

MSCI ACWI Semiconductors & Semiconductor Equipment Filtered Index Methodology

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1. Introduction

The MSCI ACWI Semiconductors & Semiconductor Equipment Filtered Index (the ‘Index’) aims to represent the performance of a select set of companies from the semiconductors and semiconductor equipment industries that excludes companies involved in certain controversial businesses or have low ESG Controversies and Ratings scores relative to a reference universe¹.

¹ The Indexes are governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document. Please refer to Appendix IV for more details.

2. Constructing the Index

The Index is constructed by selecting stocks from the MSCI ACWI Semiconductors and Semiconductor Equipment Index ('Parent Index'²) based on rules explained in the following sections.

The Index use company ratings and research provided by MSCI ESG Research³ for Index construction.

2.1 Eligible Universe

The eligible universe of the Index is constructed in the following steps.

2.1.1 ESG exclusion criteria

Controversial business exclusion criteria

Securities of companies involved in following businesses are excluded from the eligible universe:

- Controversial Weapons
- Conventional Weapons
- Nuclear Weapons
- Civilian Firearms
- Tobacco
- Thermal Coal
- Unconventional Oil & Gas
- Arctic Oil & Gas
- Oil Sands
- UN Global Compact Violators

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

ESG Controversy Score

- ESG Controversy Score = 0 ('Red Flag' companies) – 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.

² MSCI ACWI Semiconductors and Semiconductor Equipment Index Please refer to the MSCI Global Investable Market Indexes Methodology, here - www.msci.com/index/methodology/latest/GIMI

³ See section 4 for further information regarding ESG and climate data used in the Indexes that MSCI Limited and MSCI Deutschland GmbH source 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 as a provider to MSCI Limited and MSCI Deutschland GmbH. MSCI Limited and MSCI Deutschland GmbH are the benchmark administrators for the MSCI indexes.

2.1.2 Emerging Markets (EM) country filter

Emerging Markets (EM) securities from only the below select countries are eligible for inclusion in the eligible universe:

- China
- Taiwan
- South Korea
- South Africa
- Brazil
- Thailand
- Malaysia
- Mexico

2.2 Selected universe

2.2.1 ESG Industry Adjusted Score

The Selected universe is constructed by excluding securities from the eligible universe which are in the bottom quartile by ESG Industry Adjusted Score.

2.2.2 Liquidity screening criteria

Securities that have a 3-month average daily trading value (3M ADTV) less than 3 million USD are excluded from the Selected universe. For the calculation of ADTV, please refer to Appendix II.

2.2.3 Size screening criteria

Securities that have a free-float market capitalization less than 200 million USD are excluded from the selected universe.

2.3 Weighting scheme

At each rebalancing, securities in the selected universe are weighted in proportion to their float-adj market capitalization. Further capping is applied as described below.

2.4 ESG Profile Check

The selected universe calculated in Section 22 is assessed against the minimum requirements detailed in the table below.

In case the selected universe is found deficient on any of the minimum requirements, then the weights of the securities in the selected universe are determined through an iterative process as described in Appendix III.

Minimum Requirements	Values	Reference Index
Carbon Emission Intensity relative to the Reference Index	Target Carbon Emission Intensity lower than the Reference Index	MSCI ACWI Semiconductors and Semiconductor Equipment Index ⁴
Weighted Average Board Independence relative to the Reference Index	Target Weighted Average Board Independence higher than the Reference Index	MSCI ACWI Semiconductors and Semiconductor Equipment Index ⁵

2.5 20/35 Capping

The Index constrains the weight of the largest group entity at 35%, and all other group entities⁶ at 20%, with a buffer of 10% applied on these limits at each index rebalancing, in accordance with section 4.4 of the MSCI Capped Indexes Methodology⁷.

The Index is also rebalanced on an “as needed” basis. This means that the Index is rebalanced at the end of any day on which the constraints as specified above (without the buffer) are breached. The rebalancing will take place as of the close of the day when the Index breaches the constraints, so that the Index will always be within the constraints before the opening of the following trading day.

