

MSCI Minimum Volatility ESG Low Carbon Target Select Indexes Methodology

July 2023

| | | |
|-----------------|---|----|
| Contents | | |
| 1 | Introduction | 4 |
| 2 | Index Construction Methodology | 5 |
| 2.1 | Defining the Parent Index | 5 |
| 2.2 | Eligible Universe | 5 |
| 2.3 | Defining the Exclusion Criteria | 5 |
| 2.3.1 | Business Exclusion Criteria | 6 |
| 2.4 | Defining the Security Level Carbon Exposure | 6 |
| 2.4.1 | Greenhouse Gas Emissions | 6 |
| 2.4.2 | Potential Carbon Emissions from Fossil Fuels | 7 |
| 2.5 | Defining the Optimization Setup | 7 |
| 2.6 | Defining the Optimization Constraints | 7 |
| 2.7 | Determining the Optimized Index | 8 |
| 3 | Maintaining the Index | 9 |
| 3.1 | Semi-Annual Index Reviews | 9 |
| 3.2 | Ongoing Event-Related Maintenance | 9 |
| 4 | MSCI ESG Research | 11 |
| 4.1 | MSCI ESG Ratings | 11 |
| 4.2 | MSCI ESG Controversies | 11 |
| 4.3 | MSCI ESG Business Involvement Screening Research | 11 |
| 4.4 | MSCI Climate Change Metrics | 12 |
| | Appendix I: The Parent Index and the Base Currency for Optimization | 13 |
| | Appendix II: Business Exclusion Criteria | 14 |
| | Appendix III: Handling Infeasible Optimizations | 17 |
| | Appendix IV: New release of Barra® Equity Model or Barra® Optimizer | 18 |
| | Appendix V: Calculation of Carbon Exposure Metrics | 19 |

Appendix VI: Changes to this Document

20

1 Introduction

The MSCI Minimum Volatility ESG Low Carbon Target Select Indexes (herein, ‘the Indexes’) are designed to represent the performance of a strategy that seeks systematic integration of environmental, social and governance (ESG) norms while minimizing ex-ante total risk.

The Indexes are constructed by selecting constituents of a market capitalization weighted index (the ‘Parent Index’) and applying an optimization process that aims to minimize volatility risk, reduce the carbon-equivalent exposure to CO₂ and other GHG, as well as the 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 under certain constraints described below.¹

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 Research² for the Index construction.

Constructing the Indexes involves the following steps:

- Defining the Parent Index
- Defining the exclusion criteria
- Defining the security level carbon exposure
- Defining the optimization constraints
- Determining the optimized index

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

2.1 Defining the Parent Index

Constructing the Indexes begins with selecting the Parent Index and the Eligible Universe to perform total risk minimizing optimization. The Parent Index serves as the universe of eligible securities for optimization.

Please refer to Appendix I for more details.

2.2 Eligible Universe

The Eligible Universe is constructed by excluding securities from the Parent Index based on the exclusion criteria described below.

2.3 Defining the Exclusion Criteria

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

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.

2.3.1 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.

- Nuclear Weapons
- Conventional Weapons
- Controversial Weapons
- Civilian Firearms
- Tobacco
- Thermal Coal
- Unconventional Oil and Gas
- Conventional Oil and Gas

In addition to the above, companies that fail to comply with the United Nations Global Compact Principles (UN Global Compact Alignment value of “Fail”) are also excluded from the Indexes.

Please refer to Appendix II for more details on these criteria

2.4 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 Indexes use MSCI Climate Change Metrics data from MSCI ESG Research.

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

For newly added companies to the Indexes which do not report emission data and where MSCI ESG Research has not estimated the greenhouse gas emissions yet, MSCI uses the average emissions per dollar of sales for the companies in the same industry group of the MSCI ACWI Index, multiplied by the sales of the company as the estimated emission for the company.

2.4.2 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 Research³.

2.5 Defining the Optimization Setup

The optimization objective is to perform total risk minimizing optimization. The optimization is performed from a base currency perspective and does not allow short selling of securities.

Please refer to Appendix I for more details.

