S&P Risk Control 2.0 Indices
Methodology

July 2024

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Introduction

Index Objective

S&P Dow Jones Indices' Risk Control Indices measure the return of a strategy that applies dynamic exposure to an underlying index in an attempt to control the level of volatility. The S&P Risk Control 2.0 Indices are an alternative version of Risk Control indices, where the cash portion of the investment in the standard risk control strategy is replaced with a liquid bond index. The S&P Risk Control 2.0 with VAF Indices attempt to further stabilize the level of volatility by applying a volatility adjustment factor (VAF) based on the realized volatility of the final index levels to the Risk Control 2.0 computed weights.

S&P Risk Control 2.0 Indices are calculated for each of the S&P 500, S&P 500 Sector Rotator Indices, S&P BRIC 40 Indices, S&P Kensho New Economies Sector Rotator, S&P Kensho Liquid Future Communication Index, and S&P 500 Futures Index.

S&P Risk Control 2.0 with VAF Indices are calculated for the S&P U.S. Dividend Growers Index.

Currency of Calculation and Additional Index Return Series

The indices calculate in U.S. dollars and euros.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available. For a list of available indices, please refer to the *S&P DJI Methodology & Regulatory Status Database.*

For information on the calculation of different types of indices, 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/.

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
S&P Dow Jones Indices' Fixed Income Policies & Practices Methodology	Fixed Income Policies & Practices
S&P Dow Jones Indices' Fixed Income Mathematics Methodology	Index Mathematics Methodology

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.

S&P Risk Control 2.0 Indices

S&P Risk Control 2.0 Indices are an extension of standard S&P Risk Control indices. The index consists of two component indices, an index representing a risky asset and a corresponding bond index. Except for the S&P 500 Factor Rotator Daily RC2 7% Index, component index weights range between 0 and 100%, and no representation of shorting or leveraging is allowed in the index. For the S&P 500 Factor Rotator Daily RC2 7% Index, up to 150% leverage is allowed.

The table below details each S&P Risk Control 2.0 index and the corresponding bond index:

Index Family	Corresponding Bond Index
S&P 500 Daily RC 2 Indices (USD)	S&P 10-Year U.S. Treasury Note Futures Total Return Index
S&P 500 Daily RC 2 Indices (EUR)	S&P Euro-Bund Total Return Index
S&P BRIC 40 Daily RC 2 Indices	S&P 10-Year U.S. Treasury Note Futures Total Return Index
S&P BRIC 40 Daily RC 2 Indices (EUR)	S&P Euro-Bund Total Return Index
S&P 500 Sector Rotator Daily RC 2 Indices	S&P 10-Year U.S. Treasury Note Futures Total Return Index
S&P 500 Sector Rotator Daily RC 2 (5 Year Treasury) Indices	S&P 5-Year U.S. Treasury Note Futures Total Return Index
S&P 500 Sector Rotator Daily RC 2 (SOFR) Indices	S&P 10-Year U.S. Treasury Note Futures Total Return Index
S&P 500 Factor Rotator Daily RC2 7% Index (USD)	S&P 2-Year U.S. Treasury Note Futures Total Return Index
S&P Kensho New Economies Sector Rotator Daily RC2 5% Index	S&P 5-Year U.S. Treasury Note Futures Total Return Index
S&P Kensho New Economies Sector Rotator Daily RC2 7% Index	S&P 5-Year U.S. Treasury Note Futures Total Return Index
S&P Kensho Liquid Future Communication Daily RC2 5% Index	S&P 5-Year U.S. Treasury Note Futures Total Return Index
S&P Kensho Liquid Future Communication Daily RC2 8% Index	S&P 5-Year U.S. Treasury Note Futures Total Return Index
S&P Kensho Liquid Future Communication Daily RC2 10% Index	S&P 5-Year U.S. Treasury Note Futures Total Return Index
S&P 500 Futures Daily Risk Control 5% Index	S&P 10-Year U.S. Treasury Note Futures Excess Return Index

The S&P 500 Daily RC 2 Indices consist of the S&P 500 Total Return Index and a liquid bond index. The indices are dynamically adjusted to target a specified level of volatility. Volatility is calculated as a function of historical returns that uses exponential weightings to give more significance to recent observations. In addition, short and long-term measures of volatility are used to change exposure on a relative basis.

