

Methodology Book for:

- **MSCI GBP IG ESG Climate Solutions Target Select Corporate Bond Index**
- **MSCI USD+EUR+GBP IG ESG Climate Solutions Target Select Corporate Bond Index**

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1 Introduction

The MSCI GBP IG ESG Climate Solutions Target Select Corporate Bond Index and the MSCI USD+EUR+GBP IG ESG Climate Solutions Target Select Corporate Bond Index (herein, the “Indexes”) are indexes designed to represent the performance of strategies that seek systematic integration of environmental, social and governance (ESG) norms, multiple dimensions of carbon exposure (carbon emissions and fossil fuel reserves) and green revenue in index construction.

The Indexes¹ are designed to minimize active share relative to the MSCI GBP IG Corporate Bond Select Index and the MSCI USD+EUR+GBP IG Corporate Bond Select Index (herein, the “Parent Indexes”) respectively as defined in the Appendix III.

The Indexes are constructed using risk-constrained optimization along with specific ESG Score, carbon exposure and green revenue exposure criteria. The Index construction aims to improve the Indexes’ ESG profile, reduce the carbon exposure (Greenhouse Gas Emissions and Potential Emissions) and improve green revenue exposure (clean technologies solutions) relative to that of the Parent Indexes.

¹ The Indexes are governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document. The Methodology Set for the Indexes can be accessed from MSCI’s webpage <https://www.msci.com/index-methodology> in the section ‘Search Methodology by Index Name or Index Code’.

The Methodology Set includes a document ‘ESG Factors in Methodology’ that contains the list of environmental, social, and governance factors considered, and how they are applied in the methodology (e.g., selection, weighting or exclusion).

2 Index Construction Methodology

The Indexes use company ratings and research provided by MSCI ESG Research for the Index construction.²

Constructing the Indexes involves the following steps :

- Defining the Parent Index
- Defining the Eligible Universe
- Defining the Optimization Constraints
- Determining the Optimized Index

2.1 APPLICABLE UNIVERSE

The applicable universe includes all the existing constituents of the Parent Indexes as detailed in Appendix III. This approach aims to provide an opportunity set with sufficient liquidity and investment capacity.

The steps for constructing the Indexes are described below.

2.2 ELIGIBLE UNIVERSE

The eligible universe consists of the securities in the Parent Indexes that are not involved in business activities as defined in Appendix I³.

2.3 OPTIMIZATION CONSTRAINTS

At each Monthly Index Review, the indexes are constructed using an optimization process that aims to achieve replicability and investability as well as minimize active share relative to the Parent Index subject to the following constraints:

1. Climate and ESG Objectives – constraints defined in Table 1
2. Diversification Objectives – constraints defined in Table 2

The definitions of the target metrics for the optimization are detailed in Appendix II.

² See section 4 for further information regarding ESG and climate data used in the Indexes that MSCI Limited sources from MSCI ESG Research LLC, a separate subsidiary of MSCI Inc. MSCI ESG Research is solely responsible for the creation, determination and management of such data. MSCI Limited is the benchmark administrator for the MSCI indexes.

³ All securities that are not excluded by the specified MSCI ESG Business Involvement Screening Research (BISR) criteria are eligible for inclusion in the index.

Table 1: Constraints imposed to meet Climate and ESG objectives

No.	Climate and ESG Objectives	
1.	Minimum reduction in absolute Greenhouse Gas (GHG) Emission (Scope 1+2) relative to Parent Index	50%
2.	Minimum reduction in Weighted Average Potential Emissions relative to Parent Index ⁴	50%
3.	Minimum increase in ESG Score of MSCI GBP IG ESG Climate Solutions Target Select Corporate Bond Index relative to Parent Index ⁵	10%
4.	Minimum increase in ESG Score of MSCI USD+EUR+GBP IG ESG Climate Solutions Target Select Corporate Bond Index relative to Parent Index ⁶	20%
5.	Minimum increase in Weighted Average Green Revenue relative to the Parent Index	100%

Table 2: Constraints imposed to meet diversification objectives

No.	Diversification Objective	
1.	Constituent Active Weight	+/- 2%
2.	Issuer capping	3%
3.	Security Weight as a multiple of its weight in the Parent Index	10x
4.	Active Sector Weights (the Energy GICS Sector is not constrained)	+/-5%
5.	Active Country Weights ⁷	+/-5%

⁴ For construction of the MSCI GBP IG ESG Climate Solutions Target Select Corporate Bond Index and MSCI USD+EUR+GBP IG ESG Climate Solutions Target Select Corporate Bond Index, only fossil fuel reserves used for energy purposes are considered.

