S&P Dow Jones Indices

A Division of S&P Global

S&P Net Zero 2050 Carbon Budget Indices *Methodology*

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Introduction

Index Objective and Highlights

The S&P Net Zero 2050 Carbon Budget Indices measure the performance of equity securities from an underlying index selected and weighted to target a defined carbon budget from each index's launch year to 2050 based on the Intergovernmental Panel on Climate Change (IPCC) estimate for worldwide emissions to limit global warming from pre-industrial levels to 1.5ºC.[1] The indices are weighted in order to minimize the difference in constituent weights relative to the underlying index in terms of stocks, industries, and countries.

Each index aims to achieve the corresponding target carbon budget through a constraint on ownership of total Scope 1, 2 and 3 greenhouse gas (GHG) emissions that results in both the following conditions:

- an initial GHG footprint reduction in the index vintage year relative to the underlying index, and:
- a yearly absolute geometric decarbonization rate

Index Family

The family consists of the following headline indices:

- S&P Global Net Zero 2050 Carbon Budget (2022 Vintage) Index
- S&P 500 Net Zero 2050 Carbon Budget (2022 Vintage) Index
- S&P Europe Net Zero 2050 Carbon Budget (2022 Vintage) Index
- S&P Emerging Net Zero 2050 Carbon Budget (2022 Vintage) Index
- S&P Developed Net Zero 2050 Carbon Budget (2022 Vintage) Index

[1] With an 83% 'likelihood of limiting global warming to temperature limit'. IPCC (2021). *Summary for Policymakers (ipcc.ch)*, available at *https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf*.

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' Float Adjustment Methodology	Float Adjustment Methodology
S&P Dow Jones Indices' Global Industry Classification Standard (GICS) Methodology	GICS Methodology

The methodology is 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.

Eligibility Criteria and Index Construction

Index Universe

At each annual rebalancing reference date, the indices are constructed from the constituents of an underlying index, subject to the eligibility factor below.

S&P Net Zero 2050 Carbon Budget (2022 Vintage) Indices	Underlying Index
S&P Global Net Zero 2050 Carbon Budget (2022 Vintage) Index	S&P Global BMI
S&P 500 Net Zero 2050 Carbon Budget (2022 Vintage) Index	S&P 500
S&P Europe Net Zero 2050 Carbon Budget (2022 Vintage) Index	S&P Europe BMI
S&P Emerging Net Zero 2050 Carbon Budget (2022 Vintage) Index	S&P Emerging BMI
S&P Developed Net Zero 2050 Carbon Budget (2022 Vintage) Index	S&P Developed BMI

For information on an underlying index, please refer to the respective index methodology, available at www.spglobal/spdji.com.

Eligibility Factors

At each rebalancing, companies must satisfy the following to be eligible for index inclusion:

GHG Emissions Coverage: have Scope 1, 2 and 3 GHG emissions coverage from S&P Trucost Limited (Trucost). Any company with GHG emissions data with a Trucost financial year of four years or more prior to the rebalancing reference date year is not covered.

For information on Trucost's methodology, please refer here.

Constituent Selection

At each rebalancing, the eligible companies from each underlying index are selected and form each index.

Constituent Weighting

At each rebalancing reference date, weights (w_i), are determined to minimize the following objective function:

$$\text{Objective Function} = \sum_i \frac{1}{n}\frac{(w_i - underlying\ weight_i)^2}{underlying\ weight_i} + \sum_j \frac{1}{l}\frac{\left(industry\ weight_j - underlying\ industry\ weight_j\right)^2}{underlying\ industry\ weight_j} + \sum_k \frac{1}{m}\frac{(country\ weight_k - underlying\ country\ weight_k)^2}{underlying\ country\ weight_k}$$

where:

$\boldsymbol{n}$ = the number of stocks selected

$\boldsymbol{l}$ = the number of GICS industries in the underlying index

$\boldsymbol{k}$ = the number of countries of domicile in the underlying index

Initial Carbon Reduction and Decarbonization Rate Calculations

For each vintage year in the index series, calculate a fixed annual global emissions decarbonization rate using the latest Intergovernmental Panel on Climate Change's (IPCC) estimate for the remaining global planetary greenhouse emissions budget that would limit global warming from pre-industrial levels to 1.5ºC. This rate represents the required annual reduction in the observed global planetary emissions from at the start of each index vintage's launch year that would ensure the resultant cumulative global planetary emissions towards 2050 would be at, or below, the global emissions budget at the start of each index vintage's launch year. This global emissions reduction rate is then applied to all indices with the same vintage as the annual decarbonization rate ('Decarbonization Rate').

