Target Date Fund Benchmarks

by

Ronald Surz

Ron@PPCA-Inc.com (949)488-8339

President, PPCA and Target Date Solutions

At $2 trillion and growing, target date funds have become the most important investment in 401(k) plans, yet 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.

Target Date Fund Benchmarks

At $2 trillion and growing, target date funds are the biggest deal in 401(k) plans. Fiduciaries are obligated to monitor the performance of their TDFs, and to select an appropriate benchmark. This choice is complicated by the fact that there are many target date funds and benchmarks. In this article we detail the benchmarks that fiduciaries can choose from. We begin with a description of the target date indexes that are available, and then we analyze some fund families that have become industry standards, and 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 the primary indexes that are available. The predecessor to the SMART Indexes was launched in 2007, followed by the S&P Indexes in 2008, and then Morningstar in 2009.

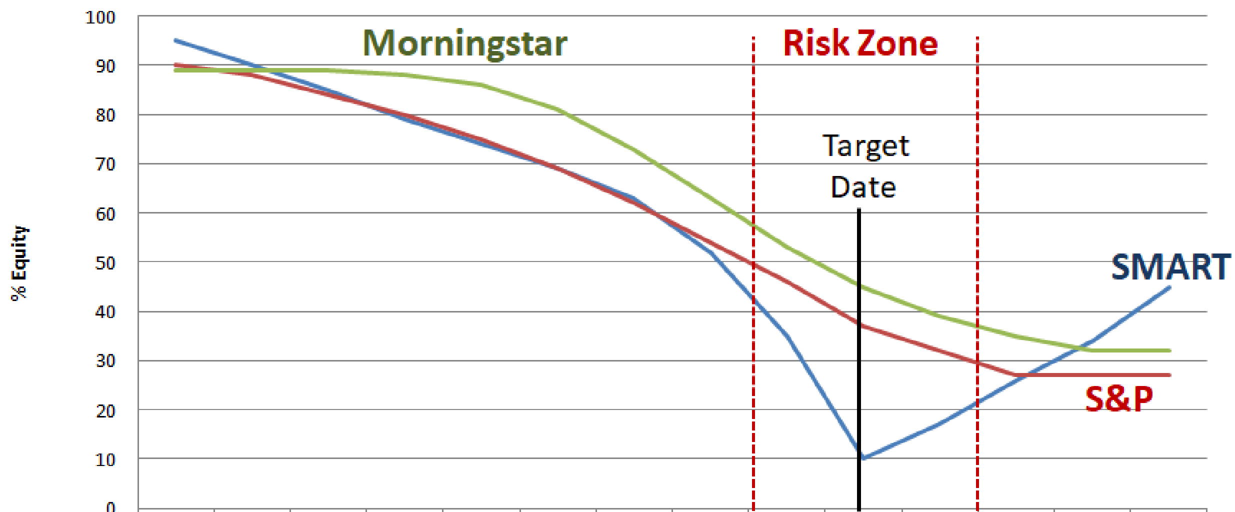
CORE TDF INDEXES

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

- **Morningstar Lifetime Allocation Indexes** are normative, modeled to maintain constant combined risk of human and financial capital
- **S&P Target Indexes** are consensus indexes, calculated by aggregating most TDF mutual funds on Morningstar
- **SMART Target Date Fund Indexes** are also normative, modeled to preserve savings through to the target date.

Their glide paths are as follows:

Exhibit 1: TDF Standard Index Glide Paths

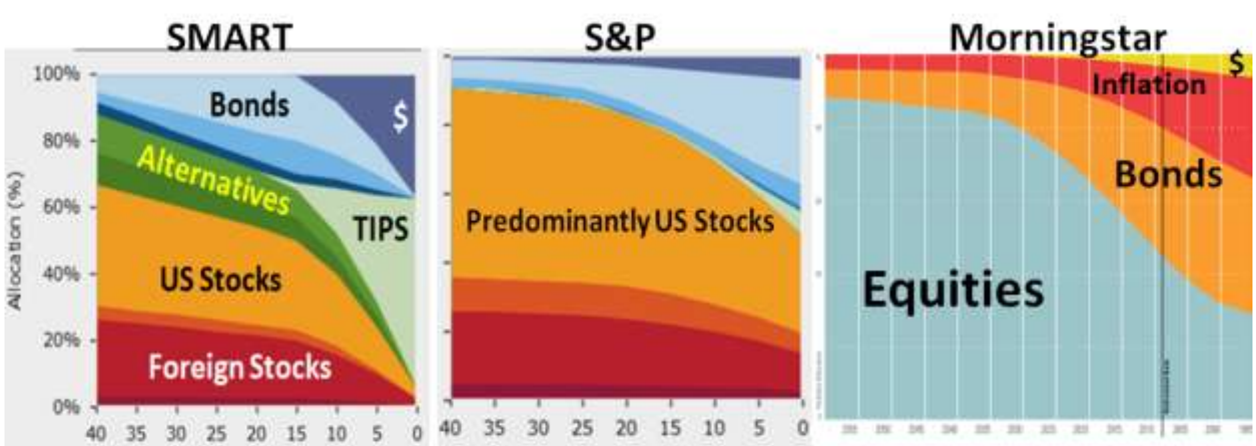


	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20
SMART	95	90	85	79	74	69	63	52	35	10	17	26	34	45
S&P	90	88	84	80	75	69	62	54	46	37	32	27	27	27
Mstar	89	89	89	88	86	81	73	63	53	45	39	35	32	32

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 US and foreign stocks, real estate, commodities and other alternatives.

Drilling deeper, underlying compositions are as follows:

Exhibit 2: Glide Path Compositions



Source: PIMCO Glide Path Analvzer

Source: Morningstar

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

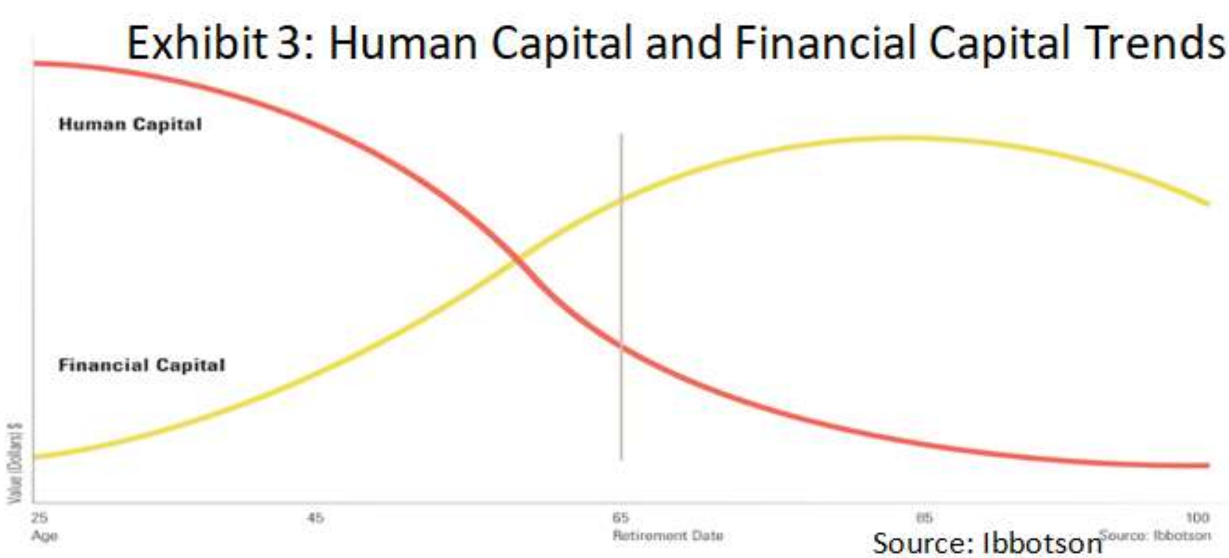
In order to select one of these indexes it's helpful to know why they are what they are. We need to know how they are constructed.

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: "*peer 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 smoothes 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 that 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:

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% 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%. 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 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 groundbreaking article entitled ***Reducing Retirement Risk with a Rising Equity Glide Path.***

