

**S&P Dow Jones  
Indices**

A Division of **S&P Global**

# **S&P Risk Premia FX Indices** *Methodology*

June 2024

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# Introduction

## Index Objective and Highlights

The S&P Risk Premia FX Indices measure the performance of long-short alternative risk premia strategies in G10 currencies. The performance of each currency represents the performance of a quarterly rolling investment in currency forward versus the U.S. dollar. The indices rebalance on International Monetary Market (“IMM”) dates, which are the third Wednesday of March, June, September, and December, respectively. Each index calculates an excess return (ER) version, reflecting changes in forwards prices, and a total return (TR) version that adds a risk-free rate to the ER index. The indices calculate when the International Money Market of the Chicago Mercantile Exchange (CME) is open.

The performance of a long position on each G10 currency forward is tracked by the relevant S&P G10 Currency Index. The relevant S&P G10 Currency Index stipulates that on each rebalancing date a currency forward contract is assumed to be entered with a settlement date that coincides with the spot settlement date on the next rebalancing date. On the next rebalancing date, this forward contract is rolled over into a new forward contract.

*For information on the S&P G10 Currency Indices, please refer to Appendix A.*

## Index Family

**S&P Risk Premia FX Value G10 Index.** The index measures the performance of a long-short value strategy consisting of G10 currencies. Currency value is measured by the ratio of spot foreign exchange rate and Organisation for Economic Co-operation and Development (OECD) purchasing power parities (PPP). The value strategy maintains long exposure in the three currencies with the lowest value ratios and short exposure in those three currencies with the highest value ratios. The indices are equally weighted within each strategy bucket.

**S&P Risk Premia FX Carry G10 Index.** The index measures the performance of a long-short carry strategy consisting of G10 currencies. Currency carry is measured by each currency’s three-month yield. The carry strategy maintains long exposure in the three currencies with the highest carry rankings and short exposure in the three currencies with the lowest carry rankings. Currencies that are long (short) are either assigned a weight of 50% or 30% or 20% (-50% or -30% or -20%) based on the ranking of the carry signal.

Each index calculates an excess return (ER) version, reflecting changes in forwards prices, and a total return (TR) version that adds a risk-free rate to the ER index.

## 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’ Commodity Index Mathematics Methodology	<a href="#">Commodity Index Mathematics Methodology</a>

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

## S&P Risk Premia FX G10 Value Index

**Currency Weight Calculation.** Effective after closing of the rebalancing dates  $rb$ , currency weight  $W_{i,rb}$  for currency  $i$  is calculated with the following steps:

1. Calculate the *Value\_Ratio* for currency  $i$  for each currency in the G10 currency basket:

$$ValueRatio_{i,rb} = \frac{Spot_{i,rb}}{PPP_{i,rb}}$$

where:

$Spot_{i,rb}$  = The spot foreign exchange rate expressed in USD per currency as of the rebalancing date  $rb$ .

$PPP_{i,rb}$  = The latest update of purchasing power parities (PPPs) for GDP published by the OECD each year in February for the previous year immediately preceding the current rebalancing. It is expressed in USD per currency.<sup>1</sup>

PPPs are the rates of currency conversion that equalize the purchasing power of different currencies by eliminating the differences in price levels between countries.<sup>2</sup>

By definition, this *Value\_Ratio* is equal to one for the US\$ dollar.

2. Rank all G10 currencies (including US\$ dollar) by Value Ratio in ascending order.
3.  $W_{i,rb} = 1/3$  if rank  $\leq 3$ , or  $-1/3$  if rank  $\geq 8$

## S&P Risk Premia FX G10 Carry Index

**Currency Weight Calculation.** Effective after closing of the rebalancing dates  $rb$ , currency weight  $W_{i,rb}$  for currency  $i$  calculates with the following steps:

1. Determine the three-month (3M) yield for currency  $i$  for each currency in the G10 currency basket:

For the US Dollar, the 3M US T-Bill is used. For the remaining G10 currencies, the 3M yield is implied from the spot, FX forward exchange rate and 3M US T-Bill as follows:

$$Implied3MYield_{i,rf} = \left( \left( \left( \frac{Spot_{i,rf}}{Forward_{i,rf}} \right) * \left( 1 + \frac{TBR_{i,rf}}{4} \right) \right) - 1 \right) * 4$$

where:<sup>3</sup>

$Spot_{i,rf}$  = The spot exchange rate expressed in USD per currency as of the reference date  $rf$ .

<sup>1</sup> PPPs are published by the OECD in terms of national currency per US dollar. PPPs are published and revised five times per annum at T+2 months, T+6 months, T+12 months, T+24 months, and T+35 months. Note that the historical back-test reflects all PPPs available as of 12/31/2018.

<sup>2</sup> Source: <https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm>.

<sup>3</sup> 90/360 day convention is assumed for all the G10 currencies.

$Forward_{i,rf}$  = The 3M FX forward exchange rate expressed in USD per currency as of the reference date  $rf$ .

$TBR_{i,rf}$  = The 3M US T-Bill as of the reference date  $rf$ .

