

MSCI ESG Focus Indexes Methodology

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1 Introduction

The MSCI ESG Focus Indexes (the 'Indexes') are designed to maximize their exposure to positive environmental, social and governance (ESG) factors while exhibiting risk and return characteristics similar to those of the underlying market capitalization weighted index. The Indexes are constructed by selecting constituents of a market capitalization weighted index (the 'Parent Index') through an optimization process that aims to maximize exposure to ESG factors for a target tracking error budget under certain constraints.

The Indexes are sector-diversified and target companies with high ESG ratings in each sector. Companies involved in Tobacco, Controversial Weapons, Fossil Fuel Extraction and Thermal Coal Power are not eligible for inclusion in the Indexes.

2 MSCI ESG Research

The MSCI ESG Focus Indexes use company ratings and research provided by MSCI ESG Research. The indexes use the following MSCI ESG Research products: MSCI ESG Ratings, MSCI ESG Controversies, MSCI 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 provides research, analysis and ratings of how well companies manage environmental, social and governance risks and opportunities.

MSCI ESG Ratings provides an overall company ESG rating - a seven point scale from ‘AAA’ to ‘CCC’. In addition, the product provides scores and percentiles indicating how well a company manages each key issue relative to industry peers.

For more details on MSCI ESG Ratings, please refer to: <https://www.msci.com/esg-ratings>

2.2 MSCI ESG Controversies

MSCI ESG Controversies (formerly known as MSCI Impact Monitor) provides assessments of controversies concerning the 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.

For more details on MSCI ESG Controversies, please refer to : <https://www.msci.com/documents/10199/acbe7c8a-a4e4-49de-9cf8-5e957245b86b>

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 is designed to support investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, and factoring climate change research into their risk management processes. It provides Carbon Emissions, Fossil Fuel exposure, environmental impact (i.e., clean technology) data and screens, as well as climate-related risk exposure and management assessment on companies such as Low Carbon Transition scores and categories.

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

3 Constructing the MSCI ESG Focus Indexes

Constructing the MSCI ESG Focus Indexes involves the following steps:

- Defining the underlying universe
- Defining the exclusion criteria
- Defining the optimization constraints
- Determining the optimized portfolio

3.1 Defining the Underlying Universe

The underlying universe for the MSCI ESG Focus Indexes is defined by the constituents of the MSCI Global Investable Market Indexes (“GIMI”).

3.2 Defining the Exclusion Criteria

The MSCI ESG Focus Indexes use company ratings and research provided by MSCI ESG Research to determine eligibility for index inclusion.

3.2.1 Controversial Business Involvement Criteria

The MSCI ESG Focus Indexes use MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics to identify companies that are involved in the following business activities. Companies that meet the business involvement criteria are excluded from the MSCI ESG Focus Indexes. Please refer to Appendix 1 for details on these criteria.

- Controversial Weapons
- Tobacco
- Fossil Fuel Extraction
- Thermal Coal Power

3.2.2 ESG Controversies Criteria

MSCI ESG Focus Indexes use MSCI ESG Controversies Scores to identify those companies that are involved in very severe controversies involving the environmental, social, or governance impact of their operations and/or products and services. Companies with MSCI ESG Controversies Score of 0 (‘Red Flag’ companies) are excluded from the MSCI ESG Focus Indexes.

3.2.3 Other Exclusion Criteria

- Missing Controversy Score – Companies not assessed by MSCI ESG Research on ESG Controversies are not eligible for inclusion in the MSCI ESG Focus Indexes.
- Missing ESG Rating or ESG Score – Companies not assessed by MSCI ESG Research on ESG Rating or ESG Score are not eligible for inclusion in the MSCI ESG Focus Indexes.

3.3 Defining the Optimization Constraints

Constituents are selected to maximize exposure to higher ESG scores, subject to maintaining risk and return characteristics similar to the Parent Index. ESG scores are normalized and used in the optimization process. Optimization maximizes the Index’s exposure to ESG scores for a given predicted tracking error. The following predicted tracking error targets are used for the construction of MSCI ESG Focus Indexes:

No.	ESG Focus Index	Parent Index	Predicted Tracking Error
1	MSCI EAFE ESG Focus Index	MSCI EAFE Index	0.5%
2	MSCI EM (Emerging Markets) ESG Focus Index	MSCI EM Index	1.0%
3	MSCI USA ESG Focus Index	MSCI USA Index	0.5%
4	MSCI World ESG Focus Index	MSCI World Index	0.5%
5	MSCI Taiwan ESG Focus Index	MSCI Taiwan Index	1.0%
6	MSCI ACWI ESG Focus Index	MSCI ACWI Index	0.5%
7	MSCI AC Asia ex Japan ESG Focus Index	MSCI AC Asia ex Japan Index	1.0%
8	MSCI ACWI ex USA ESG Focus Index	MSCI ACWI ex USA Index	0.5%
9	MSCI USA Small Cap ESG Focus Index	MSCI USA Small Cap Index	0.75%
10	MSCI Canada ESG Focus Index	MSCI Canada Index	1.0%

Optimization is a quantitative process that considers the market capitalization weights from the Parent Index, ESG scores and additional constraints to select and weight the constituents of the Index.

