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Robeco Sustainable Multi-Factor Equities Indices

Key elements of the methodology

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1. Introduction

The Robeco Sustainable Multi-Factor Equities Indices are a family of indices that seek efficient exposure to proven factor premiums: Value, Momentum, Quality and Low-Volatility while having an increased exposure to high impact stocks that have a positive societal contribution to SDGs and significantly reduce carbon footprint. The objective of the Robeco Sustainable Multi-Factor Equities Indices is to reflect the return of these factors within their geographical markets, subject to screening of the investable universe for stocks that do not have severe adverse impact on the UN Sustainable Development Goals, reduce carbon footprint and contribute positively to a low carbon economy.

This document describes the key elements of the methodology. In addition, a document describing the index policies, practices and benchmark statement are available for all index families on the Robeco Indices website, Indices (robeco.com).

Version history (as of January 2022)		
#4	December, 2023	Update of index methodology (carbon footprint reduction, transition leaders & Climate Beta)
#3	October, 2023	Annual update
#2	March, 2022	Update of index methodology (SDG exclusions, carbon footprint reduction)
#1	January, 2022	Publication including ESG methodology appendix

2. Constructing the Robeco Sustainable Multi-Factor Equities Indices

2.1 Defining the universe

The universe of the Robeco Sustainable Multi-Factor Equity Indices are based on underlying S&P indices. All stocks of the indices in this family are also constituent of these underlying S&P indices.

Robeco Sustainable Multi-Factor Equities Index	*Universe / Underlying market-cap weighted index*
Robeco Global Sustainable Multi-Factor Equity Index	S&P Global Large Mid Cap index

For more information on the construction of the underlying universe or market-cap weighted indices, please refer to the methodology of the indices which is published on the S&P DJI website, Index Finder | S&P Dow Jones Indices (spglobal.com)

2.2 Applying weights to the constituents

Sustainability:
Stocks will only be selected if classified to not have severe adverse impact on the UN Sustainable Development Goals. The Robeco SDG Framework rigorously measures and scores companies based on their SDG contributions. It is a systematic approach to capturing SDG impact of equity and credit issuers that is objective, disciplined and replicable. It consists of a three-step sequence that starts with an assessment of the impact of a company's products and services. Step two consists of an in-depth analysis of the impact of its operations, internal policies and structures. The process ends with a screening and review of corporate controversies that could negatively influence SDG progress, and hence a company's SDG impact. The final results of this three-step analysis are quantified in an SDG score (from -3, -2, ..., to +3). All stocks with a severely negative SDG score are excluded from the universe.

Carbon footprint reduction:
The index has as objective to significantly reduce its carbon footprint relative to the universe. The carbon footprint of company is measured by normalizing the greenhouse gas (GHG) emissions[1], Scope 1 and 2, by Enterprise Value Including Cash (EVIC). As part of the index construction algorithm, a restriction is included that the index' carbon footprint is 20% lower than the universe's.

Transition leaders:
The index overweighs stocks that are considered to be a transition leader if it is considered to have a positive contribution to the low carbon economy. To classify as transition leader, a stock must have a combined positive SDG score on SDG 7 'Affordable and Clean Energy', SDG 11 'Sustainable Cities and Communities' and SDG 13 'Climate Action'. As part of the index construction algorithm, a restriction is included that the index' average combined SDG score on SDG 7, 11 & 13 is higher than the universe's.

Climate Beta:
The index underweighs stocks that are considered to be more susceptible to climate risk. Climate risk is measured through the Climate Beta of a company which estimates the correlation of a company's stock returns with an observable proxy[2] for the financial risk of climate change. As such, the Climate Beta of a company tells us whether the company is positively or negatively exposed to climate risks and the global transition to a low carbon economy.

