

MSCI Prime Value ESG Low Carbon Select Indexes Methodology

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1 Introduction

The MSCI Prime Value ESG Low Carbon Select Indexes (herein, 'the Indexes') are designed to represent the performance of a strategy that seeks to maximize its exposure to a value factor and systematic integration of environmental, social and governance (ESG) norms.

The Indexes are constructed by selecting constituents of a market capitalization weighted index (the 'Parent Index') and applying an optimization process that aims to maximize the exposure to a value factor, reduce the carbon-equivalent exposure to CO₂ and other GHG, as well as reduce its exposure to potential emissions risk of fossil fuel reserves by thirty percent (30%) and improve the weighted-average industry-adjusted ESG score of the Index with respect to their respective Parent Indexes using certain constraints described below.

2 MSCI ESG Research

The Indexes use company ratings and research provided by MSCI ESG Research. In particular, the Indexes use the following MSCI ESG Research products: MSCI ESG Ratings, MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics.

For details on MSCI ESG Research’s full suite of ESG products, please refer to: <https://www.msci.com/esg-investing>.

2.1 MSCI ESG RATINGS

MSCI ESG Ratings aim to measure entities’ management of environmental, social and governance risks and opportunities. MSCI ESG Ratings are based on a seven-point scale from ‘AAA’ to ‘CCC’, indicating how an entity manages relevant key issues relative to industry peers.

The MSCI ESG Ratings methodology can be found in: <https://www.msci.com/esg-and-climate-methodologies>.

2.2 MSCI ESG CONTROVERSIES

MSCI ESG Controversies provides assessments of controversies concerning the potential negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. MSCI ESG Controversies Score falls on a 0-10 scale, with “0” being the most severe controversy.

The MSCI ESG Controversies methodology can be found in: <https://www.msci.com/esg-and-climate-methodologies>.

2.3 MSCI ESG BUSINESS INVOLVEMENT SCREENING RESEARCH

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

For more details on MSCI ESG Business Involvement Screening Research, please refer to http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf.

2.4 MSCI CLIMATE CHANGE METRICS

MSCI Climate Change Metrics provide climate data & tools to support institutional investors seeking to integrate climate risk & opportunities into their investment

strategy and processes. This includes investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, alignment with temperature pathways and factoring climate change research into their risk management processes, in particular through climate scenario analysis for both transition and physical risks.

The dataset spans across the four dimensions of a climate strategy: transition risks, green opportunities, physical risks and 1.5° alignment.

For more details on MSCI Climate Change Metrics, please refer to <https://www.msci.com/climate-change-solutions>.

3 Index Construction Methodology

Constructing the Indexes involves the following steps:

- Defining the Parent Index and the base currency for optimization
- Defining the Eligible Universe
- Defining the business exclusion criteria
- Defining Quality screens
- Defining the security level carbon exposure
- Defining the optimization setup
- Determining the optimized Index

The steps mentioned above are defined in detail in the subsequent sections.

3.1 DEFINING THE PARENT INDEX AND THE BASE CURRENCY FOR OPTIMIZATION

Construction of the Indexes begins with identifying the Parent Index which is a free-float adjusted market capitalization weighted MSCI index as per the MSCI Global Investible Markets Index (GIMI) methodology¹ and the Eligible Universe for optimization. The Parent Index serves as the universe of eligible securities for optimization. The optimization is performed from a base currency² perspective and does not allow short selling of securities. Please refer to Appendix I for more details.

3.2 DEFINING THE ELIGIBLE UNIVERSE

The Eligible Universe is constructed by excluding securities from the Parent Index based on the exclusion criteria as described below in Section 3.3 and 3.4.

3.3 DEFINING THE BUSINESS EXCLUSION CRITERIA

Companies that are involved in specific businesses which have high potential for negative social and/or environmental impact are ineligible for inclusion in the Indexes.

- Controversial Weapons
- Conventional Weapons

¹ For details about the methodology, please refer to: <https://www.msci.com/index-methodology>

² Any currency within the relevant Barra Equity Model can be used as an optimization currency. The default currency is the US Dollar.

