

Target Date Funds

An industry overview of glide paths and asset allocations

Target Date Funds (TDFs) have been utilized since the Pension Protection Act (PPA) of 2006 in a QDIA setting, as a means of providing retirement savers with a one-stop solution suited to their age and, in some cases, risk-tolerance level. Among the allowed QDIA options, which consist of managed accounts, balanced funds and TDFs, the target date option is the most utilized by far. The framework utilized with TDFs is meant to provide a comprehensive, generalized asset mix solution that is deemed appropriate for most retirement investors.

The associated asset mix glide path typically decreases in portfolio risk level over a person's lifecycle. The academic foundation of this lifecycle approach is, in large part, Human Capital Theory, that was first posited by Jacob Mincer and Nobel economist Gary Becker, in the late 1950s and early 1960s.^{1,2} Some later extensions of this work, including by Ravi Jagannathan and Narayana Kocherlakota,³ more oriented toward lifetime savings strategies, posited that as the relative weight of the current financial value of the portfolio increases relative to the present value of future human capital, the ability to weather volatility shocks declines. In practice, TDF glide paths conform to the prescriptive advice of practitioners that model volatility in conjunction with time horizon.

Empirical work by behavioral economists had demonstrated that, in practice, savers' investment allocation choices in the absence of QDIA options tended to follow more haphazard construction approaches, such as equally allocating among investment options, otherwise known as the 1/n heuristic.⁴ The systemic response to problems identified by behavioral economists resulted in a system comprised of stimulants and stabilizers designed to address historical behavioral shortcomings in investor retirement savings behavior, including automatic enrollment, automatic contribution rate escalation and the use of QDIAs.

As the most utilized QDIA option, it is worthwhile to explore what lifecycle glide paths typically look like: How steep is the typical glide path? How great is the general variation among providers? How does the allocation to different asset classes vary? Where is there general agreement or disagreement? This paper provides an overview of industry average and variation in asset class allocations for the TDF lifecycle glide paths, as well as widely utilized TDF benchmark series. In aggregate, we find general similarities evident at the aggregate equity and fixed income level across time horizon, but interesting variations in allocations to international equity, emerging markets and smaller capitalization domestic equity.



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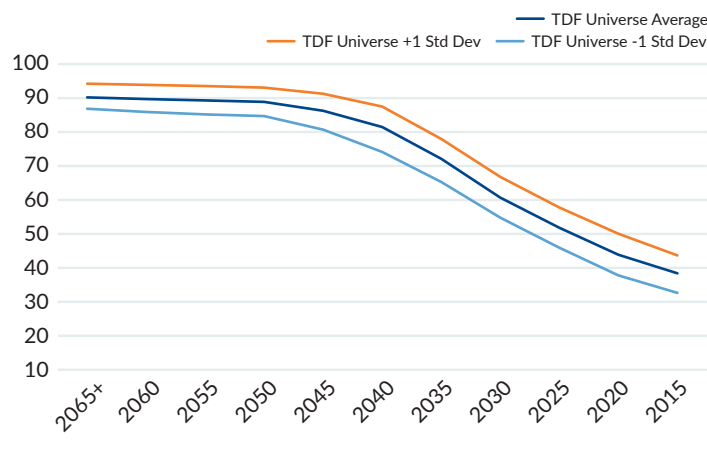
Contents

• Glide paths look fairly similar in allocations to equity	2
• Allocations within equity	2
• Size exposure consistent across vintage years	2
• Differences in international exposure across vintage years	3
• Growth/value tilts across vintage years	4
• Conclusion	5

Glide paths look fairly similar in allocations to equity

Interestingly, there is not a great deal of deviation among “through retirement” providers in terms of the overall equity allocations across the target date sleeves. We can measure this by looking at the average equity allocation and that of both one standard deviation above and below the mean equity allocation for each target date vintage. This shows that the range accompanying roughly 68% of the observations for “through retirement” providers is relatively tight, as shown in Figure 1.