[1] GHG emission data is sourced from Trucost Environmental Data.
[2] The proxy for the financial risk of climate change is a factor portfolio that is constructed in a similar fashion as the Fama and French (2015) factors. The proxy is a portfolio that goes long in the 30% companies that are considered transition laggards and shorts the 30% companies that are considered transition leaders, based on the Climate SDG score (the combined SDG score on SDG 7, 11 and 13).

Companies with a high Climate beta are expected lose value from this transition, while companies with a low Climate Beta are expected to gain value. As part of the index construction algorithm, a restriction is included that the index' average Climate Beta is lower than the universe's.

Factors:
Based on the screened and adjusted universe and a Robeco proprietary stock selection model, using value, momentum, quality and low-volatility criteria, a quantitative stock ranking is created. Using the validated ranking from the stock selection model, the index construction algorithm reweights the constituents, overweighting attractive stocks and underweighting unattractive stocks, based on the following characteristics.

- **Value**: stocks which are cheap compared with their intrinsic value, measured using e.g. book-to-market value, exhibit significantly higher returns than stocks that are expensive compared with their intrinsic value.
- **Momentum**: stocks that performed well in the recent past, on average outperform other stocks in the subsequent period; while stocks with poor returns, tend to lag behind in the following period.
- **Quality**: stocks with high profitability, high earnings quality, and conservative investment behavior generate outperformance over the market portfolio, while stocks with the opposite characteristics tend to underperform.
- **Low-volatility**: low-risk stocks tend to generate market-like returns with significantly lower risk, while high-risk stocks typically even fall short of the market, despite their much higher risks.

Other restrictions:
- The maximum allowed weight of a single stock in the index is 4%
- A minimum target transaction size of 1 basis point

The efficient index construction algorithm tilts the index towards stocks with attractive valuation, strong positive momentum, high earnings potential and lower expected risk, while keeping turnover low. The algorithm also ensures appropriate diversification and prevents unintended geographic or sector biases, as well as undue concentration to individual stocks or segments of the equity markets.

2.3 ESG methodology statement

Regulation (EU) 2016/1011 requires benchmark administrators to explain how environmental, social and governance factors ('ESG') are reflected in the benchmark methodology. Appendix I describes how ESG factors are reflected in the benchmark methodology.

2.4 Discretion in constructing the indices

Applying weights to the constituents is fully based on the Robeco Sustainable Multi-Factor Equities Indices' rules-based methodology, which eliminates the exercise of discretion by an individual in this process.

3. Maintaining the Robeco Sustainable Multi-Factor Equities Indices

Robeco Indices B.V. ("Robeco") has outsourced the calculation and maintenance of the Robeco Sustainable Multi-Factor Equities Indices to S&P DJI acting as the calculation agent.

3.1 Rebalancing

Rebalancing of the Robeco Sustainable Multi-Factor Equities Indices is performed quarterly. Constituent changes are typically communicated to clients two days before they are scheduled to be implemented. Constituent changes are communicated to all clients at the same time and are not made publicly available.

3.2 Index calculation

The Robeco Sustainable Multi-Factor Equities Indices are calculated end-of-day by S&P DJI. Index calculations include price-, total- and net- return series:

- Price return indices reflect the market price performance for all securities in the index.
- Gross total return (Total Return) indices reflect the return to an investor where dividends are reinvested without deduction of a withholding tax. Cash dividends are in general applied on the ex-date of the dividend.
- Net total return (Net Return) indices reflect the return to an investor where dividends are reinvested after the deduction of a withholding tax. The tax rate applied is the rate to non-resident institutions that do not benefit from double taxation treaties.

The Robeco Sustainable Multi-Factor Equities Indices are calculated in U.S. dollars, euros and British pounds.

For more information on the index calculation methodology, please refer to S&P DJI's Index Mathematics Methodology, which is available on the S&P DJI website, Methodologies - Governance | S&P Dow Jones Indices (spglobal.com).

3.3 Input data

Data used by S&P DJI for determination of the Robeco Sustainable Multi-Factor Equities Indices include (in order of priority):

a. Completed transaction data (closing prices) from stock exchanges;
b. For certain corporate actions, theoretical prices may be derived using the existing security price and the specifics of the corporate action.

