

# **S&P 500 Trend Allocator Indices** *Methodology*

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# Introduction

## Index Objective

The S&P 500 Trend Allocator Indices are indices of indices that measure the performance of a strategy allocating 100% of sub-index weight to either the S&P 500 or cash. If the S&P 500 Total Return index is observed to be in a positive trend as defined in Index Construction below, then the Trend Allocator Indices are allocated to the S&P 500. Otherwise, the Trend Allocator Indices are allocated to cash.

## 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.

# Index Construction

At the close of each business day, a trend signal is calculated based on the closing value of the S&P 500 Total Return index (the “Allocation Indicator Index”) compared to its prior 200-day Simple Moving Average (SMA). The SMA is defined as the average of the last 200 closing values of the S&P 500 Total Return index. The trend signal is positive if the last five consecutive closing values of the S&P 500 Total Return index are equal to or greater than the SMA. The trend is negative if the last five consecutive closing index values are below the SMA. The trend signal does not change from its current status until there have been five consecutive days of index values indicating a signal change.

The trend signal is used as an indicator for asset class allocation. The underlying assets for the index family for each trend signal are listed below:

Index	Allocation Indicator Index	Signal	Underlying Asset Type	Underlying Asset
S&P 500 Trend Allocator PR Index	S&P 500 Total Return	Positive	Equity Index	S&P 500 Price Return Index
		Negative	Cash	Federal Funds Effective Rate
S&P 500 Trend Allocator TR Index	S&P 500 Total Return	Positive	Equity Index	S&P 500 Total Return Index
		Negative	Cash	Federal Funds Effective Rate

## Asset Allocation Determination

On any trading date,  $t$ , the trend signal,  $Z_t$ , is determined as follows:

$$Z_t = \begin{cases} 1 & \text{if, for all } d = 4, 3, 2, 1, 0 \text{ } All_{t-d} \geq SMA(All)_{t-d} \\ 0 & \text{if, for all } d = 4, 3, 2, 1, 0 \text{ } All_{t-d} < SMA(All)_{t-d} \\ Z_{t-1} & \text{otherwise} \end{cases}$$

where:

$All_t$  = Allocation Indicator Index value (i.e. the S&P 500 Total Return Index)

$SMA_t$  = 200-day simple moving average

with:

$Z_t(1)$  = Positive signal

$Z_t(0)$  = Negative signal

## Index Calculation

On any trading date,  $t$ , each index is calculated as follows:

$$Index_t = Index_{t-1} * (1 + Asset Return_t)$$

where:

$Index_{t-1}$  = Previous trading day's index value

$Asset Return_t$  = Daily return of invested asset class

The *Asset Return* on any trading date,  $t$ , is calculated as follows for the applicable invested asset:

$$\text{Asset Return (Equity Index)} = \frac{IV_t}{IV_{t-1}} - 1$$

$$\text{Asset Return (Cash)} = \left( \frac{\text{cash}_{t-1}}{360} \right) * (\text{days})$$

where:

$IV_t$  = Equity index value (i.e. the S&P 500 Price Return index value for the S&P 500 Trend Allocator PR Index or S&P 500 Total Return index value for the S&P 500 Trend Allocator TR Index)

$\text{cash}$  = U.S. Federal Funds Effective Rate as published on Reuters code "USONFFE="

$\text{days}$  = Number of calendar days from trading date  $t$  to previous trading date  $t-1$

*For more information on the index calculation methodology, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.*

# Index Maintenance

## Rebalancing

The trend signal is reviewed at the close on each trading date, using the official closing values of the underlying allocation indicator index. If the trend signal changes on a given trade day, then an index rebalancing is triggered. The effective date for the index rebalancing is after the close of the next trading day, also referred to as the open of two trading days in the future.

## Currency, Currency Hedged, and Risk Control Indices

The indices are calculated in U.S. dollars.

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 Availability

Index history availability, base dates and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P 500 Trend Allocator PR Index	11/02/2015	05/22/1991	05/22/1991	100
S&P 500 Trend Allocator TR Index	11/02/2015	05/22/1991	05/22/1991	100

# Index Governance

## **Index Committee**

The indices are maintained by an S&P Dow Jones Indices Index Committee. All committee members are full-time professional members of S&P Dow Jones Indices' staff. The Committee meets regularly. At each meeting, the Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, 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

## **Announcements**

Rebalancing announcements, if needed, are made at the close of two trading days prior to the rebalancing effective open date.

*For more information, please refer to the Announcements section of S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

## **Holiday Schedule**

The index is calculated when the U.S. equity markets are open.

A complete holiday schedule for the year is available at [www.spdji.com](http://www.spdji.com).

## **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	Bloomberg
S&P 500 Trend Allocator PR Index	SPTRALUP
S&P 500 Trend Allocator TR Index	SPTRALUT

## Index Data

Daily index level data is available via 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).*

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