2.6 Treatment of Unrated Companies

Companies not assessed by MSCI ESG Research on data for any of the following MSCI ESG Research products are not eligible for inclusion in the Indexes.

- MSCI ESG Ratings
- MSCI ESG Controversies
- MSCI Climate Change Metrics
- MSCI Business Involvement Screening Research (BISR)

⁴ MSCI ACWI Semiconductors and Semiconductor Equipment Index [GICS@:453010]. GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence.

⁵ MSCI ACWI Semiconductors and Semiconductor Equipment Index [GICS@:453010]. GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence.

⁶ For a definition and a description of the maintenance of Group Entities, please refer to the MSCI 10/40 methodology at www.msci.com/index/methodology/latest/1040

⁷ Please refer to the latest MSCI Capped Indexes Methodology at www.msci.com/index/methodology/latest/Capped

3. Maintaining the Index

3.1 Monthly Review of Controversies

Index constituents are reviewed on a monthly basis for the involvement in ESG controversies⁸. Existing constituents will be deleted if they face controversies as defined by MSCI ESG Controversy Score of 0 ('Red flag' companies). A Red Flag indicates an ongoing, very severe ESG controversy implicating a company directly through its actions, products, or operations. Existing Index constituents with missing MSCI ESG Controversy Scores are not deleted during Monthly Review of Controversies.

MSCI uses MSCI ESG Controversies data as of the end of the month preceding the review (e.g., end of June data for the July monthly review). For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the review. For such securities, MSCI will use ESG data published after the end of month, when available, for the monthly review of the Index.

The pro forma index is generally announced nine business days before the effective date.

3.2 Semi-Annual Index Review

The Index is reviewed on a Semi-Annual basis in May and November to coincide with the May and November Index Reviews of the Parent Index, and the changes are implemented at the end of May and November. In general, the pro forma index is announced nine business days before the effective date.

During the Semi-Annual Index Review, the Eligible Universe and Selected Universe are updated.

In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI Climate Change Metrics, 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. This approach aims to capture timely updates to ESG Ratings of the constituents and coincides with the rebalancing of the relevant MSCI Parent Indexes.

As an exception, the Index will not be reviewed at the November 2021 Semi-Annual Index Review. The index constituents will not be updated as per the rules described in section 2 (Constructing the Index). Treatment of Parent Index deletions will be as described in section 3.3 (Ongoing event-related maintenance).

3.3 Ongoing Event-Related Maintenance

The general treatment of corporate events in the index 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

⁸ The monthly review of ESG controversies is applied within the Index effective October 2, 2023 and is not applicable historically prior to that date.

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 Index.

No new securities will be added (except where noted below) to the Index 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 nonconstituent 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.

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

4. MSCI ESG Research

The Index is a product 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 Index uses the following MSCI ESG Research products: MSCI ESG Ratings, MSCI ESG Controversies, and MSCI ESG Business Involvement Screening Research. MSCI Indexes are administered by MSCI Limited and MSCI Deutschland GmbH.

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/legal/disclosures/esg-disclosures>.

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/legal/disclosures/esg-disclosures>.

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.

The MSCI Business Involvement Screening Research methodology can be found at: <https://www.msci.com/legal/disclosures/esg-disclosures>.

4.4 MSCI Climate Change Metrics

MSCI Climate Change Metrics provides climate data and tools to support institutional investors seeking to integrate climate risk and 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.

4.4.1 Fossil Fuels and Power Generation Metrics

MSCI ESG Research identifies companies involved in fossil fuel-related assets and activities including fossil fuel reserves, resource extraction, power generation and generation capacity, revenue from such assets and activities and capital investments in such assets and activities. The metrics are based on disclosed activities, disclosed revenue and estimates of revenue that are extrapolated from company disclosures and eligible third-party sources (such as NGOs).

