Target Date Fund Benchmarks

At $2 trillion and growing, target date funds have become the most important investment in 401(k) plans, but these funds are still in their infancy, having effectively launched with the Pension Protection Act of 2006. Importantly there is not yet a standard benchmark for evaluating TDF performance. Nevertheless, fiduciaries must monitor and evaluate their TDF selection. This article describes the benchmarks that are currently available and offers some guidance on selecting the appropriate benchmark. Fiduciaries should align the objectives of their TDF with those of the benchmark, and confirm that the benchmark glide path and underlying allocations are in line with the TDF that is being evaluated.

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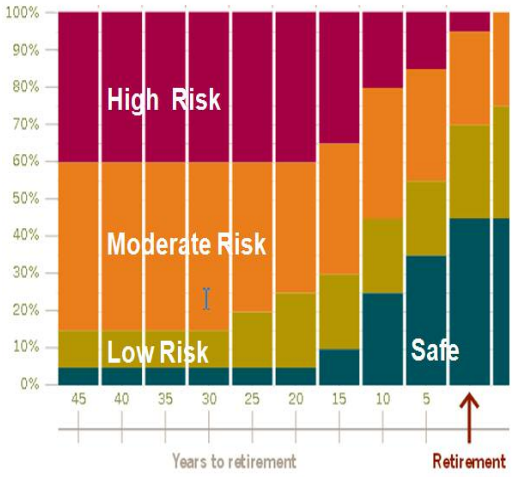
INTRODUCTION

Target date funds (TDFs) were first introduced in the early 1990s by Barclays Global Investors (BGI) and were originally used for college savings plans. Eventually, target date funds began to be used for retirement savings plans, especially 401(k) plans. The target date, for example, the 2020 fund, is an event date. In the case of college savings plans, it's the year that a student intends to enroll in college. In the case of a retirement plan, it's the year in which a beneficiary intends to retire. Target date funds' asset allocation mix provides exposure to return-seeking assets, such as equities, in early years when risk capacity is higher, and becomes increasingly conservative as time progresses with exposure switched progressively toward capital-preservation assets, such as short-term bonds. This asset movement through time from more to less risk is called a "glide path."

Usage of TDFs remained minimal until 2006, when two major events brought TDFs to the forefront. First, behavioral scientists recommended that 401(k) plans use automatic enrollment to encourage participation. Employees would need to choose to be excluded from the plan, whereas they formerly needed to sign on for the plan. Behavioral scientists were right. 401(k) participation skyrocketed, but this created a new challenge. Many 401(k) participants were either unable or incapable of making an investment decision so they defaulted to their employers who typically placed their contributions in very safe assets, like cash. This led to the second major event: passage of the Pension Protection Act of 2006 (PPA).

The PPA specifies three Qualified Default Investment Alternatives (QDIAs) that plan sponsors can use for participants who do not make an investment election: Target Date Funds, Balanced Funds, and Managed Accounts (accounts managed by outside professionals). By far the most popular QDIA has been TDFs.

Subsequent to the PPA, target date fund assets grew from



$0 to about $150 billion in just two short years. This set the stage for serious disappointment in 2008 when the typical 2010 fund lost 25 percent. In 2009, as a consequence of this disappointing loss, the U.S. Securities and Exchange Commission (SEC) and the Department of Labor (DOL) held joint hearings, and subsequently threatened to regulate TDFs in a variety of ways, primarily by requiring more disclosures. At the time of this writing, these threats remain to be carried out. In the meantime, risk has actually increased as funds position for the performance horse race. Performance wins business, and is usually increased by increasing risk. The problem is that beneficiaries want to be protected, especially as they near retirement. Consequently the profit interests of TDF providers are out of line with beneficiary safety interests.

THE NEED FOR TDF BENCHMARKS

TDF assets currently exceed $2 trillion and are the fastest growing segment of 401(k) plans. Fiduciaries are obligated to monitor the performance of their TDFs, and to select an appropriate benchmark. In this article, we begin with details on the benchmarks that fiduciaries can choose from, then we analyze some fund families that have become industry standards. We conclude with a discussion of how to choose an appropriate benchmark. The most important aspect of TDF benchmarks is their "glide path" that maps the sequence of asset allocations through time, moving from high risk to low. Asset allocation is the primary determinant of investment performance.

