S&P Risk Parity Index Family

Methodology

June 2019
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Introduction

Index Objective

The S&P Risk Parity Indices measure the performance of a multi-asset risk parity strategy that allocates risk equally among equity, fixed income, and commodities futures contracts.

The indices follow a quantitative methodology to achieve an equal risk exposure to each of the three asset classes, equity, fixed income, and commodities. Within each asset class, the indices also maintain an equal risk exposure to each individual futures contract. Each contract (also called a constituent) is inversely weighted by its long-term realized volatility. Each index is composed of the same set of tradable constituents, and is designed as a leveraged index to target a particular level of volatility.

Highlights

The key characteristics of the indices are:

- 26 constituents (futures contracts), grouped into three asset classes: equity, fixed income, and commodities
- Constituents contribute volatility equally within their asset classes
- Asset classes contribute volatility equally in the index
- Constituent position is determined by a risk control model using long term realized volatilities and a constant target risk
- Asset classes and constituents are rebalanced monthly

Index Family

The index family includes three indices, each targeting a different volatility level:

- S&P Risk Parity Index - 10% Target Volatility
- S&P Risk Parity Index - 12% Target Volatility
- S&P Risk Parity Index - 15% Target Volatility

Note that the target volatilities are used to determine index allocation based on the long term realized volatilities of each futures contract and asset class. The actual index realized volatility may deviate from the predetermined target volatilities.
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:

<table>
<thead>
<tr>
<th>Supporting Document</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P Dow Jones Indices’ Index Mathematics Methodology</td>
<td><a href="#">Index Mathematics Methodology</a></td>
</tr>
</tbody>
</table>

The indices were originally developed by S&P Dow Jones Indices with MSR Investments. The index methodology is maintained and the indices are calculated and managed independently by S&P Dow Jones Indices according to S&P Dow Jones Indices’ standard policies and procedures, including the policies and procedures governing S&P Dow Jones Indices’ independent Index Committee. 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 indices continue to achieve their objectives.
Index Eligibility and Construction

Contract Eligibility

Contracts for physical commodities included in the indices are determined every two years, with a contract eligibility criteria date of September of the previous year through August of the current year, effective during the next designated January roll period. In addition, contracts must satisfy the following eligibility criteria.

Eligibility Requirements

Physical Commodities, Financial, and Foreign Exchange Futures. Contracts must be on a physical commodity, financial instrument, currency, interest rate or equity index. Contracts need not require physical delivery by their terms in order for a commodity to be considered a physical commodity.

Certain Contract Characteristics. The following criteria must be satisfied:

(i) the Contract must have a specified expiration or term, or provide in some other manner for delivery or settlement at a specified time, or within a specified time period, in the future;

(ii) (i) the Contract must, at any given point in time, be available for trading at least five months prior to its expiration or such other date or time period specified for delivery or settlement; and

(iii) (i) the Trading Facility on which the Contract is traded must allow market participants to execute spread transactions between the pairs of Contract Expirations included in the S&P Risk Parity Indices that, at any given point in time, are involved in the rolls effected during the next three Roll Periods.

Denomination and Geographical Requirements. Contracts must be traded on or through a Trading Facility that has its principal place of business or operations in a country that is a member of the Organization for Economic Cooperation and Development (OECD) during the relevant Annual Calculation Period or Interim Calculation Period. This assures that the S&P Risk Parity Indices are limited to those futures for which there are Trading Facilities in industrialized countries.

Availability of Daily Contract Reference Prices. Daily Contract Reference Prices generally must have been available on a continuous basis for at least two years prior to the proposed date of inclusion. In appropriate circumstances, S&P Dow Jones Indices may determine that a shorter time period is sufficient or that historical Daily Contract Reference Prices for a given Contract may be derived from Daily Contract Reference Prices of a similar or related Contract.

Availability of Volume Data. Volume data with respect to such Contract must be available from sources satisfying the criteria specified in Sources of Information for at least two years immediately prior to the date on which the determination to include the contracts is made. The indices’ determination date is the same as the S&P GSCI for annual volume data, the 12-month period from September through August.