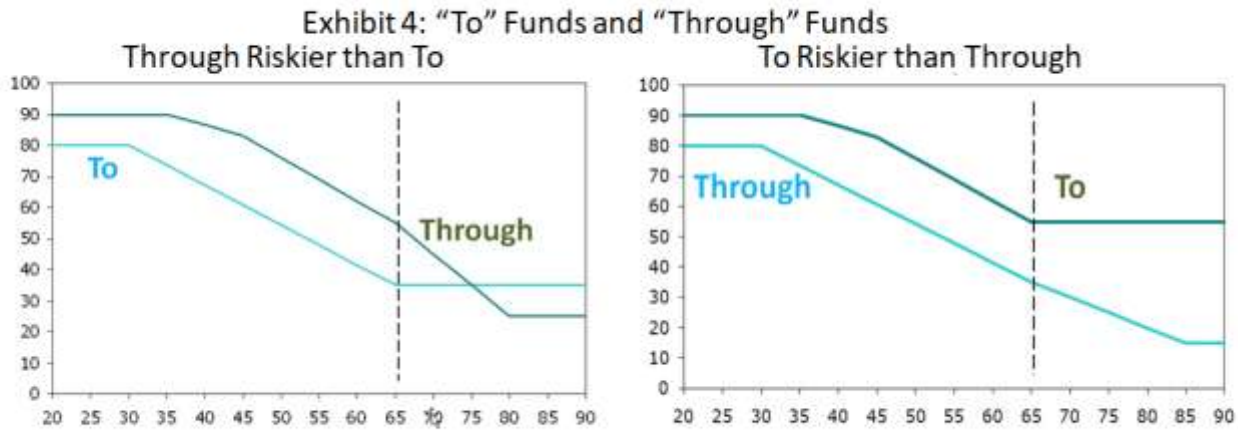
"TO" OR "THROUGH"

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.

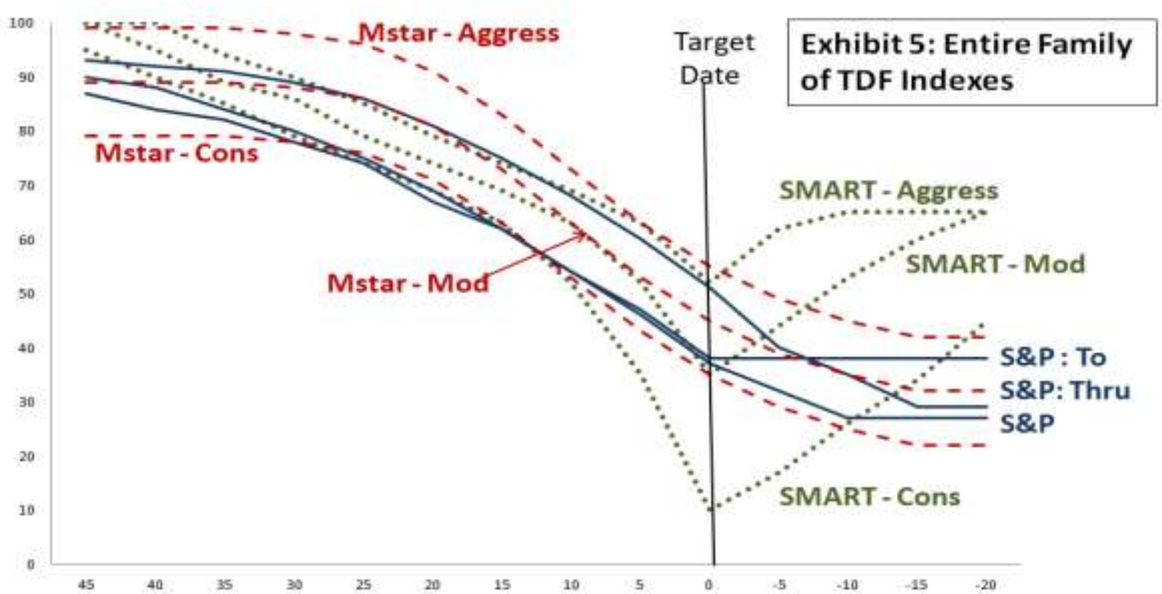
The words "To" and "Through" were coined at the June, 2009 joint SEC & DOL hearings on target date funds, which examined the devastating losses of 2010 funds in 2008. The testifying fund companies explained that they take substantial risk at the target date because their glide paths serve "Through" the 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, as shown in the graph on the left. But the fact is that some "To" funds are riskier than many "Through" funds as shown in the graph on the right.