We begin with descriptions of three primary indexes that are available, and acknowledge that there are others we've decided to omit. The predecessor to the SMART Indexes was launched in 2007, followed by the S&P Indexes in 2008, and Morningstar in 2009.

CORE TDF INDEXES

Fiduciaries can select from these three indexes as their TDF benchmark:

- **Morningstar Lifetime Allocation Indexes** are normative (how things should be), modeled to maintain constant combined risk of human and financial capital. Human capital is the earning power from labor. Financial capital is investments.

- **S&P Target Indexes** are consensus indexes, calculated by aggregating most TDF mutual funds on

Exhibit 1: TDF Standard Index Glide Paths

	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20
SMART	95	90	85	79	74	69	63	52	35	10	17	26	34	45
S&P	90	88	84	80	75	69	62	54	46	37	32	27	27	27
Mstar	89	89	89	88	86	81	73	63	53	45	39	35	32	32

Morningstar.

- **SMART Target Date Fund Indexes** are also normative, modeled to preserve savings through to the target date.

Their glide paths are shown in Exhibit 1.

The Morningstar Indexes are about 10% more in equities than the S&P indexes. The SMART Indexes are similar to the S&P until they reach the "Risk Zone" that spans the 5-10 years before and after retirement, at which time SMART becomes more defensive. Losses in the Risk Zone can be devastating because account balances are at their highest and our working lives are ending. "Equities" encompass U.S. and foreign stocks, real estate, commodities, and other alternatives.

Drilling deeper, underlying compositions are shown in Exhibit 2 below.

The main distinction among these compositions is the predominance of U.S. stocks in the S&P indexes, reflecting the industry practice of emphasizing exposure to U.S. stocks.

In order to select one of these indexes, it's helpful to know why they are what they are. We need to know how they are constructed.

S&P Target Indexes Construction

The S&P Indexes aggregate most TDF mutual funds, so they are consensus indexes representing procedural prudence, *i.e.*, common practices. S&P describes their construction as follows: "P*eer group average based on survey of fund families with AUM of $100 million or more. If an asset class is included in 25% of target maturity funds, it is included in the average. Summed survey results lead to the equity glide path. A final curve fitting procedure smooths the results."*

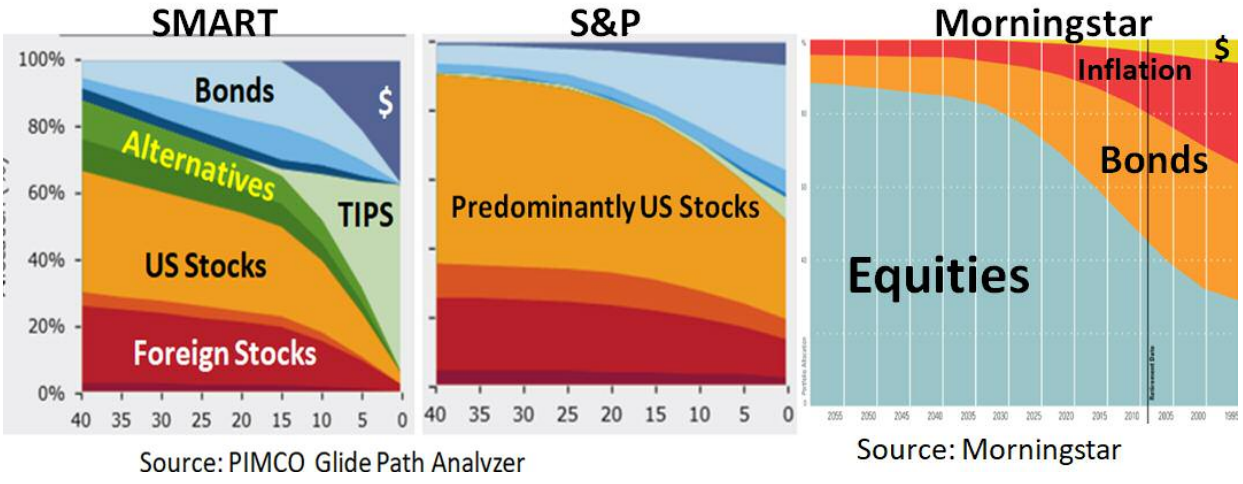
Morningstar Lifetime Allocation Indexes Construction

The Morningstar Indexes are normative and intended to capture best practices, or substantive prudence. The construction rules were developed by Ibbotson Associates which Morningstar acquired. The indexes maintain a constant risk exposure through time, combining the risks of human and financial capital as shown in the following graph.