Liquidity Requirement

Contracts are limited to those that are actively traded in order to assure that the prices generated by the markets for such Contracts represent reliable, competitive prices. Liquidity is an indication both of the significance of a particular market and the ability to trade with minimal market impact. Liquidity is determined by the annual Total Dollar Value Traded (TDVT).
Contract Selection

Contracts for physical commodities are determined every 2 years, to be applied during the January roll period on even numbered years. The data range used to make the contract determination is September of the previous year through August of the current year. The following rules determine the selection of futures contracts for the three asset classes:

- **Commodities futures contracts.** Contracts are selected from the S&P GSCI universe of futures contracts. All contracts that have a TDVT greater than $5 billion are selected. For more information on the S&P GSCI universe, please refer to the S&P GSCI Methodology document.

- **Fixed income futures contracts.** Seven liquid government bonds futures contracts are selected, as defined below.

- **Equity futures contracts.** Three liquid futures contracts are selected, as defined below.

The selection of futures contracts is at the discretion of the Index Committee. Index constituents are not expected to change between rebalancing periods. If, for any reason beyond S&P Dow Jones Indices’ control, a constituent is discontinued or substantially changed in terms of its investment mandate, the Index Committee may elect to discontinue representation of the affected futures contract within the index or designate a successor contract.

**EXHIBIT 1: FUTURES CONTRACTS**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Constituent</th>
<th>Exchange</th>
<th>Sector</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Commodities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commodity - Energy</strong></td>
<td>Natural Gas</td>
<td>NYMEX</td>
<td>E</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Heating Oil #2</td>
<td>NYMEX</td>
<td>E</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Gas Oil</td>
<td>ICE</td>
<td>E</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Crude Oil</td>
<td>NYMEX</td>
<td>E</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Brent Crude</td>
<td>ICE</td>
<td>E</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Gasoline</td>
<td>NYMEX</td>
<td>E</td>
<td>USD</td>
</tr>
<tr>
<td><strong>Commodity - Softs &amp; Livestock</strong></td>
<td>Sugar #11</td>
<td>ICE</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Live Cattle</td>
<td>CME</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Coffee &quot;C&quot;</td>
<td>ICE</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Cotton #2</td>
<td>ICE</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td><strong>Commodity - Grains</strong></td>
<td>Soybeans</td>
<td>CBOT</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Corn</td>
<td>CBOT</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>CBOT</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td><strong>Commodity - Metals</strong></td>
<td>Copper</td>
<td>COMEX</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Gold (100 oz.)</td>
<td>COMEX</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>Silver</td>
<td>COMEX</td>
<td>C</td>
<td>USD</td>
</tr>
<tr>
<td><strong>Fixed Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fixed Income - U.S.</strong></td>
<td>T-Notes (10-year)</td>
<td>CBOT</td>
<td>FI</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>T-Notes (5-year)</td>
<td>CBOT</td>
<td>FI</td>
<td>USD</td>
</tr>
<tr>
<td></td>
<td>T-Bonds (30-year)</td>
<td>CBOT</td>
<td>FI</td>
<td>USD</td>
</tr>
<tr>
<td><strong>Fixed Income - Europe</strong></td>
<td>Long Gilt</td>
<td>ICE</td>
<td>FI</td>
<td>GBP</td>
</tr>
<tr>
<td></td>
<td>Euro-Bund</td>
<td>EUREX</td>
<td>FI</td>
<td>EUR</td>
</tr>
<tr>
<td></td>
<td>Euro-Bobl</td>
<td>EUREX</td>
<td>FI</td>
<td>EUR</td>
</tr>
<tr>
<td><strong>Fixed Income - Asia</strong></td>
<td>JGB (10-year)</td>
<td>JPX</td>
<td>FI</td>
<td>JPY</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Equity – U.S.</strong></td>
<td>S&amp;P 500</td>
<td>CME</td>
<td>SI</td>
<td>USD</td>
</tr>
<tr>
<td><strong>Equity - Europe</strong></td>
<td>Euro Stoxx 50</td>
<td>EUREX</td>
<td>SI</td>
<td>EUR</td>
</tr>
<tr>
<td><strong>Equity - Asia</strong></td>
<td>Nikkei 225 Futures</td>
<td>JPX</td>
<td>SI</td>
<td>JPY</td>
</tr>
</tbody>
</table>

1 The next review period for the Commodities contracts is September 2018 through September 2019 effective in January 2020.
Weighting Scheme

The index weighting scheme seeks to create an index where each of the asset classes contributes equally to the index volatility, with each of the constituents contributing equally to the volatility of its asset class.

