## S&P Dow Jones Indices

A Division of S&P Global

# S&P 1500 Tilt Indices Methodology

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## Introduction

#### **Index Objective**

The S&P 1500 Tilt Indices measure the performance of strategies that overweight (underweight) S&P 1500 stocks relative to the underlying index in such a way that results in greater (lesser) representation of specifically defined attributes versus the underlying index.

### **Highlights and Index Family**

At each rebalancing, the S&P 1500 Tilt Indices maintain the constituents of the underlying index while adjusting constituent weights.

- S&P 1500 Reduced Volatility Tilt Index. Index constituents are weighted so that, relative to the
  underlying index, stocks with relatively low volatility are overweight and stocks with relatively high
  volatility are underweight.
- **S&P 1500 Positive Momentum Tilt Index.** Index constituents are weighted so that, relative to the underlying index, stocks with relatively strong momentum are overweight and stocks with relatively weak momentum are underweight.
- S&P 1500 Low Valuation Tilt Index. Index constituents are weighted so that, relative to the
  underlying index, companies with relatively low valuations are overweight and companies with
  relatively high valuations are underweight.

Many of the characteristics of capitalization-weighting are retained, as changes in market capitalization between rebalancing dates affect the weights of the constituents.

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.

#### **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	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology

# Eligibility Criteria

### **Index Eligibility**

Index composition is derived from the constituents of the underlying index – the S&P Composite 1500.

For information on the S&P Composite 1500, please refer to the S&P U.S Indices Methodology available at <a href="https://www.spglobal.com/spdii/">www.spglobal.com/spdii/</a>.

### **Multiple Classes of Stock**

All publicly listed multiple share class lines are eligible for index inclusion, subject to meeting the eligibility criteria. For more information regarding the treatment of multiple share classes, please refer to Approach A within the Multiple Share Classes section of the S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

**S&P 1500 Reduced Volatility Tilt Index and S&P 1500 Positive Momentum Tilt Index.** Each share class line is allocated to a basket independently based on its own attributes and float-adjusted market capitalization.

**S&P 1500 Low Valuation Tilt Index.** Relative valuation is determined on a company level and is shared by the multiple share class lines. Each company is allocated to a basket based on the company relative valuation and combined float-adjusted market capitalization.

## **Index Construction**

#### **Index Composition**

At each rebalancing, the S&P 1500 Tilt Indices maintain the same index composition as that of the underlying index.

### **Constituent Weightings**

The indices employ a weighting scheme which seeks to overweight stocks which have exhibited a relatively higher degree of a given attribute and underweight stocks that have exhibited a relatively lower degree of the attribute.

The indices tilt by allocating weight across 20 attribute-sorted, capitalization-weighted baskets, each of which represents approximately 5% of the market capitalization of the underlying index. Securities are allocated to one, and only one, basket. Securities that breach the target 5% weight increment are allocated to the basket that minimizes the difference between the actual breakpoint and the target breakpoint. The tilt is achieved by applying a factor to each basket (and, therefore, to each basket constituent) that determines the allocation of weight to each basket at reconstitution. The weight of each stock in the index is proportional to its float-adjusted market capitalization and its basket allocation factor.

For more information, please refer to Capped Market Capitalization Indices section of S&P Dow Jones Indices' Index Mathematics Methodology.

**S&P 1500 Reduced Volatility Tilt Index.** Stocks are sorted based on the variance of their previous 60 monthly price returns (or all monthly returns if a stock does not have a 60-month history). Stocks are then assigned to a basket based on the rules above. The variance of each basket is calculated as a weighted average (with weights based on the weights in the underlying index) of the variance of stocks in the basket. The standard deviation of each basket is derived as follows:

$$Basket\_stdev_{j} = \sqrt{\sum_{i=1}^{n} (IndexCap_{i_{0}} / IndexCap_{j_{0}}) * var_{i_{0}}}$$
 (1)

where:

 $IndexCap_{i=0}$  = Float-adjusted market cap of constituent *i* in the underlying index.

 $IndexCap_{i,0}$  = Total float-adjusted market cap of basket j in the underlying index.

 $Var_{i,60}$  = Variance of constituent *i* measured over the previous 60 monthly price returns.