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

Appendix I: Controversial Business Exclusion Criteria

Companies whose activities meet the following values and climate change-based criteria, as evaluated by MSCI ESG Research, are excluded from the Index.

Values-based Exclusions Criteria:

- **Controversial Weapons**
 - All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, nondetectable fragments and incendiary weapons), as defined by the methodology of the MSCI Ex-Controversial Weapons Indexes available at <https://www.msci.com/index/methodology/latest/XCW>.
- **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).
 - All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of 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 manufacture and retail of civilian firearms and ammunition.
- **Tobacco**
 - All companies classified as a “Producer”
 - All companies deriving 5% or more aggregate revenue from the production, distribution, retail and supply of tobacco-related products.
- **Conventional Weapons**
 - All companies deriving 10% or more revenue from the production of conventional weapons and components.
 - All companies deriving 10% or more aggregate revenue from weapons systems, components, and support systems and services.

Climate Change- based Exclusions Criteria:

- Thermal Coal
 - All companies deriving 5% or more revenue (either reported or estimated) from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties. It excludes: 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.
 - All companies deriving 5% or more revenue (either reported or estimated) from the thermal coal based power generation.
 - All companies that own thermal coal reserves.
 - All companies that are deriving 50% or more power⁹ from thermal coal.
- Unconventional Oil & Gas
 - All companies deriving 5% or more revenues from oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal-seam gas, coal-bed methane as well as Arctic onshore/offshore reserves.
- Arctic Oil & Gas
 - All companies deriving 5% or more revenue from Arctic Oil
 - All companies deriving 5% or more revenue from Arctic Gas
 - All companies with evidence of producing Arctic oil. This factor does not capture revenue from non-extraction activities (e.g., exploration, surveying, processing, refining); ownership of Arctic oil reserves with no associated extraction revenues; revenue from intra-company sales.
 - All companies with evidence of producing Arctic gas. This factor does not capture revenue from non-extraction activities (e.g., exploration, surveying, processing, refining); ownership of Arctic gas reserves with no associated extraction revenues; revenue from intracompany sales.
- Oil Sands
 - All companies deriving 5% or more revenue from oil sands extraction, which own oil sands reserves and disclose evidence of deriving revenue from oil sands extraction. Companies that derive revenue from non-extraction activities (e.g. exploration, surveying, processing, refining) or intra-company sales are not excluded. Additionally, companies that own oil sands reserves with no associated revenue are also not excluded.
- Global Norms – United Nations Global Compact Compliance
 - All companies that fail to comply with the United Nations Global Compact principles.

⁹ As per https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter7.pdf, thermal coal based power generation has median lifecycle emissions exceeding 100gCO₂/kWh.

Appendix II: Calculation of 3-Month Average Daily Traded Value (ADTV)

$$ADTV = \frac{ATV}{252}$$

Where:

- ADTV = 3-month Average Daily Traded Value
- ATV = 3-month Annualized Traded Value

For details on the calculation of ATV, please refer to the MSCI Index Calculation Methodology (<https://www.msci.com/index-methodology>).

Appendix III: ESG Profile Check

The ESG Profile Check is applied on the securities of the selected universe with the objective of meeting all the minimum requirements detailed in the table in Section 2.4.

Starting with the selected universe, an iterative down weighting process is applied in order to meet with the minimum requirements for the Indexes. The iterative down weighting stops when all the requirements defined in above are met. The steps followed in the iterative down weighting are outlined below:

- Step 1. Check whether all targets for the Index are met. If all targets are met, then no down weighting is required.
- Step 2. Identify stocks that are either in bottom quartile by Board Independence (%) (i.e. with lowest scores) or are in the top quartile by Carbon Emissions Intensity (i.e. with highest carbon intensity). These stocks form the “downweighting group”. Rest of the stocks from the selected universe form the “upweighting group”.
- Step 3. Select the worst stock in the “downweighting group” and reduce its weight in steps of 25% (free weight) and distribute the free weight among the stocks of the “upweighting group” in proportion of their weight at Step 2. A stock cannot be down weighted by more than 75% of its weight in Step 2. Stock weight in ‘upweighting group’ is capped at 15%.
- Step 4. If the targets are still not met, then select the next worst stock and repeat Step 3.
- Step 5. Relaxation Steps:
 - a. If all stocks in the “downweighting group” have been down weighted by 75% and targets are still not met, then repeat Step 3 and 4 by down weighting worst stock by 90% of its weight from Step 2.
 - b. If targets are not met at Step 5a, then repeat Step 3 and 4 by excluding the worst stock – down weighting the worst stock by 100%.

Worst Stocks:

- a. In Step 1, if targets are not met on Carbon Emissions Intensity, then the worst stock is the stock with largest Carbon Emissions Intensity.

If in Step 1, the target on Carbon Emissions Intensity is met, and the target on Weighted Average Board Independence is not met, then the worst stock is the stock with lowest Board Independence (%).

Appendix IV: Methodology Set

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

- Description of methodology set – <https://www.msci.com/index/methodology/latest/ReadMe>
- MSCI Corporate Events Methodology – <https://www.msci.com/index/methodology/latest/CE>
- MSCI Fundamental Data Methodology – <https://www.msci.com/index/methodology/latest/FundData>
- MSCI Index Calculation Methodology – <https://www.msci.com/index/methodology/latest/IndexCalc>
- MSCI Index Glossary of Terms – <https://www.msci.com/index/methodology/latest/IndexGlossary>
- MSCI Index Policies – <https://www.msci.com/index/methodology/latest/IndexPolicy>
- MSCI Global Industry Classification Standard (GICS) Methodology – <https://www.msci.com/index/methodology/latest/GICS>
- MSCI Global Investable Market Indexes Methodology – <https://www.msci.com/index/methodology/latest/GIMI>
- MSCI Global ex Controversial Weapons Methodology – <https://www.msci.com/index/methodology/latest/XCW>
- MSCI 10 40 Indexes Methodology – <https://www.msci.com/index/methodology/latest/1040>
- MSCI Capped Indexes Methodology – <https://www.msci.com/index/methodology/latest/Capped>
- ESG Factors In Methodology*

The Methodology Set for the Indexes can also 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 V: Changes to this Document

The following sections have been modified as of June 2022:

- Appendix 1 has been updated to include screens for Unconventional Oil & Gas, Arctic Oil & Gas, Weapons Systems and more Thermal coal screens.

The following sections have been modified as of June 2023:

- Clarified the exclusion criteria for companies involved in ESG Controversies and Civilian Firearms
- Updated the descriptions of MSCI ESG Research products and moved section to after Section 3.

The following sections have been modified as of October 2023:

- Section 3.1 added to detail the monthly review of controversies and subsequent sections re-numbered.

The following sections have been modified as of May 2024:

- Section 3.1: Missing data treatment for Monthly Review of Controversies clarified
- Section 4: Updated the description for MSCI ESG Research Products
- Appendix I: Updated the exclusion criteria for the Thermal Coal Power Generation screen
- Appendix VII: Added details on the Methodology Set for the Indexes

The following sections have been modified as of February 2025

- The methodology and index names were updated. Effective February 3, 2025, MSCI ACWI Semiconductors & Semiconductor Equipment ESG Filtered Index will be renamed to MSCI ACWI Semiconductors & Semiconductor Equipment Filtered Index.
- Section 2.6 Treatment of Unrated Companies.
 - Moved treatment of companies when ratings and research is not available from MSCI ESG Research to a new section
 - Added the treatment of companies when business involvement screening research or climate change metrics research are not available from MSCI ESG Research.
- Section 4.4: MSCI Climate Change Metrics. New Section and a sub-section added under Climate Change Metrics to provide additional details on Fossil Fuels related activities

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