The carbon budget pathway for all indices[2] from their launch year to 2050 is derived using the following estimates, assumptions, and equations

$$\boldsymbol{Estimated\ Global\ Carbon\ Budget\ (GCB)^{3}\ from\ 2020 = 300\ \mathrm{GtCO_2}}$$

$$\boldsymbol{Estimated\ Annual\ Global\ Emissions^{4}\ in\ year\ y = \left(AGE_y\right)}$$

Year, y	Estimated Annual Global Emissions in Year, y *(AGE_y)* (Gigatonnes of carbon dioxide emissions, $GtCO_2$)
2020	31.50
2021	33.00

$$\boldsymbol{Global\ Carbon\ Budget\ Remaining\ from\ vintage\ launch\ year^{5}\ \left(GCBR_y\right)}$$

$$\boldsymbol{= GCB - \sum_{y=2020}^{index\ launch\ year-1} AGE_y}$$

After defining each index's corresponding initial carbon reduction (as shown below), the following decarbonization rates were determined for indices in the 2022 vintage series:

Index	Initial Carbon Reduction	Decarbonization Rate
S&P Global Net Zero 2050 Carbon Budget (2022 Vintage) Index	25%	10.1%
S&P 500 Net Zero 2050 Carbon Budget (2022 Vintage) Index	25%	10.1%
S&P Europe Net Zero 2050 Carbon Budget (2022 Vintage) Index	25%	10.1%
S&P Emerging Net Zero 2050 Carbon Budget (2022 Vintage) Index	25%	10.1%
S&P Developed Net Zero 2050 Carbon Budget (2022 Vintage) Index	25%	10.1%

The 'Initial Carbon Reduction' in the vintage year is applied to the realized Annual Global Emissions ('AGE') in the year prior to the index launch date. The calculation of the annual 'Decarbonization Rate' for each index vintage is then solved for as a rate that satisfies the following equation, using the *$GCBR_y$* and a specified initial carbon reduction rate.

$$\boldsymbol{\left(GCBR_y\right) = \sum_{t=0}^{2050-index\ launch\ year} AGE_{index\ launch\ year-1} * (1 - Initial\ Carbon\ Reduction) * (1 - Decarbonization\ Rate)^{t}}$$

[2] For more information, please see *Appendix I*.
[3] IPCC's global carbon budget estimate at the start of 2020 for all emitters to limit global warming from pre-industrial levels to 1.5ºC with an 83% probability.
[4] IEA Global Energy Review 2021 (*here*).
[5] For example, indices with a 2022 vintage have a '*Global carbon budget remaining from vintage launch year*' of 235.5 $GtCO_2$. For more information, please see *Appendix I*.

where:

$Decarbonization\ Rate =$ An annual decarbonization rate (to one decimal place) of AGE that satisfies the equation. The rate is the first rate (to one decimal place) that results in positive remaining emissions budget in 2050.

t = Number of years since index launch.

Optimization Constraint

As of each rebalancing reference date, the optimizer seeks to minimize the above objective function for each index while satisfying the below constraint:

$$Total\ Index\ Carbon\ Emissions_t \leq Total\ Underlying\ Index\ Carbon\ Emissions_{t=0} * (1 - Initial\ Carbon\ Reduction) * (1 - Decarbonization\ Rate)^t$$

The index rebalancing prior to launch takes the subscript, '*t=0*'.