FIGURE 1: “THROUGH RETIREMENT” TDF UNIVERSE DATA | EQUITY ALLOCATION



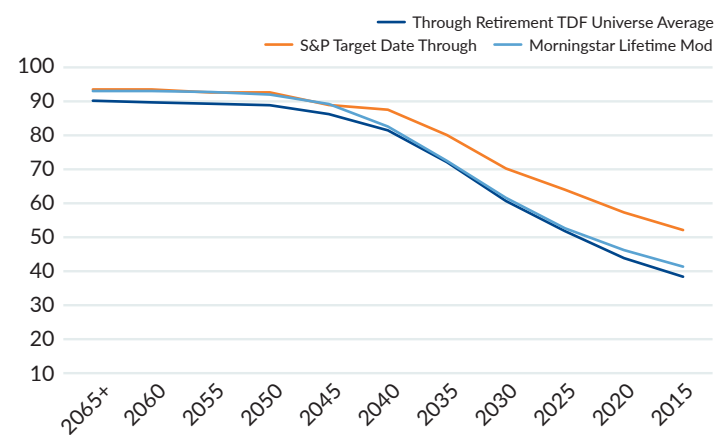
Source: MPI Stylus and Mesirow Calculations

Moreover, there is a substantial degree of similarity between the TDF universe average and that of the Morningstar Lifetime Moderate Risk series across most vintage years. This comparison is displayed in Figure 2. The S&P Target Date Through Benchmarks are also largely similar but have a higher equity allocation, and by extension, a higher risk profile across much the lifecycle. The S&P Target Date Through series even has higher equity allocations than the allocation of the TDF universe that is one standard deviation above the mean across the near-dated vintage years. This is interesting because in theory, the “S&P Through” series should represent that average of through “TDF Through” providers. Their methodology looks at Factset TDF holdings and has a specific set of criteria for determining what gets classified as a “through” TDF and utilizes a percentile-driven manner that is designed to exclude outliers for determining asset allocations. This differs from our methodology, which utilizes an averaging method with one representative share class per provider that does not exclude any outliers because we feel that all information is relevant. A ‘to’ provider goes

from 2020 vintage year to retirement portfolio, whereas a ‘through’ provider will include vintage years, such as 2015 and 2010, beyond the most recent vintage year.

Regardless, despite any differences, there is still a surprising overall similarity across both the fund universe (Figure 1) and relative to benchmark provider sets (Figure 2). This overall similarity implies that most target date fund providers, as well as the benchmark set providers, pursue reasonably similar approaches in determining the appropriate relative risk level for the various vintage years. In other words, the manner in which risk is modeled for different time horizons is likely similar, or else, substantial herding behavior has occurred in this regard if it is not driven by underlying modelling methodology.

FIGURE 2: TDF UNIVERSE DATA | EQUITY ALLOCATION

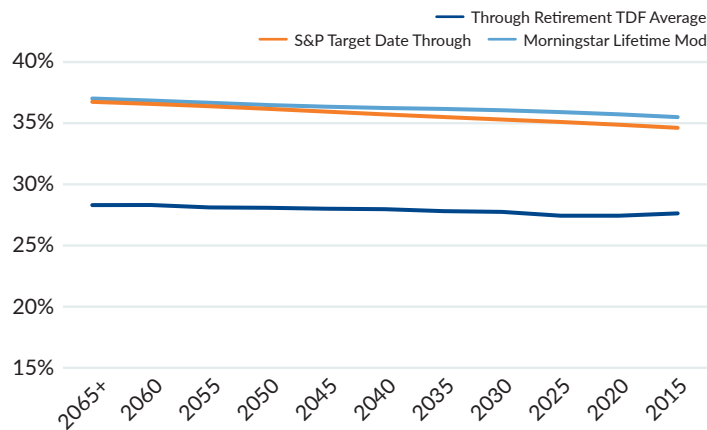


Source: MPI Stylus and Mesirow Calculations

Allocations within equity

SIZE EXPOSURE CONSISTENT ACROSS VINTAGE YEARS

Allocations along the size spectrum differ substantially between the average fund and that of the S&P Target Date Through Benchmark series and the Morningstar Lifetime Moderate Benchmark series, the latter of which are very similar to each other, as shown in Figure 3. In this context, it is useful to understand what we mean to an allocation to SMID, which is a combination of the allocation to Midcap and Smallcap based on the Morningstar schema. Morningstar defines Megacap as the top 40% of stocks in the equity universe, Largecap as the next 30%, Midcap the next 20% and Smallcap the final 10% of stocks. Therefore, a market neutral position to SMID relative to the stock universe in this definitional framework would be 30%, which is our primary reference point.

FIGURE 3: TDF SIZE ALLOCATION | RELATIVE ASSET CLASS %

Source: MPI Stylus and Mesirow Calculations

It should be noted that this framework aligns reasonably well with Russell, where the Top 200 index (i.e. Megacap/Largecap) which represents 68% of total market cap in the Russell 3000. By extension, the Russell Midcap and Russell 2000 indices together comprise roughly 32% of the total capitalization. In contrast, the S&P 500 is currently over 90% of the S&P 1500, while the S&P 400 and 600 indices comprise less than 10%.

