

**S&P Dow Jones  
Indices**

A Division of **S&P Global**

# **S&P/JPX Risk Control Indices** *Methodology*

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# Introduction

## Index Objective

The S&P/JPX Risk Control Indices are designed to track the return of a strategy that applies dynamic exposure to the Tokyo Stock Price Index (TOPIX) in an attempt to control the level of volatility.<sup>1</sup>

## Highlights

The indices include a leverage factor that changes based on realized historical volatility. If realized volatility exceeds the target level of volatility, the leverage factor will be less than one; if realized volatility is lower than the target level, the leverage factor is set to one. The indices are calculated on a daily basis.

## Index Family

The S&P/JPX Risk Control Indices are based on the TOPIX (Total Return).<sup>1</sup> Indices with three different target volatility levels are available in total return and excess return versions:

Index	Target Volatility Level
S&P/JPX Risk Control 5%	5%
S&P/JPX Risk Control 10%	10%
S&P/JPX Risk Control 15%	15%

## 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.

JPX is a trademark of Japan Exchange Group, Inc. and has been licensed for use by S&P Dow Jones Indices.

TOPIX is a trademark of JPX Market Innovation & Research, Inc. and has been licensed for use by S&P Dow Jones Indices.

<sup>1</sup> The TOPIX is calculated and published by JPX Market Innovation & Research, Inc. and is a float-adjusted market capitalization weighted index that is a market benchmark with functionality as an investable index, covering an extensive proportion of the Japanese stock market. For more information on the TOPIX, please refer to the Japan Exchange Group (JPX) Web site at [www.jpx.co.jp/english/](http://www.jpx.co.jp/english/).

# Index Calculation

The daily index return is based on the following two components:

1. The return on the position in the underlying index – TOPIX (Total Return).
2. The interest cost or gain.

## Total Return Indices

Total return index series are calculated for the S&P/JPX Risk Control Indices. The formula for calculating index values is as follows:

*Risk Control Index Value<sub>t</sub>* =

$$Risk\ Control\ Index\ Value_{t-1} * \left[ 1 + \left[ K_{t-1} * \left( \frac{Underlying\ Index_t}{Underlying\ Index_{t-1}} - 1 \right) + (1 - K_{t-1}) * (InterestRate_{t-1} * D_{t-1,t} / 365) \right] \right]$$

where:

*UnderlyingIndex<sub>t</sub>* = The level of the underlying index on day *t*.

*UnderlyingIndex<sub>t-1</sub>* = The level of the underlying index as of the previous trading date.

*Interest Rate<sub>t-1</sub>* = The Domestic Interbank Unsecured Overnight Call Rate for the previous business day.

*D<sub>t-1,t</sub>* = The number of calendar days between the previous business day and day *t*.

*K<sub>t-1</sub>* = The leverage factor set for day *t* set on day *t-1*, calculated as:

$$Min(Max\ K, Target\ Volatility/Realized\ Volatility_{t-d})$$

where:

*Max K* = 1 (the maximum leverage factor allowed in each S&P/JPX Risk Control Index).

*d* = 3 (the number of days between when volatility is observed and day *t*). So the historical volatility of the underlying index as of the close three days prior to the index calculation date is used to calculate the leverage factor *K<sub>t</sub>*.

*Target Volatility* = The target level of volatility set for the index.

*Realized Volatility<sub>t-d</sub>* = The historical realized volatility of the underlying index as of the close of *d* trading days prior to day *t*, where a trading day is defined as a day on which the underlying index is calculated.

## Realized Volatility

The realized volatility is calculated as the simple weighted moving average.

$$\text{RealizedVolatility}_t = \sqrt{\frac{252}{n} * \text{Variance}_t}$$

$$\text{Variance}_t = 1/N * \sum_{i=t-N+1}^t * \left[ \ln\left( \frac{\text{Underlying Index}_i}{\text{Underlying Index}_{i-n}} \right) \right]^2$$

where:

$n = 1$  (the number of days inherent in the return calculation used for determining volatility).

$N = 100$  (the number of trading days observed for calculating variance for the short term volatility measure).

## Excess Return Indices

Excess return index series are calculated for the S&P/JPX Risk Control Indices to take interest costs into account if both positions in the underlying index and cash are sponsored by borrowing. The formula for calculating the risk control excess return is as follows:

*Risk Control Index Excess Return*<sub>t</sub> =

$$\left[ \left[ K_{t-1} * \left( \frac{\text{Underlying Index}_t}{\text{Underlying Index}_{t-1}} - 1 \right) + K_{t-1} * (\text{InterestRate}_{t-1} * D_{t-1,t} / 365) \right] \right]$$

# Index Maintenance

## Rebalancing

The S&P/JPX Risk Control Indices rebalance daily. The exposure factors for the next business day are determined at market close based on the observed market volatility as of the close three business days prior the next day.

## Currency of Calculation and Additional Index Return Series

The S&P/JPX Risk Control Indices calculate in Japanese yen.

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 [S&P DJI 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 [www.spglobal.com/spdji/](http://www.spglobal.com/spdji/).*

# Index Governance

## Index Committee

An S&P Dow Jones Indices' Index Committee maintains the indices. The Committee meets regularly. At each meeting, the Committee reviews any significant market events. In addition, the Committee may revise index policies, including all matters relating to index construction, maintenance, 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 methodology changes are posted to the S&P Dow Jones Indices' Web site and announced via email to all clients. The latest available version is posted on the Web site at [www.spglobal.com/spdji/](http://www.spglobal.com/spdji/).

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

## **Holiday Schedule**

The indices are calculated daily, throughout the calendar year. The only days the indices are not calculated and files are not distributed are on days when the Tokyo Stock Exchange is officially closed.

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

## **Unforeseen Events**

S&P Dow Jones Indices retains the sole authority and final discretion regarding all index activity. In all cases, the index treatment will be communicated to clients via email or ftp.

## **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](mailto:index_services@spglobal.com).

# 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 the [S&P DJI Methodology & Regulatory Status Database](#) for a complete list of indices covered by this document.

Index	Return Type	BBG
S&P/JPX Risk Control 5%	Total Return	SJXDR5T
	Excess Return	SJXDR5E
S&P/JPX Risk Control 10%	Total Return	SJXDR10T
	Excess Return	SJXDR10E
S&P/JPX Risk Control 15%	Total Return	SJXDR15T
	Excess Return	SJXDR15E

## Index Data

Daily index level 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 I

## Methodology Changes

Methodology changes since January 1, 2015, are as follows:

<b>Change</b>	<b>Effective Date (After Close)</b>	<b>Previous</b>	<b>Methodology Updated</b>
Index Names	12/16/2015	TOPIX Daily Risk Control Indices: <ul style="list-style-type: none"><li>• TOPIX Daily Risk Control 5%</li><li>• TOPIX Daily Risk Control 10%</li><li>• TOPIX Daily Risk Control 15%</li></ul>	S&P/JPX Risk Control Indices: <ul style="list-style-type: none"><li>• S&amp;P/JPX Risk Control 5%</li><li>• S&amp;P/JPX Risk Control 10%</li><li>• S&amp;P/JPX Risk Control 15%</li></ul>

# Appendix II

## ESG Disclosures

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

<sup>2</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>3</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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### **ESG Indices Disclaimer**

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S&P DJI ESG indices use ESG metrics and scores in the selection and/or weighting of index constituents. ESG scores or ratings seek to measure or evaluate a company's, or an asset's, performance with respect to environmental, social and corporate governance issues.

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