To achieve the desired weighting scheme, the number of contracts is determined for each constituent based on a hypothetical dollar amount, target index volatility, and a look-back period\(^2\) to calculate long-term realized volatilities. The dollar amount or assets under management (AUM) is hypothetical but the target volatility level (TV) is currently set to 10\%, 12\% or 15\%. The look-back period has a minimum of 1260 trading days (five years), and expands as more index values are created until the period reaches a maximum of 3780 trading days (15 years).

The hypothetical dollar amount, target index volatility and look-back period are fixed parameters, and are not reset at each rebalancing.

EXHIBIT 2:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothetical AUM (AUM)</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Target Volatility (TV)</td>
<td>10%, 12%, 15%</td>
</tr>
<tr>
<td>Minimum number of trading days in the look-back period (MinN)</td>
<td>1260</td>
</tr>
<tr>
<td>Maximum number of trading days in the look-back period (MaxN)</td>
<td>3780</td>
</tr>
</tbody>
</table>

Step 1: Use risk control model to determine positions in each individual futures

The index calculates the annualized realized volatility (RV) in the look-back period for the \(i\)-th futures contract on day \(t\) as follows:

\[
RV_{i,t} = \sqrt{\frac{\sum_{j=0}^{N_t-1} (R_{i,t-j} - \bar{R}_t)^2}{N_t-1}} \times 252
\]

where:

\[
R_{i,t} = USD \text{ return of the } i\text{-th futures contract on day } t, \text{ calculated as:}
\]

\[
R_{i,t} = \frac{P_{i,t} f_{x, i,t}}{P_{i,t-1} f_{x, i,t-1}} - 1
\]

where:

- \(P_{i,t}\) = Settlement price of the \(i\)-th futures contract on day \(t\)
- \(fx_{i,t}\) = Closing spot foreign exchange rate of the \(i\)-th futures contract on day \(t\)
- \(\bar{R}_t\) = Average return of the \(i\)-th futures contract in the look-back period ending on day \(t\)
- \(N_t\) = Number of trading days in the look-back period on day \(t\), calculated as:

\[
N_t = \min(\text{MaxN}, N_{t-1} + 1)
\]

\[
N_1 = \text{MinN}
\]

Position (Pos) for the \(i\)-th futures contract on day \(t\) is defined as the number of futures contract that is needed to maintain TV and is calculated as follows:

\[
\text{Pos}_{i,t} = \frac{AUM \times TV}{R_{i,t} \times P_{i,t} \times C_{i,t} \times f_{x, i,t}}
\]

\(^2\) As of the launch date the lookback period start date is 12/28/1998, and will remain the start date until 3,780 trading days of history are available.
where:
\[ C_{i,t} = \text{Contract size of the } i\text{-th futures contract on day } t \]

**Step 2: Adjust positions in each individual futures so that each asset class meets target volatility**

To account for the diversification effect in each asset class, the index adjusts the position of each futures contract accordingly. Once each constituent’s position is determined, the index calculates the realized volatility (acRV) of the \( k \)-th asset class on day \( t \) as follows:

\[
acRV_{k,t} = \sqrt{\frac{\sum_{j=0}^{N_t-1} (acR_{k,t,j}-\overline{acR}_{k,t})^2}{N_t - 1}} \times 252
\]

where:
- \( acR_{k,t} = \text{USD return of the } k\text{-th asset class on day } t \), calculated as:
  \[
  acR_{k,t} = \frac{\sum_i (Pos_{i,t} \cdot P_{i,t} \cdot C_{i,t} \cdot fx_{i,t})}{\sum_i (Pos_{i,t-1} \cdot P_{i,t-1} \cdot C_{i,t-1} \cdot fx_{i,t-1})} - 1
  \]
- \( \overline{acR}_{k,t} = \text{Average return of the } k\text{-th asset class in the look-back period ending on day } t \)

A multiplier (acM) is then calculated for the \( k \)-th asset class on day \( t \) and applied to each futures contract within the asset class as follows:

\[
acM_{k,t} = \frac{TV}{acRV_{k,t}}
\]

\[
acAdjustedPos_{i,t} = acM_{k,t} \cdot Pos_{i,t}
\]