Normalization of the ESG scores allows the optimization process to assess each score in the context of the overall distribution of the ESG scores.

Please refer to Appendix 2 for the Optimization constraints.

3.4 Determining the Optimized Portfolio

The Indexes are constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model. The optimization uses universe of eligible securities and the specified optimization objective and constraints to determine the constituents of the MSCI ESG Focus Indexes.

4 Maintaining the MSCI ESG Focus Indexes

4.1 Quarterly Index Reviews

The Indexes are rebalanced on a quarterly basis to coincide with the regular Index Reviews (Semi-Annual Index Reviews in May and November and Quarterly Index Reviews in February and August) of the MSCI Global Investable Market Indexes. The changes are implemented at the end of February, May, August and November. The pro forma indexes are in general announced nine business days before the effective date.

ESG scores used for the Quarterly Index Reviews will be taken as of the end of the month preceding the Index Review, i.e., January, April, July and October.

At each Index Review, the optimization process outlined in Section 3 is implemented. Companies can only be added to the Indexes only at regular Index Reviews.

In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores and MSCI Business Involvement Screening Research) as of the end of the month preceding the Index Reviews. 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.

4.2 Ongoing Event-Related Maintenance

The general treatment of corporate events in the MSCI ESG Focus 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.

Additionally, if the frequency of Index Reviews in the Parent Index is greater than the frequency of Index Reviews in the MSCI ESG Focus Indexes, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the MSCI ESG Focus Indexes.

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

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

EVENT TYPE	EVENT DETAILS
New additions to the Parent Index	A new security added to the parent index (such as IPO and other early inclusions) 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>

Appendix 1: Controversial Business Involvement Criteria

- **Tobacco**

Companies which meet the following Tobacco involvement criteria are excluded from the Indexes

- All companies classified as “Producer” or “Licensor”
- All companies classified as “Distributor”, “Retailer”, or “Supplier” that earn 15% or more of revenues from tobacco products
- All companies classified as “Ownership by a Tobacco Company” or “Ownership of a Tobacco Company”

- **Controversial Weapons**

Companies which meet the following Controversial Weapons criteria are excluded from the Indexes

- 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

For details please refer to the MSCI Global ex Controversial Weapons Indexes Methodology at <https://www.msci.com/index-methodology>.

- **Fossil Fuel Extraction**

- All companies deriving any revenue (either reported or estimated) from thermal coal mining or 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 2: Optimization Constraints

At each Quarterly Index Review, the following optimization constraints are used to ensure replicability and investability:

Optimization Constraints

No.	Parameter	EAFE	EM	USA	WORLD	TAIWAN	ACWI
1	Predicted Tracking Error	0.5%	1.0%	0.5%	0.5%	1.0%	0.5%
2	Min Constituent Weight	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
3	Constituent Active Weight	+/-2%	+/-2%	+/-2%	+/-2%	+/-2%	+/-2%
4	Security Weight as a Multiple of its weight in the Parent Index	20	20	20	20	20	20
5	Active Sector Weights	+/-5%	+/-5%	+/-5%	+/-5%	+/-5%	+/-5%
6	Active Country Weights*	+/-5%	+/-5%		+/-5%		+/-5%
7	One Way Turnover during May and November Index Review	10%	10%	10%	10%	10%	10%
8	One Way Turnover during Feb and Aug Index Review	5%	5%	5%	5%	5%	5%
9	Specific Risk Aversion	0.075	0.075	0.075	0.075	0.075	0.075
10	Common Factor Risk Aversion	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075

Optimization Constraints (continued)