SUPPLEMENTAL TDF INDEXES

Each of the "Core" indexes described in the previous section is accompanied by supplemental indexes that are not used much, but they are available. The S&P total index is broken into 2 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 following graph:

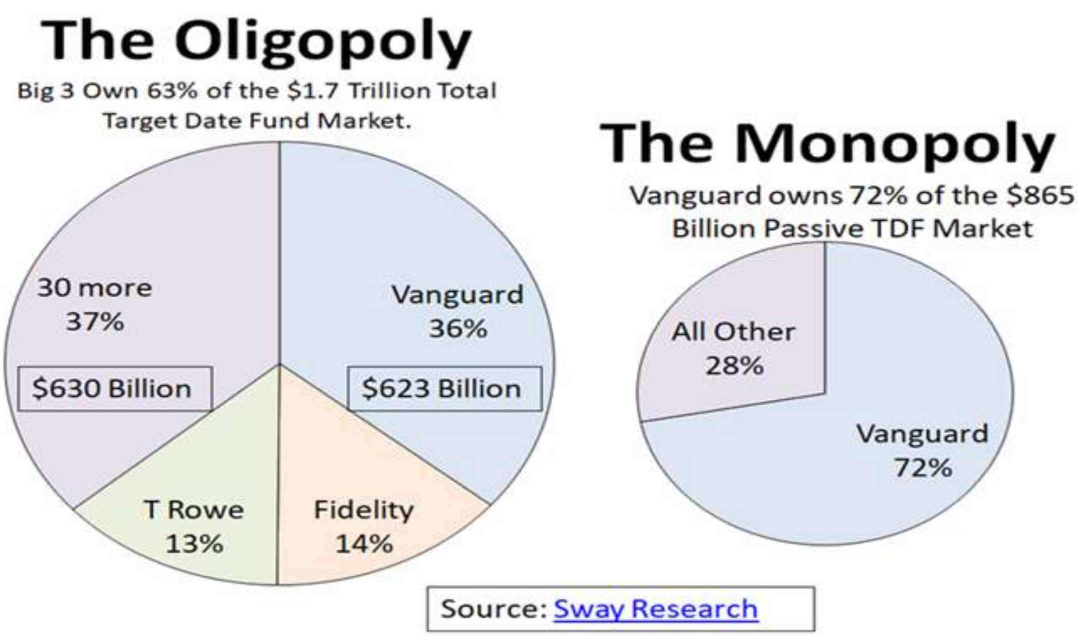


THE BIG 3 ARE INDUSTRY STANDARDS

The TDF market is dominated by just 3 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.

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.**

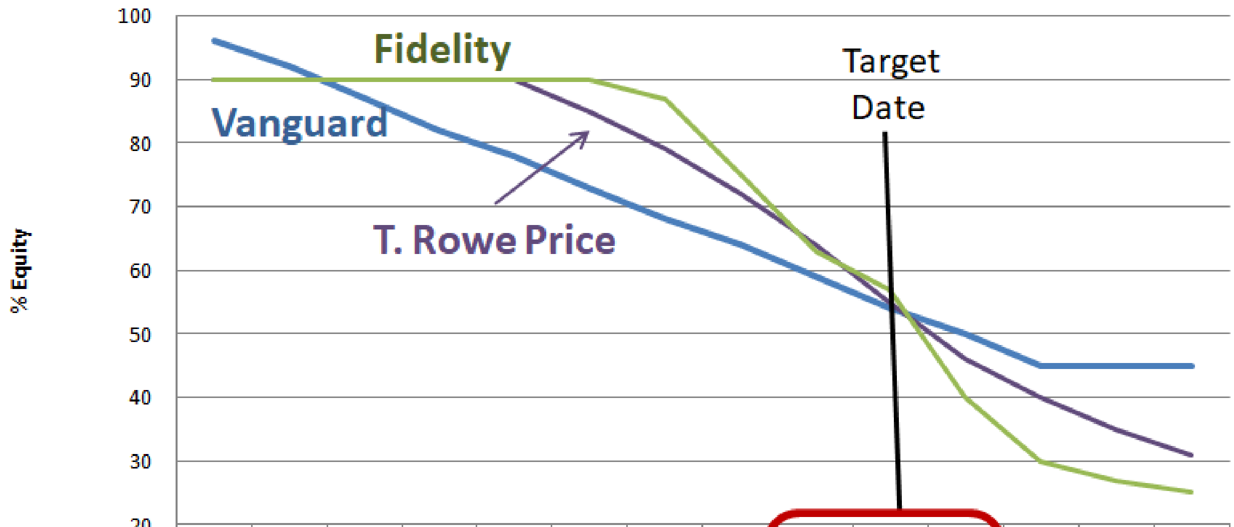
Exhibit 6: Oligopoly and Monopoly



The Big3 trio of Vanguard, Fidelity and T. Rowe Price is an **oligopoly**, having a large share of the TDF market. Also, the next 7 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 the next graph:

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

As you can see, Vanguard has the lowest equity allocation 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 3 "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 fiduciaries. And the TDF benchmark should be chosen for the same reason. Fiduciaries should set the objectives, but this is not happening. Fiduciaries are basing their TDF choice on limiting their liability. They believe that (1) any qualified default investment alternative (QDIA) will do and (2) you can't go wrong with the Big 3 because everyone else is using them. This is a breach of the Duty of Care. This Duty requires that fiduciaries try to select the best on the basis of criteria that best serve the beneficiaries. That's simply not happening.