The basket adjustment factor is then arrived at by dividing the inverse of each basket standard deviation by the sum of the products of the inverse standard deviation and the weight of each basket.

$$Basket \_InvSD_i = 1/(Basket \_stdev_i)$$
 (2)

$$Basket\_Alloc\_Factor_j = Basket\_InvSD_j / (\sum_{i=1}^{20} Basket\_cap\_wt_j * Basket\_InvSD_j)$$
 (3)

where:

Basket\_Alloc\_Factor<sub>i</sub> = The volatility tilt factor of basket j.

**S&P 1500 Positive Momentum Tilt Index.** Stocks are sorted in ascending order by their 11-month total return ending on the rebalancing reference date and are assigned to a basket based on the rules above. For stocks with less than 11 months trading history, the total return is taken from the initial listing date. Stocks in each basket are assigned unadjusted momentum factors based on the following table:

	Unadjusted		Unadjusted
Basket	Momentum Factor	Basket	Momentum Factor
1	0.05	11	1.05
2	0.15	12	1.15
3	0.25	13	1.25
4	0.35	14	1.35
5	0.45	15	1.45
6	0.55	16	1.55
7	0.65	17	1.65
8	0.75	18	1.75
9	0.85	19	1.85
10	0.95	20	1.95

To maintain consistency with the total market capitalization of the underlying index, these factors are adjusted by dividing each factor by the sum of the product of the weight and the momentum factor of each of the baskets as follows:

$$Adj\_Mom\_Factor_j = Unadj\_Mom\_Factor_j / (\sum_{j=1}^{20} Basket\_cap\_wt_j * Unadj\_Mom\_Factor_j)$$
 (4)

where:

 $Adj\_Mom\_Factor_i$  = Adjusted momentum factor for basket j.

Unadj Mom Factor = Unadjusted momentum factor for basket j.

 $Basket\_cap\_wt_i$  = Weight of basket *j* in the underlying index as of the reference date.

**S&P 1500 Low Valuation Tilt Index.** Companies are sorted based on their relative valuation and are assigned to a basket based on the rules above. Relative valuation is determined in a four-step process:

First, a "factor weight" for each company is calculated for each of the following fundamental factors: (1) last 12 months reported earnings, (2) last 12 months cash flow, (3) last 12 month sales, (4) last 12 months ordinary dividends and (5) reported book value. Factor weights are calculated at the aggregate (not per-share) level and are based on float-adjusted market capitalization. A company's factor weight denotes the ratio of the company's fundamental factor to the aggregate value of that factor for the underlying index. For example, if a company's factor weight for book value is 1.0%, that means that 1.0% of the underlying index's aggregate book value is accounted for by that company. Factor weights are computed for each of the last five years using historical financial data. For any 12-month period, any negative or unreported fundamental value is set to zero. For non-dividend paying companies, dividends are imputed at the cap-weighted yield of dividend paying companies in the universe.

Second, the factor weights for each company in each year are averaged to calculate a composite factor weight. This provides a series of five composite factor weights (one for each of the past five years) for each company in the universe.

Third, a single composite factor weight for each company is calculated by exponential smoothing as follows:

$$F_{\text{smoothed \_i\_f}} = W_4 * F_{t-4} + W_3 * F_{t-3} + W_2 * F_{t-2} + W_1 * F_{t-1} + W_0 * F_t$$
(5)

where:

$$w_0 = 0.35$$
  $w_3 = 0.11$   $w_1 = 0.29$   $w_2 = 0.20$ 

Finally, the relative valuation for each company *i* is then computed as:

$$Relative\_P/F_i = \frac{IndexCap_i}{\sum_{f=1}^{5} (F_{smoothed\_i\_f} / \sum_{i=1}^{n} F_{smoothed\_i\_f})/5}$$
(6)

where:

n = The total number of companies in the universe

Companies are ranked based on their relative valuation and broken into baskets. The relative valuation for each basket is calculated as:

$$Relative\_P/F_{basket\_j} = \frac{IndexCap_{basket\_j}}{\sum_{f=1}^{5} (F_{smoothed\_basket\_j\_f} / \sum_{j=1}^{20} F_{smoothed\_basket\_j\_f})/5}$$
(7)

where:

$$F_{smoothed\_basket\_j\_f} = \sum_{i=1}^{n} F_{smoothed\_i\_f}$$

n = the total number of companies in basket j

The valuation factor for each basket is then calculated as:

Valuation 
$$\_Factor_{basket}$$
  $_{i} = 1/(Relative \_P/F_{basket})$ 

where:

 $Valuation\_Factor_{basket\_j} = Valuation factor of basket j.$   $Relative\_P/F_{basket\_j} = Relative valuation of basket j.$ 

#### **Index Calculations**

The indices calculate using the divisor methodology used in most S&P Dow Jones' equity indices.

