

MSCI Fixed Income Climate Transition Corporate Bond Indexes Methodology

September 2022

Contents

- 1 Introduction 3
- 2 MSCI ESG Research 4
 - 2.1 MSCI Climate Change Metrics..... 4
 - 2.2 MSCI ESG Sustainable Impact Metrics..... 4
 - 2.3 MSCI ESG Controversies..... 5
 - 2.4 MSCI ESG Business Involvement Screening Research 5
- 3 Index Construction Methodology 6
 - 3.1 Applicable Universe 6
 - 3.2 Minimum Requirements..... 6
 - 3.3 Eligible Universe..... 7
- 4 Maintaining the MSCI Fixed Income Climate Transition
Corporate Bond Indexes 9
 - 4.1 Monthly Index Reviews..... 9
- Appendix I: Calculation of Target Metrics 10
- Appendix II: Decarbonization Trajectory of Indexes 13
- Appendix III: Iterative Down Weighting Process 14

1 Introduction

The MSCI Fixed Income Climate Transition Corporate Bond Indexes (the “Indexes” are constructed from corresponding MSCI corporate bond parent indexes (the “Parent Indexes”) and are designed to represent the performance of an investment strategy that exceeds the minimum standards¹ of the EU Climate Transition Benchmark (CTB)². The index applies an heuristics-based approach in order to meet the following objectives:

- Reduce the weighted average absolute greenhouse gas (GHG) emissions by 30% compared to the Parent Index.
- Reduce the weighted average absolute greenhouse gas (GHG) emissions of the Index by 7% on an annualized basis.
- Reduce the weighted average absolute Potential Emissions by 30% compared to the Parent Index.
- At least equivalent ratio of Green Revenue/ Fossil fuels-based Revenue relative to the Parent Index.

The Indexes exclude companies involved in Controversial Weapons businesses, Very Severe ESG Controversies, Severe Environmental Controversies, Tobacco Manufacturing and Thermal Coal.

¹ The minimum standards of the EU Climate Transition Benchmark are defined in Section 3.2.

² In case there are changes in the EU delegated acts ([Regulation \(EU\) 2016/1011 as amended by Regulation \(EU\) 2019/2089](#)) and an update to the Index methodology is required, MSCI will issue an announcement prior to implementing the changes in the methodology. MSCI will not conduct a formal consultation for such an update.

2 MSCI ESG Research

MSCI ESG Research provides in-depth research, ratings and analysis of the environmental, social and governance-related business practices of thousands of companies worldwide. It consists of an integrated suite of tools and products to efficiently manage research, analysis and compliance tasks across the spectrum of ESG factors.

The Index uses company ratings and research provided by MSCI ESG Research. In particular, this index uses the following MSCI ESG Research products: MSCI Climate Change Metrics, MSCI ESG Sustainable Impact Metrics, MSCI ESG Controversies and MSCI ESG Business Involvement Screening Research.

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

2.1 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>.

2.2 MSCI ESG SUSTAINABLE IMPACT METRICS

MSCI ESG Research’s Sustainable Impact Metrics is designed to identify companies that currently offer products or services that address at least one of the major social and environmental challenges as defined by the UN Sustainable Development Goals. Designed as a positive screen, it is designed to highlight companies that are deriving sales from products or services that may have a positive impact on society and the environment.

For more details on the MSCI ESG Sustainable Impact Metrics, please refer to <https://www.msci.com/esg-sustainable-impact-metrics>.

2.3 MSCI ESG CONTROVERSIES

MSCI ESG Controversies 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>.

2.4 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.

3 Index Construction Methodology

3.1 APPLICABLE UNIVERSE

The Applicable Universe includes all the existing constituents of the Parent Index. This approach aims to provide an opportunity set with sufficient liquidity and capacity.

3.2 MINIMUM REQUIREMENTS³

The requirements⁴ MSCI imposes for the Indexes are detailed in Table 1.