So what objectives should fiduciaries choose? TDF providers say they've designed their products to replace pay and manage longevity risk, but these are mere hopes. Objectives without a reasonable chance of achievement are mere hopes. Saving enough is the only way to replace pay and manage longevity risk, and hoping that you can make up for inadequate savings with investment returns is not a prudent choice.

By contrast, a reasonable objective is to get participant savings safely to the target date intact, and to earn a reasonable return on those savings. The Hippocratic Oath of TDFs should be "Don't lose participant savings." Plan demographics support this objective. The only demographic that all TDF participants have in common is lack of financial sophistication. This demographic argues for the protection of the clueless.

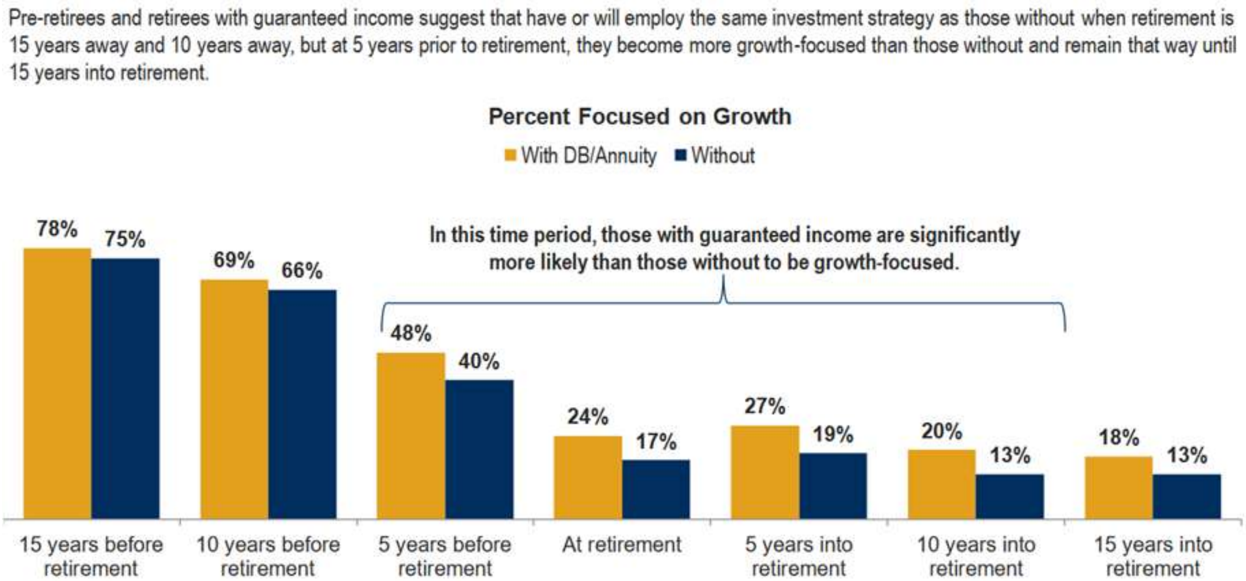
WHAT BENEFICIARIES WANT

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 ten years before and after retirement:

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

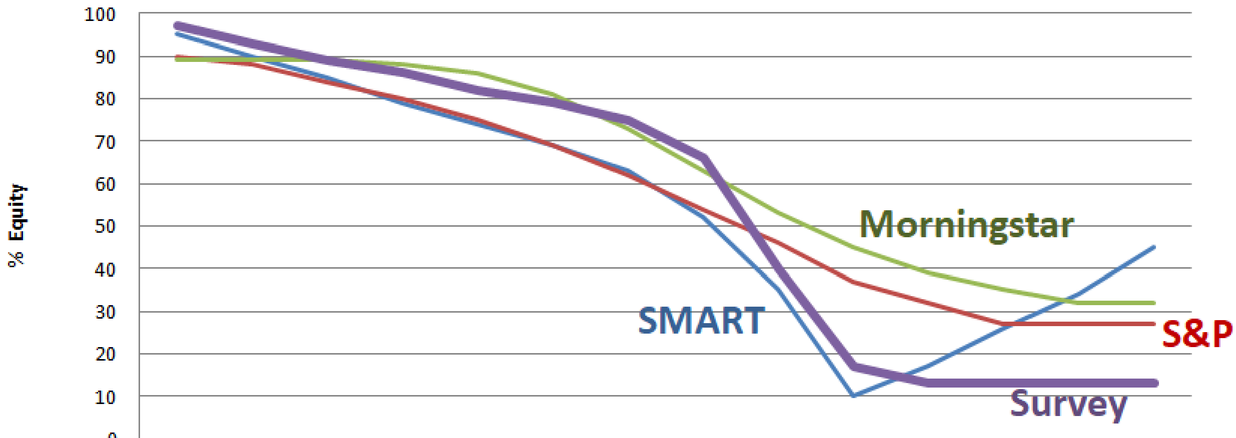


Source: Mass Mutual

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

Exhibit 9: Survey Says



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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

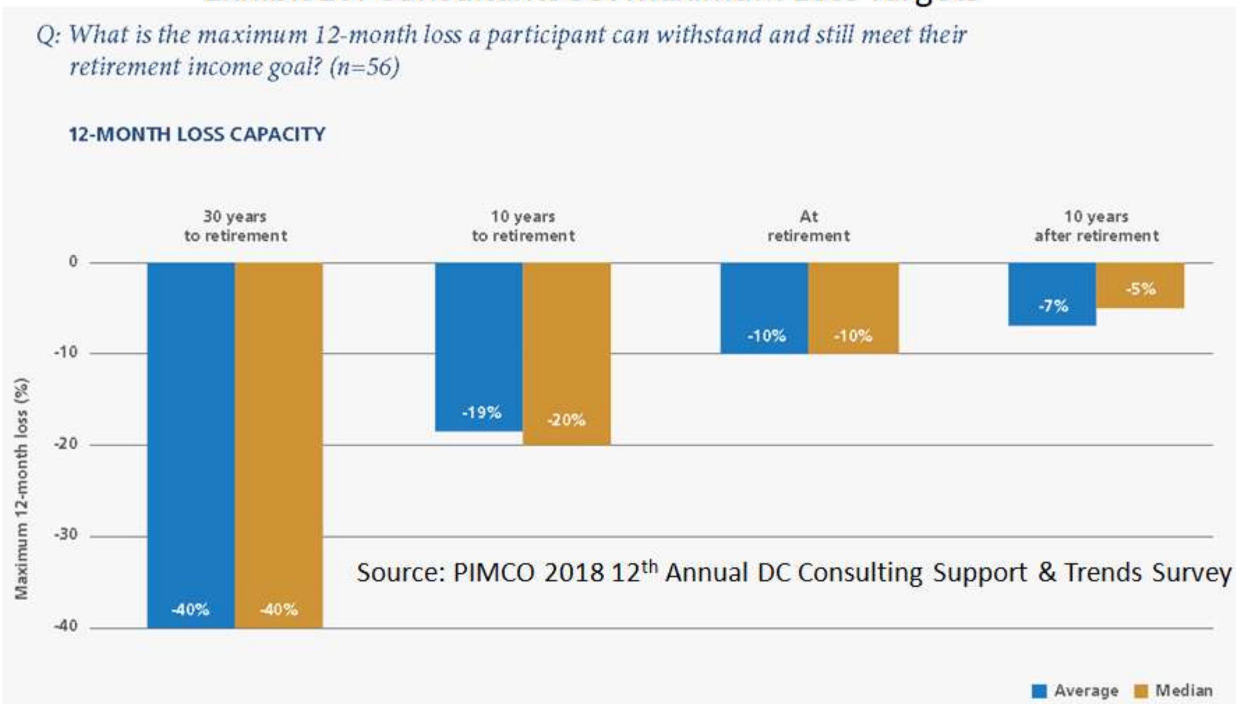
Beneficiary preferences are in line with the Morningstar indexes when participants are young but they move to the SMART indexes near the target date. In retirement, beneficiary preferences are more conservative than all 3 indexes.

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.

Exhibit 10: Consultants Set Maximum Loss Targets



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. Beneficiaries prefer high safety over growth as they near retirement, and probably believe that they are being protected, as they mistakenly believed in 2008.

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 .