The $Total\ Underlying\ Index\ Carbon\ Emissions_0$ is the total absolute emissions of companies in the underlying index as of the reference date of the first rebalancing, apportioned on an equity ownership basis, only capturing the share of each company's emissions in proportion to the share of each company's total market capitalization in the S&P Global BMI. It is calculated using the GHG emissions dataset provided by Trucost as follows:

$$Total\ Underlying\ Index\ Carbon\ Emissio\ n_{t=0} = \times\ Company\ Emissions_{t=0,i} \sum_i Underlying\ Index\ Equity\ Ownership_{t=0,i}$$

where:

$$Underlying\ Index\ Equity\ Ownership_{t=0,i} = \frac{Underlying\ Index\ Mkt\ Cap_{t=0,i}}{Total\ Mkt\ Cap_{t=0,i}}$$

where:

$Underlying\ Index\ Mkt\ Cap_{t=0,i}$ = Index market capitalization (after free-float adjustment) for all stocks of company *i* in the underlying index as of the reference date of the rebalancing prior to launch.

$Total\ Mkt\ Cap_{t=0,i}$ = The total market capitalization (without free float adjustment) for all the stocks of company *i* that are constituents of the S&P Global BMI as of the reference date of the rebalancing prior to launch.

$Company\ Emissions_{t=0,i}$ = $GHG1_{t=0,i} + GHG2_{t=0,i} + GHG3_{t=0,i}$

where:

$GHG1_{t=0,i}$ = Scope 1 GHG emissions in tCO_2e for the company i as of the reference date of the rebalancing prior to launch.

$GHG2_{t=0,i}$ = Scope 2 GHG emissions in tCO_2e for the company i as of the reference date of the rebalancing prior to launch.

$GHG3_{t=0,i}$ = Scope 3 (upstream and downstream) GHG emissions in tCO_2e for the company i as of the reference date of the rebalancing prior to launch.

The $Total\ Index\ Carbon\ Emissions_t$ is the total absolute emissions of companies in the index as of the t^{th} rebalancing reference date, apportioned on an equity ownership basis, only capturing the share of each company's emissions in proportion to the share of each company's total market capitalization in the S&P Global BMI, and is calculated as follows:

$$Total\ Index\ Carbon\ Emission_t = \sum_j Equity\ Ownership_{t,i} \times Company\ Emissions_{t,i}$$

where:

$$Equity\ Ownership_{t,i} = \frac{Adjusted\ Index\ Mkt\ Cap_{t,i}}{Total\ Mkt\ Cap_{t,i}}$$

$$Adjusted\ Index\ Mkt\ Cap_{t,i} = Index\ Weight_{t,i} * \ Adjusted\ Index\ Total\ Mkt\ Cap_t$$

where:

$$Adjusted\ Index\ Total\ Mkt\ Cap_t = Underlying\ Index\ Total\ Mkt\ Cap_{t=0} * (1 + Index\ Total\ Return\ since\ Launch)$$

where:

$Underlying\ Index\ Total\ Mkt\ Cap_{t=0}$ = The sum of index market capitalization (after free-float adjustment) for all the stocks in the underlying index as of the rebalancing prior to launch.

$Total\ Mkt\ Cap_{t,i}$ = The total market capitalization (without free float adjustment) for all the stocks of company *i* that are constituents of the S&P Global BMI as of the t^{th} rebalancing reference date.

$$Company\ Emissions_{t,i} = GHG1_{t,i} + GHG2_{t,i} + GHG3_{t,i}$$

where:

$GHG1_{t,i}$ = Scope 1 GHG emissions in tCO_2e for the company i as of the t^{th} rebalancing reference date

$GHG2_{t,i}$ = Scope 2 GHG emissions in tCO_2e for the company i as of the t^{th} rebalancing reference date

$GHG3_{t,i}$ = Scope 3 (upstream and downstream) GHG emissions in tCO_2e for the company i as of the t^{th} rebalancing reference date.

Index Calculations

The indices calculate by means of the divisor methodology used in all S&P Dow Jones Indices' equity indices.

For more information on the index calculation methodology, please refer to the Non-Market Capitalization Weighted Indices of S&P Dow Jones Indices' Index Mathematics Methodology.