The universe averages and benchmark comparison sets are relatively consistent in terms of the allocations to smaller sized equities (i.e. SMID). In other words, while smaller stocks are more volatile than larger stocks with a higher expected return, the average target date fund maintains a similar allocation relative to total equity regardless of vintage year. The S&P Target date series and Morningstar Lifetime Moderate series decline very slightly over the course of the lifecycle, but the differences are relatively minor.

Overall, the average target date fund is under weight to SMID stocks relative to a market neutral position, and therefore, the average target date fund investor is under weight to smaller stocks. The target date fund universe has a plus one standard deviation that is just above the 30% market neutral threshold across the vintage years. In contrast, both the S&P Target Date series and the Morningstar Lifetime Moderate series are above 35% relative equity weight for most vintage years, representing a meaningful exposure difference to the expected size premium.

This roughly 10% higher allocation as a percentage of equity has an impact in terms of relative risk that can be very

roughly approximated by comparing the long-term standard deviations for the Russell indices. From January 1979 to July 2022, the standard deviation ratio for a proportional weighting of Russell Midcap Index and Russell 2000 Index relative to the Russell Top 200 Index was a ratio of a little more than 1.18 – so, roughly 18% more relative risk for SMID stocks on a standalone basis. The actual impact on the total portfolio would be less than that, however, as the correlation between the assets is less than one.

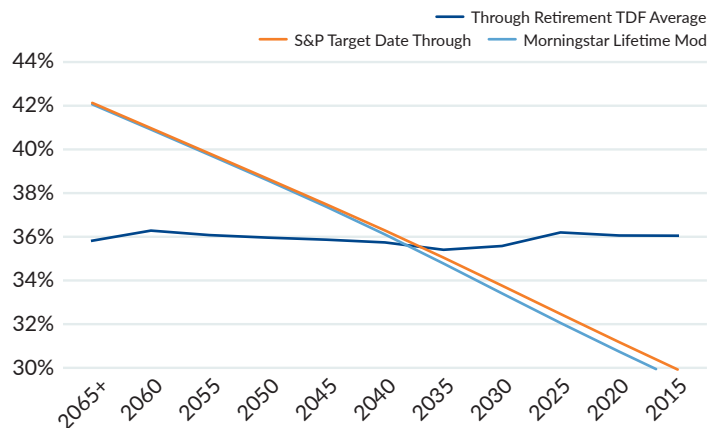
DIFFERENCES IN INTERNATIONAL EXPOSURE ACROSS VINTAGE YEARS

Figure 4 shows the allocations for the same representative data sets in terms of the allocations to Non-US equity as a percentage of total equity, which includes both developed and emerging markets. Unlike the definition of size, the schema defining US vs. Non-US equities is well defined, but it is still useful to understand what percentage represents a market neutral position in terms of total global equity capitalization. The MSCI USA Index represents roughly 70% of the MSCI World Index and 62% of the MSCI ACWI Index as of mid-2022. Therefore, Non-US equities represent roughly 30%-38%, which would be technically market neutral in global terms. The appropriate allocation for US-domiciled investors saving for retirement that represents a US-defined liability stream could be less than 'market neutral'. We cover this topic in our paper entitled, *Fifty Years of Broad-based International Data: What Have We Learned for Asset Allocation?*²⁵

Most representative data sets in the graph show allocation across the lifecycle that are in line with this weighting band. Interestingly, the average target date fund in the universe maintains a similar allocation to Non-US equities that is fairly consistent across the vintage year funds in the lifecycle, which is similar to how SMID allocations were handled for the average target date fund. It appears to be most consistent with an MSCI ACWI weighting scheme

In contrast, the S&P Target Date Through benchmark funds, as well as the Morningstar Lifetime Moderate benchmark funds start out substantially higher than the TDF universe average for the long-dated vintage year funds and drop of to sharply lower than the average for the near-dated vintage year funds. The crossover point is 2040. The longer dated vintages show an over-weight to Non-US equities even in an MSCI ACWI scheme.

