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Optimizing the glide path for a smoother landing in retirement

Positive actions by investors and careful, thoughtful risk mitigation by target-date fund managers can lead to a successful retirement savings plan.

The glide path governing allocation shifts in target-date funds has a major impact on the all-important “sequence of returns” risk — the risk of a significant market drawdown in or near retirement.

Compared with the industry, Putnam Retirement Advantage Funds favor equities early in the accumulation phase and fixed income near retirement, seeking to mitigate sequence-of-returns risk.

Retirement is one of American society’s most anticipated and eagerly sought milestones, yet the journey to and through retirement can be quite worrisome. And that level of concern is growing, according to PLANSPONSOR’s 2015 participant survey. Soliciting feedback from over 1,000 U.S. workers, the report found that only 35% of respondents were either “confident” or “very confident” they would be able to achieve their goals by age 65. Alarming, this number is down from the 40% of participants who answered the same question just one year prior.

Fortunately, an increasing number of retirement plans now include target-date funds as a prediversified investment solution. These funds seek an appropriate investment mix to get savers to and through retirement. As a result, assets under management have increased considerably. Target-date mutual fund assets grew to more than \$880 billion in 2016, a 15% year-over-year increase, according to Morningstar. When accounting for collective trusts and separate accounts, the number swells to over \$1 trillion.

Growth of target-date funds has been accompanied by increased pressure on plan sponsors and other fiduciaries to develop a comprehensive understanding of this diverse group of product offerings. This paper aims to educate those sponsors and fiduciaries on the important aspects of Putnam's Retirement Advantage Funds, with a particular emphasis on the construction of our glide path.

A guide to glide path philosophies

A glide path governs the way a target-date fund's allocations shift over time as savers progress toward their retirement date. The idea is to move gradually but automatically from favoring riskier investments when savers are younger toward favoring less risky investments as they approach retirement. In concrete terms, this means the glide path sets the percentage for equity and bond allocations at every stage of investing — favoring equities when investors are decades from retirement and favoring bonds and cash as they approach retirement.

Historically, target-date funds' glide paths have been classified into two categories

1 "TO" RETIREMENT GLIDE PATH — ALLOCATION CHANGES UNTIL RETIREMENT DATE

"To" glide paths typically reduce their equity allocation until the retirement date, then maintain that target allocation through the retirement years.

2 "THROUGH" RETIREMENT GLIDE PATH — ALLOCATION CHANGES BEFORE AND AFTER RETIREMENT DATE

"Through" glide paths typically carry a greater equity allocation at the retirement date before gradually reducing equity exposure into retirement, often for decades after the retirement date.

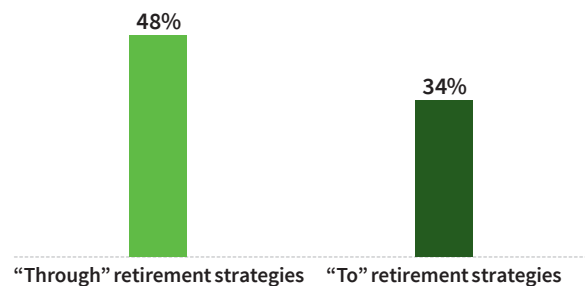
Lower allocation to stocks at retirement mitigates risk

We believe that there is something more important than post-retirement allocations: the equity allocation held at the retirement date. At that precise point, the retirement balance is likely at its largest, the investor is no longer contributing to the account, and the prospect of retirement success is most vulnerable to market drawdowns.

Both "to" and "through" management approaches can have a wide range of risk levels, and each glide path should be evaluated individually. However, a by-prospectus review of target equity allocations reveals that "through" managers typically have a higher equity allocation at retirement than "to" managers — by a significant margin.

The average equity allocation at retirement for "through" managers was 48%, versus an average equity allocation of 34% for "to" retirement strategies, according to Morningstar's 2016 Target-Date Fund Landscape report.

Average equity allocation



Source: Morningstar.

Putnam Retirement Advantage Funds employ a "to" retirement strategy. According to our research, a portfolio with a lower equity allocation at and throughout retirement can provide the highest probability of retirement success and best mitigates one of the biggest risks to retirement savings: sequence-of-returns risk.

Key questions for savers to ask themselves

Several potentially damaging risks confront investors saving for retirement, some of which need to be addressed by the individuals themselves, while others can be mitigated by investing in a target-date fund.

Saving for retirement and providing for a successful retirement require a careful balance of pursuing goals and taking risks along the way. Investors must consider many tradeoffs and the potential effects their decisions might have on the ultimate outcome.

SOME KEY QUESTIONS

- What percentage of my salary should I save?
- How much money will I need to support my lifestyle in retirement?
- What is a reasonable amount of money to withdraw during retirement?