For more information index calculations, please refer to the Capped Market Capitalization Weighted Indices section of S&P Dow Jones Indices' Index Mathematics Methodology.

### **Index Maintenance**

### Rebalancing

**S&P 1500 Reduced Volatility Tilt Index and S&P 1500 Low Valuation Tilt Index.** The indices are rebalanced annually, effective after the close on the third Friday of April. The rebalancing reference date is after the close of the last business day of March.

**S&P 1500 Positive Momentum Tilt Index.** The index is rebalanced quarterly, effective after the close on the third Friday of January, April, July, and October. The rebalancing reference date is after the close of the last business day of December, March, June and September, respectively.

If a stock is removed from the underlying index between the rebalancing reference and effective dates, the weight of the removed stock is proportionately redistributed among all other stocks in the index. Additions to the underlying index effective after the rebalancing reference date are excluded from the S&P 1500 Tilt Indices.

Constituents' shares are calculated using closing prices on the second Friday of the rebalancing month as the reference price. Index share amounts are calculated and assigned to each stock to arrive at the weights determined on the reference date. Since index shares are assigned based on prices prior to rebalancing, the actual weight of each stock at the rebalancing differs from these weights due to market movements.

#### **Additions and Deletions**

Constituents removed from the S&P Composite 1500 are also removed from the S&P 1500 Tilt Indices simultaneously. Except as a result of major corporate actions, such as mergers and spin-offs, additions and deletions of companies generally only take place at the time of the index reconstitution.

#### Spin-Offs

Spin-offs are added to the index on the ex-date. If the spin-off remains in the underlying index, both the parent company and spin-off remain in the index. In cases where the spin-off does not remain in the underlying index, the spin-off is removed after at least one day of regular way trading.

#### **Corporate Actions**

For more information on Corporate Actions, please refer to the Market Capitalization Indices section within S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

#### **Currency of Calculation and Additional Index Return Series**

The indices calculate in U.S. dollars.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to: currency, currency hedged, decrement, fair value, inverse, leveraged, and risk control versions. For a list of available indices, please refer to the <a href="Maintenant Regulatory">S&P DJI</a>
Methodology & Regulatory Status Database.

For information on various index calculations, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

For the inputs necessary to calculate certain types of indices, including decrement, dynamic hedged, fair value, and risk control indices, please refer to the Parameters documents available at <a href="https://www.spglobal.com/spdji/">www.spglobal.com/spdji/</a>.

### **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 1500 Low Valuation Tilt Index	09/17/2012	03/31/2006	03/31/2006	1000
S&P 1500 Reduced Volatility Tilt Index	09/17/2012	03/31/2006	03/31/2006	1000
S&P 1500 Positive Momentum Tilt Index	09/17/2012	03/31/2006	03/31/2006	1000

## **Index Data**

#### **Calculation Return Types**

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (".SDL").

For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

For more information on the calculation of return types, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

# **Index Governance**

#### **Index Committee**

An S&P Dow Jones Indices' Index Committee maintains the indices. At each meeting, the Index Committee may review 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 Methodology.

# **Index Policy**

#### **Announcements**

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Events report (.SDE), delivered daily to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

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

#### **Pro-forma Files**

In addition to the corporate events file (.SDE), S&P Dow Jones Indices provides constituent pro-forma files each time the indices rebalance. The pro-forma file is typically provided daily in advance of the rebalancing date and contains all constituents and their corresponding weights and index shares effective for the upcoming rebalancing.

Please visit <u>www.spglobal.com/spdji/</u> for a complete schedule of rebalancing timelines and pro-forma delivery times.