The construction process works as follows (see Exhibit 3).

1. Pick a risk level for your total assets (human plus financial), and keep this constant throughout life. A good choice is "market risk," roughly 45%

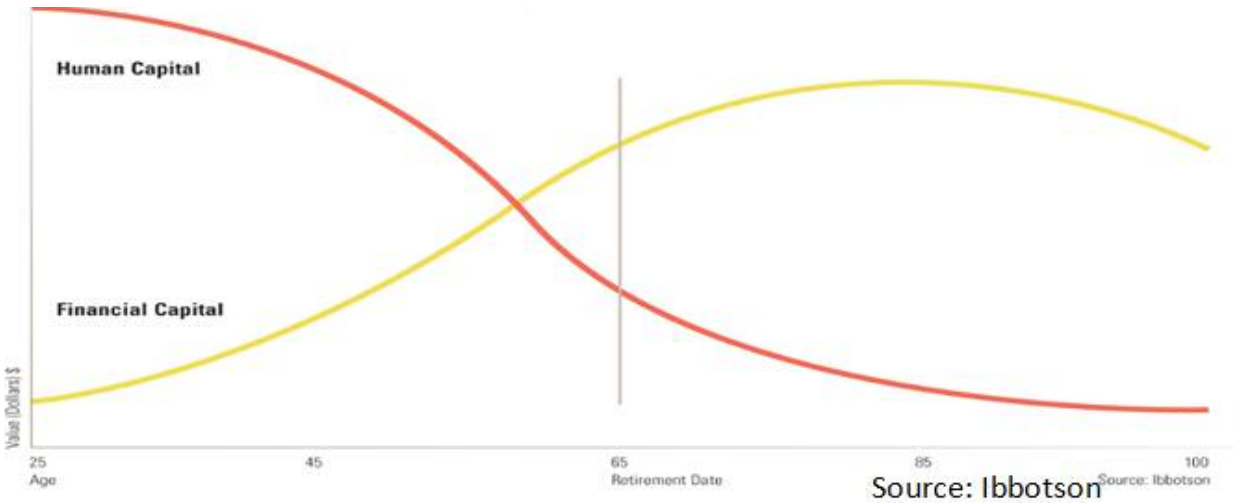
Exhibit 2: Glide Path Compositions



Source: PIMCO Glide Path Analyzer

Source: Morningstar

Exhibit 3: Human Capital and Financial Capital Trends



stocks/55% bonds.

2. At each point in time, estimate the value and effective stock-bond mix of your human capital, and structure your investment portfolio to maintain this constant 45/55 risk overall (human + financial assets). Ibbotson estimates average investor human capital as 70% stocks and 30% bonds. Since human capital decreases through time (future earning power diminishes), the allocation of the investment portfolio gradually moves toward total market assets at 45/55.

3. "Optimize" your financial assets for highest return per unit of risk over the remaining horizon to target.

