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Investment Viewpoints

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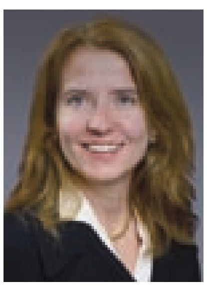

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LIVE**STRONG** Portfolios: Our Approach to the Target-Date Glide Path

Summary

In this paper, we consider the "to" versus "through" debate around the asset allocation and glide paths of target-date portfolios that is currently consuming the defined contribution industry. Not only do we reference our proprietary work in the construction of the LIVE**STRONG**® Portfolios from American Century Investments, but also recent academic and analytical studies on this topic. Our analysis and mounting third-party research indicates that the best outcomes for retirees in target-date portfolios are achieved when the portfolio reaches its most conservative asset allocation ***at*** retirement, as opposed to entering retirement with a risky allocation and gradually decreasing equity exposure throughout the decumulation phase. Furthermore, it is clear that a static asset allocation with fairly balanced equity and fixed-income weightings post-retirement increases the likelihood of a fully-funded retirement.

Simply put, the evidence runs in favor of the "to" retirement glide path, which connotes more conservative equity exposure in the years leading up to the target date, and a flat glide path in retirement. By comparison, a "through" retirement glide path tends to be too aggressive in the years just before and just after retirement, and too conservative later in retirement.

Defining the terms of the debate

- **Target date:** The target date or year within the fund name is the approximate date when the typical investor in the fund plans to start withdrawing money. **This does not mean that the fund cannot be held past the retirement date.** Rather, the typical target-date fund (TDF) is designed so that the investor may continue in the portfolio and begin to draw down their balance gradually over time to fund their retirement needs.

- **"To" glide path:** TDFs in the "to" camp are managed with a glide path that reaches its most conservative asset allocation at the funds' target date, and remains at a fixed allocation thereafter. It is important to understand that most TDFs with "to" glide paths are designed to fulfill post-retirement investment and income needs and are continually managed and monitored throughout the entire lifecycle. In many cases, this is achieved by folding the target-date fund into a retirement income portfolio within a few years after the target-date is reached.

- **"Through" glide path:** TDFs in the "through" camp do not reach their most conservative asset allocation until after the target date. Relative to TDFs in the "to" camp, they tend to hold more equities in the five to 10 years before and after the maturity date, and to hold fewer equities in the later retirement years.

Proponents of the "through" methodology are keenly concerned with "longevity risk"—that is the risk that investors will run out of money in retirement. They argue that longer lifespans in retirement and rapidly rising health care costs justify higher equity allocations in the 10 to 15 years around the target date, while risk aversion and the need for income-producing investments mean higher bond allocations later in retirement.

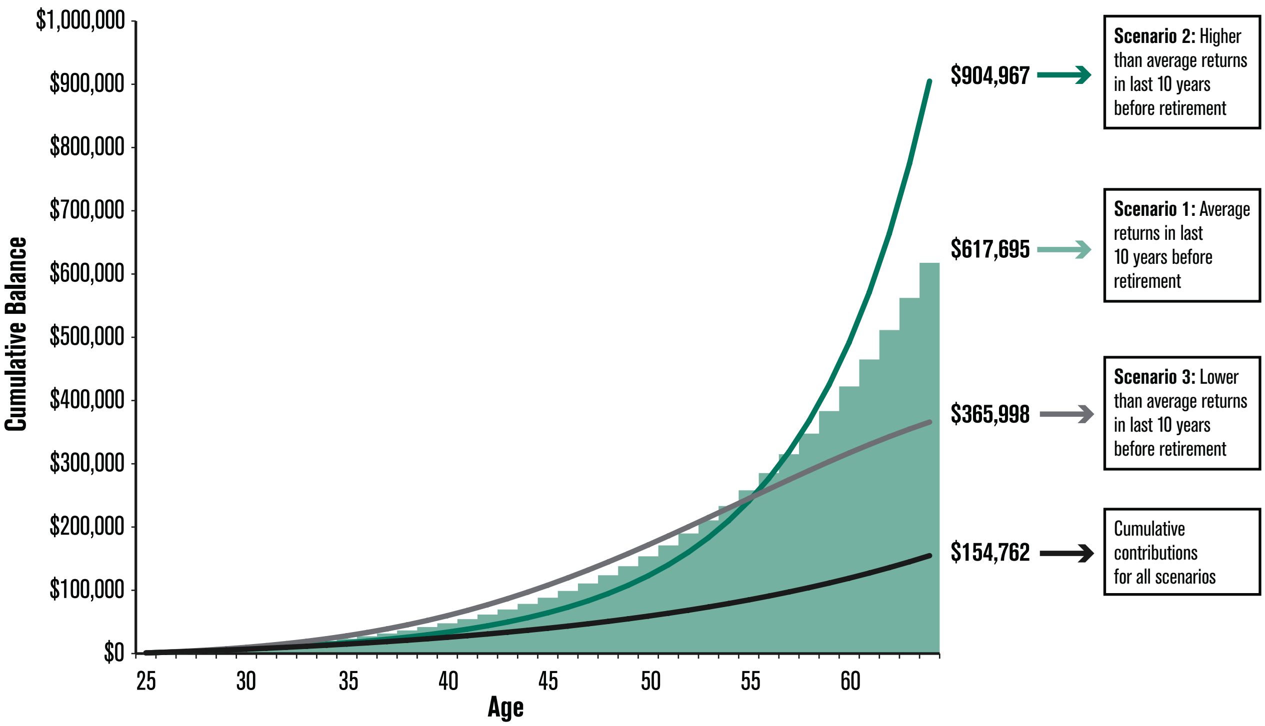
While we and other members of the "to" camp agree that stocks can play a significant role in growing capital and preserving purchasing power throughout retirement, the allocation decision must take into account the risk tolerance of investors nearing or just past retirement. Indeed, we find that investors are most vulnerable at retirement and therefore high equity exposure introduces unwanted market risk. As a result, we reject the notion that "time is still on your side" at or near retirement and that high equity allocations are appropriate in the critical years just before retirement. Instead, we believe a "to" retirement allocation takes a more balanced approach to resolving the tension between longevity and market risks. To see why this is so, we consider the effect of market volatility on a hypothetical portfolio in the run-up to retirement, and in the immediate aftermath of retirement, concluding that TDFs should reach their most conservative allocation at retirement.