- Nuclear Weapons
- Civilian Firearms
- Tobacco
- Fossil Fuel Extraction
- Thermal Coal Power

Please refer to Appendix II for more details on these criteria.

Additionally, companies are required to have an MSCI ESG Controversies Score of 1 or above and an MSCI ESG Rating of ‘BB’ or above to be eligible for inclusion.

Other Exclusion Criteria

- Missing Controversy Score – Companies not assessed by MSCI ESG Research’s MSCI ESG Controversy Scores are excluded from the Indexes.
- Missing ESG Rating or ESG Score – Companies which are not rated by MSCI ESG Research for an MSCI ESG Rating are excluded from the Indexes.

3.4 QUALITY SCREENS

The Quality Z-score for each security in the Parent Index is calculated using the formulae defined in Section 2.2 of the MSCI Quality Indexes Methodology³. The Quality Z-scores are calculated using fundamental variables such as Return on Equity, Earnings Variability and Debt to Equity.

The securities are sorted in descending order of the Quality Z-score. In case, two securities have the same Quality Z-scores, the security with greater weight in the Parent Index is given preference. Bottom 33.33% of securities by weight in the Parent Index based on Quality Z-scores are excluded from the Indexes.

3.5 DEFINING THE SECURITY LEVEL CARBON EXPOSURE

The carbon exposure of a security is measured in terms of its greenhouse gas emissions and its potential carbon emissions from fossil fuel reserves. The Index uses MSCI Climate Change Metrics data from MSCI ESG Research.

3.5.1 GREENHOUSE GAS EMISSIONS

MSCI ESG Research collects company-specific direct (Scope 1) and indirect (Scope 2) greenhouse gas (GHG) emissions data from company public documents and/or the Carbon Disclosure Project. If a company does not report GHG emissions, then

³ For details about the methodology, please refer to: <https://www.msci.com/index-methodology>.

MSCI ESG Research uses its proprietary methodology to estimate Scope 1 and Scope 2 GHG emissions.

3.5.2 POTENTIAL CARBON EMISSIONS FROM FOSSIL FUELS

MSCI ESG Research collects fossil fuel reserves data where relevant for companies which have reserves, typically in the Oil & Gas, Coal Mining and Electric Utilities industries. Fossil fuel reserves can be used for several applications including energy or industrial (e.g. coking coal used for steel production). Only fossil fuel reserves used for energy are taken into account. The data is updated on an annual basis and based on information disclosed by companies. Sources include company publications, other public records and third party data providers. For newly added companies to the Index where data is not available yet, MSCI uses zero fossil fuel reserves. The size of reserves of a company typically influences its market valuation, and hence MSCI normalizes for size by dividing the potential carbon emissions of the company by its market capitalization.

To convert reserves data to potential carbon emissions, MSCI ESG Research applies a formula from the Potsdam Institute for Climate Impact Research⁴.

3.6 DEFINING THE OPTIMIZATION SETUP

The optimization objective aims to maximize the Prime Value Z-Score of the Index⁵ at the time of rebalancing. The risk term in the optimization objective is set to 0 (zero).

3.6.1 CALCULATION OF THE PRIME VALUE Z-SCORE

For the details on computation of the Prime Value Z-score, please refer to the section 2.3 of MSCI Prime Value Indexes Methodology⁶.

3.6.2 OPTIMIZATION CONSTRAINTS

At each semi-annual Index Review, the following optimization constraints are employed, which aim to ensure replicability and investability:

- The maximum weight of an Index constituent will be restricted to the lower of (the weight of the security in the Parent Index + 2%) and 10 times the weight

⁴ Malte Meinshausen, Nicolai Meinshausen, William Hare, Sarah C. B. Raper, Katja Frieler, Reto Knutti, David J. Frame & Myles R. Allen. Greenhouse-gas emission Target for limiting global warming to 2 °C. Nature 458, 1158-1162 (30 April 2009) | doi: 10.1038/nature08017; Received 25 September 2008; Accepted 25 March 2009. Supplementary Information, p. 7.

⁵ Weighted-average Prime Value Z-score of the Index.