SMART Target Date Fund Indexes Construction

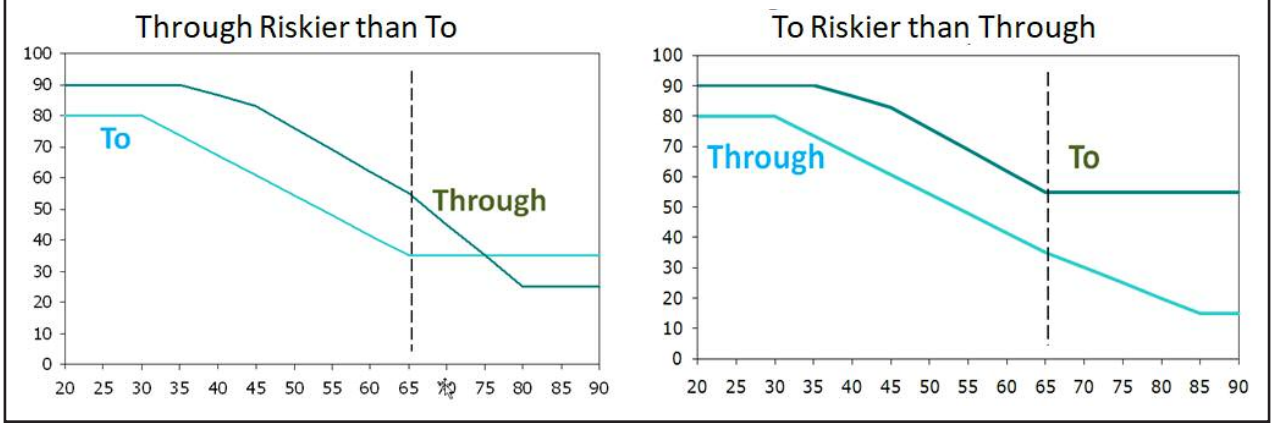
The SMART indexes are also normative, representing substantive prudence. These indexes have morphed through time. Launched in 2007, they were originally called the Plan Sponsor On-Target Indexes, and in 2010 they became the Brightscope Target Date Fund Indexes, and then in 2014 they were integrated into a collective investment fund (CIF) to become the investable SMART Indexes. SMART stands for Strategically Managed Allocated Retirement Trust (a name trademarked by Hand Benefits & Trust, a BPAS Company.)

SMART follows the patented Safe Landing Glide Path (SLGP), which has the objective of not losing participant savings. The two key decisions in the SLGP are (1) when to start applying the brakes, and (2) how forcefully.

1. **Apply the Brakes**. The glide path begins to protect when the horizon is short enough to experience a risk of loss. It is highly unlikely that an investor in a well-diversified portfolio of risky assets will experience a loss over a 15 year period. Accordingly, this risk-of-loss rule argues that the brakes are first applied at 15 years to target date.

2. **How forcefully**. The magnitude of transfer from risky to protective asset is determined using the principles of liability-driven investing (LDI). Sufficient assets are set aside in a protective asset such that, even if the worst case, risky return is realized over the horizon, the total account balance is insulated from loss. This structure leads to a non-linear glide path because transfers increase exponentially. Here's an example. Let's say we're 15 years from target date and our estimate of the worst case unannualized return on risky assets is -5 percent. And let's also say that TIPs are priced to earn a 2.5% return per year, so over 15 years this would compound to more than a 45% return. To protect against loss we want $-5(1-X) + 45X = 0$, where "X" is the amount invested in the protective asset. In this case, you can verify that X is 10%, so we move 10% of assets out of risky and into protective. As the time to target date shortens, the worst case risky asset

Exhibit 4: "To" Funds and "Through" Funds



loss increases and the cumulative return on the protective asset decreases, so the amount in the protective asset increases at an increasing rate, ultimately reaching 100% at target date.

In retirement, past the target date, the SMART Index re-risks in accordance with the research conducted by Dr. Wade Pfau and Michael Kitces in their seminal research entitled Reducing Retirement Risk with a Rising Equity Glide Path.

"TO" OR "THROUGH"

In its 2013 TDF tips the DOL states: *It is important to know whether a target date fund's glide path uses a "to retirement" or a "through retirement" approach. A "to" approach reduces the TDF's equity exposure over time to its most conservative point at the target date*, so the glide path ends at the target date, whereas a "through" approach ends at death.

The S&P and Morningstar indexes are "through" indexes while the SMART indexes are both "to" and "through," because they reach their lowest equity allocation at the target date and they serve investors through the rest of their lives.

The words "To" and "Through" were coined at the June 2009 joint SEC & DOL hearings on target date funds, which examined the devastating losses of 2010 funds in 2008. The testifying fund companies explained that they take substantial risk at the target date because their glide paths serve "Through" the target date to death. This is in contrast to funds called "To" funds that end at the target date. The clear implication is that "To" funds are far less risky at the target date than "Through" funds, but this is not necessarily true.