Target-date funds should reach their most conservative allocation at retirement

Market risk becomes most critical as balances increase and contributions cease. Indeed, a person typically accumulates 50% of their retirement wealth in the last seven years prior to retirement. As a result, the future ability to fund a long retirement is more affected by a significant shock to the portfolio in this period than at any other point along the glide path. This is so because from a purely financial perspective, the point of greatest peril is the day you retire: your balance is at its highest level, and you have the longest period to fund in retirement. Significant losses at this juncture can effectively erase years of retirement income. In addition, a shock in this period is much more difficult to recover from since you will start withdrawing from, rather than contributing to, your account.

In particular, the sequence of returns in the last 10 years before retirement is crucial. A person retiring in a high-return environment will have a significantly better chance of funding their retirement. But a downturn in risky assets and below-average returns in this time period can do sizable damage to a retiree's chance at success. To see just how end-point sensitive retirement balances can be, look at Figure 1, which shows three retirement-net-worth-outcomes for an investor who begins saving at age 25 with a $1,000 contribution and increases her annual contributions at 6% per year over the next 40 years. We created three hypothetical return scenarios over the 40-year accumulation period—one with a constant return of 8% per year, a second with returns that start out low and grow steadily each year, and a third that assumes high returns in the early years, with a steady decline over the next 40 years. All scenarios were constructed to have the same arithmetic average return of 8% per year, but the sequence of returns has been changed in each case. These hypothetical scenarios demonstrate the radical difference in financial outcomes that the path of equity returns can have on a retirement portfolio.

