

**S&P Dow Jones  
Indices**

A Division of **S&P Global**

# **S&P Target Date Index Series** *Methodology*

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# Introduction

## Index Objective

The S&P Target Date Index Series is designed to track the performance of a diversified array of financial assets and the investment opportunity generally available in target date funds.

## Highlights

The S&P Target Date Index Series comprises multi-asset class indices, each corresponding to a particular target retirement date. The asset allocation for each index in the series is determined once a year through survey of large fund management companies that offer target date products. Each index is fully investable, with varying levels of exposure to equities, fixed income and commodities.

The series comprises of the following indices:

- S&P Target Date Retirement Income Index
- S&P Target Date 2010 Index
- S&P Target Date 2015 Index
- S&P Target Date 2020 Index
- S&P Target Date 2025 Index
- S&P Target Date 2030 Index
- S&P Target Date 2035 Index
- S&P Target Date 2040 Index
- S&P Target Date 2045 Index
- S&P Target Date 2050 Index
- S&P Target Date 2055 Index
- S&P Target Date 2060+ Index

Target date index series are dynamic in the sense that new indices must be introduced, and legacy indices retired, as time passes. For funds tracking a particular target date index, the retirement of that index is akin to rolling the assets into a fund that tracks the Target Date Retirement Income Index. The latter index is effectively the ultimate endpoint for all assets tracking other indices in the series. S&P Dow Jones Indices retires near-dated target date indices if the annual survey determines a fund category is not represented by at least 20% of target date fund sponsors. New far-dated target date indices will launch if the annual survey determines at least 30% of target date fund sponsors contain the fund category.

## S&P Target Date Style Indices

The S&P Target Date Style Indices are created based on the standard S&P Target Date Indices, by classifying funds included in the annual target date fund holdings survey into two styles, the TO style and the THROUGH style. Please see *Appendix I* for the eligibility requirements of the Style indices.

## Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	<a href="#">Equity Indices Policies &amp; Practices</a>
S&P Dow Jones Indices' Index Mathematics Methodology	<a href="#">Index Mathematics Methodology</a>

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

# Eligibility Criteria

## Asset Class Eligibility

Existing asset classes in the index series must be employed by at least 25% of surveyed target date fund sponsors in one or more of their respective funds to remain eligible for inclusion. New asset classes must be employed by at least 30% of surveyed target date fund sponsors in one or more of their respective funds in order to be considered for inclusion. The indices are, therefore, composed of widely utilized asset classes. In terms of index construction, S&P Dow Jones Indices uses indices to track each asset class. The current universe of eligible asset classes and underlying benchmarks for each are as follows:

Asset Class	Index Name	Index Code
US LargeCap	S&P 500 (TR)	500TR
US MidCap	S&P 400 (TR)	400TR
US SmallCap	S&P 600 (TR)	600TR
International Equities	S&P Developed Ex-U.S. BMI (US Dollar) Net Total Return	SPCBMIRWUUSD.NTR
Emerging Market Equities	S&P Emerging BMI (US Dollar) Net Total Return	SPCBMIREMUSD.NTR
US REITs	Dow Jones U.S. Select REIT Total Return Index (USD)	DWRTFT
International REITs	S&P Developed Ex-U.S. REIT (US Dollar) Net Total Return	SPCBMIRWUREITUSD.NTR
Core Fixed Income	S&P U.S. Aggregate Bond Index TR	SPUSAGGT
Cash Equivalents	S&P U.S. Treasury Bond 0-1 Year Index Total Return	SPBDUS1TNC
TIPS	S&P US Treasury TIPS Index TR	SPBDUSPT
High Yield Corporate Bonds	S&P 500 High Yield Corporate Bond Index	SP5HYBITNC
Commodities	S&P GSCI TR	SPGSCITR