No definitive correct answer exists to any of these questions — only tradeoffs that must be weighed.

Retirement success hinges on savings and withdrawal rates

While there's no magic formula for retirement success, common sense suggests — and academic studies confirm — that a few key actions lead to better outcomes.

- If investors do not save enough during their working years, chances of a positive outcome are slim. The higher the savings rate, the higher the probability of success.
- Much focus is placed on determining “The Number” — the amount of money required to last through retirement. The more important discussion, however, should examine what types of outcomes to expect from a range of “Numbers.” The higher “The Number,” the higher the probability of a positive outcome in retirement.
- Is the correct withdrawal rate 3%, 5%, or does it vary by year? Should we assume a 25- or a 35-year retirement? Again, the discussion should center on the tradeoffs and potential outcomes, instead of assuming that there is one universally correct answer. The lower the withdrawal rate, the higher the probability of a positive outcome in retirement.

Investors must take responsibility with positive actions during the accumulation and distribution phases, providing themselves with the best chance for a successful retirement. The savings rate, “The Number,” and the withdrawal rate are the most important decisions in the journey to and through retirement.

Putnam also provides educational materials, tools, and other planning resources to help guide investors along the path toward a successful retirement.

Target-date strategies can help investors achieve success

An investor's actions alone may not be all that is necessary for retirement success. Most of us need the help of the markets to accelerate the growth of our savings and maintain purchasing power once the contributions end. However, making the right investment decisions along the way is an important, yet daunting, task.

ACCUMULATION PERIOD

The years when an investor saves money and seeks to increase the value of an investment portfolio to build a nest egg for retirement.

DISTRIBUTION PERIOD

The years when an investor is withdrawing money or taking distributions from the sources prepared as a nest egg for retirement.

Target-date strategies make the allocation decisions for the investor and adjust the mix of assets to help mitigate key investment risks along the way. The glide path allocations change over time, with the portfolio manager setting the investment path to and through retirement. Just as the investor must balance goals and risks through the accumulation and distribution phases, the target-date manager must also balance goals and risks along the glide path.

How Putnam optimizes its glide path

At Putnam, we carefully consider different goals and risks along the glide path, focusing on mitigating the most formidable risks that a glide path can most efficiently address.

- First, Putnam segments the glide path into three distinct phases: aggressive accumulation, conservative accumulation, and diversified distribution. Each phase presents a unique set of risks and tradeoffs, which we consider along with the actions and financial status of the participants.
- Second, we determine which risks are most prominent in each phase and consider the potential outcomes that different glide paths might produce.
- Finally, we construct a glide path that aims to manage the risks we can most effectively mitigate and provide the highest probability of positive outcomes.

Just as no definitive correct answers exist to the investors' key questions, no single glide path perfectly fits every participant and mitigates every risk. Constructing an effective glide path also requires a careful balance of goals and risks. The most important role of any glide path fund manager is identifying the significant yet manageable risks that the manager can seek to mitigate without jeopardizing the probability of positive outcomes for investors.

PHASE 1: AGGRESSIVE ACCUMULATION

The first phase of the retirement journey begins as soon as a participant starts to save. With retirement in the distant future, the savings balance begins at zero, and total wealth consists almost entirely of human capital (the present value of expected earnings over the participant's working career). During the first 20 to 25 years, participants should focus entirely on building their assets.

During this "aggressive accumulation" phase, many risks are present (among them, market, event, inflation, interest rate, and shortfall risks). The greatest risk is shortfall risk — i.e., never accumulating enough money, or reaching "The Number," to provide a reasonable probability of retirement success. If a participant never reaches the savings goal, all other risks become irrelevant.