2. Rank all G10 currencies by 3M rate in descending order.
3.  $W_{i,rb} = 0.5$  if rank = 1,  $W_{i,rb} = 0.3$  if rank = 2 and  $W_{i,rb} = 0.2$  if rank = 3  
 $W_{i,rb} = -0.5$  if rank = 10,  $W_{i,rb} = -0.3$  if rank = 9 and  $W_{i,rb} = -0.2$  if rank = 8

In the case of a tie, apply the following rules:

- If 1 and 2 (10 or 9) are tied: 25% (-25%) weight each
- If 2 and 3 (9 or 8) are tied: 15% (-15%) weight each
- If 3 and 4 (8 or 7) are tied: 10% (-10%) weight each

### Calculation of Excess Return Indices

On each business date  $t$ , the excess return index calculates as:

$$IndexER_t = IndexER_{rb} * (1 + \sum_i W_{i,rb} * (\frac{ER_{i,t}}{ER_{i,rb}} - 1))$$

where:

$IndexER_t$  = Excess return index value as of the current date  $t$

$IndexER_{rb}$  = Excess return index value as of the last rebalancing date  $rb$

$W_{i,rb}$  = Weight of currency  $i$  effective from the last rebalancing date  $rb$

$ER_{i,t}$  = S&P G10 Currency Indices excess return index value as of  $t$

$ER_{i,rb}$  = S&P G10 Currency Indices excess return index value as of the last rebalancing date  $rb$

### Calculation of Total Return Indices

A total return version of each index, which includes interest accrual on the notional value of the index based on the overnight U.S. Fed Funds rate, calculates as follows:

$$IndexTR_t = IndexTR_{rb} * ER_t + IndexTR_{rb} * \prod_{rb+1}^t \frac{(1 + FFR_{t-1} * D_{t-1,t})}{360}$$

where:

$IndexTR_t$  = Total return index value as of the current date,  $t$ .

$IndexTR_{rb}$  = Total return index value as of the last rebalancing date,  $rb$ .

$ER_t$  = Excess return from the prior rebalancing date to  $t$ .

$D_{t-1,t}$  = Count of calendar days from the previous trading date,  $t-1$ , to the current date,  $t$ .

$FFR_{t-1}$  = Federal Reserve Overnight Bank Funding Rate as of the last trading date,  $t-1$ .

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

**Data Source**

The source data for forward and spot rates used in this methodology is WMR London 4:00 PM fixing rates.

WMR foreign exchange rates are taken daily at 4:00 PM London Time and used in the calculation of the indices. These mid-market fixings are calculated by WMR based on LSEG data and appear on LSEG pages.

# Index Maintenance

## Rebalancing

The indices rebalance on International Monetary Market (“IMM”) dates, which are the third Wednesday of March, June, September, and December, respectively. (T) dates. The rebalancing reference date is two business day prior to the rebalancing date. All data required to rebalance the indices is obtained as of the rebalancing reference date.

Rebalancing Schedule	
Rebalancing Frequency	Quarterly
Rebalancing Dates	IMM dates
Announcement Date	T - 1
Rebalancing Reference Date	T - 2

*All days reflect after the close and count business days.*

# Index Governance

## **Index Committee**

S&P Dow Jones Indices has established an Index Committee to oversee the daily management and operations of the index and is responsible for all analytical methods and calculation in the indices. The Committee is comprised of full-time professional members of S&P Dow Jones Indices staff. At each meeting, the Committee reviews any issues that may affect index constituents, statistics comparing the composition of the indices to the market, commodities 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 commodities, 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.

All references to methodology-related decisions made by S&P Dow Jones Indices in this document represent decisions made by the Index Committee.

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 Index Governance section of the S&P Dow Jones Indices' Commodities Indices Policies & Practices Methodology.*

# Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at [www.spglobal.com/spdji](http://www.spglobal.com/spdji), 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.

Index Code	Index Name	BBG	RIC	Launch Date	Base Date	Base Value
SPRPFVGP	S&P Risk Premia FX Value G10 Index (USD) ER	SPRPFVGP	.SPRPFVGP	02/10/2020	12/21/2005	100
SPRPFVGT	S&P Risk Premia FX Value G10 Index (USD) TR	SPRPFVGT	.SPRPFVGT	02/10/2020	12/21/2005	100
SPRPF CGP	S&P Risk Premia FX Carry G10 Index (USD) ER	--	--	12/15/2020	12/21/2005	100
SPRPF CGT	S&P Risk Premia FX Carry G10 Index (USD) TR	--	--	12/15/2020	12/21/2005	100
SPAUD3MP	S&P AUD/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPAUD3MT	S&P AUD/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPCAD3MP	S&P CAD/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPCAD3MT	S&P CAD/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPCHF3MP	S&P CHF/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPCHF3MT	S&P CHF/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPEUR3MP	S&P EUR/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPEUR3MT	S&P EUR/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPGBP3MP	S&P GBP/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPGBP3MT	S&P GBP/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPJPY3MP	S&P JPY/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPJPY3MT	S&P JPY/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPNOK3MP	S&P NOK/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPNOK3MT	S&P NOK/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPNZD3MP	S&P NZD/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPNZD3MT	S&P NZD/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100
SPSEK3MP	S&P SEK/USD 3M Forward Index ER	--	--	10/16/2019	12/21/2005	100
SPSEK3MT	S&P SEK/USD 3M Forward Index TR	--	--	10/16/2019	12/21/2005	100

## Index Data

Daily index levels and data are available via subscription.