**Step 3: Adjust positions in each individual futures so that the hypothetical portfolio meets target volatility**

The index further accounts for the diversification effect on the hypothetical portfolio. It combines all three asset classes and calculates the portfolio realized volatility (pRV) on day \( t \) as follows:

\[
pRV_t = \sqrt{\frac{\sum_{j=0}^{N_t-1} (pR_{t,j}-pR_t)^2}{N_t - 1}} \times 252
\]

where:
- \( pR_t = \text{USD return of the hypothetical portfolio on day } t \), calculated:
  \[
pR_t = \frac{\sum_i (acAdjustedPos_{i,t} \cdot P_{i,t} \cdot C_{i,t} \cdot fx_{i,t})}{\sum_i (acAdjustedPos_{i,t-1} \cdot P_{i,t-1} \cdot C_{i,t-1} \cdot fx_{i,t-1})} - 1
  \]
- \( \overline{pR}_t = \text{Average return of the hypothetical portfolio in the look-back period ending on day } t \)

A multiplier (pM) is then calculated on day \( t \) and applied to all futures contracts as follows:

\[
pM_t = \frac{TV}{pRV_t}
\]

\[
pAdjustedPos_{i,t} = pM_t \cdot acAdjustedPos_{i,t}
\]
Step 4: Calculate weight of each futures contract

The index then calculates the weight of each futures contract as follows:

\[ w_{i,t} = \frac{p_{AdjustedPos_{i,t}}*p_{t}^*_C_{i,t}^*f_{x_{i,t}}}{AUM} \]  

Sources of Information

The following are the sources of the information used to determine the eligibility of Contracts for inclusion in the S&P Risk Parity Indices, pursuant to the requirements set forth in General Eligibility Requirements. If any of the sources identified below is unavailable, with respect to the determination of the S&P Risk Parity Indices for a particular S&P Risk Parity Index Year, S&P Dow Jones Indices will identify appropriate alternative sources and the composition of the S&P Risk Parity Indices for such year will be based on such alternative sources. In addition, if S&P Dow Jones Indices, in its reasonable judgment, believes that one or more of the sources identified below contains a manifest error, it may use an alternative source to obtain the necessary information. Any such alternative sources used by S&P Dow Jones Indices will be publicly disclosed at the time that the composition of the indices for the next S&P Risk Parity Index Year is announced.

General Eligibility Requirements. The identification of those commodities that satisfy the general eligibility requirements is based on the FIA Reports that are published with respect to the relevant Annual Calculation Period or Interim Calculation Period, and directly from the particular Trading Facilities. The determination as to whether a particular Trading Facility has its principal place of business or operations in an OECD country is based on the most recent data published by the OECD available on the date of determination.

Contract Volume and Liquidity Requirements. In order to determine whether a particular Contract satisfies the volume and liquidity requirements described above, S&P Dow Jones Indices may use any available sources that it believes to be reasonably reliable including, but not limited to, data contained in the FIA Reports. In the event of manifest error, S&P Dow Jones Indices may supplement, and make corrections to, any such data.
Index Maintenance

Rebalancing

Index allocations of each constituent are calculated after the close of the last business day of each month, and becomes effective on the third trading day of next month (the rebalancing day).

The index rolls on the third business day of each calendar month.

Exhibit 3 is a schedule of the active contracts used for price inputs of the Index.

EXHIBIT 3: SCHEDULE OF CONTRACT MONTHS: DESIGNATED CONTRACT MONTH THE INDEX ROLLS INTO AT THE BEGINNING OF EACH MONTH

<table>
<thead>
<tr>
<th>LETTER</th>
<th>CONTRACT EXPIRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>JAN</td>
</tr>
<tr>
<td>G</td>
<td>FEB</td>
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<tr>
<td>H</td>
<td>MAR</td>
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<tr>
<td>J</td>
<td>APR</td>
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<tr>
<td>K</td>
<td>MAY</td>
</tr>
<tr>
<td>M</td>
<td>JUN</td>
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<td>N</td>
<td>JUL</td>
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<td>O</td>
<td>AUG</td>
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<td>U</td>
<td>SEP</td>
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<tr>
<td>V</td>
<td>OCT</td>
</tr>
<tr>
<td>X</td>
<td>NOV</td>
</tr>
<tr>
<td>Z</td>
<td>DEC</td>
</tr>
</tbody>
</table>

EXHIBIT 4: MONTH LETTER CODES
**Currency of Calculation and Additional Index Return Series**

The S&P Risk Parity Indices are calculated in U.S. dollars. The prices of the underlying futures contracts are collected in their local currencies. Using WM/Reuters’ spot exchange rates, these local prices are converted to U.S. dollars.