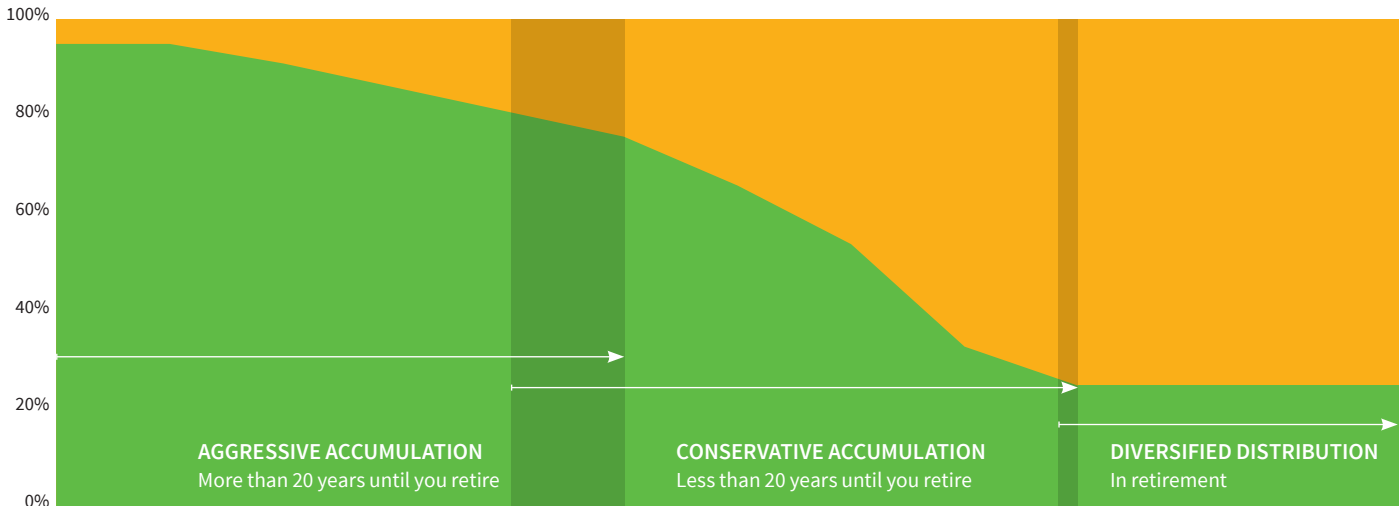
Because the time horizon to retirement is long and the balance is low, the participant should worry less about market volatility and market declines and focus more on aggressively accumulating assets. The participant should maximize savings, while the glide path should maximize the growth of the assets.

A glide path addresses the tradeoffs among the risks mentioned above with an adjustment of the equity/fixed-income mix. For example, to mitigate event risk, a manager would likely decrease the amount of equity exposure to limit the amount of potential loss from a significant market decline. In doing so, the amount of event risk would likely decrease, but the shortfall risk would increase. Given the long time horizon, participants have ample time to recover from a sharp decline and should not choose to increase their shortfall risk.

During the aggressive accumulation phase, the participant should maximize savings, while the glide path should maximize the growth of the assets.

The long arc of retirement savings features three distinct phases along the glide path

● Putnam equity allocation
● Putnam fixed-income/cash allocation



Investor actions	Save	Save, reach goal	Appropriate withdrawal
Biggest risks	Shortfall	Sequence of returns	Sequence of returns/longevity
Putnam Retirement Advantage	Higher equity helps portfolio grow	Transition to more conservative allocation	Diversify, protect, provide income

Data as of 6/30/18. Allocations will change. Chart shown for illustrative purposes only. Source: Putnam Investments.

The importance of maintaining a high allocation to equities early in the glide path

In the aggressive accumulation phase, we believe that the glide path should maintain a high allocation to equities as they have historically delivered a greater return than bonds over long periods of time and should more effectively grow assets. When the time horizon is shorter, and assets have less time to recover, the potential volatility of equities needs to be managed. But, for longer-term investors, equities are a powerful instrument for growing assets.

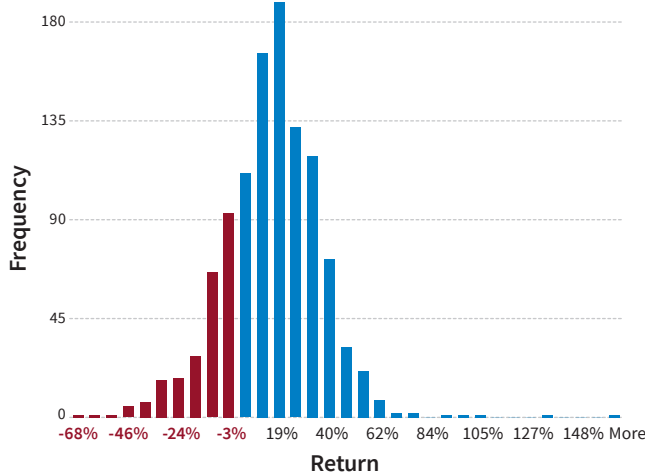
To illustrate the difference in potential, it's useful to compare short- and longer-term equity market experiences. In rolling 1-year periods since 1926, returns have ranged widely, from a low of -68% to a high of more than 150%. Investors who invest for such short-time horizons can experience vastly different outcomes, making it desirable to have active portfolio management to influence the outcomes.

By comparison, longer periods of 20 years have produced a much smaller range of outcomes. In rolling 20-year periods since 1926, the equity market has never lost money and has generally produced attractive returns. Participants in the aggressive accumulation phase have good reason to embrace equities.

Putnam Retirement Advantage Funds' glide path begins with a higher equity allocation than most industry peers and maintains at least 80% in equities through the aggressive accumulation phase. We chose this approach to provide a higher probability of growing assets and taking advantage of market returns than products with lower equity exposures.