No.	Parameter	AC ASIA EX JP	ACWI EX USA	USA SMALL CAP	CANADA
1	Predicted Tracking Error	1.0%	0.5%	0.75%	1.0%
2	Min Constituent Weight	0.1%	0.1%	0.1%	0.1%
3	Constituent Active Weight	+/-2%	+/-2%	+/-2%	+/-2%
4	Security Weight as a Multiple of its weight in the Parent Index	20	20	20	20
5	Active Sector Weights	+/-5%	+/-5%	+/-5%	+/-5%
6	Active Country Weights*	+/-5%	+/-5%		
7	One Way Turnover during May and November Index Review	10%	10%	10%	10%
8	One Way Turnover during Feb and Aug Index Review	5%	5%	5%	5%
9	Specific Risk Aversion	0.075	0.075	0.075	0.075
10	Common Factor Risk Aversion	0.0075	0.0075	0.0075	0.0075

*** Active Country Weights:**

- 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 2.5% in parent index then the upper bound of country weight in the ESG Focus Index is set at three times of the country's weight in parent index.
- In case the upper bound on country weight is less than the minimum constituent weight constraints, then the upper bound of country weight is relaxed till it is above the minimum constituent weight constraint.
- The country weight constraint also applies on China A Stock Connect listings as a group separately in addition to the usual country weight constraint on China.

Infeasible Solution - During the Quarterly and Semi-Annual Index Reviews, in the event that there is no optimal solution that satisfies all the optimization constraints, first the turnover constraint will be relaxed up to a maximum turnover of 30% in steps of 1% until an optimal solution is found. If a feasible solution is not found at turnover of 30%, the predicted tracking error is relaxed up to a maximum of 5 times of the original predicted tracking error in steps on 0.1%. In the event that feasible solution is not found for maximum predicted error, the Index will not be rebalanced for that index review.

The following sections have been modified as of August 2016:

Section 1: Introduction and other relevant sections

- To implement name change – Index name has been changed from ‘ESG Select’ to ‘ESG Focus’

Section 3.1, 3.3 and Appendix 2:

- Added reference to ‘USA ESG Focus’ Index.

The following sections have been modified as of June 2017:

- The details on the Corporate Events treatment are now included in Section 4.2.

The following sections have been modified as of July 2017:

Section 3.1, 3.3 and Appendix 2:

- Added reference to ‘MSCI World ESG Focus’ Index and ‘MSCI Taiwan ESG Focus’ Index.

The following sections have been modified as of September 2017:

Section 4.1

- Clarification on use of ESG data for securities whose data would be available after the end of the month preceding Index Review.

The following sections have been modified as of January 2018:

Appendix 3

- Added details on optimization constraints for MSCI USA Small Cap Extended ESG Focus Index.

The following sections have been modified as of March 2018:

Appendix 3

- Added details on exclusion of producers and retailers of civilian firearms from the parent index.

The following sections have been modified as of May 2018:

Appendix 1

- Controversial Weapons Criteria - Updated to reflect the addition of new screens for blinding lasers, non-detectable fragments and incendiary weapons (while phosphorus)

Appendix 3

- Updated to include reference to MSCI EAFE Extended ESG Focus Index, MSCI EM (Emerging Markets) Extended ESG Focus Index, MSCI USA Extended ESG Focus Index and MSCI USA Small Cap Extended ESG Focus Index
- Added clarification to explain index calculation at the February 2018 Quarterly Index Review.

The following sections have been modified as of June 2018:

Section 3.1, 3.3

- Added reference to ACWI ESG Focus Index.

Appendix 2

- Added optimization constraints for ACWI ESG Focus Index.
- Added clarification on Active Country Weights.

The following sections have been modified as of February 2019:

- Renamed “IVA Ratings” references to “ESG Ratings”
- Renamed “Impact Monitor Controversy Scores” to “ESG Controversies”

Appendix 3

- Added reference to Canada IMI ESG Extended Focus Index.
- Added optimization constraints for Canada IMI ESG Extended Focus Index.

The following sections have been modified as of May 2019:

Appendix 2

- Updated to reflect the additional constraint on China A Stock Connect listings.

The following sections have been modified as of February 2020:

Appendix 3

- Deleted the Appendix as the methodology for the MSCI Extended ESG Focus Indexes has been made available in a separate methodology book

The following sections have been modified as of November 2020:

Section 3.1: Defining the Underlying Universe

- Moved references to 'Tobacco' and 'Controversial Weapons' screens to new section 3.2.1
- Moved the list of Parent Indexes to section 3.3

Section 3.2.1 (new): Controversial Business Involvement Criteria

- Added screens for 'Fossil Fuel Extraction' and 'Thermal Coal Power'

Section 3.3: Defining the Optimization Constraints

- Added four indexes

Appendix 1: Controversial Business Involvement Criteria

- Added screens for 'Fossil Fuel Extraction' and 'Thermal Coal Power'

Appendix 2: Optimization Constraints

- Added four indexes

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