

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 Qualified Default Investment Alternative (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, which 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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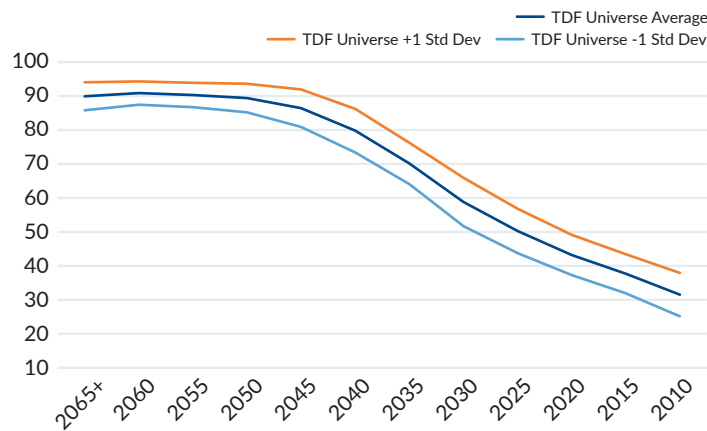
Contents

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

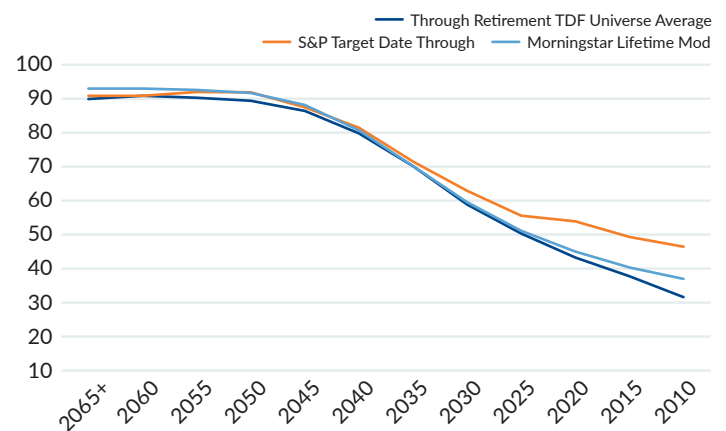
FIGURE 1: “THROUGH RETIREMENT” TDF UNIVERSE DATA | EQUITY ALLOCATION



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 biggest difference occurs in the long-dated vintage years, where the Morningstar series has higher relative equity allocations. The S&P Target Date Through Benchmarks are also largely similar, but have a slightly higher equity allocation, and by extension, a higher risk profile across much the lifecycle. The S&P Target Date Through series has higher equity allocations than those of the TDF universe that are one standard deviation above the mean across the near-dated vintage years (post-retirement).

FIGURE 2: TDF UNIVERSE DATA | EQUITY ALLOCATION



Source: MPI Stylus and Mesirow Calculations

This is interesting because, by construction, the “S&P Through” series should represent the average of through “TDF Through” providers. The Morningstar benchmark set is meant to be prescriptive, representing Morningstar’s total wealth, human capital-based portfolio construction in determining an appropriate glide path. The S&P is meant to be descriptive in that it utilizes TDF holdings from Morningstar and supplemented by Form N-G filings with a specific set of criteria for determining those that get classified as “through” TDFs.

Subsequently, they employ a 90/10 percentile-driven approach that is designed to winsorize outliers in determining the asset allocation. They exclude any TDF families with assets less than \$100 million. They also have certain interpolation approaches in a glide path where if adjacent vintage years are not monotonic, they will alter the recorded data to infer what an allocation should be. They might also utilize more than one representative fund from a series in a vintage year.

Overall, this is similar to our target date fund category approach, where we also utilize a winsorization approach to handle outlier data; however, we select one representative share class per provider per vintage year that represents the oldest share class and have no assets under management criteria exclusions. In both the S&P and Mesirow classification approaches, a “to” provider is identified as one that goes from the 2020 vintage year straight to a retirement portfolio, whereas a “through” provider will include vintage years, such as 2015 and 2010, beyond the most recent past vintage year.

Despite these noted differences, there is still a surprising overall similarity across both the fund universe (Figure 1) and relative to the Morningstar and S&P 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, in fact, allocation similarity is not driven by underlying modeling methodology.

Allocations within equity

SIZE EXPOSURE CONSISTENT ACROSS VINTAGE YEARS

Allocations along the size spectrum differ substantially between the average fund in the universe and that of both 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.