Investing for a short horizon has carried the risk of a wide range of outcomes, with many negative results

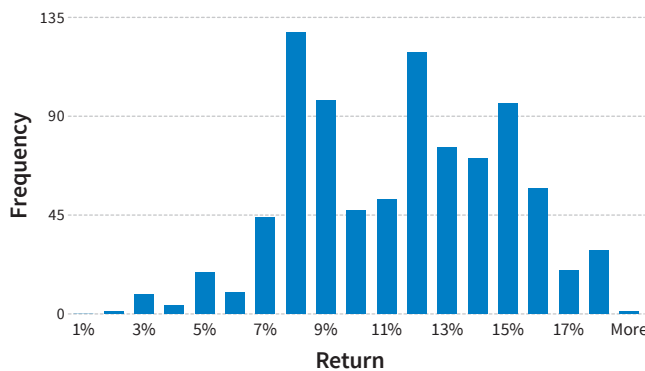
Rolling 1-year stock returns since 1926



Data through 12/31/17. Source: Putnam Investments.

Investing for a long horizon has produced a narrower range of mostly positive outcomes

Rolling 20-year annualized stock returns since 1926



Data through 12/31/17. Source: Putnam Investments.

PHASE 2: CONSERVATIVE ACCUMULATION

The 20 to 25 years before retirement are characterized by a crucial transition. With retirement looming on the horizon, participants begin to think more seriously about “The Number,” or how much money they will need to retire. Continuing to maximize savings is essential. With 20-plus years of accumulated savings, the market’s impact on a retirement balance is magnified. In fact, the negative effect of a large market decline immediately before retirement becomes the biggest risk.

The timing of a loss can matter more than the amount

The impact of a market decline immediately before retirement is best understood as sequence-of-returns risk. Put simply, a significant loss of savings near the end of the accumulation phase places participants on the wrong path for retirement, even if savings have grown substantially over the previous years. Avoiding losses at this time can keep participants on the right path.

A number of assumptions are common between the examples shown on page 7 (which, for simplicity, can be called the “right path” and the “wrong path”), including the average return that the participants experience over time. The only variable is the sequence in which those returns are experienced.

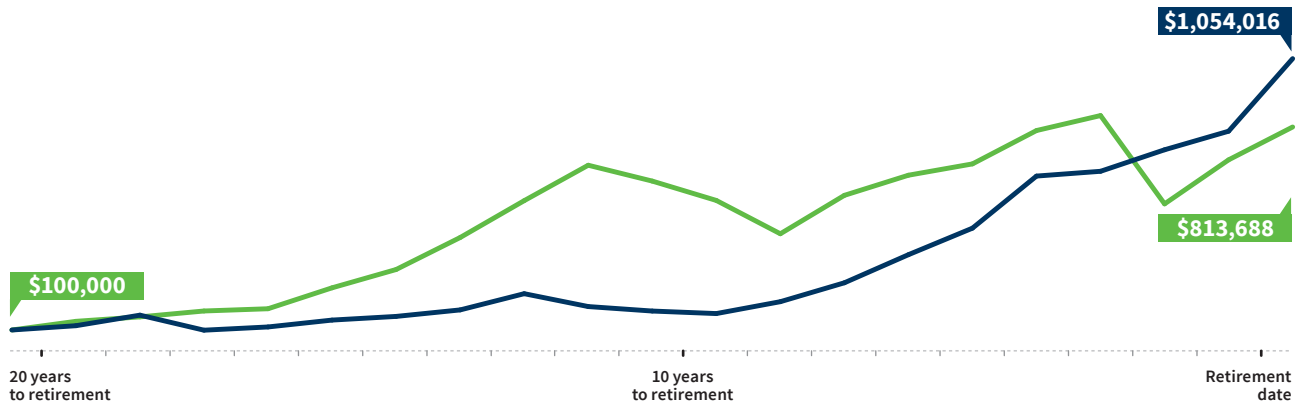
The difference in outcomes can be dramatic. A rare draw-down like the equity market loss in 2008 — often called a “left-tail event” in a normal statistical distribution — can have a devastating impact on an individual’s savings just before retirement. This is when investors are most vulnerable because balances are highest and recovery time is lowest.

It’s worth reiterating the point that investors on the right path experience identical calendar-year returns as investors on the wrong path, but the returns are experienced in reversed sequence. When that same large drawdown occurs earlier in the accumulation phase, with a longer time horizon to retirement, the individual’s retirement savings is able to recover. By avoiding a large drawdown near retirement, the right path investor is able to retire with a balance that is more than 25% higher than the investor put on the wrong path by the market drawdown.