The S&P BRIC 40 Daily RC 2 Indices consist of the S&P BRIC 40 Net Total Return Index and a liquid bond index. The indices are dynamically adjusted to target a specified level of volatility. Realized historical volatility is calculated using an exponentially weighted average. Short and long-term measures of volatility are taken using decay factors of 94% and 97%, respectively. In order to be conservative, the higher level of volatility is used in the risk control calculation.

The S&P 500 Sector Rotator Daily RC 2 Indices consist of the S&P 500 High Momentum Value Sector Rotation Index and a liquid bond index.

The S&P Kensho New Economies Sector Rotator Daily RC2 Indices consist of the S&P Kensho New Economies Sector Rotator Total Return Index and a liquid bond index.

The S&P Kensho Liquid Future Communication Daily RC2 Indices consist of the S&P Kensho Liquid Future Communication Total Return Index and a liquid bond index.

For information on how to calculate the underlying indices, please refer to their individual index methodologies, located on our Web site at www.spglobal.com/spdji/.

The S&P 500 Futures Daily Risk Control 5% Index consists of the S&P 500 Futures Excess Return Index and the S&P 10-Year U.S. Treasury Note Futures Excess Return Index. The index follows the Risk Control 2.0 Indices with Minimum Variance methodology. When there is no feasible solution to the quadratic equation, the index defaults to the minimum variance weights instead of defaulting to the underlying equity index and cash defined in the first generation of Risk Control indices. As a result, the index will have an annualized volatility above the target; therefore, a scalar factor θ equal to the ratio of the volatility target and the index volatility is multiplied to the index weights. This will result in a cash allocation to get the 100% total allocation. In addition, the strategy has a daily limit allocation change of 15% for the equity and fixed income components.

For more information on the calculation of Risk Control 2.0 Indices with Minimum Variance, please refer to the S&P Index Mathematics Methodology.

For more information on the daily limit allocation change for equity and fixed income components, please refer to the Capped Equity Weight Change in the S&P Index Mathematics Methodology.

Parameters

The parameters used for the S&P Risk Control 2.0 Indices follow the same calculation process as those in the standard Risk Control methodology. A three-day lag to rebalancing date is used for the S&P 500 Daily RC 2, S&P 500 Factor Rotator Daily RC2 7% and S&P BRIC 40 Daily RC 2 Indices. A two-day lag to rebalancing date is used for the S&P 500 Sector Rotator Daily RC 2 Indices, S&P Kensho New Economies Sector Rotator Daily RC2 Indices, S&P Kensho Liquid Future Communication Daily RC2 indices, and S&P 500 Futures Daily Risk Control 5% Index. Indices are rebalanced daily. The table below details the parameters for the indices:

Index	Risk Control Level	Interest Rate	Return Frequency for Volatility	Decay Factor Short-Term Volatility	Decay Factor Long-Term Volatility
S&P 500 Daily RC 2 8% Index	8%	SOFR + .13088 or Rolling 1 or 3-month Euribor*	Daily	94%	97%
S&P 500 Daily RC 2 10% Index	10%	SOFR + .13088 or Rolling 1 or 3-month Euribor*	Daily	94%	97%
S&P 500 Daily RC 2 15% Index	15%	SOFR + .13088 or Rolling 1 or 3-month Euribor*	Daily	94%	97%
S&P BRIC 40 Daily RC 2 8% Index	8%	SOFR + .13088 or Rolling 1 or 3-month Euribor*	Five days	94%	97%
S&P BRIC 40 Daily RC 2 10% Index	10%	SOFR + .13088 or Rolling 1 or 3-month Euribor*	Five days	94%	97%
S&P BRIC 40 Daily RC 2 15% Index	15%	SOFR + .13088 or Rolling 1 or 3-month Euribor*	Five days	94%	97%
S&P 500 Sector Rotator Daily RC 2 5% Index	5%	SOFR +.13088**	Daily	94%	97%
S&P 500 Sector Rotator Daily RC 2 6% Index	6%	SOFR +.13088**	Daily	94%	97%
S&P 500 Sector Rotator Daily RC 2 5% (5 Yr Treasury Index)	5%	SOFR +.13088**	Daily	94%	97%