# Index Construction

## Approaches

Each year for its annual index reconstitution, S&P Dow Jones Indices conducts a survey of target date funds. S&P Dow Jones Indices combines raw survey data from legacy target dates (funds with dates that have already passed) with observations from the retirement income category. This sometimes results in more than one fund per target date sponsor being included in a single survey category. The overall process is as follows:

- Funds are identified as target date funds from the Morningstar databases and sorted by sponsor and asset size. Fund sponsors not meeting the minimum asset threshold of US\$ 100 million within their target date family are removed from consideration.
- Fund holdings are drawn from the Morningstar database, supplemented by the latest quarterly holdings filing (Form N-Q) available on the SEC's EDGAR website.
- Asset class exposures for the funds are derived by mapping the fund holdings to their corresponding asset class category. In cases where the surveyed funds hold balanced or other multi-asset class funds, we look through to the underlying asset allocation of these funds to determine their net effect on the asset allocation of the surveyed fund. For the purpose of the survey results, the allocation of mixed funds will be distributed with appropriate representative weights across the asset classes.

S&P Dow Jones Indices arrives at weights for each target date index by applying the following methods and rules to raw survey observations:

1. For each target date peer group, asset class values either below the 10<sup>th</sup> percentile or above the 90<sup>th</sup> percentile of raw values are replaced with the value corresponding to the 10<sup>th</sup> percentile or the 90<sup>th</sup> percentile, respectively. This mitigates outlier effects without diminishing the number of survey data points.
2. From the results of step 1, mean values of at least 0.5% for existing components and 1.5% for new components, are, then, proportionately adjusted to create weights that sum to 100% for each target date index.

## Index Calculations

The index is calculated by means of the weighted return method. For calculation details, refer to *S&P Dow Jones Indices' Index Mathematics Methodology*.

# Index Maintenance

## Rebalancing

**Annual Reconstitution.** Asset class weights are established annually on the last trading day of May, with reference data as of the last trading day of April.

**Monthly Reweighting.** The indices are rebalanced, effective after the close of business on the last trading day of each month, to reestablish the asset class weights determined during the previous annual reconstitution.<sup>1</sup>

The reference date for pricing is five business days prior to the rebalancing.

## Currency, Currency Hedged, and Risk Control Indices

Additional currency, currency hedged, and risk control versions of the indices may be available. For a list of available currency, currency hedged, and risk control indices, please contact Client Services at [index\\_services@spglobal.com](mailto:index_services@spglobal.com).

*For more information on currency, currency hedged, and risk control indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.*

## Base Dates and History

Index history availability and base dates are outlined in the table below:

Index	Base Date	First Value Date
<i>S&amp;P Target Date Indices:</i>		
S&P Target Date 2010 Index	31-May-07	29-Dec-00
S&P Target Date 2015 Index	31-May-07	29-Dec-00
S&P Target Date 2020 Index	31-May-07	29-Dec-00
S&P Target Date 2025 Index	31-May-07	29-Dec-00
S&P Target Date 2030 Index	31-May-07	29-Dec-00
S&P Target Date 2035 Index	31-May-07	29-Dec-00
S&P Target Date 2040 Index	31-May-07	29-Dec-00
S&P Target Date 2045 Index	31-May-07	31-May-05
S&P Target Date 2050 Index	31-May-11	31-May-06
S&P Target Date 2055 Index	31-May-12	31-May-07
S&P Target Date 2060+ Index	29-May-15	28-May-10
S&P Target Date Retirement Income Index	31-May-07	29-Dec-00
<i>S&amp;P Target Date Style Indices:</i>		
S&P Target Date Through 2010 Index	31-May-07	31-May-07
S&P Target Date Through 2015 Index	31-May-07	31-May-07
S&P Target Date Through 2020 Index	31-May-07	31-May-07
S&P Target Date Through 2025 Index	31-May-07	31-May-07
S&P Target Date Through 2030 Index	31-May-07	31-May-07
S&P Target Date Through 2035 Index	31-May-07	31-May-07
S&P Target Date Through 2040 Index	31-May-07	31-May-07
S&P Target Date Through 2045 Index	31-May-07	31-May-07
S&P Target Date Through 2050 Index	31-May-11	31-May-07
S&P Target Date Through 2055 Index	31-May-12	31-May-07
S&P Target Date Through 2060+ Index	31-May-16	31-May-11
S&P Target Date Through Retirement Index	30-May-14	30-May-14

<sup>1</sup> The first monthly rebalancing was effective after the close of Friday, February 26, 2010. Prior to this, weights were reset only during the May reconstitution.