⁶ For details about the methodology, please refer to: <https://www.msci.com/index-methodology>.

of the security in the Parent Index. The minimum weight of an Index constituent will be restricted to 0.05%

- The ex-ante Tracking Error of the Index, relative to the Parent Index will be constrained to be equal to or less than 10%
- The sector weights of the Index will not deviate more than +/-20% from the sector weights of the Parent Index
- For countries with weight greater than 2.5% in a composite Parent Index, the weight in the Index will not deviate more than +/-20% from the country weight in the Parent Index
- For countries with weight less than 2.5% in a composite Parent Index, the weight in the Index will be capped at 9 times their weight in the Parent Index
- The minimum improvement in the weighted-average industry-adjusted ESG score of the Index relative to the Parent Index will be as defined in Appendix I
- The minimum reduction in the Weighted Average Carbon Emission Intensity⁷ relative to the Parent Index will be 30% at the time of rebalancing
- The minimum reduction in the Potential Emissions per Dollar of Market Capitalization relative to the Parent Index will be 30% at the time of rebalancing
- The minimum number of constituents of the Index will be restricted to the lower of 100 and (Parent number of constituents * 0.25 (rounded to nearest of 10))
- The one-way turnover of the Index is constrained to a maximum of 20% at the time of rebalancing

The Potential Emissions per Dollar of Market Capitalization of the Index is calculated using the formulae defined in Appendix IV.

The Weighted Average Carbon Intensity is calculated using the formulae defined in section 1.2 of MSCI Carbon Footprint Index Ratios Methodology⁸.

3.7 DETERMINING THE OPTIMIZED INDEX

The Indexes are constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model⁹. The optimization uses the Eligible Universe as the

⁷ Carbon Intensity = Scope 1 & 2 Emission / Sales. For Parent Index constituents where the Emissions Intensity is not available, the average Emissions Intensity of all the constituents of the MSCI ACWI Index in the same GICS® Industry Group in which the constituent belongs is used.

⁸ For details about the methodology, please refer to: <https://www.msci.com/index-carbon-footprint-metrics>.

⁹ Please refer to Appendix V for the detailed information on model usage.

universe of eligible securities and the specified optimization objective and constraints to determine the Index. Infeasible optimizations are handled as explained in Appendix III.

4 Maintaining the Index

4.1 SEMI-ANNUAL INDEX REVIEWS

The Indexes are rebalanced on a semi-annual basis, usually as of the close of the last business day of May and November, coinciding with the May and November Index Reviews of the MSCI Global Investable Market Indexes. Fundamental variables and Barra Equity Model data as of the end of April and October are used respectively.

Similarly, the MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores, MSCI Business Involvement Screening Research and MSCI Climate Change Metrics) used for the semi-annual Index Reviews will be taken as of the end of the month preceding the Index Review i.e., April and October. For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the Index Review. For such securities, MSCI will use ESG data published after the end of month, when available, for the rebalancing of the Index.

The pro forma Indexes are in general announced nine business days before the effective date.

4.2 ONGOING EVENT RELATED CHANGES

The general treatment of corporate events in the Indexes aims to minimize turnover outside of Index Reviews. The methodology aims to appropriately represent an investor’s participation in an event based on relevant deal terms and pre-event weighting of the Index constituents that are involved. Further, changes in Index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

The following section briefly describes the treatment of common corporate events within the Indexes.

No new securities will be added (except where noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously in the Index.

EVENT TYPE

EVENT DETAILS

New additions to the Parent Index

A new security added to the Parent Index (such as IPO and other early inclusion) will not be added to the Index.

Spin-Offs

All securities created as a result of the spin-off of an existing Index constituent will be added to the Index

at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Merger/Acquisition

For Mergers and Acquisitions, the acquirer’s post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.

If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.

Changes in Security Characteristics

A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.). Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted Indexes.

The MSCI Corporate Events methodology book is available at: <https://www.msci.com/index/methodology/latest/CE>.