In addition, WM/Refinitiv foreign exchange rates are taken daily at 04:00 PM London time and used in the calculation of the indices. These mid-market fixings are calculated by the WM Company based on Reuter's data and appear on Refinitiv pages WMRA.

The Robeco Sustainable Multi-Factor Equities Indices are calculated based on the values of the underlying equities, which are determined by its last closing price on the primary exchange where it is listed. The closing prices are received from S&P DJI's third party vendors, who receive the closing prices from the primary exchanges. Closing prices received by S&P DJI from one of its third party vendors are verified by comparing them with prices from an alternative vendor.

3.4 Exceptional circumstances

The Robeco Sustainable Multi-Factor Equities Indices rely on the continued availability of closing prices from stock exchanges. The potential limitations of the indices include circumstances where a significant portion of the closing prices of constituents of the indices are unavailable, for example due to unexpected market or exchange closures.

In general, all constituents (underlying equities) of the index will receive a daily closing price. Based on these closing prices the indices are calculated daily throughout the calendar year. The only days an index is not calculated are on days when all exchanges where the index constituents are listed are officially closed. In certain circumstances, for example unexpected market or exchange closures, not all securities in the index will receive a closing price on a particular day. Unexpected market/exchange closures are usually due to unforeseen circumstances, such as natural disasters, inclement weather, outages, or other events. Generally, if all exchanges are closed due to these unforeseen circumstances, the day will be treated as an unscheduled market holiday and no index will be calculated. Indices containing multiple markets will be calculated as normal, provided that at least one market is open that day.

For information on the policies in case of unexpected exchange closures, please refer to S&P DJI's Equity Indices Policies & Practices document located on the S&P DJI website, Methodologies - Governance | S&P Dow Jones Indices (spglobal.com).

3.5 Discretion in constructing and maintaining the indices

The Robeco Sustainable Multi-Factor Equities Indices are constructed and calculated following the methodology as described in this benchmark statement and the standard policies and practices of S&P DJI. Certain events beyond the control of Robeco and S&P DJI, and which are not addressed by the methodology and standard policies and practices, may affect the construction and calculation of the indices, including, but not limited to:

- Possible market disruption
- New or complex corporate actions
- Excessive index changes or adjustments
- Country specific regulations
- Unnecessary turnover
- Unavailability of necessary input data

In such circumstances discretion may be used in the construction and calculation of the indices. In addition, as part of the rebalance process, expert judgement can be exercised to improve the investability, or lower the risk, of the indices; as long as it is immaterial and meeting the objectives of the methodology. The exercise of expert judgement and impact on the index are reviewed and signed off by a senior portfolio manager of Robeco Indices.

In case the calculation agent S&P DJI encounters any event where discretion is required in the calculation of the indices, S&P DJI consults with Robeco to decide on the appropriate action to be taken.

Any exercise of discretion in special circumstances which could have a material effect on the benchmark will be escalated to the Oversight Committee.

3.6 Error correction policy

In the event of an error in the construction or calculation of the Robeco Sustainable Multi-Factor Equities Indices, the following procedures apply.

Input data errors
Where an error in the calculation of the indices is due to incorrect input data, S&P DJI shall follow the procedures described in its standard Equity Indices Policies & Practices document located on the S&P DJI website, Methodologies - Governance | S&P Dow Jones Indices (spglobal.com).