⁵ For the purpose of calculating the Weighted Average ESG Score, securities with missing data are excluded and the weight of remaining securities in the Index are re-weighted in proportion of existing weights to add up to 100%.

⁶ For the purpose of calculating the Weighted Average ESG Score, securities with missing data are excluded and the weight of remaining securities in the Index are re-weighted in proportion of existing weights to add up to 100%.

⁷ Based on country of domicile. In case there are countries in the parent index which weigh less than 2.5% in the parent index then for such countries the active country upper bound of +5% is not applicable. When a country weighs less than

6.	One Way Turnover	4%
7.	Active Effective Duration of Index ⁸	+/-0.25 (soft constraint)
8.	Active Credit Rating of Index ⁹	+/-0.25 (soft constraint)

During the Monthly Index Review, in the event that there is no optimal solution that satisfies all the optimization constraints, the following constraints will be relaxed, until an optimal solution is found:

- Relax the one-way index turnover constraint in steps of 1% up to 10%
- Relax the maximum-security weight multiple constraint in steps of 2 up to 20
- The one-way index turnover constraint and the maximum-security weight multiple constraint are alternately relaxed until a feasible solution is achieved.

In the event that no optimal solution is found after the above constraint relaxations are exhausted, the relevant Index will not be rebalanced for that Monthly Index Review.

2.4 DETERMINING THE OPTIMIZED INDEX

The Index is constructed using the Barra Open Optimizer¹⁰. The optimization uses universe of eligible securities and the specified optimization objectives and constraints to determine the constituents of the Indexes.

2.5% in parent index then the upper bound of country weight in the Index is set at three times of the country's weight in parent index.

⁸ Defined in Section 3 of the MSCI Fixed Income Index Calculation Methodology

⁹ Based on credit rating scale defined in Appendix Section 4.2 of MSCI Fixed Income Index Calculation Methodology

¹⁰ Please refer to Appendix IV for more details.

3 Maintaining the Indexes

3.1 MONTHLY INDEX REVIEWS

The composition of the Index is reviewed monthly, with an effective rebalancing impact on the first business day of the month (Rebalancing Date). For clarification, bonds are added to the Index on the closing of last business day of every month, however, the return impact is on the first business day of the month.

In general, change in the Index composition is based on latest data available (including MSCI ESG & Climate data) as of three days prior to the Rebalancing Date, which is defined as the Cut-Off Date. Any inclusion or exclusion criteria satisfied for a given security in the universe, after the Cut-Off Date (T-3), will generally become effective at the following monthly rebalancing; should conditions remain unchanged. In exceptional cases, for instance, cases of input data correction, MSCI can reduce the Cut-Off Date for Index rebalancing from T-3 to T-2, T-1 or T. In such instances, MSCI will notify Index clients of such changes via an announcement.

Any cash that accrues within the index each month is re-invested on a pro-rata basis across the index constituents on the effective date of rebalancing. The opening index portfolio on the Rebalancing Date starts with zero accrued cash balance.

For further information on index total return calculation and corporate events handling please refer to the MSCI Fixed Income Index Calculation Methodology¹¹. For the holiday calendar used in the index, please refer to the MSCI Fixed Income Data Methodology¹².

¹¹ Refer to the MSCI Fixed Income Index Calculation Methodology for detail. Available at <https://www.msci.com/index-methodology>

¹² Refer to the MSCI Fixed Income Data Methodology for detail. Available at <https://www.msci.com/index-methodology>

4 MSCI ESG Research

The Indexes of MSCI Inc. that utilizes information such as company ratings and research produced and provided by MSCI ESG Research LLC (MSCI ESG Research), a subsidiary of MSCI Inc. In particular, the Indexes use the following MSCI ESG Research products: MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research, MSCI Climate Change Metrics, and MSCI ESG Governance Metrics. MSCI Indexes are administered by MSCI Limited.

