, contributions, lump sums, liabilities, and other key metrics. In October 2014, the SOA released new tables based on data collected from 2004 through 2008. These will replace tables that were based on 20-year-old data (from 1990 to 1994). The new tables reflect that people are living significantly longer (about two to three years, and thanks in part to those medical advances) and are continuing to live longer at a faster rate. This, in turn, means that DB plan liabilities—or benefits expected to be paid—will increase.

DB plans pay the cost of benefits when they are due, and fund—or save—for future benefits, generally through a combination of investment return and plan contributions. While the updated mortality tables provide a more realistic picture of those future liabilities, they'll have some serious ramifications on a DB plan sponsor's investment strategy and other decisions about the plan, as shown below.

Here, we'll identify a number of factors that DB plan sponsors will need to address when considering how the updated mortality tables could affect their plan decisions going forward.

| What's expected to increase . . . | Decrease . . . | Remain unchanged |
|---|---|---|
| Plan liabilities | Funded status | Cost of group annuities |
| Liability duration | | Effect on already-terminated plans |
| Liability reporting on balance sheet | | |
| Plan cost | | |
| Cost of plan termination—lump-sum portion | | |
| Cost of lump-sum windows | | |
| PBGC variable rate premiums | | |

## Gauging the impact on the plan

As evident from the table on the prior page, there's a lot changing for DB plan sponsors. Dealing with these changes will require a proactive approach to manage these higher costs and increased liability.

Given the significance of the new mortality tables' effects, plan sponsors would be well-served to:

- Meet with their actuary to gain an understanding of how large an impact the tables will have on their plan's liability; depending on the mortality assumptions currently being used, liabilities could increase by 5% to 10%.
- Decide the best direction to take to begin accommodating any expected increase in their plan's liabilities and duration.

## Timing is critical

The new mortality tables will likely impact plans sponsors at different times, depending on the reporting function.

**Balance-sheet accounting and reporting purposes.** For accounting purposes, actuaries, accountants, and auditors are required to use all available information in calculating liabilities for reporting. This includes the new mortality tables and—while auditors may or may not require the use of the new tables for year-end 2014 disclosure—it's likely that actuaries and plan sponsors will at least be asked to analyze the impact of their usage and comment on their current assumptions relative to these new tables. Others may actually require the usage of the new tables for year-end 2014 disclosure.

**Minimum funding, lump-sum calculation, and plan termination purposes.** The timing of regulations that govern these is prescribed by law for IRS and PBGC purposes. It's expected that the updated tables would be effective for plan years beginning in 2016 or 2017. At that point, lump-sum benefits and their portion of a plan termination cost will likely increase as will minimum required contributions.

## Determining the best approach: Investment strategy

Today, the investment objectives for most DB plans are to achieve and maintain their targeted funded status, and to reduce pension risk and its volatile effects on the organization's balance sheets. Many plan sponsors have implemented liability-driven investing (LDI) and other derisking strategies to help accomplish these goals. In broad terms, as funded status improves, a pension portfolio's fixed income allocations should increase while return-seeking assets decrease, following a preordained glide path as contained in the plan's dynamic investment policy statement, as illustrated in the sample glide path on the following page.

Pension risk focuses on asset return in relation to the liability, which has significant interest rate sensitivity. Thus, an effective way to reduce—or hedge—some of this risk is through a portfolio that contains fixed income of appropriate quality and duration relative to the plan's liabilities—in other words, with plan assets that can come close to mimicking the plan liability. A fully hedged (or immunized) portfolio will consist, then, entirely of fixed income.

But if plan liabilities rise and funded status drops with the updated mortality tables, sponsors will need to determine how the change will impact the pension fund's investment strategy. To begin this process, sponsors should ask themselves:

1. Does the optimal hedging portfolio change?
2. How will the increase in plan liabilities be addressed?

### Actions to consider: Investment strategy

Answering these questions requires that plan sponsors begin a process to help determine the best action to take for their circumstances.

**Calculate duration impact.** As noted, it's likely that implementation of the new tables will not only decrease funded status, but also lengthen the liability duration. This is because more payments will occur further into the future.

**Review the plan's optimal hedging portfolio and modify allocations accordingly.** The investment strategy for many DB plans is laid out in a glide path contained in the plan's dynamic investment policy statement adopted by the plan's investment committee. As illustrated below, the glide path guides changes in asset allocation as trigger points are reached when funded status improves. The example below shows a glide path that has not been adjusted to take into account the impact of the new mortality tables.

This glide path may need to be altered to accommodate the longer duration of the plan's liabilities. For instance, this might include increasing the percentage of the long Treasury STRIPS fixed income allocation, or decreasing the fixed income allocation to intermediate bonds and increasing the long bond holdings.

**Sample glide path, frozen plan, assuming current mortality assumptions**

| Allocation | Funded status | | | | | |
|---|---|---|---|---|---|---|
| | 80% | 85% | 90% | 95% | 100% | 105% |
| U.S. equity | 42% | 35% | 28% | 21% | 14% | 0% |
| Non-U.S. equity | 18% | 15% | 12% | 9% | 6% | 0% |
| Intermediate-term investment-grade corporate bonds | 0% | 0% | 0% | 0% | 0% | 15% |
| Long-term investment-grade corporate bonds | 30% | 40% | 50% | 60% | 70% | 75% |
| Long Treasury STRIPs | 10% | 10% | 10% | 10% | 10% | 10% |

Source: Vanguard.