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

# Appendix A

## S&P G10 Currency Indices Calculations

### Traded Forward Rate Calculation

On each rebalancing date  $rb$ , the index assumes the existence of a currency forward contract with a settlement date coinciding with the spot settlement date on the next rebalancing date. This traded forward rate is obtained by a linear interpolation between the current three-month forward rate and the current spot rate.

$$\text{TradedRate}_{rb} = \text{SpotRate}_{rb} + (3\text{MFwdRate}_{rb} - \text{SpotRate}_{rb}) * \frac{\text{Days in Trade}}{\text{Days in Period}}$$

where:

$\text{SpotRate}_{rb}$  = The spot rate on rebalancing date  $t$ .

$\text{Days in Trade}$  = Calendar days between the spot settlement date on the next rebalancing date and the settlement date of the spot contracts on rebalancing date  $rb$ .

$\text{Days in Period}$  = Calendar days between the settlement date of the three-month forward contract on rebalancing date  $rb$  and the settlement date of the spot contract on rebalancing date  $rb$ .

### ER Index Calculation

On each rebalancing date  $rb$ , an ER index calculates by valuing the forward contract entered into on the prior rebalancing date using the current spot rate. On any other date  $t$ , the ER calculates by valuing the forward contract entered into on the prior rebalancing date using a linear interpolation between the current three-month forward rate and the current spot rate.

$$\text{IndexER}_t = \text{IndexER}_{rb} * (1 + \text{ER}_t)$$

where:

$\text{IndexER}_t$  = Excess return index value as of the current date  $t$

$\text{IndexER}_{rb}$  = Excess return index value as of the last rebalancing date  $rb$

$\text{ER}_t$  = Excess return from the prior rebalancing date to  $t$ , calculated as follows:

$$\text{ER}_t = \frac{\text{SpotRate}_t}{\text{Traded Rate}_{rb}} - 1 \quad (\text{if } t \text{ is a rebalancing date})$$

$$\text{ER}_t = \frac{\left( \frac{\text{Interpolated Fwd Rate}_t}{\text{Traded Rate}_{rb}} - 1 \right)}{\text{DF}_t} \quad (\text{if } t \text{ is not a rebalancing date})$$

$\text{DF}_t$  = Discount factor, which is defined with the following formula:

$$\text{DF}_t = \frac{(1 + (\text{Discount Days}))}{360 * \text{SOFR}_t}$$

$\text{SOFR}_t$  = SOFR Overnight + 014088% as of date  $t$

$\text{Traded Rate}_{rb}$  = The traded rate on the last rebalancing date  $rb$

$\text{Interpolated Fwd Rate}_t$  = The value, as of the close of date  $t$ , of the forward contract entered into the close of the prior rebalancing  $rb$ , calculates as follows:

$$\text{Interpolated Fwd Rate}_t = \text{SpotRate}_t + (3\text{MFwdRate}_t - \text{SpotRate}_t) * \frac{\text{Days Left}}{\text{Days in Period}}$$

*If Days Left > Days in Period, 3MFwdRate<sub>t</sub>*

*Spot Rate<sub>t</sub>* = Spot rate as of date *t*

*3MFwdRate<sub>t</sub>* = Three-month forward rate as of date *t*

*Days Left* = Calendar days between the spot settlement date on the next rebalancing date and the settlement date of the spot contract on date *t*

*Days in Period* = Calendar days between the settlement date of the three-month forward contract on date *t* and the settlement date of the spot contract on date *t*

Except for USD/CAD, the G10 Currency Indices settle using the standard spot settlement on *T+2*.  
USD/CAD indices settle using the standard spot settlement on *T+1*.

### **TR Index Calculation**

Each index calculates a TR version that includes interest accrual on the notional value of the index based on the overnight U.S. Fed Funds rate.

*For information on TR index calculation, please refer to the Index Construction chapter.*

### **Rebalancing**

The indices rebalance quarterly on IMM dates, the third Wednesday of March, June, September, and December, respectively.

*All days reflect after the close and count business days.*

# Appendix B

## ESG Disclosures

<b>EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL &amp; GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY<sup>4</sup></b>		
<b>1.</b>	<b>Name of the benchmark administrator.</b>	S&P Dow Jones Indices LLC.
<b>2.</b>	<b>Underlying asset class of the ESG benchmark.<sup>5</sup></b>	N/A
<b>3.</b>	<b>Name of the S&amp;P Dow Jones Indices benchmark or family of benchmarks.</b>	<a href="#">S&amp;P DJI Futures Indices Benchmark Statement</a>
<b>4.</b>	<b>Do any of the indices maintained by this methodology consider ESG factors?</b>	No
<b>Appendix latest update:</b>		January 2021
<b>Appendix first publication:</b>		January 2021

<sup>4</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>5</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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