Figure 1: Balance at retirement date is highly end-point sensitive

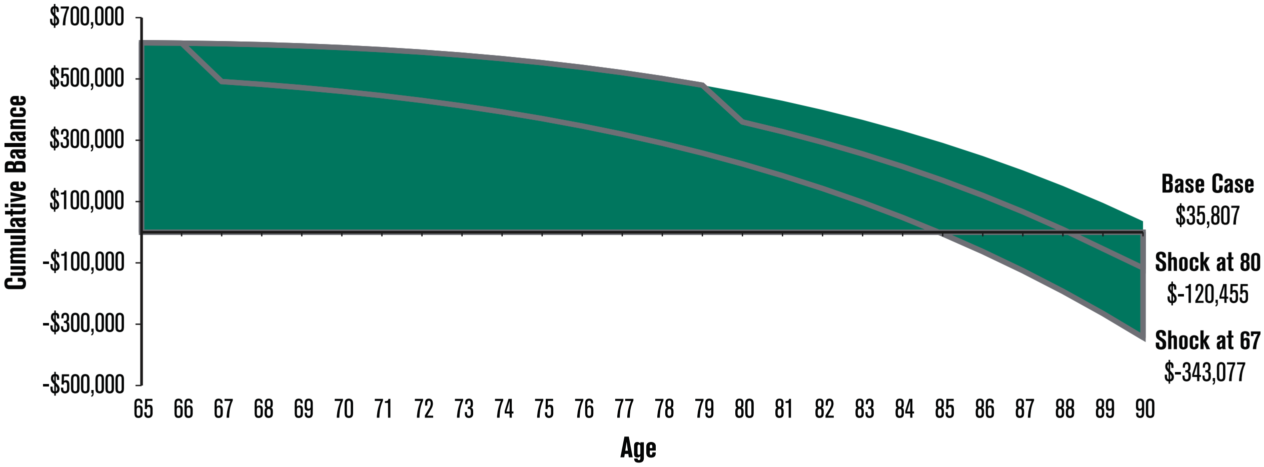


Source: American Century Investments

The performance results shown above are hypothetical and not intended to represent any particular investment. No representation is being made that any account will or is likely to achieve outcomes similar to those shown. Scenario 1 assumes constant 8% returns per year. Scenario 2 returns start at 0.4% per year and increase to 15.6% in a linear fashion. Scenario 3 reverses the return pattern used in Scenario 2, beginning with a 15.6% return and ending at 0.4%.

Similarly, a market shock early in retirement can cause significantly more damage to the longevity of the portfolio than a shock later on. In Figure 2, we see that a 15% downside shock at age 67 shortens the life of the portfolio by five years, depleting the balance at age 85 instead of it lasting past age 90. By comparison, the same 15% shock at age 80 has less of an impact, shortening the life of the portfolio by two years. Again, higher sensitivity to a loss occurs early on in retirement.

Figure 2: Conservative allocation crucial to managing risk early in retirement



Source: American Century Investments

Base case scenario assumptions: assumes annual assets return of 5%, first year withdrawal of 4% of capital, increased by 3% annually. Shock: a single-year -15% event. This information is for illustrative purposes only and is not intended to represent any particular investment product.

What's more, investors are generally loss averse. This is particularly true when losses are large in dollar terms, and investors have a sense that they have little time to recover from those losses—as is true in the years just prior to and after retirement. Studies in behavioral finance confirm that investors are prone to bailing out of portfolios that have incurred one or two years of losses. In addition, behavioral studies have shown that investors who check their balances frequently tend to reduce their allocations to equities, while investors who check their balances infrequently tend to allocate more to equities. This is known as "myopic loss aversion", and could help explain why the category of 2000-10 target-date funds experienced "sizeable net redemptions in the 2008 market slide," according to Morningstar, with many investors locking in losses that averaged 22% for 2008 (Thaler, Tversky, Kahneman, and Schwartz; "The Effect of Myopia and Loss Aversion on Risk Taking: An Experimental Test"; *Quarterly Journal of Economics;* Vol. 112, Issue 2, 1997, and Morningstar Fund Analysts; *"Target-Date Investors Stick Around, Earn Better Returns"*; March 16, 2010).

For these reasons, in constructing the LIVE**STRONG** Portfolios, we have purposely avoided the overly aggressive equity allocation investment approach built into TDFs in the "through" camp. Rather, we conclude that target-date funds should reach their most conservative allocation at retirement, at the target date.

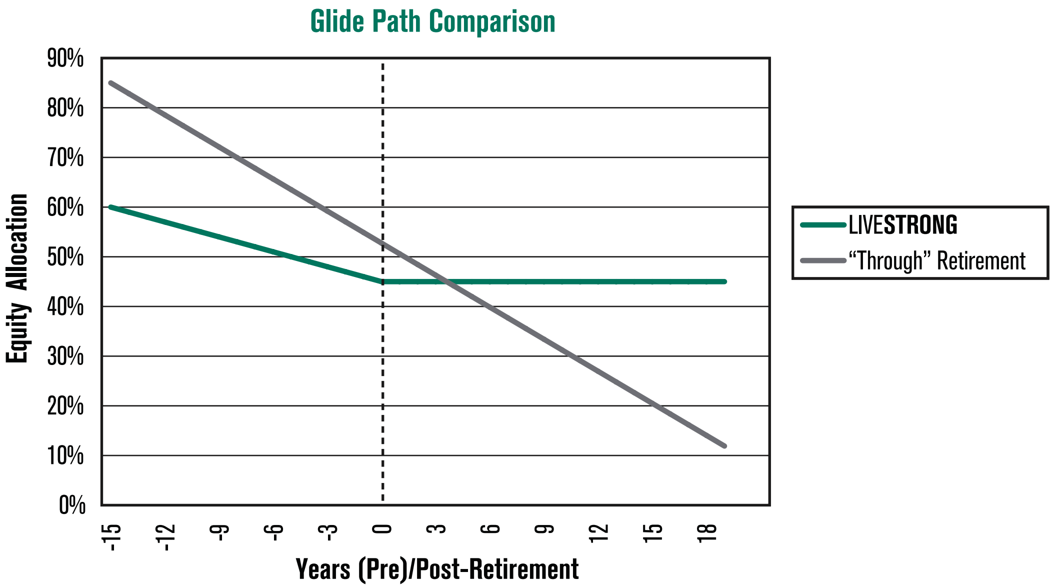
A flat glide path in retirement is a better tradeoff than a sloping one