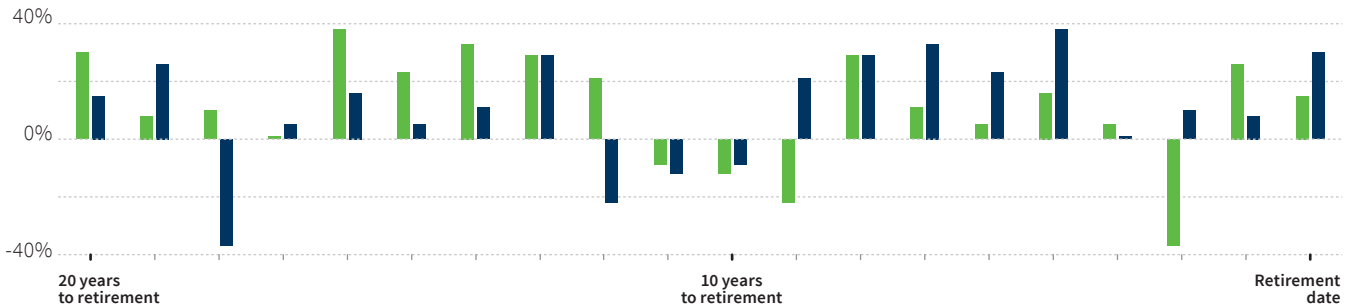
Investors need to consider sequence-of-returns risk before retirement

Market drawdowns pose the greatest risk just before retirement

- ▲ Account balance (wrong path)
- ▲ Account balance with inverse sequence of returns (right path)



AVERAGE RETURN FOR BOTH SEQUENCES: 11%



- Return (wrong path)
- Inverse sequence of returns (right path)

Assumes a beginning balance of \$100,000, a salary in year 1 of \$51,324, a contribution rate of 10%, a salary adjustment for inflation of 3% per year, and a salary in year 20 of \$92,697. Returns are represented by the S&P 500 Index from 1/1/91 to 12/31/10. This illustration is hypothetical and not indicative of any fund or product. You cannot invest directly in an index.

We believe it is important to consider this risk in the glide path. While many glide paths continue to emphasize equity exposure leading up to and through retirement in an effort to reduce possible shortfalls, we believe that they are exposing participants to unnecessary and potentially devastating sequence-of-returns risk. In our view, the participant, rather than the glide path, can mitigate shortfall risk by maximizing savings, while focusing more and more on a reasonable “Number.” Meanwhile, the glide path should transition from a bias toward aggressively growing assets to protecting assets from the potential of outsized market declines leading up to retirement.

Putnam Retirement Advantage Funds’ glide path gets considerably more conservative in the close-to-retirement years, when balances are highest and sequence-of-returns risk is greatest. It is at this point that Putnam’s glide path seeks to avoid the large market drawdowns that can deliver lasting damage to a retirement savings balance. Although there can be no guarantee of investment results, significantly reducing equity allocations is an attempt to minimize the probability of these retirement-altering events. The intent is to protect the assets that participants have worked their entire careers to accumulate.

PHASE 3: DIVERSIFIED DISTRIBUTION

Once retirement is achieved, the new retiree shifts from the accumulation phase to the “diversified distribution” phase. Deferrals cease and distributions soon begin. Several key risks now face retirees, which are best mitigated by remaining truly diversified.

Inflation risk, for example, results from a general increase in prices over time, which erodes the purchasing power of retirement savings later in life. Longevity risk, which causes great anxiety, is the potential that savings are insufficient to fund a successful retirement — that is, the risk that a retiree runs out of money. Again, both retirees and fund managers must weigh the tradeoffs and potential outcomes associated with mitigating longevity risk.

The retiree must make the crucial decision to determine what rate of distribution, or withdrawals, will provide an adequate quality of life, while not depleting assets too quickly. The tradeoffs have to be weighed with the understanding that the lower the distribution rate, the longer the assets should last.

Many fund managers seek to address both longevity and inflation risk by holding high allocations to equities before and/or into retirement. Many reach the retirement date with significant equity exposure (50%+) and continue to slowly reduce equities through the retirement years, hoping that the higher potential equity returns will help offset distributions and inflation, reducing longevity risk.