Table 1: Requirements imposed for the Indexes

	Requirements	MSCI Fixed Income Climate Transition Corporate Bond Indexes
a.	Minimum reduction in Weighted Average Scope 1+2+3 ⁵ Absolute Carbon Emissions relative to Parent Index	30%
b.	Minimum reduction in Weighted Average Absolute Potential Emissions relative to Parent Index	30%
c.	Exclusions	Defined in Section 3.3
d.	Minimum average reduction (per annum) ⁶ in Weighted Average Absolute Carbon Emissions relative to Weighted Average Absolute Carbon Emissions of the Index at the Base Date ⁷	7%
e.	Minimum ratio of Green Revenue/ Fossil fuels-based Revenue relative to Parent Index	At least equivalent
f.	Issuer Capping	3% ⁸

³ Items a, c and d are the methodology rules that ensure that the minimal EU CTB requirements are met or exceeded.

⁴ The definitions of the target metrics are detailed in Appendix I

⁵ Prior to the May 2020 Monthly Index Review of the Indexes, the Weighted Average Absolute Carbon Emissions were calculated based on Scope 1+2 Emissions.

⁶ The decarbonization trajectory and base dates of the indexes are defined in Appendix II.

⁷ Prior to the May 2020 Monthly Index Review of the Indexes, the average reduction in Weighted Average Absolute Carbon Emissions has been calculated using Scope 1+2 Emissions since Inception.

⁸ The issuer capping is relaxed in steps of 1% if capping at 3% is infeasible.

3.3 ELIGIBLE UNIVERSE

The Eligible Universe is constructed from the Parent Index by excluding securities of companies based on the exclusion criteria⁹ below:

1. **Controversial Weapons:** All companies involved in Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons), as defined in Appendix I of the methodology of the MSCI Ex-Controversial Weapons Indexes.
2. **ESG Controversies¹⁰:** All companies having faced very severe controversies pertaining to ESG issues – Defined as companies with an ESG Controversy Score of 0.
3. **Tobacco:** All companies classified as a “Producer” or deriving 5% or more aggregate revenue from the production, distribution, retail, supply and licensing of tobacco-related products.
4. **Environmental Harm:** All companies having faced very severe and severe controversies pertaining to Environmental issues – Defined as companies with an Environment Controversy Score of 0 or 1.
5. **Thermal Coal Mining:** All companies deriving 1% 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 (either reported or estimated).

⁹ In relation to minimal EU CTB compliance, items 1-4 are required.

¹⁰ 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. For more details on MSCI ESG Controversies, please refer to www.msci.com/documents/esg-controversies

3.3.1. ITERATIVE DOWNWEIGHTING

The Eligible Universe is assessed against the minimum requirements detailed in Table 1. In case the Eligible Universe is found deficient on any of the minimum requirements, then the weights of the securities in the Eligible Universe are determined through an iterative process as described in Appendix III.

4 Maintaining the MSCI Fixed Income Climate Transition Corporate Bond Indexes

4.1 MONTHLY INDEX REVIEWS

The Indexes are reviewed on a monthly basis to coincide with the Monthly Index Review of the Parent Index. In general, the pro forma indexes are announced three business days before the effective date. In general, MSCI uses latest available MSCI ESG Research data on the announcement date for the rebalancing of the MSCI Fixed Income Climate Transition Corporate Bond Indexes. At each Monthly Index Review, the Eligible Universe is updated, and the composition of the Indexes is reassessed based on the methodology described in Section 3.

Appendix I: Calculation of Target Metrics

Calculation of Weighted Average Absolute Carbon Emissions

For Parent Index constituents where the Scope 1+2+3 Absolute Carbon Emissions is not available, the average of top quartile Scope 1+2+3 Absolute Carbon Emissions (highest emitters) of all the constituents of the Parent Index, within each GICS Industry Group in which the constituent belongs, is used. The average of top quartile Scope 1+2+3 Absolute Carbon Emissions within corresponding GICS Sector is used if all securities within the GICS Industry Group have missing data. The average of top quartile Scope 1+2+3 Absolute Carbon Emissions within the Parent Index is used if all securities in both the corresponding GICS Industry Group and GICS Sector have missing data.