Forex rates, as supplied by WM/Reuters, are used for ongoing index calculation. The index’s final closing values convert all underlying contracts prices used in the index calculation at the spot exchange rates provided by WM/Reuters at 04:00 PM London Time.

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 [S&P DJI's All Indices by Methodology Report](#).

For information on index calculation, please refer to [S&P Dow Jones Indices’ Index Mathematics Methodology](#).
Index Calculation

Excess Return Calculation

On a given S&P Risk Parity Index business day \( t \), the S&P Risk Parity Excess Return (ER) index level is equal to the product of the S&P Risk Parity ER index level on the immediately preceding S&P Risk Parity business day multiplied by one plus the Contract Daily Return as of that day.

\[
ER_t = ER_{t-1} * (1 + CDR_t)
\]  

(15)

where

- \( ER_t \) = Excess Return Value for S&P Risk Parity Business Day \( t \).
- \( ER_{t-1} \) = Excess Return Value as on the S&P Risk Parity business day prior to day \( t-1 \).
- \( CDR_t \) = Contract Daily Return of the Index on the S&P Risk Parity business day prior to day \( t \).

Contract Daily Return Calculation

The Contract Daily Return (CDR) on any S&P Risk Parity Business Day, \( t \), is equal to the ratio obtained by dividing the Total Dollar Weight Obtained by the Total Dollar Weight Invested on the immediately preceding S&P Risk Parity Business Day, minus one.

\[
CDR_t = \frac{TDWO_t}{TDWI_t} - 1
\]  

(16)

where

- \( TDWO_t \) = Total Dollar Weight Obtained for S&P Risk Parity Business Day \( t \).
- \( TDWI_t \) = Total Dollar Weight Invested for S&P Risk Parity Business Day \( t \).

Total Dollar Weight Obtained

On a given S&P Risk Parity business day, \( t \), the Total Dollar Weight Obtained (TDWO) is the amount obtained from an investment on the immediately preceding day. The TDWO for a given day is calculated using the Component Weights and Contract Roll Weights in effect on the immediately preceding day, \( t-1 \), and the Daily Contract Reference Prices used to calculate the S&P Risk Parity Index on day \( t \).

\[
TDWO_t = \frac{NC_{new}}{NC_{old}} * (TDWO_{1t} + TDWO_{2t})
\]  

(17)

where

- \( TDWO_{1t} \) = Total Dollar Weight Obtained of the current contract on day \( t \)
- \( TDWO_{2t} \) = Total Dollar Weight Obtained of the next contract on day \( t \)
- \( NC_{old} \) = Normalizing Constant effective as of the last month
- \( NC_{new} \) = Normalizing Constant effective during this month

For both the current contracts and the next contracts, the TDWO is the TDW on the immediately preceding day, \( t-1 \), plus the profit and loss in USD on day \( t \).
\[ TDW01_t = \sum_i [TDW1_{i,t-1} + (CW1_{i,t} \times CRW1_{i,t-1} \times (DCRP1_{i,t} - DCRP1_{i,t-1}) \times FX_{i,t})] \] (18a)

\[ TDW02_t = \sum_i [TDW2_{i,t-1} + (CW2_{i,t} \times CRW2_{i,t-1} \times (DCRP2_{i,t} - DCRP2_{i,t-1}) \times FX_{i,t})] \] (18b)

where

- \( CW1_t \) = Contract Weight of the current contract on day \( t \)
- \( CW2_t \) = Contract Weight of the next contract on day \( t \)
- \( CRW1_{t-1} \) = The roll-out percentage of the Contract Roll Weight on the S&P Risk Parity business day prior to day \( t \).
- \( CRW2_{t-1} \) = The roll-in percentage of the Contract Roll Weight on the S&P Risk Parity business day prior to day \( t \).
- \( DCRP1_{t} \) = Current contract price on day \( t \)
- \( DCRP2_{t} \) = Next contract price on day \( t \)