Index Maintenance

Rebalancing

The indices rebalance annually, effective after the close of the third Friday of March. The rebalancing reference date for each rebalance is the last trading day of the prior month. As part of the rebalancing process, constituent stock weights are updated. Weights calculated as a result of the reference date data are implemented in the indices using closing prices seven business days prior to the rebalancing effective date.

Additions and Deletions

Additions. Except for spin-offs, no stocks are added to the index between rebalance dates. Spin-offs follow the same treatment as the underlying index.

Deletions. If a stock is dropped from the underlying index, it is also removed from the respective S&P Net Zero 2050 Carbon Budget Index simultaneously. Between rebalancings, a stock can be deleted from an index due to corporate events such as mergers, takeovers, delistings, suspensions, spin-offs/demergers, or bankruptcies.

Corporate Actions

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

Ongoing Maintenance

Index constituents are drawn from the underlying index or component indices. Specific changes to index constituents, such as share changes, Investable Weight Factor (IWF) changes, dividend distributions, and price adjustments, follow the policies of the underlying index.

For more information on Share Updates, Float Adjustment, and IWFs, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology and S&P Dow Jones Indices' Float Adjustment Methodology.

The index is reviewed on an ongoing basis to account for corporate events such as mergers, takeovers, delistings, suspensions, spin-offs/demergers, or bankruptcies. Changes to index composition and related weight adjustments are made as soon as they are effective. These changes are typically announced prior to the implementation date.

Quarterly Updates

Changes to a constituent's shares and IWF as a result of the quarterly updates are effective after the close on the third Friday in March, June, September, and December.

Currency of Calculation and Additional Index Return Series

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

WM/Refinitiv foreign exchange rates are taken daily at 04:00 PM London Time and used in the end-of-day calculation of the indices. These mid-market fixings are calculated by The WM Company based on Refinitiv data and appear on Refinitiv pages WMRA.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to the following: 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 index calculation, 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/spdji.com.

Base Dates and History Availability

Index history availability, base dates, and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P Global Net Zero 2050 Carbon Budget (2022 Vintage) Index	07/25/2022	03/18/2022	03/18/2022	1000
S&P 500 Net Zero 2050 Carbon Budget (2022 Vintage) Index	07/25/2022	03/18/2022	03/18/2022	1000
S&P Europe Net Zero 2050 Carbon Budget (2022 Vintage) Index	07/25/2022	03/18/2022	03/18/2022	1000
S&P Emerging Net Zero 2050 Carbon Budget (2022 Vintage) Index	07/25/2022	03/18/2022	03/18/2022	1000
S&P Developed Net Zero 2050 Carbon Budget (2022 Vintage) Index	07/25/2022	03/18/2022	03/18/2022	1000

Index Data

Calculation Return Types

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

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

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

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

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

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

Index Governance

Index Committee

An S&P Dow Jones Indices Index Committee maintains the indices. The Index Committee meets regularly. At each meeting, the Index Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the index to the market, companies that are being considered as candidates for addition to the index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Index Policy

Announcements

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

Press releases are posted on our Web site, *www.spglobal/spdji.com*, and are released to major news services.

Pro-forma Files

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

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

Holiday Schedule

The index is calculated daily, throughout the calendar year. The only days an index is not calculated are on days when all exchanges where an index's constituents are listed are officially closed or if WM/Reuters' exchange rates services are not published.

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

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

Unexpected Exchange Closures

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

Recalculation Policy

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

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

Contact Information

For any 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.spglobal/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 the *S&P DJI Methodology & Regulatory Status Database* for a complete list of indices covered by this document.