Index	Base Date	First Value Date
<i>S&amp;P Target Date Style Indices (cont'd):</i>		
S&P Target Date To 2010 Index (retired May 2016)	31-May-07	31-May-07
S&P Target Date To 2015 Index	31-May-07	31-May-07
S&P Target Date To 2020 Index	31-May-07	31-May-07
S&P Target Date To 2025 Index	31-May-07	31-May-07
S&P Target Date To 2030 Index	31-May-07	31-May-07
S&P Target Date To 2035 Index	31-May-07	31-May-07
S&P Target Date To 2040 Index	31-May-07	31-May-07
S&P Target Date To 2045 Index	31-May-07	31-May-07
S&P Target Date To 2050 Index	31-May-11	31-May-07
S&P Target Date To 2055 Index	31-May-12	31-May-07
S&P Target Date To 2060+ Index	31-May-16	31-May-11
S&P Target Date To Retirement Index	30-May-14	30-May-14

All information presented prior to the inception date is back-tested. Back-tested calculations prior to May 2005 are based on an extrapolation of asset class weights. The 2001 weights were set by applying the 2006 weights with the equivalent time to respective target dates. For example, the 2001 asset allocation of the 2020 target date is equal to the observed 2006 asset allocation of the 2025 target date. Weights for the Retirement Income series are identical for both 2001 and 2006. For the period from 12/29/2000 to 5/31/2001, the target asset class weights are equivalent to those which were in effect as of 6/1/2001. For the period from 6/1/2001 to 5/31/2005, the asset class weights are derived by smoothing asset allocations from the 2001 starting point to the observed 2005 asset allocation.

New Target Date indices are launched with five years of history, with historical returns matching those of the closest dated index.<sup>2</sup> For example, history for the Target Date 2055 Index (launched in May 2012) matches the returns of the Target Date 2050 Index back to May 2007.

<sup>2</sup> The S&P Target Date To Retirement Index and S&P Target Date Through Retirement Index were launched with history going back to their inception date (May 30, 2014).

# Index Governance

## Index Committee

The S&P Dow Jones Indices' Americas Thematic and Strategy Index Committee maintains the S&P Target Date Index Series. The Committee meets regularly. At each meeting, the Committee reviews matters that may affect index constituents, statistics comparing the composition of the indices to the market, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting constituents, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

*For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

# Index Policy

## **Holiday Schedule**

The S&P Target Date Index Series is calculated daily on all business days in which at least one component index is calculated.

## **Rebalancing**

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

## **Unexpected Exchange Closures**

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

## **Recalculation Policy**

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

*For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

## **Contact Information**

For questions regarding an index, please contact: [index\\_services@spglobal.com](mailto:index_services@spglobal.com).

# Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at [www.spdji.com](http://www.spdji.com), major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

## Tickers

The table below lists headline indices covered by this document. All currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact [index\\_services@spglobal.com](mailto:index_services@spglobal.com) for a complete list of indices covered by this document.