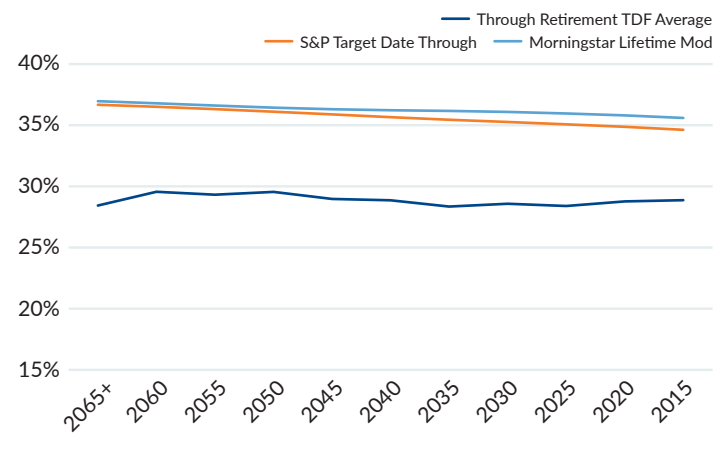
In this context, it is useful to understand what is meant by an allocation to SMID, which is a combination of the allocation to Midcap and Smallcap based on the Morningstar schema. Morningstar defines Megacap as the top 40% of stocks in the equity universe, Largecap as the next 30%, Midcap as the next 20% and Smallcap as 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.

It should be noted that this framework aligns reasonably well with Russell, where the Top 200 Index (i.e. Megacap/ Largecap in Morningstar schema) 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 index framework is quite different, where 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 average 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 concomitant 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 and the size premium. The target date fund universe allocation that is one standard deviation above the mean is roughly at 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 many vintage years, representing a meaningful exposure difference to the expected size premium versus the average target date fund.

FIGURE 3: TDF SIZE ALLOCATION | RELATIVE SMID ALLOCATION %



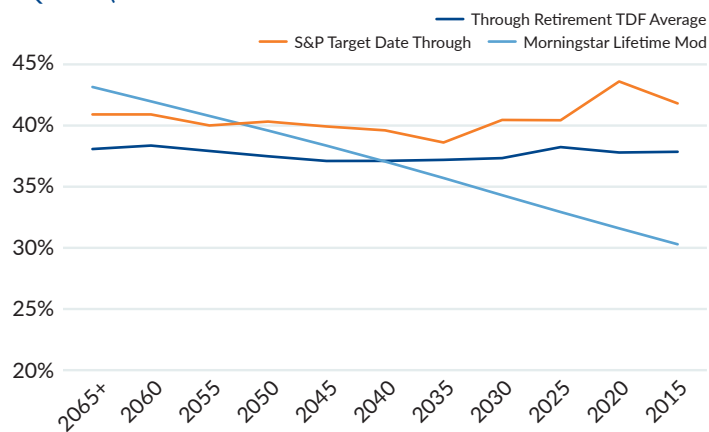
Source: MPI Stylus and Mesirow Calculations

This roughly 10% higher average 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 December 2022, the standard deviation ratio for a proportional weighting of Russell Midcap Index and Russell 2000 Index combined 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 risk would be slightly less than that, however, as the correlation between the Largecap and SMID assets is less than one, albeit relatively high.

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 relatively well defined, but it is still useful to understand what percentage represents a “market neutral” position in terms of total global equity capitalization as a reference point. The MSCI USA Index represents roughly 70% of the MSCI World Index and 62% of the MSCI ACWI Index as of the end of 2022. Therefore, Non-US equities represent roughly 30%-38%, which would be technically “market neutral” in global terms.

FIGURE 4: “THROUGH RETIREMENT” TDF UNIVERSE AVERAGE NON-US ALLOCATION AS SHARE OF TOTAL EQUITY (%)



Source: MPI Stylus and Mesirow Calculations

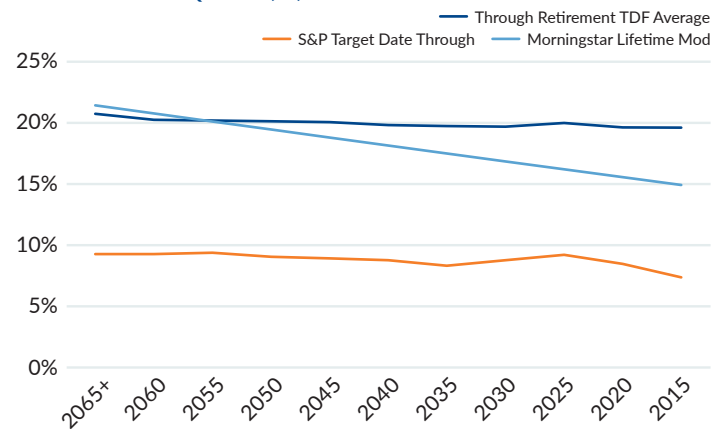
The TDF Through Universe average data set in the graph show an allocation across the lifecycle that is in line with this 30%-38% weighting band. On average, these allocations seem to be most consistent with an MSCI ACWI weighting scheme. The appropriate allocation for US-domiciled investors saving for 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

In contrast, the Morningstar Lifetime Moderate benchmark funds start out substantially higher than the TDF universe average for the long-dated vintage year funds. The longer dated vintages show an over-weight to Non-US equities relative to “market neutral,” even in an MSCI ACWI scheme.

The S&P Target Date series is very choppy with higher relative allocations in the sleeves after retirement, which appears odd and is difficult to justify.