Our research indicates that a flat glide path in retirement is superior to a continually sloping glide path. We conducted Monte Carlo simulations of expected outcomes for a hypothetical portfolio beginning with a balance of $700,000 fifteen years prior to the target date. We assumed a contribution of $15,000 per year for the remaining 15 years, and a withdrawal of $50,000 per year for 20 or 30 years after the target date (all dollars in real terms). We constructed various equity/bond allocation glide paths that continued to reduce equity exposure through retirement, and one that became static after retirement, like the LIVE**STRONG** Portfolios' glide path, shown in Figure 3 below. By keeping the average equity exposure roughly equal in the various "to" and "through" glide paths, the median expected outcomes over the 35- and 45-year simulation horizons were all statistically similar. However we found that in every case, the flat LIVE**STRONG** glide path in retirement resulted in a lower percentage of zero balance outcomes.

In the sloping glide path scenarios, such as the one shown in Figure 3, the likelihood of running out of money in retirement was 10%, or twice that of the LIVE**STRONG** flat glide path scenario, which had a 5% probability of depleting the portfolio.

This crucial point bears repeating: Even though the average equity exposure over the life of the portfolio was the same in the flat and sloping glide paths we analyzed, the flat glide path reduced by half the likelihood that a retiree will run out of money too soon.

Figure 3: Typical contrasting glide paths of "to" and "through" portfolios over time



Source: American Century Investments

A recent research paper from Russell Investments (Cohen, Gardner, and Fan; The Date Debate; April 2010) approaches the "to" versus "through" debate in slightly different terms, asking instead "What is the investment rationale for a sloping versus flat post-retirement glide path?", and "How aggressive should post-retirement allocations be?" To answer these questions, the authors examine a number of scenarios analyzing the performance of different portfolios with flat and downward-sloping risk profiles across varying time horizons and withdrawal assumptions.

Their findings are remarkably consistent across these scenarios, and dovetail with our own proprietary research. Specifically, the study finds "that a flat glide path in retirement always makes sense relative to a sloping one" without regard to the level of aggressiveness. "In fact, there is not a clear investment rationale for the glide path to slope." Moreover, they conclude that "for each downward-sloping glide path there is a corresponding flat glide path that gives a higher expected ending wealth for the same amount of risk. Also, there is a flat glide path that provides the same expected ending wealth for a lower level of risk."

Another important aspect to favoring a flat glide path in retirement is the fact that financial situations grow increasingly diverse in retirement. Because retirement plan fiduciaries and pension managers—whose success or failure is ultimately defined by providing the best outcomes for retirees—cannot know the specific financial condition of each account holder, a flat, balanced allocation is the safest approach. This sort of allocation and glide path is well suited to form a core holding in a customized retirement plan devised by the account holder or their financial advisor to best meet each person's specific needs. Contrast this with the constantly changing allocation of a TDF managed "through" retirement and imagine the retirement planning complexities this can introduce.

A LIVE**STRONG** Portfolio's target date is the approximate year when investors plan to start withdrawing their money. The principal value of the investment is not guaranteed at any time, including at the target date.

Each target-date LIVE**STRONG** portfolio seeks the highest total return consistent with its asset mix. Each year, the asset mix and weightings are adjusted to be more conservative. In general, as the target year approaches, the portfolio's allocation becomes more conservative by decreasing the allocation to stocks and increasing the allocation to bonds and money market instruments.

Conclusions

Our own research and a growing body of evidence suggest that target-date portfolios managed "to" retirement rather than "through" retirement generate better outcomes for retirees; that is, "to" TDFs tend to maximize the likelihood of retirement success for plan participants without taking undue risk along the way. This reflects the fact that "to" TDFs typically take less risk in the crucial years immediately before and immediately after retirement. Their flat glide path beyond the target date also provides a greater likelihood that retiree account balances will last throughout retirement.

Critical analysis and a clearly defined objective have always informed our investment decisions and portfolio construction methodology. Indeed, the LIVE**STRONG** Portfolios have been designed with a single focus: decreasing the risk of running out of money in retirement. Their design is based on a disciplined process, philosophy, and approach to increasing the likelihood of a successful outcome by realistically balancing risk and return trade-offs over time.

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