The common belief is that "To" funds hold less equity at the target date because they end there. But the fact is that some "To" funds are riskier than many "Through" funds as shown in Exhibit 4.

SUPPLEMENTAL TDF INDEXES

Each of the "Core" indexes described in the previous section is accompanied by supplemental indexes that are not used often, but they are available. The S&P total index is broken into two segments – "to" funds and "through" funds – where Morningstar determines which is which. The Morningstar "Moderate" index is the core for this offering. Morningstar also provides a less risky "Conservative" index and a more risky "Aggressive" index. The SMART indexes are similar except the core/recommended index is the Conservative SMART index. More risky indexes are also available, identified as "Moderate" and "Aggressive." The entire family of index glide paths is shown in the Exhibit 5.

THE BIG 3 ARE INDUSTRY STANDARDS

The TDF market is dominated by just three providers, making it an oligopoly. An oligopoly is a market structure in which a small number of firms has the large majority of market share. An oligopoly is similar to a monopoly, except that rather than one firm, two or more firms dominate the market. A monopoly is a market structure dominated by one firm. We view a majority

Exhibit 5: Entire Family of TDX Indexes

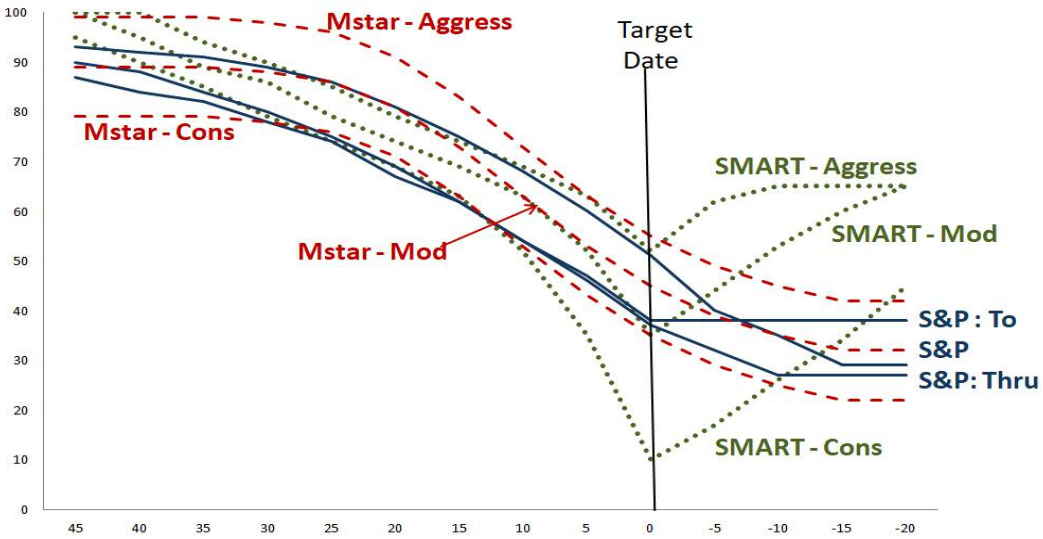
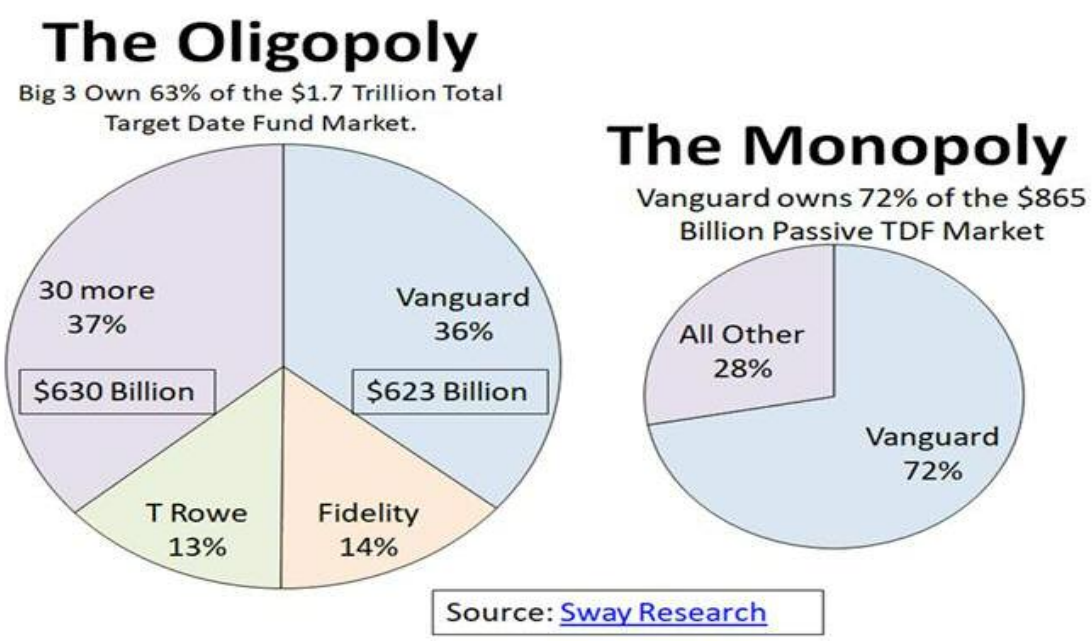