Historically, the longest-lived, broad-based data set from MSCI, which extends back to 1970, shows that Non-US equities have returned less than the MSCI USA Index with a higher standard deviation. From January 1970 to December 2022, the MSCI USA returned 9.21% with a 15.45% standard deviation vs. 8.22% return and 16.86% standard deviation for the MSCI EAFE Index. The relatively low correlation (0.66 over the same period) between US and Non-US equities, however, still makes them attractive both historically as well as in most forward-looking asset allocation modeling frameworks. Therefore, although there are differences observed along this particular dimension among benchmark providers and the average TDF, the presumed impact in terms of overall portfolio expected return and risk is model dependent and likely to vary from one provider to another.

FIGURE 5: “THROUGH RETIREMENT” TDF UNIVERSE AVERAGE EMERGING MARKET ALLOCATION AS SHARE OF NON-US EQUITY (%)



Source: MPI Stylus and Mesirow Calculations

As of year-end 2022, the weight of MSCI Emerging Markets in the MSCI ACWI ex US benchmark is roughly 30%, which would indicate the “market neutral” threshold. 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. In contrast to overall Non-US equity weights, emerging markets as a percentage of Non-US equity is below the “market neutral” weighting for all sets.

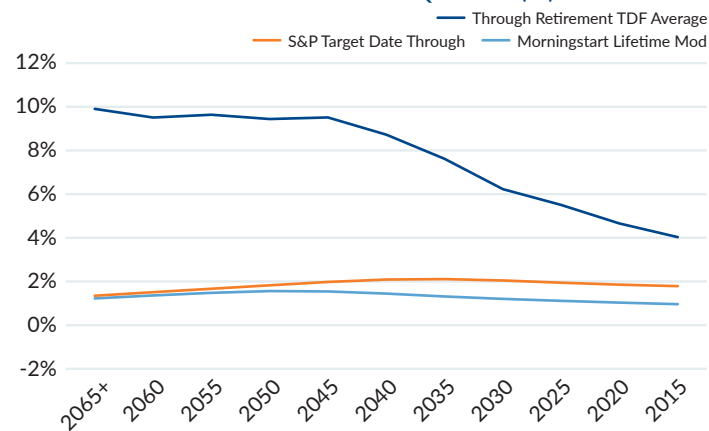
For Morningstar and the TDF Universe Average, the weighting within Non-US equities declines slightly as the targeted time horizon shortens. The overall weighting to emerging markets as a relative percentage is higher for the TDF universe average than either of the reference benchmark sets for most vintage years.

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 and emerging markets relative weighting is relatively constant with time horizon.

GROWTH/VALUE TILTS ACROSS VINTAGE YEARS

Interestingly, all of the representative data sets maintain 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, which is specified as a growth tilt being positive and a value tilt being negative. The TDF universe average starts out with a relatively high growth tilt that declines with time horizon, while S&P and Morningstar benchmark sets have more modest growth tilts that start out essentially neutral for long-dated portfolios while becoming more growth-oriented for near-dated vintage years.

FIGURE 6: TDF STYLE ALLOCATION - GROWTH TILT | GROWTH LESS VALUE ACROSS EQUITIES (%)



Source: MPI Stylus and Mesirow Calculations

While the very long-term historical data generally favors value equities, exhibiting 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 25 years, while the value index showed better ratios for periods greater than 25 years as of year-end 2022.

We are unable to ascertain whether providers are focusing more on the shorter time frames in their modeling process in this regard for constructing an overall growth tilt, or whether there are other considerations that come to bear in the prevalent growth-tilted portfolio construction.

Conclusion

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

Interestingly, although S&P is constructed to represent an overall average of target date funds, we find notable divergences for the S&P Target Date benchmark reference set and the overall universe averages that we calculate in many regards – particularly at more delineated asset class levels. The overall universe average is actually closer to the Morningstar Lifetime Index benchmark reference set in many regards even though this is constructed via a methodology that is not meant to represent any extant target date funds.

There are meaningful second-order differences in allocations within the equity and fixed income sleeves that contribute to variations in expected risk and return. In this paper, we highlight the various differences among the equity sub-allocations, including size, international equities, emerging markets and style tilts. The overall universe average of TDFs is under weighted to the size premium, more or less in line with a “market neutral” international weighting, but with less exposure to the emerging market segment and has a sizeable growth tilt. We suspect that some of these divergences are driven by focusing more on recent asset class data relative to long-term data in weighting decisions.

About Mesirow

Mesirow is an independent, employee-owned financial services firm founded in 1937. Headquartered in Chicago, with locations around the world, we serve clients through a personal, custom approach to reaching financial goals and acting as a force for social good. With capabilities spanning Global Investment Management, Capital Markets & Investment Banking, and Advisory Services, we invest in what matters: our clients, our communities and our culture.

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To learn more about how Mesirow can help you, please contact us at fiduciaryinquiries@mesirow.com or visit mesirow.com/fiduciarysolutions.

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, "Fifty Years of Broad-based International Data: What Have We Learned for Asset Allocation?", 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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