2.6 Defining the Optimization Constraints

At each Semi-Annual Index Review (SAIR), the following optimization constraints are employed, which aim to ensure replicability and investability:

- The weighted-average industry-adjusted ESG score of the Index will be at least 20% more than the weighted-average industry-adjusted ESG score of the Parent Index at the time of rebalancing
- 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 of the security in the Parent Index. The minimum weight of an Index constituent will be restricted to be the higher of the (weight of the security in the Parent Index - 2%) and 0. The minimum weight of a constituent in the final index will be 0.05%

³ 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, 11581162 (30 April 2009) | doi: 10.1038/nature08017; Received 25 September 2008; Accepted 25 March 2009. Supplementary Information, p. 7.

- The number of constituents in the final index must be greater than or equal to 100
- For countries with weight greater than 2.5% in the Parent Index, the weight in the Index will not deviate more than +/-5% from the country weight in the Parent Index
- For countries with weight less than 2.5% in the Parent Index, the weight in Index will be capped at 3 times their weight in the Parent Index
- The sector weights of the Index will not deviate more than +/-5% from the sector weights of the Parent Index
- The factor exposures except beta and residual volatility of the Index will not deviate more than +/-0.25 standard deviations from the factor exposures of the Parent Index
- The minimum reduction in the Carbon Emissions Intensity⁴ and in the potential emissions per dollar of market capitalization of the Index relative to the Parent Index will be 30% at the time of rebalancing
- The one-way turnover of the MSCI Minimum Volatility ESG Low Carbon Target Select Index is constrained to a maximum of 10% at each SAIR

The Carbon Emission Intensity and the Potential Emissions per Dollar of Market Capitalization of the Indexes are calculated using the formulae defined in Appendix V.

2.7 Determining the Optimized Index

The Indexes are constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model⁵. The optimization uses the Eligible Universe as the 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 Security Carbon Intensity = Scope 1 & 2 Emission / Sales.

⁵ Please refer to Appendix IV for the detailed information on model usage.

3 Maintaining the Index

3.1 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. Barra Equity Model data as of the end of April and October are used respectively.

Similarly, the MSCI ESG Research data⁶ (including MSCI ESG Ratings, MSCI ESG Controversies, MSCI ESG 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.

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

3.2 Ongoing Event-Related Maintenance

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.

⁶ See section 4 for details of data sourced from MSCI ESG Research used in the Indexes.

| 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 | <p>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.</p> <p>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.</p> |
| 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>.

4 MSCI ESG Research

The Indexes are products of MSCI Inc. that utilize 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 Ratings, MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research, and MSCI Climate Change 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 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 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-solutions>

Appendix I: The Parent Index and the Base Currency
for Optimization

| Minimum Volatility ESG Low Carbon Target Select Index | Parent Index | Base Currency for Optimization |
|---|-------------------|--------------------------------------|
| MSCI USA Minimum Volatility ESG Low Carbon Target Select Index | MSCI USA Index | USD |
| MSCI Europe Minimum Volatility ESG Low Carbon Target Select Index | MSCI Europe Index | EUR |

Appendix II: Business Exclusion Criteria

MSCI ESG Research has developed a framework designed to define significant involvement in controversial activities. According to this framework, there are three tolerance levels: Zero Tolerance, Minimal Tolerance and Low Tolerance.

Each controversial activity screened by the MSCI Minimum Volatility ESG Low Carbon Target Select Indexes (except Civilian Firearms, Conventional Weapons, Thermal Coal, Unconventional Oil and Gas, Conventional Oil and Gas, and Global Norms) is assigned to one of these tolerance levels:

Activities classified under “Zero Tolerance”

- 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 Ex-Controversial Weapons Indexes available at <https://www.msci.com/index/methodology/latest/XCW>

Activities classified under “Minimal Tolerance”

- 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.
- 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.