Index	Risk Control Level	Interest Rate	Return Frequency for Volatility	Decay Factor Short-Term Volatility	Decay Factor Long-Term Volatility
S&P 500 Sector Rotator Daily RC 2 6% (5 Yr Treasury Index)	6%	SOFR +.13088**	Daily	94%	97%
S&P 500 Sector Rotator Daily RC 2 8% (5 Yr Treasury Index)	8%	SOFR +.13088**	Daily	94%	97%
S&P 500 Sector Rotator Daily RC 2 10% (5 Yr Treasury Index)	10%	SOFR +.13088**	Daily	94%	97%
S&P 500 Sector Rotator Daily RC2 5% (SOFR) Index	5%	SOFR[1]	Daily	94%	97%
S&P 500 Factor Rotator Daily RC2 7% (2 Yr Treasury Index)	7%	Effective Fed Funds Rate	Daily	94%	97%
S&P Kensho New Economies Sector Rotator Daily RC2 5% Index	5%	SOFR +.13088*	Daily	94%	97%
S&P Kensho New Economies Sector Rotator Daily RC2 7% Index	7%	SOFR +.13088*	Daily	94%	97%
S&P Kensho Liquid Future Communication Daily RC2 5% Index	5%	SOFR +.13088*	Daily	94%	97%
S&P Kensho Liquid Future Communication Daily RC2 8% Index	8%	SOFR +.13088*	Daily	94%	97%
S&P Kensho Liquid Future Communication Daily RC2 10% Index	10%	SOFR +.13088*	Daily	94%	97%
S&P 500 Futures Daily Risk Control 5% Index	5%	SOFR + .02963	Daily	94%	97%

Decimal Places Used in Calculations

Indices using the S&P 500 as an underlying index are rounded to two decimal places for the entire history from August 3, 1998, to current. Indices using the S&P BRIC 40 as an underlying index are not rounded for history until January 19, 1999. From January 20, 1999, through September 7, 1999, the values are rounded to two decimal places. From September 8, 1999, to October 5, 1999, the values are rounded to three decimal places. From October 6, 1999, to current, the indices are rounded to two decimal places.

For information on S&P Risk Control Indices, as well as the weighting calculations used in the S&P Risk Control 2.0 Indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

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[1] Prior to Aug. 22, 2014 the Effective Fed Funds Rate was used.
(*) Rolling 3-month USD LIBOR was used prior to December 20, 2021 instead of SOFR +.13088.
(**) 3-month USD LIBOR was used prior to December 20, 2021.
(***) Overnight USD LIBOR was used prior to December 20, 2021.

S&P Risk Control 2.0 Indices with VAF

S&P Risk Control 2.0 with VAF Indices are an extension of S&P Risk Control 2.0 indices. The indices attempt to further stabilize the level of volatility by applying a volatility adjustment factor (VAF) based on the realized volatility of the final index levels to the Risk Control 2.0 computed weights.

The table below details each S&P Risk Control 2.0 with VAF index and its corresponding bond index:

Index	Corresponding Bond Index
S&P U.S. Dividend Growers VA RC2 7.5% Index	
S&P U.S. Dividend Growers VA RC2 7.5% Index (Fed Funds)	S&P 10-Year U.S. Treasury Note Futures Total Return Index

S&P U.S. Dividend Growers VA RC2 7.5% Index. The index consists of the S&P U.S. Dividend Growers Total Return Index and a liquid bond index. The indices dynamically adjust to target a specified level of volatility. Volatility is calculated as a function of historical returns that uses exponential weightings to give more significance to recent observations. In addition, the index uses short- and long-term measures of volatility to increase exposure more gradually on a relative basis.

Parameters

The indices are constructed with a three-day lag to the rebalancing date. The indices rebalance daily. The table below details the parameters for the indices:

Index	Risk Control Level	Interest Rate	Return Frequency for Volatility	Decay Factor Short-term Volatility	Decay Factor Long-term Volatility
S&P U.S. Dividend Growers VA RC2 7.5% Index	7.5%	3 Month T-Bill	Daily	94%	97%
S&P U.S. Dividend Growers VA RC2 7.5% Index (Fed Funds)	7.5%	Effective Fed Funds Rate	Daily	94%	97%

For information on how to calculate the underlying indices, please refer to their individual index methodologies, available at www.spglobal.com/spdji/.

For information on S&P Risk Control Indices, as well as the weighting calculations used in the S&P Risk Control 2.0 Indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Volatility Adjustment Factor (VAF) Computation

The volatility adjustment factor for index calculation day t, VAF_t, is computed as the minimum of the VAF values obtained using a short-term 21-day realized volatility and a long-term 120-day realized volatility of the final index levels.