4.1 MSCI ESG RATINGS

MSCI ESG Ratings aim to measure entities’ management of environmental, social and governance risks and opportunities. MSCI ESG Ratings use a weighted average key issue calculation that is normalized by industry to arrive at an industry-adjusted ESG score (0-10), which is then translated to 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 at: <https://www.msci.com/esg-and-climate-methodologies>.

4.2 MSCI ESG CONTROVERSIES

MSCI ESG Controversies provide 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 at: <https://www.msci.com/esg-and-climate-methodologies>.

4.3 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

4.4 MSCI CLIMATE CHANGE METRICS

MSCI Climate Change Metrics provides 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>.

Appendix I: ESG-based Exclusion Criteria

MSCI ESG Research has developed a framework designed to define significant involvement in controversial activities. According to this framework, there are four levels of restrictiveness: Most Restrictive, Highly Restrictive, Moderately Restrictive and Least Restrictive.

“Most Restrictive” screen applied

- **Controversial Weapons**

All companies with any tie to Controversial Weapons as defined below:

- **Cluster Bombs**
 - MSCI ESG Research’s cluster bomb research identifies public companies that are involved in the production of cluster bombs and munitions, or the essential components of these products.
- **Landmines**
 - MSCI ESG Research’s landmines research identifies public companies that are involved in the production of anti - personnel landmines, anti - vehicle landmines, or the essential components of these products.
- **Depleted Uranium Weapons**
 - MSCI ESG Research’s depleted uranium weapons research identifies public companies involved in the production of depleted uranium weapons and armor.
- **Chemical and Biological Weapons**
 - MSCI ESG Research’s chemical and biological weapons research identifies public companies that are involved in the production of chemical and biological weapons, or the essential components of these products.
- **Blinding Laser Weapons**
 - MSCI ESG Research’s blinding laser weapons research identifies public companies that are involved in the production of weapons utilizing laser technology to cause permanent blindness.

- Non-Detectable Fragments
 - MSCI ESG Research’s non-detectable fragments research identifies public companies that are involved in the production of weapons that use non-detectable fragments to inflict injury.
- Incendiary Weapons (White Phosphorus)
 - MSCI ESG Research’s incendiary weapons research identifies companies that are involved in the production of weapons using white phosphorus.

Involvement criteria:

- Producers of the weapons
- Producers of key components of the weapons (only applies to cluster bombs, landmines, depleted uranium weapons as well as chemical and biological weapons)
- Ownership of 20% or more of a weapons or components producer

The minimum limit is raised to 50% for financial companies having an ownership in a company that manufactures controversial weapons or key components of controversial weapons

- Owned 50% or more by a company involved in weapons or components production

Revenue limits:

- Any identifiable revenues, i.e., zero tolerance

“Highly Restrictive” screen applied

- **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.
- **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

No specific restrictiveness level applied

- **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.

- **ESG Controversy Score (“Red Flags”)**
 - Companies assessed as having involvement in ESG controversies that are classified as Red Flags (MSCI ESG Controversy Score of 0). A Red Flag indicates an ongoing, Very Severe ESG controversy implicating a company directly through its actions, products, or operations.

- **Missing ESG Controversies Score and ESG Score:**
 - All companies with missing ESG Controversies Score are ineligible for inclusion in the index.
 - All companies with missing ESG Score are ineligible for inclusion in the index.

Appendix II: Calculation of Target Metrics

Calculation of absolute GHG Emission

For Parent Index constituents where the Scope 1+2 Emission is not available, the average Scope 1+2 Emission of all the constituents of the Parent Index in the same GICS Industry Group in which the constituent belongs is used.

Security Level absolute GHG Emission =

$$\text{Scope 1 + 2 Carbon Emissions}$$

Weighted Average absolute GHG Emission of Parent Index =

$$\sum (\text{Weight in Parent Index} * \text{Security Level GHG Emission})$$

Weighted Average absolute GHG Emission of Derived Index =

$$\sum (\text{Index Weight} * \text{Security Level GHG Emission})$$

Calculation of Potential Carbon Emissions Emission

For the newly added companies to the index where data is not available yet, MSCI uses zero fossil fuel reserves.