FIGURE 4: “THROUGH RETIREMENT” TDF UNIVERSE AVERAGE NON-US ALLOCATION | RELATIVE ASSET CLASS %



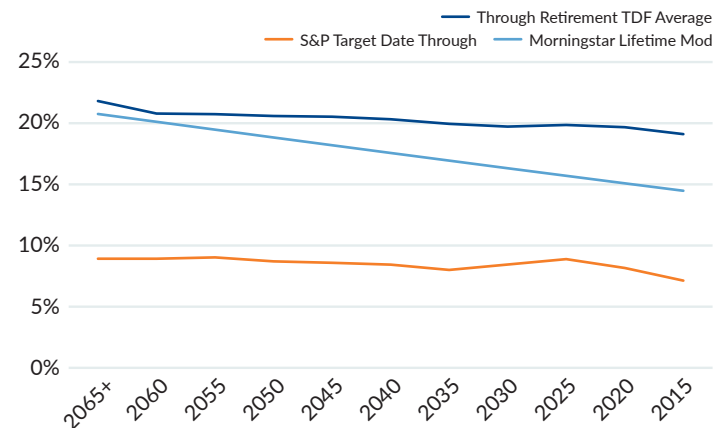
Source: MPI Stylus and Mesirow Calculations

Historically, over the longest historical broad-based data set from MSCI, which extends back to 1970, Non-US equities have returned less than the MSCI USA Index with a higher standard deviation. From January 1970 to July 2022, the MSCI USA returned 9.43% with a 15.36% standard deviation vs. 8.26% return and 16.77% standard deviation for the MSCI EAFE Index. The relatively low correlation between US and Non-US equities, however, still makes them attractive both historically, as well as in most forward-looking asset allocation modelling frameworks.

Therefore, although there are the biggest allocation differences observed along this particular dimension among providers, the presumed impact in terms of expected return and risk is model dependent and likely to vary from one provider to another.

As of mid-2022, the weight of MSCI Emerging Markets in the MSCI ACWI ex US benchmark is roughly 30%. Figure 5 shows the relative weight for the representative data sets in terms of emerging markets as a percentage of Non-US equities across vintage years.

FIGURE 5: “THROUGH RETIREMENT” TDF UNIVERSE AVERAGE EMERGING MARKET ALLOCATION | AS A PERCENTAGE OF NON-US EQUITY



Source: MPI Stylus and Mesirow Calculations

In contrast to overall Non-US equity weights, emerging markets as a percentage of Non-US equity is generally below the ‘market neutral’ weighting. In contrast to what we observe for Non-US equities, the TDF universe average starts out with higher relative weight to emerging markets than either the S&P Target Date benchmark set or the Morningstar Lifetime Moderate benchmark set.

While the TDF universe average to overall Non-US equities is relatively constant over time horizon, the weighting within Non-US equities declines slightly as the targeted time horizon shortens. The overall weighting to emerging markets as a relative percentage is higher for the TDF universe average than either of the reference benchmark sets.

For Morningstar, the overall allocation to Non-US equities declines rather steeply, but less so for the relative emerging market weight. For the S&P Target Date set, the overall Non-US weight also declines rather steeply with time horizon, while the emerging markets relative weighting is relatively constant. This may be reflective of the fact that the overall emerging markets weighting as a percentage of Non-US equities is fairly low to begin with for S&P, and therefore, to decrease it further may not be deemed necessary.

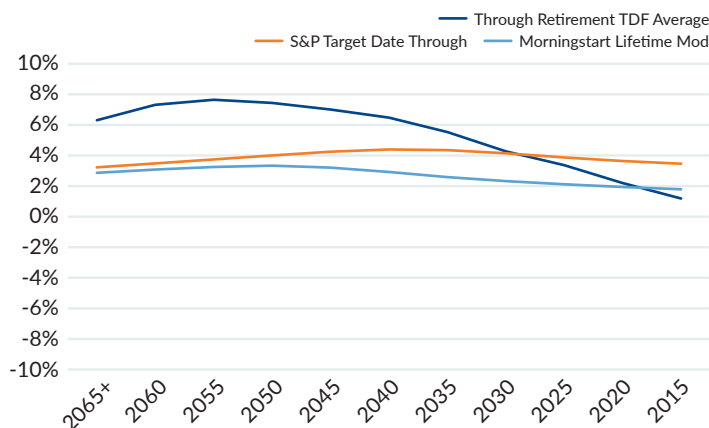
GROWTH/VALUE TILTS ACROSS VINTAGE YEARS

Interestingly, all of the representative data sets maintains an overall tilt towards growth stocks within the total equity allocation. Figure 6 shows the relative tilt to growth or value overall across vintage years. The TDF universe average starts out with a relatively high growth tilt, but this declines to neutral, while S&P and Morningstar benchmark sets have more modest growth tilts which vary little with time horizon.