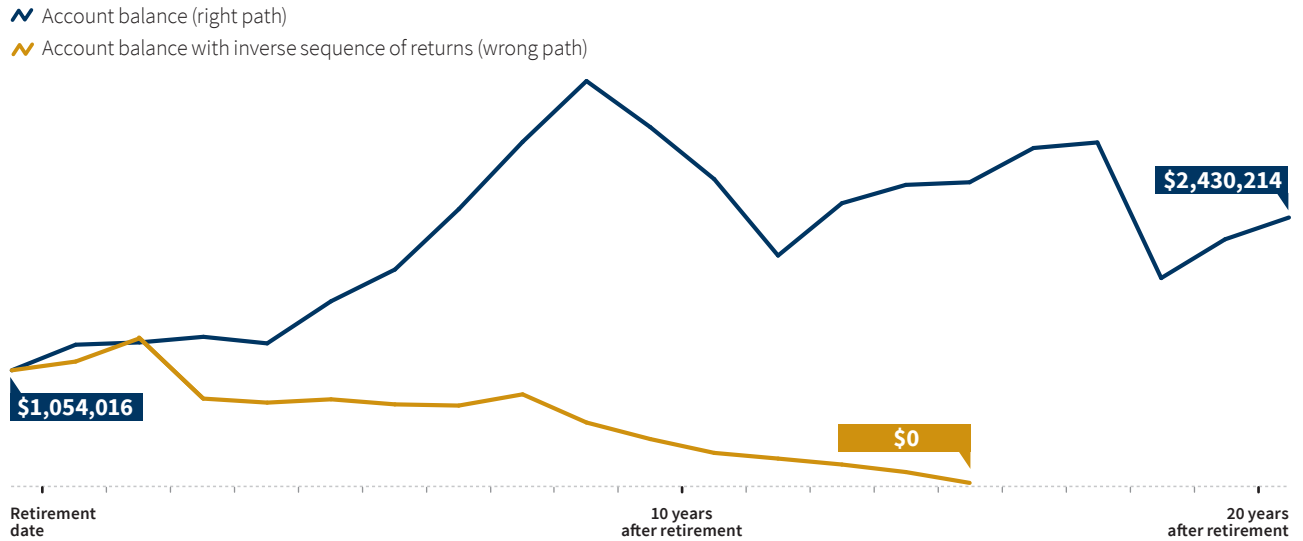
In certain situations, retirees with insufficient retirement savings could increase their probability of success by taking on additional risk. This “lottery ticket” approach, however, may actually increase longevity risk by significantly increasing sequence-of-returns risk. Just as sequence-of-returns risk can have devastating effects leading up to retirement, the potential impact in retirement is even greater.

To illustrate the potential impact of sequence-of-returns risk in retirement, we consider the same scenario discussed earlier, but begin at retirement to yield insights on outcomes after the target date, when an investor is no longer contributing to the plan but instead making periodic withdrawals. As in the previous example, there are a number of common assumptions, including that distributions are the same and average returns are the same, but the sequence of returns is reversed.

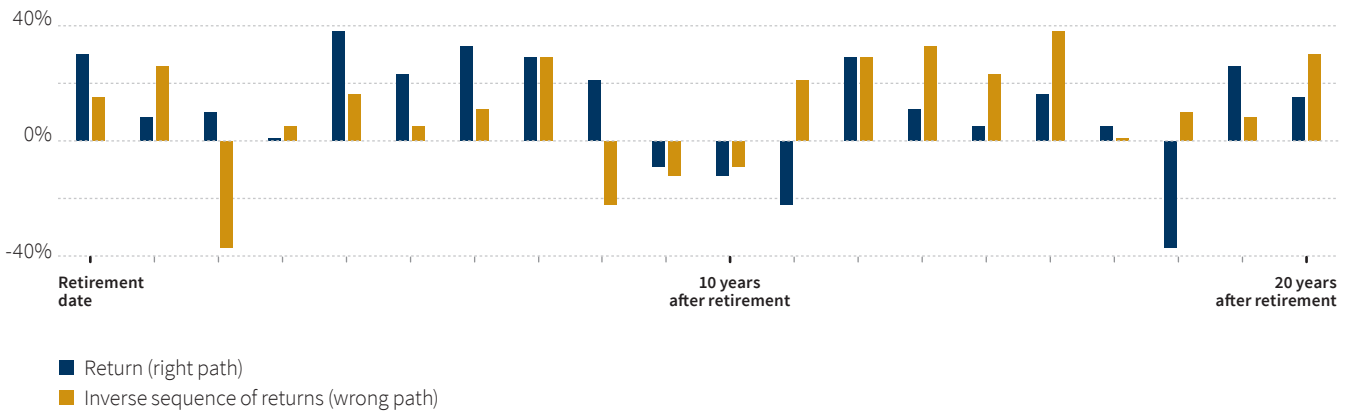
In this case, the wrong path scenario highlights the impact of a large market drawdown immediately after retirement. The investor is not able to recover and runs out of money only 16 years into retirement. Conversely, the investor on the right path avoids large losses early in retirement, grows the savings balance, and the investment lasts the duration of retirement, increasing by well over \$1 million.