Security Level Potential Carbon Emissions (PCE) =

$$\text{Absolute Potential Emissions}$$

Weighted Average Potential Emissions of Parent Index =

$$\sum (\text{Weight in Parent Index} * \text{Security Level PCE})$$

Weighted Average Potential Emissions Emission of Derived Index =

$$\sum (\text{Index Weight} * \text{Security Level PCE})$$

Calculation of Green Revenue

Green Revenue

For each constituent in the Parent Index, the Green Revenue% is calculated as the cumulative revenue (%) from the six Clean Tech themes which are as follows:

- Alternative Energy – products and services that support the transmission, distribution and generation of renewable energy and alternative fuels to reduce carbon and pollutant emissions in supporting affordable and clean energy to combat climate change.
- Energy Efficiency – products, and services that support the maximization of productivity in labor, transportation, power and domestic applications with minimal energy consumption to ensure universal access to affordable, reliable and modern energy services.
- Sustainable Water – products, services, infrastructure projects and technologies that resolve water scarcity and water quality issues, through minimizing and monitoring current water demand, improving the quality and availability of water supply to improve resource management in both domestic and industrial use.
- Green Building – design, construction, redevelopment, retrofitting, or acquisition of green-certified properties to promote mechanisms for raising capacity for effective climate change mitigation and adaptation.
- Pollution Prevention – products, services, infrastructure projects and technologies that reduces volume of waste materials through recycling, minimizes introduction of toxic substances, and offers remediation of existing contaminants such as heavy metals and organic pollutants in various environmental media to significantly address pollution in all levels and its negative effects
- Sustainable Agriculture - revenues from forest and agricultural products that meet environmental and organic certification requirements to address significantly biodiversity loss, pollution, land disturbance, and water overuse

The Weighted Average Green Revenue% is calculated as¹³:

$$= \sum (Weight\ in\ Index * Green\ Revenue\%)$$

¹³ For the purpose of calculating the Weighted Average Green Revenue, securities with missing data are assumed to have value of zero.

Appendix III: Parent Index

No.	Index Name	Parent Index
1.	MSCI GBP IG ESG Climate Solutions Target Select Corporate Bond Index	MSCI GBP IG Corporate Bond Select Index ¹⁴ (MSCI Index Code : 746074)
2.	MSCI USD+EUR+GBP IG ESG Climate Solutions Target Select Corporate Bond Index	MSCI USD+EUR+GBP IG Corporate Bond Select Index ¹⁵ (MSCI Index Code: 746073)

¹⁴The Methodology of MSCI GBP IG Corporate Bond Select Index is available at: <https://www.msci.com/index-methodology>.

¹⁵The Methodology of MSCI USD+EUR+GBP IG Corporate Bond Select Index is available at: <https://www.msci.com/index-methodology>.

Appendix IV: New release of Barra® Optimizer

major new release of the relevant Barra Optimizer may replace the former version within a suitable timeframe.

Appendix V: Methodology Set

The Indexes are governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document as mentioned below.

- MSCI Fixed Income Data Methodology – [Link](#)
- MSCI Fixed Income Index Calculation Methodology – [Link](#)
- MSCI Fixed Income Index Glossary of Terms - [Link](#)
- MSCI Fixed Income Index Policies – [Link](#)
- MSCI Global Industry Classification Standard (GICS) Methodology – [Link](#)
- MSCI Corporate Bond Indexes Methodology - [Link](#)
- MSCI ESG Climate Solutions Select Indexes Methodology – [Link](#)
- MSCI ESG Climate Solutions Target Select Corporate Bond Index Methodology – [Link](#)
- ESG Factors In Methodology*

The Methodology Set for the Indexes can be accessed from MSCI’s webpage <https://www.msci.com/index-methodology> in the section ‘Search Methodology by Index Name or Index Code’.

* ‘ESG Factors in Methodology’ contains the list of environmental, social, and governance factors considered, and how they are applied in the methodology (e.g., selection, weighting or exclusion). It can be accessed in the Methodology Set as described above.

Appendix VI: Changes to the Document

The following sections have been modified as of January 2024:

- Updated the footnote corresponding to Section 2.3, Table 1, Constraints 3 and 4, to explain the treatment for missing ESG Scores.
- Added Appendix V to include the Methodology Set

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