Exhibit 6: Oligopoly and Monopoly



market share as 60% or higher. As reported by Sway Research in early 2018, and shown in the following graph, the target date fund market as a whole is an oligopoly, while the passive segment of this market is a monopoly.

The Big 3 trio of Vanguard, Fidelity and T. Rowe Price is an oligopoly, having a large share of the TDF market. Also, the next seven TDF firms in size comprise most of the rest. Vanguard is a monopoly in the passive TDF market, constituting a whopping 72% of this market.

As a consequence, Vanguard's glide path has become an industry standard. For completeness, we show all three Big 3 glide paths in Exhibit 7.

As you can see, Vanguard has the lowest equity alloca-

Exhibit 7: Big 3 Glide Paths

	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20
Vanguard	96	92	87	82	78	73	68	64	59	54	50	45	45	45
T Rowe	90	90	90	90	90	85	79	72	64	55	46	40	35	31
Fidelity	90	90	90	90	90	90	87	75	63	57	40	30	27	25

tion prior to the target date, and the highest equity allocation in retirement. By contrast, Fidelity has the highest equity allocation prior to the target date and the lowest in retirement. All three "standards" are about the same in the "Risk Zone" at around 55% in equities. The big question is, "Is this the right level of risk?" Who says that the Big 3 have it right? To answer this question we need to determine the appropriate objectives for a TDF.

TDF OBJECTIVES

A particular TDF should be chosen because it meets the objectives of the plan's beneficiaries. And the TDF benchmark should be chosen for the same reason. Fiduciaries should set the objectives and try to select the best on the basis of criteria that best serve the beneficiaries. What objectives should fiduciaries choose? The following sections address this central question through surveys that examine what beneficiaries and their advisors want.

WHAT BENEFICIARIES WANT

A recent MassMutual Retirement Savings Risk Study examines beneficiary risk preferences in 401(k) plans. The methodology is as follows:

On behalf of MassMutual, Greenwald & Associates, an independent research firm, conducted an online survey that included 804 pre-retirees and 801 retirees. Respondents were drawn from ResearchNow's online panel. To qualify for the survey, all respondents had to be at least 40 years old.