For the first 121 days of index calculation, $t = 1, \cdots, 121$,

$$VAF_t = 1$$

For index calculation day, $t > 121$,

$$VAF_t = \min(21d\ VAF_t, 120d\ VAF_t)$$

$$21d\ VAF_t = \min\left(1.2, \max\left[0.8, \sqrt{\max\left(0,2 - \left[\frac{21d\ Volatility_{t-1}}{Risk\ Control\ Level}\right]^2\right)}\right]\right)$$

$$120d\ VAF_t = \min\left(1.2, \max\left[0.8, \sqrt{\max\left(0,2 - \left[\frac{120d\ Volatility_{t-1}}{Risk\ Control\ Level}\right]^2\right)}\right]\right)$$

$$21d\ Volatility_{t-1} = \sqrt{252} \times stdev(past\ 21\ values\ of\ Index\ Returns_{t-1})$$

$$120d\ Volatility_{t-1} = \sqrt{252} \times stdev(past\ 120\ values\ of\ Index\ Returns_{t-1})$$

where:

$Index\ Returns_t$ = The daily arithmetic return of the final index closing level from day *t-1* to *t*

$stdev( )$ = A function that computes sample standard deviation

Final Index Level Computation

The equity index and bond index weights computed during the Risk Control 2.0 construction are adjusted by multiplying the weights by the volatility adjustment factor for that day.

For index calculation day, t,

$$W_t^{equity} = W_{t,RC2.0}^{equity} \times VAF_t$$

$$W_t^{bond} = \min\left(1, W_{t,RC2.0}^{bond} \times VAF_t\right)$$

$$W_t^{cash} = 1 - W_t^{equity} - W_t^{bond}$$

The final index level for day t is computed as:

$$Index\ Level\ TR_t = Index\ Level\ TR_{t-1} \times \left[1 + W_t^{equity} \cdot R_t^{equity} + W_t^{bond} \cdot R_t^{bond} + W_t^{cash} \cdot R_t^{cash}\right]$$

$$Index\ Level\ ER_t = Index\ Level\ ER_{t-1} \times \left[1 + W_t^{equity} \cdot R_t^{equity} + W_t^{bond} \cdot R_t^{bond} + (W_t^{cash} - 1) \cdot R_t^{cash}\right]$$

where:

$W_{t,RC2.0}^{equity}$ = The weight of the equity index computed by the Risk Control 2.0 construction methodology for day *t*

$W_{t,RC2.0}^{bond}$ = The weight of the bond index computed by the Risk Control 2.0 construction methodology for day *t*

R_t^{equity} = The daily arithmetic return of the equity index from day *t-1* to *t*

R_t^{bond} = The daily arithmetic return of the bond index from day *t-1* to *t*

R_t^{cash} = The daily accrual return of the interest rate from day *t-1* to *t*

Rebalancing

The index rebalances daily on each day that S&P U.S. Dividend Growers Total Return Index is calculated. If on any index calculation day, no index level is available for the S&P 10-Year U.S. Treasury Note Futures Total Return Index, the last available closing level of the index is used.

Index Governance

Index Committee

Each of S&P Dow Jones Indices' indices is the responsibility of an Index Committee that monitors overall policy guidelines and methodologies, as well as additions to and deletions from these indices.

Decisions made by the Index Committee include all matters relating to index construction and maintenance. The Index Committee meets regularly to review market developments and convenes as needed to address major corporate actions.

It is the sole responsibility of the Index Committee to decide on all matters relating to methodology, maintenance, constituent selection and index procedures. The Index Committee makes decisions based on all publicly available information and discussions are kept confidential to avoid any unnecessary impact on market trading.

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

Announcements of the daily index values are made before the open of the next trading day.

Holiday Schedule

An S&P Risk Control 2.0 Index will not rebalance on days when 15% or more of the constituents in the underlying risk index are closed. For more information, please refer to the S&P Dow Jones Indices Index Mathematics' Methodology.

A complete holiday schedule for the year is available on the S&P Dow Jones Indices' Web site at *www.spglobal.com/spdji/*.

Unexpected Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

For information on Calculations and Pricing Disruptions, Expert Judgment, Data Hierarchy, Unexpected Exchange Closures and Error Corrections, 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 and Fixed Income Policies & Practices Methodology documents for the underlying equity index and bond index, respectively.