While the very long-term historical data generally favors value equities, which has exhibited both higher returns and lower standard deviation than growth equities, this has not been true over the last 40 years. Over that time frame, growth has generally outperformed value in terms of return, albeit generally with higher volatility. The style of equities that provided the highest Sharpe ratio varied depending on the specific time frame of observation and specific benchmarks. For instance, in terms of the Russell 1000 Growth and Russell 1000 Value, the growth index was favored in terms of Sharpe Ratio for most trailing periods within the past twenty-five years, while the value index showed better for periods greater than 25 years as of mid-2022.

We are unable to ascertain whether providers are focusing more on the shorter time frames in their modelling process in this regard for constructing an overall growth tilt, or whether there are other considerations that come to bear. We can merely note that such an overall tilt exists.

FIGURE 6: TDF STYLE ALLOCATION - GROWTH TILT | RELATIVE ASSET CLASS %



Source: MPI Stylus and Mesirow Calculations

Conclusion

The biggest contribution to overall risk and return prospects for target date funds is determined at the aggregate asset allocation level in terms of the allocation to equities and fixed income. In this regard, we find a high level of consistency across the provider universe, as well as the benchmark reference sets from Morningstar and S&P.

There are still meaningful second-order differences in allocations within equities and fixed income, however, that contribute to variations in expected risk and return. In this paper, we highlight the various differences among the equity allocations, including size, international equities, emerging markets and style. The biggest differences occur with regard to international equity allocations and emerging markets within that broader segment.

About Mesirow

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1. Mincer, Jacob. 1958. "Investment in human capital and personal income distribution." *Journal of Political Economy* 66 (4): 281–302 | 2. Becker, Gary S. 1962. "Investment in human capital: A theoretical analysis." *Journal of Political Economy* 70 (5, Part 2): 9–49. | 3. Jagannathan, Ravi, and Narayana Kocherlakota, 1996, Why Should Older People Invest Less in Stocks than Younger People?, Federal Reserve Bank of Minneapolis Quarterly Review 20, 1123. | 4. Benartzi, Shlomo and Thaler Richard. "Heuristics and Biases in Retirement Savings Behavior", *Journal of Economic Perspectives – Volume 21, Number 3- Summer 2007*, PP.86-87 | 5. Gustafson and O'Neill, Mesirow Fiduciary Solutions, 2022. Unpublished working paper.

Index descriptions:

MSCI EAFE Index: The MSCI EAFE Index (Europe, Australasia, Far East) is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada. The MSCI EAFE Index consists of the following 22 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.

MSCI World Index: The MSCI World Index is a free float-adjusted market capitalization index that is designed to measure global developed market equity performance. As of May 2005, the MSCI World Index consisted of the following 23 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.

MSCI ACWI Index: Captures large and mid cap representation across Developed Markets (DM) and Emerging Markets (EM) countries.

MSCI USA Index: The MSCI USA Index is designed to measure the performance of the large and mid cap segments of the US market.

Russell Top 200 Index: A market capitalization weighted index of the 200 largest companies in the Russell 3000 index.

Russell 1000® Growth Index: Measures the performance of the large-cap growth segment of the US equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000® Value Index: Measures the performance of the large-cap value segment of the US equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values.

Russell 2000® Index: Measures the performance of the small-cap segment of the US equity universe. The Russell 2000 Index is a subset of the Russell 3000 Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2,000 of the smallest securities based on a combination of their market cap and current index membership.

Russell 3000 Index: A market capitalization weighted equity index that provides exposure to the entire U.S. stock market.

Russell Mid Cap® Index: Measures the performance of the mid-cap segment of the US equity universe and is a subset of the Russell 1000 Index. It includes approximately 800 of the smallest securities based on a combination of their market cap and current index membership. The Russell Midcap Index represents approximately 31% of the total market capitalization of the Russell 1000 companies.

S&P 500 Index: Often abbreviated as S&P 500, is an American stock exchange market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ. The S&P 500 index components and their weightings are determined by S&P Dow Jones Indices.

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S&P 1500 Index: Combines three leading indices, the S&P 500®, the S&P MidCap 400®, and the S&P SmallCap 600®, to cover approximately 90% of U.S. market capitalization. It is designed for investors seeking to replicate the performance of the U.S. equity market or benchmark against a representative universe of tradable stocks.

S&P 400 Index: A stock market index that serves as a gauge for the US mid-cap equities sector and is the most widely followed mid-cap index.

S&P 600 Index: A stock market index that serves as a gauge for the US small-cap equities.

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