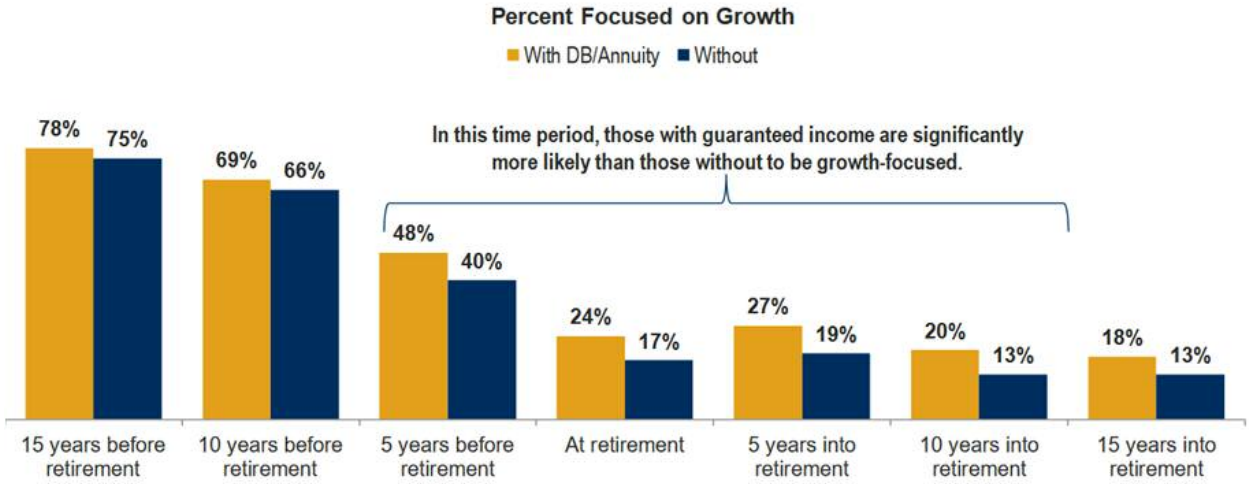
- *Pre-retirees were required to have a household income of at least $40,000, work full-time for a private sector employer, and be participating in that employer's DC retirement plan.*

- *Retirees were required to have total investable assets of at least $100,000. They had to be retired from a private sector employer and participating in that employer's DC retirement plan at the time of retirement.*

One of the most informative tables in the report shows beneficiary preference for safety over growth in the "Risk Zone" that spans the five to 10 years before and

Exhibit 8: Beneficiaries Want to be Protected in the Risk Zone

Pre-retirees and retirees with guaranteed income suggest that have or will employ the same investment strategy as those without when retirement is 15 years away and 10 years away, but at 5 years prior to retirement, they become more growth-focused than those without and remain that way until 15 years into retirement.



Source: Mass Mutual

Exhibit 9: Survey Says

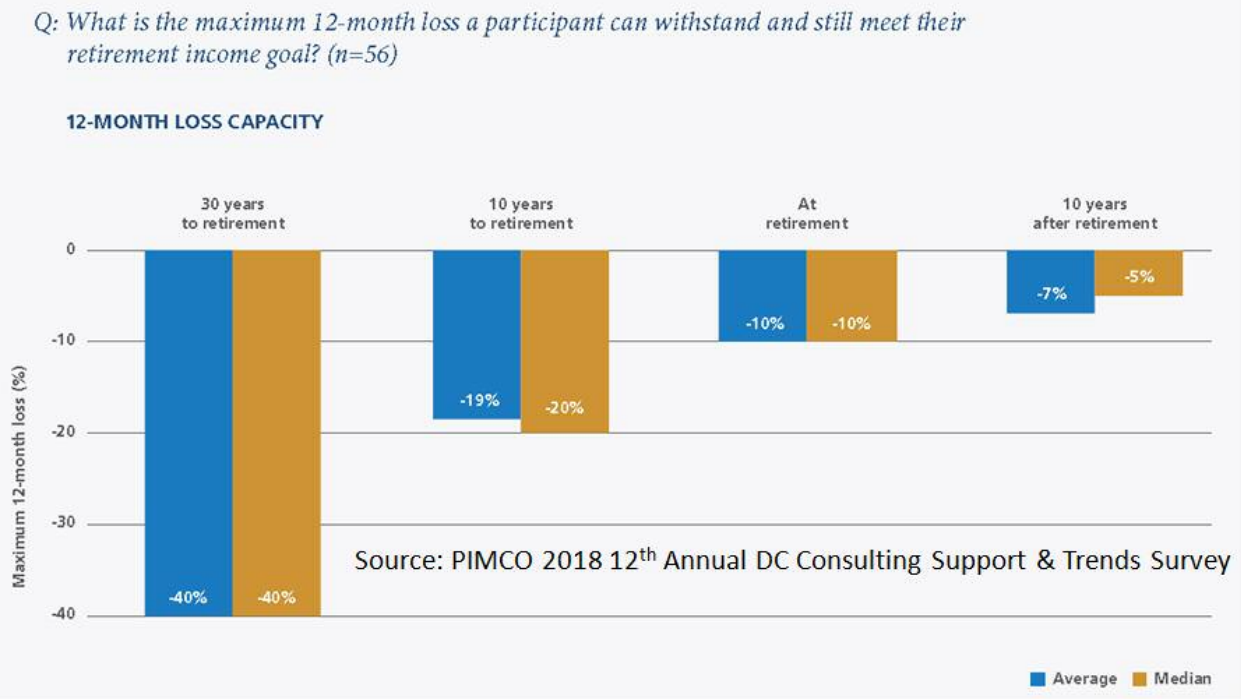
	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20
SMART	95	90	85	79	74	69	63	52	35	10	17	26	34	45
S&P	90	88	84	80	75	69	62	54	46	37	32	27	27	27
Mstar	89	89	89	88	86	81	73	63	53	45	39	35	32	32
Survey	97	93	89	86	82	79	75	66	40	17	13	13	13	13