Activities not classified under any specific tolerance level

- Civilian Firearms
 - All companies deriving 5% or more revenue from the manufacturing of firearms and small arms ammunitions for civilian markets.
 - All companies deriving 5% or more revenue from the distribution (wholesale or retail) of firearms or small arms ammunition intended for civilian use.
- Conventional Weapons
 - All companies deriving 5% or more revenue from the production of conventional weapons.
 - All companies deriving 10% or more aggregate revenue from weapons systems, components, and support systems and services.
- 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 generating 10% or more power from thermal coal.
 - All companies that provide evidence of owning thermal coal reserves.
- Unconventional Oil and Gas
 - All companies deriving 5% or more revenue from unconventional oil and gas. It includes revenues from oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal seam gas, and coal bed methane.

- Conventional Oil and Gas
 - All companies deriving 5% or more revenue from conventional oil and gas. It includes all types of conventional oil and gas production including Arctic onshore/offshore, deep-water, shallow water and other onshore/offshore.
- Global Norms – United Nations Global Compact Compliance
 - Failure to comply with the United Nations Global Compact Principles (UN Global Compact Alignment value of “Fail”).

Appendix III: Handling Infeasible Optimizations

During the Semi-Annual 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:

The turnover constraint is relaxed in steps of 5%, up to a maximum of 30% until a feasible solution is achieved.

| Order of Relaxation | Turnover Limit |
|---------------------|----------------|
| 1 | 15% |
| 2 | 20% |
| 3 | 25% |
| 4 | 30% |

In the event that no optimal solution is found after the above turnover constraint has been relaxed, the Index will not be rebalanced for that Semi-Annual Index Review.

Appendix IV: 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.

Appendix V: Calculation of Carbon Exposure Metrics

Index Carbon Emissions

- Parent Index Carbon Emissions –

$$\text{Parent Index Carbon Emissions} = \sum_i \left(\frac{\text{Float Market Capitalization} * \text{Absolute Emissions}}{\text{Issuer Market Capitalization}} \right)$$

- Derived Index Carbon Emissions –

$$\text{Derived Index Carbon Emissions} = \sum_i \left(\frac{\text{Derived Index Market Capitalization} * \text{Absolute Emissions}}{\text{Issuer Market Capitalization}} \right)$$

- Parent Index Carbon Emission Intensity is defined as Parent Index Carbon Emissions, as defined above, divided by Parent Index Sales –

$$\frac{\sum_i \left(\frac{\text{Float Market Capitalization} * \text{Absolute Emissions}}{\text{Issuer Market Capitalization}} \right)}{\sum_i \left(\frac{\text{Float Market Capitalization} * \text{Sales}}{\text{Issuer Market Capitalization}} \right)}$$

- Derived Index Carbon Emissions Intensity is defined as Derived Index Carbon Emissions, as defined above, divided by Derived Index Sales –

$$\frac{\sum_i \left(\frac{\text{Derived Index Market Capitalization} * \text{Absolute Emissions}}{\text{Issuer Market Capitalization}} \right)}{\sum_i \left(\frac{\text{Derived Index Market Capitalization} * \text{Sales}}{\text{Issuer Market Capitalization}} \right)}$$

Index Potential Carbon Emissions from Fossil Fuels

- Parent Index Potential Carbon Emissions from Fossil Fuels –

$$\sum_i \left(\frac{\text{Float Market Capitalization} * \text{Absolute Potential Emissions}}{\text{Issuer Market Capitalization}} \right)$$

- Derived Index Potential Carbon Emissions from Fossil Fuels –

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

Appendix VI: Changes to this Document

The following sections have been modified effective December 2022:

- Section 2.6 Defining the Optimization Constrains: Update to reference Appendix V
- Appendix V: Added to reference formulae used for Carbon Emission Intensity and Potential Emissions per dollar of market capitalization calculation

The following sections have been modified as of July 2023:

- Methodology book was updated to reflect the transition of the MSCI Global Investable Market Indexes (GIMI) to Quarterly Comprehensive Index Reviews.
- All references to “Semi-Annual Index Reviews” and “Quarterly Index Reviews” of the MSCI GIMI were replaced with “Index Reviews.”
- Section 2.3: Clarified the exclusion criteria for companies involved in ESG Controversies.
- Section 4: ESG Research
 - Moved that after Section 3.
 - Updated the descriptions of MSCI ESG Research Products.
- Added the definition of industry-adjusted ESG score under Section 4.1 (MSCI ESG Ratings) Updated descriptions of MSCI ESG Research products.