Appendix I: The Parent Index, the Base Currency for Optimization and ESG Score Improvement

Prime Value ESG Reduced Carbon Select Index	Parent Index	Base Currency for Optimization	Weighted Average ESG Score Improvement
MSCI USA Prime Value ESG Low Carbon Select Index	MSCI USA Index	USD	20% w.r.t the Parent Index
MSCI EMU Prime Value ESG Low Carbon Select Index	MSCI EMU Index	EUR	10% w.r.t the Parent Index

Appendix II: Business Exclusion Criteria

- **Controversial Weapons**

- All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons), as defined by the methodology of the MSCI Global Ex-Controversial Weapons Indexes available at <https://www.msci.com/index-methodology>.

- **Conventional Weapons**

- All companies deriving 5% or more revenue from the production of conventional weapons and components.
- All companies deriving 10% or more aggregate revenue from the production of nuclear, biological, chemical, and conventional weapons and weapons systems, components, and support systems and services.

- **Nuclear Weapons**

- All companies that manufacture nuclear warheads and/or whole nuclear missiles.
- All companies that manufacture components that were developed or are significantly modified for exclusive use in nuclear weapons (warheads and missiles).
- All companies that manufacture or assemble delivery platforms that were developed or significantly modified for the exclusive delivery of nuclear weapons.
- All companies that provide auxiliary services related to nuclear weapons.
- All companies that manufacture components that were not developed or not significantly modified for exclusive use in nuclear weapons (warheads and missiles) but can be used in nuclear weapons.
- All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of nuclear weapons but have the capability to deliver nuclear weapons.
- All companies that manufacture components for nuclear-exclusive delivery platforms.

- **Civilian Firearms**
 - All companies classified as “Producer” of firearms and small arms ammunitions for civilian markets. It does not include companies that cater to the military, government, and law enforcement markets.
 - All companies deriving 5% or more revenue from the production and distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use.
- **Tobacco**
 - All companies classified as a “Producer”.
 - All companies deriving 5% or more aggregate revenue from the production, distribution, retail, supply and licensing of tobacco-related products.
- **Fossil Fuel Extraction**
 - All companies deriving 5% or more aggregate revenue (either reported or estimated) from thermal coal mining and unconventional oil and gas extraction.
 - Thermal Coal Mining: Revenue from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties. It does not cover revenue from metallurgical coal; coal mined for internal power generation (e.g. in the case of vertically integrated power producers); intra-company sales of mined thermal coal; and revenue from coal trading.
 - Unconventional Oil & Gas Extraction: Revenue from oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal seam gas, and coal bed methane. It does not cover all types of conventional oil and gas production including Arctic onshore/offshore, deep water, shallow water and other onshore/offshore.
- **Thermal Coal Power**
 - All companies deriving 5% or more revenue (either reported or estimated) from thermal coal-based power generation.

Appendix III: Handling Infeasible Optimizations

During the Index Review, in the event that there is no optimal solution that satisfies all the optimization constraints defined in Section 3.6, the following constraints are relaxed, until an optimal solution is found:

- Relax the turnover constraint in steps of 2%, up to a maximum of 30%
- After exhausting all relaxation steps of turnover constraint, relax the maximum weight multiple in steps of 1 up to a maximum of 5 iterations (up to a maximum of 15 times the weight of the security in the Parent Index)
- After exhausting all relaxation steps mentioned above, the weighted average ESG Score constraint is relaxed in equal steps for maximum of 5 iterations up to a minimum weighted average ESG-Score improvement of 5% w.r.t that of the Parent Index

In the event that no optimal solution is found after all the above constraints have been relaxed, the Index will not be rebalanced for that Index Review.

Appendix IV: Calculation of Carbon Exposure Metrics

Index Potential Carbon Emissions from Fossil Fuels:

- Parent Index Potential Carbon Emissions from Fossil Fuels –

$$\sum_i \frac{\text{Float Market Capitalization} * \text{Absolute Potential Emissions}}{\text{Issuer Market Capitalization}}$$

- Derived Index Potential Carbon Emissions from Fossil Fuels –

$$\sum_i \frac{\text{Derived Index Market Capitalization} * \text{Absolute Potential Emissions}}{\text{Issuer Market Capitalization}}$$

Appendix V: New release of Barra[®] Equity Model or Barra[®] Optimizer

The methodology presently uses MSCI Barra Global Equity Model for Long-Term Investors (“GEMTL”) for the optimization. A new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.

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www.msci.com/index-regulation.

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