Recalculation Events	*Treatment*
Closing Price	Incorrect constituent closing prices are generally corrected and reposted.
Missed or Misapplied Corporate Action	Missed corporate action events are corrected & reposted.
Late Announcement of a Corporate Action	Divisor Impact: Divisor-impacting information is corrected and reposted. No Divisor Impact: Late information, including regular cash dividends, that does not impact the index divisor are applied at the earliest opportunity when S&P DJI becomes aware of the event. For late announced or canceled dividends, S&P DJI may elect to use a Post Ex-date Dividend Adjustment in certain instances. Stock splits, bonus issues or stock dividends and reverse stock splits are applied on the correct ex-date. If these are announced on the same day (either that this is taking place or that a previously announced event is being postponed or cancelled), they are applied on the correct ex-date and files are not reposted. Same day corporate actions are included in the current day files, so previous day files are not reposted. If these are announced after the ex-date, then it is applied on the correct ex-date and files are regenerated and reposted.
Incorrect Calculation or Data Entry Error	Incorrect calculations or data entry mistakes caused by S&P DJI are corrected and impacted indices are recalculated.

In the event one of these recalculation events is discovered within two trading days of its occurrence, in general the index will be recalculated. In the event any such recalculation event is discovered beyond such two trading day period, Robeco and S&P DJI will decide on the appropriate action to be taken.

Construction and calculation errors
Where an error is detected in the construction or calculation of the indices, which is not an input data error, but that was caused by the incorrect application of the index methodology and results in the incorrect composition and/or weighting of index constituents, Robeco and S&P DJI will discuss the appropriate action to be taken in order to resolve the error. In case the error is discovered before the new index composition is sent to clients, Robeco and S&P DJI will recalculate the index within the original rebalance timelines, if deemed feasible by S&P DJI. In the event an error is discovered beyond the rebalance period, after the new index composition has been sent out to clients, Robeco and S&P DJI will decide on the appropriate action to be taken. In the event Robeco chooses to recalculate an index, that shall be done within a reasonable timeframe following the detection and review of the issue. If it is determined that an index will be recalculated, the following steps will be taken upon completion of the recalculation:

- All impacted files are regenerated and reposted.
- All clients are notified of the recalculation and alerted when files have been successfully reposted.

3.7 Holiday Schedule

The Robeco Sustainable Multi-Factor Equities Indices are calculated on all business days of the year. S&P DJI publishes a calendar of holidays annually during the fourth quarter on their website, Methodologies - Governance | S&P Dow Jones Indices (spglobal.com).

3.8 Corporate Actions

Corporate actions (such as stock splits, stock dividends, spin-offs and rights offerings) are applied after the close of trading on the day prior to the ex-date. The Robeco Sustainable Multi-Factor Equities Indices follow the standard S&P DJI policy for Corporate Actions. For the main corporate actions, the treatment is described in the table.

Corporate Action	*Standard SPDJI Treatment*	*Divisor Change*
Company Addition/Deletion	Addition: The indices do not add companies between rebalancings. Deletion: The weights of all stocks in the index will proportionately change but relative weights will stay the same. The index divisor will change due to the net change in the index market capitalization.	Yes
Change in shares outstanding	Shares outstanding changes are offset by an adjustment factor (AWF). There is no change to the index market capitalization.	No
Split/Reverse Split	Shares outstanding are adjusted by split ratio. Stock price is adjusted by split ratio. There is no change to the index market capitalization.	No
Spin-off	The spin-off is added to the index on the ex-date at a price of zero. The spin-off index shares are based on the spin-off ratio. On the ex-date the spin-off will have the same attributes and capping adjustment factor (AWF) as its parent company, and will remain in the index for at least one trading day. As a result, there will be no change to the index divisor on the ex-date. If the spin-off is ineligible for continued inclusion, it will be removed after the ex-date. The weight of the spin-off being deleted is reinvested across all the index components proportionately such that the relative weights of all index components are unchanged. The net change in index market capitalization will cause a divisor change.	Depending on type of spin-off
Change in IWF	IWF changes are offset by an adjustment factor (AWF). There is no change to the index market capitalization.	No
Ordinary dividend	When a company pays an ordinary cash dividend, also referred to as a regular cash dividend, the index does not make any adjustments to the price or shares of the stock.	No
Special dividend	The stock price is adjusted by the amount of the dividend.	Yes
Rights offering	All rights offerings that are in the money on the ex-date are applied under the assumption the rights are fully subscribed. The stock price is adjusted by the value of the rights and the shares outstanding are increased by the rights ratio. The change in price and shares is offset by an adjustment factor (AWF) to keep the index market capitalization (stock weight) unchanged.	No

For more information on corporate actions treatment, please refer to S&P DJI's Equity Indices Policies & Practices document located on the S&P DJI website, Methodologies - Governance | S&P Dow Jones Indices (spglobal.com).