Retirees need to consider sequence-of-returns risk after retirement

Losses early in retirement may be difficult to recover



AVERAGE RETURN FOR BOTH SEQUENCES: 11%



Assumes an ending salary of \$92,697, a beginning balance of \$1,054,016, income replacement of 75% of ending salary (\$69,523 in Year 1), and distribution adjustment for inflation of 3% per year. Returns are represented by the S&P 500 Index from 1/1/91 to 12/31/10. This illustration is hypothetical and not indicative of any fund or product. You cannot invest directly in an index.

Too much equity exposure jeopardizes savers' retirements

In contrast to the low-risk approach, the high-risk/high-reward approach of maintaining elevated exposure to equities may jeopardize the retirement safety and stability of those who have prepared for retirement. That's why we believe managing sequence-of-returns risk is essential to protecting against longevity risk, and can be most effectively mitigated by a balanced, or diversified, glide path. Furthermore, for investors with an insufficiently funded portfolio, the alternative of employing aggressive allocations at retirement and in retirement, because of the numerous risks involved, does not in our view provide a reliable way to make up for any savings shortfalls.

Our research indicates that the optimal long-term target equity allocation is 25%. This 25% target allocation results in an extremely balanced and well-diversified overall portfolio, one in which roughly 50% of portfolio risk is derived from equities. Risk in this sense is defined as standard deviation, or the dispersion of a set of returns from the mean. This conclusion makes intuitive sense given that equities are typically three to four times more volatile than bonds. A portfolio with 25% equity is well diversified, maximizes efficiency, and mitigates sequence-of-returns risk at and through retirement.

Putnam's target-date funds emphasize risk protection in retirement

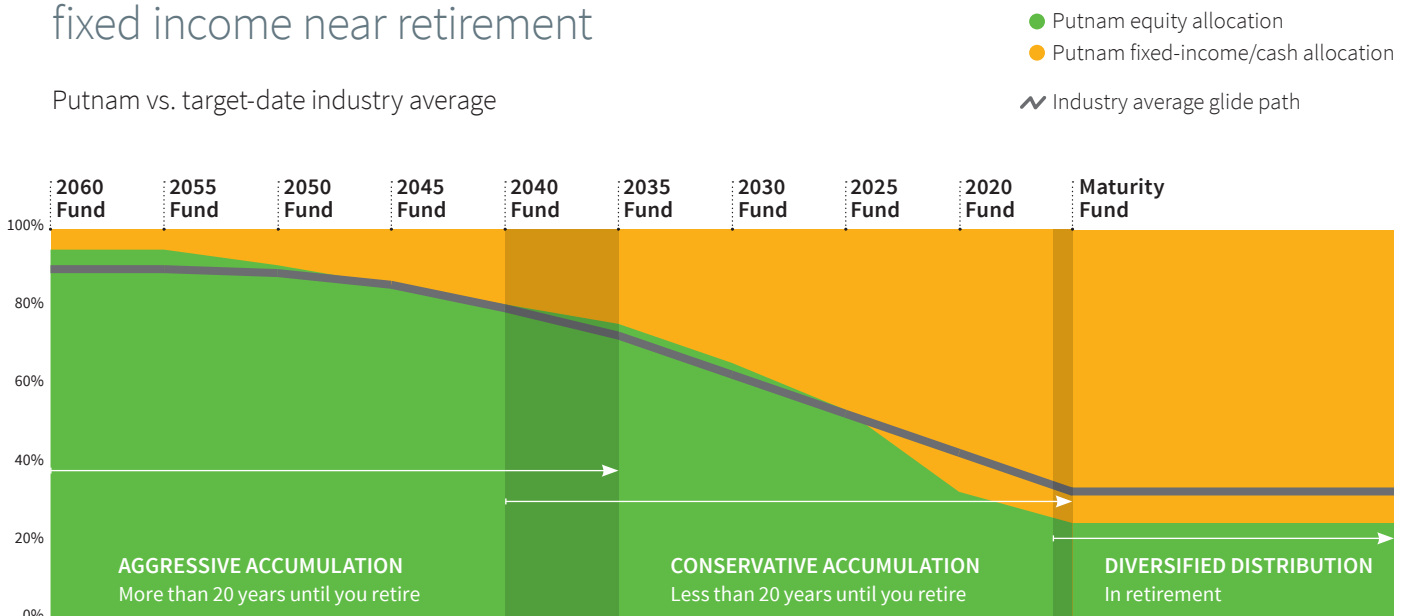
Putnam Retirement Advantage Funds emphasize protection against sequence-of-returns risk, although we believe that mitigating this risk also has the potential to help address several of the other key retirement risks. For example, a larger and more stable investment base, which we seek to deliver when protecting against sequence-of-returns risk, is an effective way to ensure balances last the duration of the investor's lifetime.