## The question to ask: Investment strategy

Once plan sponsors and their actuaries determine how increased longevity is likely to affect their plans, they'll need to grapple with how to keep their plan on its path to full funding by overcoming the hurdle posed by the drop in funded status. Essentially, it boils down to this: Do we want to make a plan contribution to fund the liability increase?

**If the answer is yes:** There's no need to alter a plan's current glide path, since the funded status will stay the same.

**If the answer is no:** Then there's another question: Will we rerisk? Rerisking means moving backward along the glide path to allocate greater percentages to return-seeking assets in the hopes that equity returns can make up some of the loss in funded status. Of course, this also means taking on greater risk. If sponsors are comfortable doing so, there's no need to alter the plan's current glide path as they are simply following the asset allocation for their new funded status. But if they prefer to shy away from more risk, the current glide path should be modified to acknowledge their reduced risk preference and a more conservative approach by using the same asset allocation at a now-lower funded status.

## The effect on other plan decisions

**Lump-sum windows.** The IRS governs how lump sums must be calculated. The new mortality tables are expected to become effective for IRS purposes in 2016 or 2017. When that happens, lump-sum payments are likely to be costlier. Sponsors who have been thinking about making a window available to certain participants may want to consider their timing. It will be important, though, to consider the fiduciary and disclosure responsibilities to participants as well, particularly for windows offered before the new tables are implemented.

**Group annuities.** Essentially, there should be little or no effect on the cost of purchasing annuities because annuity providers continuously update their mortality assumptions and have already priced in the cost of longer lives for pension plan participants. Of course, there are other cost considerations that plan sponsors need to take into account beyond those of the plan's liabilities, such as administrative and other expenses when analyzing a group annuity purchase.

**Plan termination.** Plans that have already been terminated won't be affected by the updated tables. Once the tables are adopted by the PBGC and IRS, however, the cost of plan termination is expected to increase because of the increase in lump-sum costs.

**Frozen plans.** Even these plans will be affected, since the frozen pension benefits can be expected to be paid for a longer period of time.

**Dynamic investment policy statements.** Investment committees should regularly revisit these statements in the normal course of events, but it's especially important for them to do so in light of the new mortality tables. If a plan's risk preference and profile are expected to change in response to the effects of the new tables, this must be reflected in the document that governs how plan assets are invested to help accomplish its stated goals and objectives.

## Going forward

DB plan sponsors, their actuaries, and investment advisors will likely spend a lot of time addressing how the updated mortality tables will affect their plans. Part of their discussions should focus on the importance of developing or revising an investment strategy that can adapt to an ever-changing pension liability.

It's worth noting that the SOA's Retirement Plan Experience Committee, which leads the research efforts for the periodic mortality table updates, has set a goal to update the tables at least every three years.[1] By comparison with significant changes every decade, a move to steadier, more manageable change will be a good thing indeed.

1 *NewsDash*, by *Plan Sponsor*, November 5, 2014.

## A quick guide to the updated SOA mortality tables

The SOA published reports for a new mortality table and a new projection table—RP-2014 and MP-2014, respectively—in October 2014.

RP-2014 contains the "base" mortality table.

In addition to the general mortality tables for RP-2014, the exposure draft includes those that reflect mortality tables for white-collar versus blue-collar, active versus retired, female versus male, higher- versus lower-income. These versions may be helpful for plans with a distinct population where such fine-tuning might make sense.

MP-2014 is the new mortality projection scale (replacing Scales AA and BB under current tables) that projects mortality improvements—meaning that people are not only living longer, but they're improving their longevity faster than expected. MP-2014 will be used to project the RP-2014 table into the future to reflect improving life expectancies over time. For example, a 65-year-old in 2035 is likely to have a longer life expectancy than a 65-year-old in 2015.

Predicting mortality with a projection scale such as MP-2014 is called generational mortality because it reflects mortality changes for future generations. When just the RP-2014 table is used in isolation, this is referred to as static mortality. The SOA recommends that plans use generational mortality rather than static mortality in their assumptions.

Greater detail is available at soa.org.

## For more information

The following Vanguard research and commentary provide in-depth information that can help plan sponsors determine the best approach to accommodate the impact of the improved mortality tables. They're available at institutional.vanguard.com, by calling your Vanguard representative, or by calling 800-310-8876.

*Pension derisking: Start with the end in mind*

*Pension derisking: Diversify or hedge?*

*Pension risk: How much are you really taking?*

*Glide path ALM: A dynamic asset allocation approach to derisking*

*Pension plan immunization strategies: How close can you get?*

*DB investing essentials*

*Frozen pension plans: Is immunization or termination the right choice?*

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U.S. Patent Nos. 6,879,964; 7,337,138; 7,720,749; 7,925,573; 8,090,646; and 8,417,623.

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