### **Holiday Schedule**

The indices are calculated on all business days of the year when the U.S. equity market is open.

A complete holiday schedule for the year is available at www.spglobal.com/spdji/.

#### 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 Methodology.

#### **Recalculation Policy**

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

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

#### **Contact Information**

For questions regarding an index, please contact: index services@spglobal.com.

# **Index Dissemination**

Index levels are available through S&P Dow Jones Indices' Web site at <a href="www.spglobal.com/spdji/">www.spglobal.com/spdji/</a>, 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 versions of the below indices that may exist are also covered by this document. Please refer to the <u>S&P DJI Methodology & Regulatory</u> <u>Status Database</u> for a complete list of indices covered by this document.

Index	Return Type	BBG	RIC
S&P 1500 Low Valuation Tilt Index	Price Return	SPCLVTUP	.SP15TLLV
	Total Return	SPCLVTUT	.SP15TLLVTR
S&P 1500 Reduced Volatility Tilt Index	Price Return	SPCRVTUP	.SP15TLRV
	Total Return	SPCRVTUT	.SP15TLRVTR
S&P 1500 Positive Momentum Tilt Index	Price Return	SPCPMTUP	.SP15TLPM
	Total Return	SPCPMTUT	.SP15TLPMTR

#### **Index Data**

Daily constituent and index level data are available via subscription.

For product information, please contact S&P Dow Jones Indices, www.spglobal.com/spdji/en/contact-us.

#### Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spglobal.com/spdji/.

# Appendix I

### **Methodology Changes**

Methodology changes since January 1, 2015 are as follows:

	Effective Date	Methodology	
Change	(After Close)	Previous	Updated
Treatment of Spin-offs	09/30/2015	If the spin-off was added to the underlying index, both the parent company and spun-off company remained in the index. When there was no market-determined price available for the spin-off, the spin-off was added to the index at a zero price at the close of the day before the ex-date. If the spin-off was not added to the underlying index, the weight of the parent company did not change. The price was adjusted to the Price of the Parent Company minus (the Price of the Spun-off Company/Share Exchange Ratio). Index shares changed so that the company's weight remained the same as its weight before the spin-off.	Spin-offs are added to the index on the ex-date. If the spin-off remains in the underlying index, both the parent company and spin-off remain in the index. In cases where the spin-off will not remain in the underlying index, the spun-off company is removed after at least one day of regular way trading.

# Appendix II

#### **ESG Disclosures**

E	EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY <sup>1</sup>			
1.	Name of the benchmark administrator.	S&P Dow Jones Indices LLC.		
2.	Underlying asset class of the ESG benchmark. <sup>2</sup>	N/A		
3.	Name of the S&P Dow Jones Indices benchmark or family of benchmarks.	S&P DJI Equity Indices Benchmark Statement		
4.	Do any of the indices maintained by this methodology take into account ESG factors?	No		
Appendix latest update:		February 2021		
Appendix first publication:		February 2021		

<sup>&</sup>lt;sup>1</sup> The information contained in this Appendix is intended to meet the requirements of the European Union Commission Delegated Regulation (EU) 2020/1817 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the minimum content of the explanation of how environmental, social and governance factors are reflected in the benchmark methodology and the retained EU law in the UK [The Benchmarks (amendment and Transitional Provision) (EU Exit) Regulations 2019].

<sup>&</sup>lt;sup>2</sup> The 'underlying assets' are defined in European Union Commission Delegated Regulation (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.

# Disclaimer

#### Performance Disclosure/Back-Tested Data

Where applicable, S&P Dow Jones Indices and its index-related affiliates ("S&P DJI") defines various dates to assist our clients by providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P DJI defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Information presented prior to an index's launch date is hypothetical back-tested performance, not actual performance, and is based on the index methodology in effect on the launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate certain ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history

will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used. Index returns shown do not represent the results of actual trading of investable assets/securities. S&P DJI maintains the index and calculates the index levels and performance shown or discussed but does not manage any assets.

Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US \$100,000 investment for a 12-month period (or US \$10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US \$1,650), the net return would be 8.35% (or US \$8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US \$5,375, and a cumulative net return of 27.2% (or US \$27,200).

#### **Intellectual Property Notices/Disclaimer**

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