The Retirement Advantage Funds' glide path seeks to balance the opportunity for early asset appreciation with the need for capital preservation both before and after the date of retirement. Three important observations can be made about the shape of the glide path.

First, in the aggressive accumulation phase, Retirement Advantage Funds have higher equity allocations than the typical industry peer, beginning with a 95% equity allocation in the most aggressive case. At this point in the glide path, young savers have a long time horizon, allowing for greater risk-taking. Because of their long time horizon and lower balances, young investors are generally better suited to handle volatility, provided these longer-dated strategies are able to generate outsized returns.

Compared with the industry, Putnam favors equities early in the accumulation phase and fixed income near retirement

Putnam vs. target-date industry average



Data as of 6/30/18. Allocations will change. Chart shown for illustrative purposes only. Sources: Morningstar, Putnam Investments.

Second, in the conservative accumulation phase, the Retirement Advantage Funds' glide path gets considerably more conservative in the close-to-retirement years, when sequence-of-returns risk is highest. Again, it is at this point, when balances are likely highest and recovery time is lowest, that our glide path seeks to avoid the large drawdowns that can be so damaging to a retirement savings balance. Significantly reducing equity allocations is intended to minimize the probability of these retirement-altering events.

Finally, in the diversified distribution phase, Retirement Advantage Funds' landing point is 25% equity/75% fixed income — maintaining the 25% equity allocation throughout the distribution phase. As discussed earlier, our research suggests that this landing-point portfolio is the most well-balanced/diversified. While there are no guarantees of success, this allocation may maximize the probability of a successful outcome.

Providing the framework for a successful retirement

Successfully saving for a satisfying retirement is a daunting task that requires discipline by all parties. A retirement savings strategy using a target-date fund is a combined effort of aggressive savings and calculated withdrawals by the investor and careful, thoughtful risk mitigation by the fund manager.

The path to a successful retirement is littered with many risks. In taking responsibility for their future, investors must consider many tradeoffs and the potential impact any of their decisions might have on the ultimate outcome. At the same time, a target-date fund manager must identify significant, yet manageable, risks that it can seek to mitigate without jeopardizing the probability of positive outcomes.

We believe that combining responsible investor actions with Putnam Retirement Advantage Funds can provide the framework for a successful retirement savings plan.

Consider these risks before investing: International investing involves currency, economic, and political risks. Emerging-market securities carry illiquidity and volatility risks. Investments in small and/or midsize companies increase the risk of greater price fluctuations. Lower-rated bonds may offer higher yields in return for more risk. Funds that invest in government securities are not guaranteed. Mortgage-backed securities are subject to prepayment risk and the risk that they may increase in value less when interest rates decline and decline in value more when interest rates rise. *Money market options are not insured or guaranteed by the Federal Deposit Insurance Corporation (FDIC) or any other governmental agency. Although the funds seek to preserve the value of your investment at \$1.00 per share, it is possible to lose money by investing in these funds.* Bond investments are subject to interest-rate risk (the risk of bond prices falling if interest rates rise) and credit risk (the risk of an issuer defaulting on interest or principal payments). Interest-rate risk is greater for longer-term bonds, and credit risk is greater for below-investment-grade bonds. Risks associated with derivatives include increased investment exposure (which may be considered leverage) and, in the case of over-the-counter instruments, the potential inability to terminate or sell derivative positions and the potential failure of the other party to the instrument to meet its obligations. Unlike bonds, funds that invest in bonds have fees and expenses. You can lose money by investing in the funds.

The fund is a collective trust managed and distributed by Putnam Fiduciary Trust Company, a non-depository New Hampshire trust company. However, it is not FDIC insured; is not a deposit or other obligation of, and is not guaranteed by, Putnam Fiduciary Trust Company or any of its affiliates. The fund is not a mutual fund registered under the Investment Company Act of

1940, and its units are not registered under the Securities Act of 1933. The fund is only available for investment by eligible, qualified retirement plan trusts, as defined in the declaration of trust and participation agreement.

Each Retirement Advantage Fund has a different target date indicating when the fund's investors expect to retire and begin withdrawing assets from their account, typically at retirement. The dates range from 2020 to 2060 in five-year intervals, with the exception of the Maturity Fund, which is designed for investors at or near retirement. The funds are generally weighted more heavily toward more aggressive, higher-risk investments when the target date of the fund is far off, and more conservative, lower-risk investments when the target date of the fund is near. This means that both the risk of your investment and your potential return are reduced as the target date of the particular fund approaches, although there can be no assurance that any one fund will have less risk or more reward than any other fund. The principal value of the funds is not guaranteed at any time, including the target date.

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