Index	Return Type	Bloomberg	RIC
S&P Global Net Zero 2050 Carbon Budget (2022 Vintage) Index (USD)	Price Return	SPBMCBUP	.SPBMCBUP
	Total Return	SPBMCBUT	.SPBMCBUT
	Net Total Return	SPBMCBUB	.SPBMCBUB
S&P 500 Net Zero 2050 Carbon Budget (2022 Vintage) Index (USD)	Price Return	SP5NCBUP	.SP5NCBUP
	Total Return	SP5NCBUT	.SP5NCBUT
	Net Total Return	SP5NCBUN	.SP5NCBUN
S&P Europe Net Zero 2050 Carbon Budget (2022 Vintage) Index (USD)	Price Return	SPEUCBUP	.SPEUCBUP
	Total Return	SPEUCBUT	.SPEUCBUT
	Net Total Return	SPEUCBUN	.SPEUCBUN
S&P Emerging Net Zero 2050 Carbon Budget (2022 Vintage) Index (USD)	Price Return	SPEMCBUP	.SPEMCBUP
	Total Return	SPEMCBUT	.SPEMCBUT
	Net Total Return	SPEMCBUN	.SPEMCBUN
S&P Developed Net Zero 2050 Carbon Budget (2022 Vintage) Index (USD)	Price Return	SPDECBUP	.SPDECBUP
	Total Return	SPDECBUT	.SPDECBUT
	Net Total Return	SPDECBUN	.SPDECBUN

Index Data

Daily constituent and index level data are available via subscription.

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

Website

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

Appendix I

The appendix seeks to show how the carbon budgets, initial, and annual decarbonization rates are used at each rebalancing, and how the choice of annual decarbonization rate (when considered at the level of one decimal place) results in the remaining absolute emissions budget (as at the launch date of the indices) so as to not be exhausted as at the 2050 rebalancing.

2022 Vintage Indices

Rebalancing Since Launch *'t'*	Year *'y'*	Remaining Absolute $GtCO_2$ Budget, prior to the rebalancing before launch in 2022	Annual AGE_y, ($GtCO_2$)	Initial Decarbonization Rate (%) (at t=0 only)	Annual Decarbonization Decrease Requirement within Year (%)	Target AGE_y, ($GtCO_2$)	Projected Remaining Absolute $GtCO_2$ Budget after the annual rebalancing ($GtCO_2$)
	2020	300.00	31.50				
	2021	268.50	33.00				
0	**2022**	**235.50**	33.00*	**-25.00%**		24.75	210.75
1	2023				-10.10%	22.25	188.50
2	2024				-10.10%	20.00	168.50
3	2025				-10.10%	17.98	150.51
4	2026				-10.10%	16.17	134.35
5	2027				-10.10%	14.53	119.81
6	2028				-10.10%	13.07	106.75
7	2029				-10.10%	11.75	95.00
8	2030				-10.10%	10.56	84.44
9	2031				-10.10%	9.49	74.95
10	2032				-10.10%	8.53	66.41
11	2033				-10.10%	7.67	58.74
12	2034				-10.10%	6.90	51.85
13	2035				-10.10%	6.20	45.64
14	2036				-10.10%	5.57	40.07
15	2037				-10.10%	5.01	35.06
16	2038				-10.10%	4.51	30.55
17	2039				-10.10%	4.05	26.50
18	2040				-10.10%	3.64	22.86
19	2041				-10.10%	3.27	19.59
20	2042				-10.10%	2.94	16.64
21	2043				-10.10%	2.65	14.00
22	2044				-10.10%	2.38	11.62
23	2045				-10.10%	2.14	9.48
24	2046				-10.10%	1.92	7.56
25	2047				-10.10%	1.73	5.83
26	2048				-10.10%	1.55	4.28
27	2049				-10.10%	1.40	2.88
28	2050				-10.10%	1.26	1.63**

* For the initial AGE reduction in the vintage year, the starting point for the reduction is the prior year's AGE.

** The 1.63 GtCO2 is the remaining quantity of the global residual emissions calculated using the 25% initial carbon reduction in launch year, 10.10% annual decarbonization rate, and the latest IPCC estimate for the remaining global planetary greenhouse emissions budget that would limit global warming from pre-industrial levels to 1.5ºC as at the index launch date.

Disclaimer

Performance Disclosure/Back-Tested Data

S&P Dow Jones Indices defines various dates to assist our clients in 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 Dow Jones Indices 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. 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 S&P DJI's 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 Dow Jones Indices maintains the index and calculates the index levels and performance shown or discussed but does not manage actual 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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