Index (Total Return)	Bloomberg	Reuters
<i>S&amp;P Target Date Indices:</i>		
S&P Target Date 2010 Index	SPTGT10T	.SPTGT10T
S&P Target Date 2015 Index	SPTGT15T	.SPTGT15T
S&P Target Date 2020 Index	SPTGT20T	.SPTGT20T
S&P Target Date 2025 Index	SPTGT25T	.SPTGT25T
S&P Target Date 2030 Index	SPTGT30T	.SPTGT30T
S&P Target Date 2035 Index	SPTGT35T	.SPTGT35T
S&P Target Date 2040 Index	SPTGT40T	.SPTGT40T
S&P Target Date 2045 Index	SPTGT45T	.SPTGT45T
S&P Target Date 2050 Index	SPTGT50T	.SPTGT50T
S&P Target Date 2055 Index	SPTGT55T	.SPTGT55T
S&P Target Date 2060+ Index	SPTGT60T	.SPTGT60T
S&P Target Date Retirement Income Index	SPTGRIT	.SPTGRIT
<i>S&amp;P Target Date Style Indices:</i>		
S&P Target Date Through 2010 Index	SPTDR10T	--
S&P Target Date Through 2015 Index	SPTDR15T	--
S&P Target Date Through 2020 Index	SPTDR20T	--
S&P Target Date Through 2025 Index	SPTDR25T	--
S&P Target Date Through 2030 Index	SPTDR30T	--
S&P Target Date Through 2035 Index	SPTDR35T	--
S&P Target Date Through 2040 Index	SPTDR40T	--
S&P Target Date Through 2045 Index	SPTDR45T	--
S&P Target Date Through 2050 Index	SPTDR50T	--
S&P Target Date Through 2055 Index	SPTDR55T	--
S&P Target Date Through 2060+ Index	SPTDR60T	--
S&P Target Date Through Retirement Index	SPTDRRIT	--
S&P Target Date To 2010 Index (retired May 2016)	SPTD10T	--
S&P Target Date To 2015 Index	SPTD15T	--
S&P Target Date To 2020 Index	SPTD20T	--
S&P Target Date To 2025 Index	SPTD25T	--
S&P Target Date To 2030 Index	SPTD30T	--
S&P Target Date To 2035 Index	SPTD35T	--
S&P Target Date To 2040 Index	SPTD40T	--
S&P Target Date To 2045 Index	SPTD45T	--
S&P Target Date To 2050 Index	SPTD50T	--
S&P Target Date To 2055 Index	SPTD55T	--
S&P Target Date To 2060+ Index	SPTD60T	--
S&P Target Date To Retirement Index	SPTDRIT	--

**FTP**

Index constituent and index level data are available via FTP subscription.

*For product information, please contact S&P Dow Jones Indices, [www.spdji.com/contact-us](http://www.spdji.com/contact-us).*

**Web site**

*For further information, please refer to S&P Dow Jones Indices' Web site at [www.spdji.com](http://www.spdji.com).*

# Appendix I – S&P Target Date Style Indices

The following steps are used to determine the constituents of the holdings survey for each of the S&P Target Date Style Indices:

**Step 1.** Once the universe for the standard S&P Target Date Series Indices is determined, a Target Date Style framework is developed by defining some key terms.

- **Reference Year (RY).** The referenced survey year.
- **Static Equity Allocation.** The equity allocation of the terminal asset allocation, which is when equity exposure of the target date fund reaches its final allocation.
- **N.** The number of years that the reduction of the equity allocation continues beyond the target date maturity of a target date fund.

**Step 2.** A Target Date Maturity Grid is created based on the survey results. For each Target Date Fund (TDF) Series included in the survey, the allocations related to equity asset classes are aggregated for each of the target date funds within the fund family.