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 and S&P Dow Jones Indices' Fixed Income Policies & Practices Methodology documents for the underlying equity index and bond index, respectively.

Contact Information

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

Index Dissemination

Historical index returns are available through S&P Dow Jones Indices' index data group via subscription.

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 (Currency)	Return Type	Ticker
S&P 500 Daily RC 2 8% Index (USD)	Total Return	SPX8UN2
	Excess Return	SPX8UE2
S&P 500 Daily RC 2 8% Index (EUR)	Total Return	SPX8EN2
	Excess Return	SPX8EE2
S&P 500 Daily RC 2 10% Index (USD)	Total Return	SPX10UN2
	Excess Return	SPX10EU2
S&P 500 Daily RC 2 10% Index (EUR)	Total Return	SPX10EN2
	Excess Return	SPX10EE2
S&P 500 Daily RC 2 15% Index (USD)	Total Return	SPX15UN2
	Excess Return	SPX15UE2
S&P 500 Daily RC 2 15% Index (EUR)	Total Return	SPX15EN2
	Excess Return	SPX15EE2
S&P BRIC 40 Daily RC 2 8% Index (USD)	Net Total Return	SPB8UN2
	Excess Return	SPB8UE2
S&P BRIC 40 Daily RC 2 8% Index (EUR)	Net Total Return	SPB8EN2
	Excess Return	SPB8EE2
S&P BRIC 40 Daily RC 2 10% Index (USD)	Net Total Return	SPB10UN2
	Excess Return	SPB10UE2
S&P BRIC 40 Daily RC 2 10% Index (EUR)	Net Total Return	SPB10EN2
	Excess Return	SPB10EE2
S&P BRIC 40 Daily RC 2 15% Index (USD)	Net Total Return	SPB15UN2
	Excess Return	SPB15UE2
S&P BRIC 40 Daily RC 2 15% Index (EUR)	Net Total Return	SPB15EN2
	Excess Return	SPB15EE2
S&P 500 Sector Rotator Daily RC2 5% (5Yr Treasury) Index (USD)	Total Return	SPXSRF5T
	Excess Return	SPXSRF5E
S&P 500 Sector Rotator Daily RC2 6% (5Yr Treasury) Index (USD)	Total Return	SPXSRF6T
	Excess Return	SPXSRF6E
S&P 500 Sector Rotator Daily RC2 5% Index (USD)	Total Return	SPXSRT5T
	Excess Return	SPXSRT5E
S&P 500 Sector Rotator Daily RC2 6% Index (USD)	Total Return	SPXSRT6T
	Excess Return	SPXSRT6E
S&P 500 Sector Rotator Daily RC2 5% (SOFR) Index (USD)	Total Return	SPXSRS5T
	Excess Return	SPXSRS5E
S&P 500 Factor Rotator Daily RC2 7% Index (USD)	Total Return	SPXFRRT7
	Excess Return	SPXFRRE7
S&P Kensho New Economies Sector Rotator Daily RC2 5% Index (USD)	Total Return	KNESRT5
	Excess Return	KNESRE5
S&P Kensho New Economies Sector Rotator Daily RC2 7% Index (USD)	Total Return	KNESRT7
	Excess Return	KNESRE7
S&P Kensho Liquid Future Communication Daily RC2 5% Index (USD)	Total Return	KCNLQT5
	Excess Return	KCNLQE5
S&P Kensho Liquid Future Communication Daily RC2 8% Index (USD)	Total Return	KCNLQT8
	Excess Return	KCNLQE8
S&P Kensho Liquid Future Communication Daily RC2 10% Index (USD)	Total Return	KCNLQT10
	Excess Return	KCNLQE10

Index (Currency)	Return Type	Ticker
S&P 500 Futures Daily Risk Control 5% Index	Total Return	SPXFR5UT
	Excess Return	SPXFR5UE
S&P U.S. Dividend Growers VA RC2 7.5% Index (USD)	Total Return	SPDGVTBT
	Excess Return	SPDGVTBE

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

Methodology Changes

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

	Effective Date	Methodology	
Change	(After Close)	Previous	Updated
Interest Rate Replacements:	12/17/2021	• Rolling 3-month USD LIBOR or Rolling 1 or 3-month Euribor. • 3-month USD LIBOR. • Overnight USD LIBOR.	• SOFR + .13088 or Rolling 1 or 3-month Euribor. • SOFR + .13088. • SOFR + .02963.

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).

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