**Total Dollar Weight Invested**

On a given S&P Risk Parity business day, \( d \), the Total Dollar Weight Invested (TDWI) is equal to the Total Dollar Weight of the immediate preceding S&P Risk Parity business day \( t-1 \) and is calculated as follows:

\[ TDWI_t = \frac{NC_{new}}{NC_{old}} \times (TDWI1_{t} + TDWI2_{t}) \] (19)

where

- \( TDWI1_{d} \) = Total Dollar Weight Invested of the current contract on day \( d \)
- \( TDWI2_{d} \) = Total Dollar Weight Invested of the next contract on day \( d \)

For both the current contracts and the next contracts, the TDWI is the TDW on the immediately preceding day, \( t-1 \).

\[ TDWI1_{t} = \sum_i TDW1_{i,t-1} \] (20a)

\[ TDWI2_{t} = \sum_i TDW2_{i,t-1} \] (20b)

**Normalizing Constant**

In order to assure continuity of the S&P Risk Parity and to allow comparisons of the value of the S&P Risk Parity to be made over time, it is necessary to make an adjustment to the calculation of the S&P Risk Parity each time the CWs are changed. The factor used to make this adjustment is the Normalizing Constant (NC) and is used in the same manner as similar factors applied to the calculation of other published financial market indices. The NC is determined each time the composition of the S&P Risk Parity is changed pursuant to the procedures set forth in this methodology.

\[ NC_{new} = NC_{old} \times \frac{\sum(CW2\times DCRP1_{t}+CW2\times DCRP2_{t})}{\sum(CW1\times DCRP1_{t}+CW1\times DCRP2_{t})} \] (21)

where

- \( CW1 \) = Last month’s Contract Weight
- \( CW2 \) = This month’s Contract Weight
- \( DCRP1_{d} \) = Current contract price on day \( d \)
- \( DCRP2_{d} \) = Next contract price on day \( d \)
- \( NC_{old} \) = Normalizing Constant effective as of the last month
Total Return Calculation

On any given calendar day, \( t \), the Treasury Bill Return (\( TBR \)) is equal to an amount determined in accordance with the following formula:

\[
TBR_t = \left[ \frac{1}{1 - \frac{1}{360}TBAR_t} \right]^{1/91} - 1
\]  

(22)

where:

\( TBAR_{t-1} \) = The 3 month T-Bill Rate available on the S&P Risk Parity business day prior to day \( t \).

On a given S&P Risk Parity business day, \( d \), the value of the S&P Risk Parity Total Return (\( TR \)) Index is equal to the product of (i) the value of the S&P Risk Parity TR on the immediately preceding S&P Risk Parity Business Day, (ii) one plus the sum of the Contract Daily Return and the Treasury Bill Return on the day on which the calculation is made, and (iii) one plus the Treasury Bill Return for each non S&P Risk Parity Business Day since the immediately preceding S&P Risk Parity Business Day.

\[
TR_t = TR_{t-1} * (1 + CDR_t + TBR_t) * (1 + TBR_t)^{Days}
\]  

(23)

where

\( TR_{t-1} \) = S&P Risk Parity TR Index value on the S&P Risk Parity business day prior to day \( t \).
\( CDR_d \) = The Contract Daily Return on day \( t \).
\( TBR_d \) = Treasury Bill Return on day \( t \).
\( Days \) = Number of non S&P Risk Parity business days since the last immediate preceding S&P Risk Parity Business Day.

Inception Date and Initial Value

The index starts on December 31, 2003 with an initial value of 1000.
Index Governance

Index Committee

The S&P Risk Parity Indices are maintained by S&P Dow Jones Indices’ Commodities Index Committee. The Committee meets regularly. The Committee may revise index policy covering rules for the selection of futures contracts, including the eligibility criteria, or other matters. The Index Committee consists solely of full-time employees of S&P Dow Jones Indices.

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’ Commodities Indices Policies & Practices Methodology.
Index Policy

Holiday Schedule

The indices are calculated daily based on the same holiday schedule as the S&P GSCI which follows the official NYSE holiday schedule. The indices are calculated when the majority of the S&P Risk Parity Indices futures contracts are open for official trading and official settlement prices are provided, excluding holidays and weekends.


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 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 versions of the below indices that may exist are also covered by this document. Please refer to S&P DJI's All Indices by Methodology Report for a complete list of indices covered by this document.

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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.

Web site

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