Disclaimer

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Appendix I: ESG methodology statement

Introduction

Regulation (EU) 2016/1011 requires benchmark administrators to explain how environmental, social and governance factors ('ESG') are reflected in the benchmark methodology.

ESG factors as reflected in the key elements of the benchmark methodology		
Item 1	Name of the benchmark administrator	Robeco Indices B.V.
Item 2	Type of benchmark or family of benchmarks	Equity
Item 3	Name of the benchmark or family of benchmarks	Robeco Sustainable Multi-Factor Equities Indices
Item 4	Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	☒ Yes ☐ No
Item 5	Reflection of ESG factors in benchmark methodology of the family of benchmarks	
a)	List of combined ESG factors:	• Exclusions based on a company's contribution towards the UN Sustainable Development Goals. All stocks with a severely negative SDG scores, based on the Robeco SDG Framework, are excluded from the universe. • Weighting based on the index construction algorithm that tilts the index towards stocks that positively contributes towards the UN Sustainable Development Goals, while keeping turnover low.
b)	List of environmental factors:	• Reduction of the index carbon footprint relative to the universe. The carbon footprint of company is measured by normalizing the greenhouse gas (GHG) emissions, Scope 1, 2 and 3 Upstream, by Enterprise Value Including Cash (EVIC). A restriction is included that the index carbon footprint is 20% lower than the underlying universe. • Overweighing of stocks that are considered to be a 'transition leader'. To classify as transition leader, a stock must have a combined positive SDG score on SDG 7 'Affordable and Clean Energy' and SDG 13 'Climate Action'. A restriction is in place that the index' average combined SDG score on SDG 7 & 13 is higher than the universe. • Tilting away from stocks that are considered to be more susceptible to climate transition risk, based on the Climate Beta of a company. A restriction is in place that the weighted average Climate Beta of the index is lower than the underlying universe.
c)	List of social factors	• N/A
d)	List of governance factors:	• N/A
Item 6	Reflection of ESG factors in benchmark methodology of each benchmark:	• See item 5, ESG factors are reflected in the methodology in the same way for all members of this benchmark family.
Item 7	Data and standards used:	
a)	Data input:	• SDG scores: Sourced from Robeco Institutional Asset Management (Robeco) • Emissions Data: Sourced from Trucost Environmental Data. • Climate Beta: Proprietary research data of Robeco Indices B.V.
b)	Verification and quality of data:	• SDG scores: The Robeco's SDG Committee is responsible for maintaining, updating, and improving Robeco's SDG framework. This involves overseeing the continuous development of the KPIs and thresholds, ensuring that the systems and processes through which the SDG assessment are undertaken are of the highest quality, assessing proposed amendments to the framework, and ensuring high quality governance. A data owner is responsible for oversight of content, methodology, process controls and, ultimately, quality. • Emissions Data: Robeco scrutinizes the data quality of each external provider during due diligence assessments. At the initial stage, this involves activities such as reviewing the data model, including choice

	of identifier, inclusion of units where relevant and so on. As we proceed through the process, we perform deep-dive statistical checks to identify outliers patterns or other distortion in the data. • Climate Beta: Calibration and verification of the proprietary research data is subject to the internal control framework of Robeco Indices B.V.
c) Reference standards:	• SDG scores: SDG Framework Methodology Document • Emissions Data : Trucost FAQ / Methodology Insights • Climate Beta: N/A
Date on which information has been last updated and reason for the update:	December 2023, index methodology update