**Step 3.** When there are gaps in the Target Date Maturity Grid, hypothetical target date funds are created called fund equivalents:

- The Retirement Income Fund Equivalent (RFE)
- The Past Fund Equivalent (PFE)
- The Approaching Fund Equivalent (AFE)
- The Next-Approaching Fund Equivalent (NAFE)

**Step 4.** The Fund Equivalents are created at five-year increments as follows:

- For the RFE: if a TDF Series has a Target Date Retirement Income Fund in place, the equity allocation of that fund is assigned to the RFE; if not, the static equity allocation is assigned to RFE.
- For the PFE: the Past Fund is a target date fund which has passed its stated target date maturity for a given Reference Year. If a TDF Series has a Past Fund, the equity allocation of the Past Fund is assigned to the PFE; otherwise:
  - a) If  $N > 0$ , interpolate between the RFE and the next available target date fund, and assign the interpolated equity allocation to the PFE.
  - b) If  $N = 0$ , assign the equity allocation of the RFE to the PFE.
- For the AFE: the Approaching Fund is a target date fund approaching its target date maturity in a given Reference Year. If a TDF Series has an Approaching Fund in place, the equity allocation of the Approaching Fund is assigned to the AFE; otherwise:
  - a) If  $N > 0$ , assign the interpolated equity allocation of the Past Fund Equivalent (PFE) and the next available target date maturity fund to the AFE.
  - b) If  $N = 0$ , assign the equity allocation of the PFE to the AFE.
- For the NAFE: the Next Approaching Fund is the target date fund right after the Approaching Fund or the Approaching Fund Equivalent. If a TDF Series has a Next Approaching Fund, the equity allocation of the Next Approaching Fund is assigned to the NAFE; otherwise:
  - a) If  $N > 0$ , interpolate between the AFE and the next available target date maturity fund, and assign the interpolated equity allocation to the NAFE.

- b) If  $N=0$ , assign the equity allocation of the AFE to the NAFE.
- The Target Date Fund Equivalent closest to the Reference Year (TFE) is used, which is the target date fund or fund equivalent falling on the Reference Year or closest to the Reference Year, be it a past or an approaching fund. For example, if  $RY=2012$ , the closest TFE is the PFE (2010). If  $RY=2013$ , the closest TFE is the AFE (2015).

**Step 5.** Two style factors are defined:

1. Equity Exposure Factor: the average of the equity allocations of the TFE and the RFE.
2. Equity Exposure Differential Factor: the difference between the equity allocations of the TFE and the RFE.

**Step 6.** Develop a Style Score. Each TDF Series is assigned a score for its Equity Exposure Factor and its Differential Factor, combined equally to a Composite score.

**Step 7.** Based on the Style Scores, the TDF Series in the survey are partitioned by count into three equal segments. The segment with the lowest Style Scores are included in the "TO" category, while the segment with the highest Style Scores are included in the "THROUGH" category.

**Step 8.** Style portfolio weights are obtained by following the same procedure used for the standard target date indices, applied to the appropriate TDF Series included in the style categories.

## Appendix II – Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Migration to Index of Indices	5/31/2017	In terms of index construction, S&P Dow Jones Indices uses ETFs to track each asset class. The indices are calculated by means of the divisor method.	In terms of index construction, S&P Dow Jones Indices uses indices to track each asset class. The indices are calculated by means of the weighted return method.
Removal of Fitted Curve	5/31/2017	In order to smooth variations in asset class allocations between target dates, a curve is fitted to the preliminary weight values for each asset class across target dates. Weights must be 0% or greater than or equal to 0.5%, and they must sum to 100%. Allocations along the fitted curve for each asset class and target date are designated as final index weights.	S&P Dow Jones Indices has discontinued the application of a fitted curve to finalize index representation of each asset class across target date years in the indices.
Index Launch Process	5/31/2016	New far-dated Target Date indices are launched if the annual survey determines a fund category has at least 15 target date fund sponsors (10 for Target Date To/Through).	New far-dated Target Date funds are launched if the annual survey determines at least 30% of target date fund sponsors contain the fund category.
Index Retirement Process	5/31/2016	S&P Dow Jones retires near-dated target date indices if the annual survey determines a fund category has fewer than 15 target date fund sponsors (10 for Target Date To/Through).	Near-Dated Target Date indices are retired if the annual survey determines the category is not represented by at least 20% of target date fund sponsors.

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