after retirement (Exhibit 8).

At 15 years to the target date, the vast majority (75%) want growth over safety, but this preference shifts dramatically so that only 17% prefer growth over safety at retirement. Also shown in the graph, those with another source of income, like a DB plan, opt for somewhat more growth, obviously because their other assets are safe.

The preferences in the table above can be used as proxies for preferred equity allocations along the glide path.

Exhibit 10: Consultants Set Maximum Loss Targets



The following graph shows these preferences in contrast to the three core TDF Indexes.

Beneficiary preferences are in line with the Morningstar indexes when participants are young but they move to the SMART indexes near the target date. In retirement, beneficiary preferences are more conservative than all three indexes.

WHAT CONSULTANTS WANT

Pacific Investment Management Company (PIMCO) conducted another survey entitled the "2018 12th Annual DC Consulting Support & Trends Survey," which they describe as follows: *Our 2018 survey captures data, trends and opinions from 77 consulting firms across the U.S., the highest number in the 12-year history of the survey. These firms advise over $4.4 trillion in U.S. DC assets, accounting for almost 60% of all U.S. DC assets.*

One of the questions that the survey addresses is loss avoidance at various dates along the TDF glide path. The responses are summarized in the next exhibit.

Consultants want TDFs to defend against losses of 10% or more at the target date, and to become even more defensive beyond the target date, defending against losses of 5% or more. These objectives argue for very conservative allocations, assuming that the objective is to have a low probability of the indicated loss. For example, a 10/90 stock/bond mix has a 95% probability of protecting against a 5% loss in a year.

CONCLUSION

Fiduciaries have a wide range of benchmarks from which to choose. This choice should be based on the objectives fiduciaries want to achieve on behalf of their beneficiaries, as should the choice of an individual TDF. According to recent surveys, beneficiaries and their advisors prefer high safety over growth as they near retirement. This objective is most in line with the SMART indexes in the "Risk Zone" that spans the five years before and after retirement, but the SMART indexes are riskier in retirement than survey preferences, as they follow the guidance of Kitces and Pfau to re-risk. Consequently, fiduciaries may want to choose one set of indexes for pre-retirement, like SMART, and another for post-retirement. The SMART indexes have the least equity allocation for the first 10 years of retirement and the

S&P indexes are lowest beyond that.

RESOURCES

The following websites provide details on TDF indexes.

Morningstar Lifetime Allocation Indexes:
https://corporate.morningstar.com/us/documents/Indexes/SolvingTargetDateFundBenchmarking.pdf
https://corporate.morningstar.com/us/documents/Indexes/AssetAllocationIndexRulebook.pdf
https://corporate.morningstar.com/ib/documents/MethodologyDocuments/IBBAssociates/SelectTargetDateBenchmark.pdf

S&P Target Indexes:
https://us.spindices.com/documents/methodologies/methodology-sp-target-date.pdf
https://www.spindices.com/documents/research/research-target-date-scorecard-august-2016.pdf

SMART Target Date Fund Indexes:
https://targetdatesolutions.com/SMART-TDF-Index.html.