Contact us

[msci.com/contact-us](https://www.msci.com/contact-us)

AMERICAS

| | |
|---------------|-------------------|
| Americas | 1 888 588 4567 * |
| Atlanta | + 1 404 551 3212 |
| Boston | + 1 617 532 0920 |
| Chicago | + 1 312 675 0545 |
| Monterrey | + 52 81 1253 4020 |
| New York | + 1 212 804 3901 |
| San Francisco | + 1 415 836 8800 |
| São Paulo | + 55 11 3706 1360 |
| Toronto | + 1 416 628 1007 |

EUROPE, MIDDLE EAST & AFRICA

| | |
|-----------|--------------------|
| Cape Town | + 27 21 673 0100 |
| Frankfurt | + 49 69 133 859 00 |
| Geneva | + 41 22 817 9777 |
| London | + 44 20 7618 2222 |
| Milan | + 39 02 5849 0415 |
| Paris | 0800 91 59 17 * |

ASIA PACIFIC

| | |
|-------------|-----------------------|
| China North | 10800 852 1032 * |
| China South | 10800 152 1032 * |
| Hong Kong | + 852 2844 9333 |
| Mumbai | + 91 22 6784 9160 |
| Seoul | 00798 8521 3392 * |
| Singapore | 800 852 3749 * |
| Sydney | + 61 2 9033 9333 |
| Taipei | 008 0112 7513 * |
| Thailand | 0018 0015 6207 7181 * |
| Tokyo | +81 3 5290 1555 |

* toll-free

About MSCI

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 50 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

To learn more, please visit www.msci.com.

The process for submitting a formal index complaint can be found on the index regulation page of MSCI's website at: <https://www.msci.com/index-regulation>.

Notice and disclaimer

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or disseminated in whole or in part without prior written permission from MSCI. All rights in the Information are reserved by MSCI and/or its Information Providers.

The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, "Index Linked Investments"). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

Index returns do not represent the results of actual trading of investable assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. The calculation of indexes and index returns may deviate from the stated methodology. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

The Information may contain back tested data. Back-tested performance is not actual performance, but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.

Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on www.msci.com.

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.'s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.'s company filings on the Investor Relations section of msci.com.

MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI's products or services are not a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such, provided that applicable products or services from MSCI ESG Research may constitute investment advice. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body. MSCI ESG and climate ratings, research and data are produced by MSCI ESG Research LLC, a subsidiary of MSCI Inc. MSCI ESG Indexes, Analytics and Real Estate are products of MSCI Inc. that utilize information from MSCI ESG Research LLC. MSCI Indexes are administered by MSCI Limited (UK).

Please note that the issuers mentioned in MSCI ESG Research materials sometimes have commercial relationships with MSCI ESG Research and/or MSCI Inc. (collectively, "MSCI") and that these relationships create potential conflicts of interest. In some cases, the issuers or their affiliates purchase research or other products or services from one or more MSCI affiliates. In other cases, MSCI ESG Research rates financial products such as mutual funds or ETFs that are managed by MSCI's clients or their affiliates, or are based on MSCI Inc. Indexes. In addition, constituents in MSCI Inc. equity indexes include companies that subscribe to MSCI products or services. In some cases, MSCI clients pay fees based in whole or part on the assets they manage. MSCI ESG Research has taken a number of steps to mitigate potential conflicts of interest and safeguard the integrity and independence of its research and ratings. More information about these conflict mitigation measures is available in our Form ADV, available at <https://adviserinfo.sec.gov/firm/summary/169222>.

Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P Global Market Intelligence. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and S&P Global Market Intelligence.

MIFID2/MIFIR notice: MSCI ESG Research LLC does not distribute or act as an intermediary for financial instruments or structured deposits, nor does it deal on its own account, provide execution services for others or manage client accounts. No MSCI ESG Research product or service supports, promotes or is intended to support or promote any such activity. MSCI ESG Research is an independent provider of ESG data.

Privacy notice: For information about how MSCI collects and uses personal data, please refer to our Privacy Notice at <https://www.msci.com/privacy-pledge>.