Security Level Absolute Carbon Emissions =

$$\text{Scope 1 + 2 + 3 Absolute Carbon Emissions}$$

Weighted Average Absolute Carbon Emissions of Parent Index =

$$\sum (\text{Weight in Parent Index} * \text{Security Level Absolute Carbon Emissions})$$

Weighted Average Absolute Carbon Emissions of Derived Index =

$$\sum (\text{Weight in Derived Index} * \text{Security Level Absolute Carbon Emissions})$$

Calculation of Absolute Potential Carbon Emissions

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

Security Level Absolute Potential Carbon Emissions (PCE) =

$$\text{Absolute Potential Emissions}$$

Weighted Average Absolute Potential Emissions of Parent Index =

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

Weighted Average Absolute Potential Emissions of Derived Index =

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

Calculation of Average Decarbonization

On average, the Indexes follow a 7% decarbonization trajectory since the Base Date. The Weighted Average Absolute Carbon Emissions at the Base Date (W_1) is used to compute the target Weighted Average Absolute Carbon Emissions at any given Monthly Index Review (W_t) as per the below formula.

$$W_t = W_1 * 0.93^{\frac{(t-1)}{12}}$$

Where 't' is the number of Monthly Index Reviews since the Base Date.

For example, for the 13th Monthly Index Review since the Base Date (t=13), the target Weighted Average Absolute Carbon Emissions will be $W_1 * 0.93$.

Calculation of Green Revenue to Fossil fuels-based Revenue Multiple

Green Revenue

For each constituent in the Parent Index, the Green Revenue% is calculated as the cumulative revenue (%) from the six CleanTech 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 as:

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

Fossil fuels-based Revenue

For each constituent in the Parent Index, the Fossil fuels-based Revenue% is calculated as the cumulative revenue (%) from the following sources:

- 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 (either reported or estimated)
- Revenue% from the extraction, production and refining of Conventional and Unconventional Oil & Gas. Conventional Oil and Gas includes Arctic onshore/offshore, deepwater, shallow water and other onshore/offshore. Unconventional Oil and Gas includes oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal seam gas, and coal bed methane.
- Revenue% from thermal coal based power generation, liquid fuel based power generation and natural gas based power generation.

The Weighted Average Fossil fuels-based Revenue% is calculated as:

$$= \sum (Weight\ in\ Index * Fossil\ fuel - based\ Revenue\%)$$

The Green Revenues to Fossil fuels-based Revenues multiple for either the Parent Index or the Index is calculated as a ratio of the Weighted Average Green Revenue to the Weighted Average Fossil fuels-based Revenue as per the formula below:

$$= \frac{Weighted\ Average\ Green\ Revenue\%}{Weighted\ Average\ Fossil\ fuel - based\ Revenue\%}$$

Appendix II: Decarbonization Trajectory of Indexes

The Weighted Average Absolute Carbon Emissions on the Base Date (W_1) is used to compute the target Weighted Average Absolute Carbon Emissions at any given Monthly Index Review (W_t) as per the below formula.

$$W_t = W_1 * 0.93^{\frac{(t-1)}{12}}$$

Where 't' is the number of Monthly Index Reviews since the Base Date. The table below shows the Weighted Average Absolute Carbon Emissions on the Base Date (W_1) for each of the Parent Indexes on which the Indexes are constructed:

Index	Parent Index	Base Date	W_1 (tCO2)
MSCI USD IG Climate Transition Corporate Bond Index	MSCI USD IG Corporate Bond Index	June 01, 2020	51203791.89
MSCI EUR IG Climate Transition Corporate Bond Index	MSCI EUR IG Corporate Bond Index	June 01, 2020	46210362.2
MSCI GBP IG Climate Transition Corporate Bond Index	MSCI GBP IG Corporate Bond Index	June 01, 2020	23408429.55
MSCI CAD IG Climate Transition Corporate Bond Index	MSCI CAD IG Corporate Bond Index	June 01, 2020	16887378.25
MSCI USD HY Climate Transition Corporate Bond Index	MSCI USD HY Corporate Bond Index	June 01, 2020	16093418.44

Appendix III: Iterative Down Weighting Process

The iterative down weighting process is applied on the securities of the Eligible Universe with the objective of meeting all the minimum requirements detailed in Table 1.

ITERATIVE DOWNWEIGHTING

Starting with the Eligible 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 downweighting are outlined below:

- Step 1. Check whether all targets for the Index are met. If all targets are met, then no downweighting is required.
- Step 2. Securities in the Eligible Universe are sorted in increasing order of their Scope 1+2+3 Absolute Carbon Emissions and securities in the top half of the sorted list are identified as "Top Half" securities. Securities in the bottom half of the sorted list are identified as "Bottom Half" securities.
- Step 3. If the target based on Minimum reduction in Weighted Average Absolute Carbon Emissions relative to Parent Index and the Minimum average reduction in Weighted Average Absolute Carbon Emissions (per annum) is not being met, the lowest ranked "Bottom Half" security in ascending order of Scope 1+2+3 Absolute Carbon Emissions is selected for downweighting and the weight is reduced by 25% of its weight in the Eligible Universe. If this target is met, but
 - a. If the target based on Weighted Average Absolute Potential Emissions relative to Parent Index is not being met, the "Bottom Half" security with highest Absolute Potential Emissions is downweighted.
 - b. Otherwise if the target based on Minimum ratio of Green Revenue/ Fossil fuels-based Revenue relative to Parent Index is not being met, the "Bottom Half" security with largest difference between its Fossil fuels-based Revenue% and its Green Revenue% is downweighted
- Step 4. If the targets are still not met, the security is downweighted in steps of 25% of its weight in the Eligible Universe till a maximum downweighting of 75%.
- Step 5. While upweighting securities, the issuer weights of the securities being upweighted is capped at 3%, with the excess weight being distributed among the remaining securities that are being upweighted.

- Step 6. If the targets are still not met, the iterative process continues and Steps 3-5 are repeated.
- Step 7. If the targets are not met and all “Bottom Half” securities of the Eligible Universe are downweighted by 75% of the weight in the Eligible Universe, Steps 3-6 are repeated, with a maximum downweighting of 90% in a single downweighting step of 15 percentage points of the weight in the Eligible Universe.
- Step 8. If the targets are not met after the maximum downweighting of 90% of all “Bottom Half” securities, then securities are iteratively excluded in the same order as outlined in Step 3.
- Step 9. If the targets are not met after excluding all the “Bottom Half” securities, then the index will rebalance using the constituents and weighting of securities as after Step 8.

If the target based on Minimum reduction in Weighted Average Absolute Carbon Emissions relative to Parent Index and the Minimum average reduction in Weighted Average Absolute Carbon Emissions (per annum) is being met but the target on Weighted Average Absolute Potential Emissions relative to Parent Index is not being met, the “Bottom Half” security with the highest Absolute Potential Emissions is selected for downweighting. If the target on Weighted Average Absolute Potential Emissions relative to Parent Index is also met but the target on Minimum ratio of Green Revenue/ Fossil fuels-based Revenue relative to Parent Index is not being met, the “Bottom Half” security with the highest difference in its Fossil fuels-based Revenue% and Green Revenue% is selected for downweighting.

If the targets are not met and all “Bottom Half” securities of the Eligible Universe are downweighted by 75% of the weight in the Eligible Universe, maximum downweighting is relaxed to 90% in a single downweighting step of 15 percentage points of the weight in the Eligible Universe.

If the targets are not met after the maximum downweighting of 90% of all “Bottom Half” securities, then securities are iteratively excluded in the same order.

If the targets are not met after excluding all the “Bottom Half” securities, then the index will rebalance using the constituents and weighting of securities at the final step.

Contact us

clientservice@msci.com

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 leader 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.

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

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

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. 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 www.msci.com. MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, 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 intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. 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. 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, reports and ratings based on published methodologies and available to clients on a subscription basis. We do not provide custom or one-off ratings or recommendations of securities or other financial instruments upon request.

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>.