

MSCI WORLD IMI CLIMATE ADAPTATION SELECT 30 INDEX METHODOLOGY

July 2020

1 Introduction

The MSCI World IMI Climate Adaptation Select 30 Index aims to represent the performance of 30 stocks that have relatively high Low Carbon Transition scores, as well as exhibit low historical realised volatility and high dividend yield. The index aims to achieve diversification with country and sector constraints.

2 MSCI ESG RESEARCH

The MSCI World IMI Climate Adaptation Select 30 Index uses company ratings and research provided by MSCI ESG Research. The index uses the following MSCI ESG Research products: MSCI ESG Ratings, MSCI ESG Controversies, MSCI Business Involvement Screening Research, and MSCI Climate Change Metrics.

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

2.1 MSCI ESG RATINGS

MSCI ESG Ratings provides research, analysis and ratings of how well companies manage environmental, social and governance risks and opportunities.

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

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

2.2 MSCI ESG CONTROVERSIES

MSCI ESG Controversies (formerly known as MSCI Impact Monitor) provides assessments of controversies concerning the negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. MSCI ESG Controversies Score falls on a 0-10 scale, with "0" being the most severe controversy.

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

2.3 MSCI ESG BUSINESS INVOLVEMENT SCREENING RESEARCH

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

For more details on MSCI ESG Business Involvement Screening Research, please refer to http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf

3 Index Construction

The MSCI World IMI Climate Adaptation Select 30 Index is constructed from the MSCI World IMI Index (the “Parent Index”).

3.1 ESG ELIGIBILITY CRITERIA

3.1.1 VALUES AND CLIMATE CHANGE-BASED EXCLUSIONS

The MSCI World IMI Climate Adaptation Select 30 Index uses MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics to identify companies that are involved in the following business activities. Companies that meet the below values- and climate change-based criteria are excluded from the Index. Please refer to Appendix 1 for details on these criteria.

- Compliance with all the UN Global Compact Principles
- Adult Entertainment
- Gambling
- Tobacco
- Controversial Weapons
- Nuclear Weapons
- Conventional Weapons & Civilian Firearms
- Thermal Coal Mining
- Unconventional Oil & Gas Extraction
- Conventional Oil & Gas Extraction
- Thermal Coal-based Power Generation
- Oil & Gas-based Power Generation
- Nuclear Power-based Power Generation

3.1.2 LCT RATINGS ELIGIBILITY

The MSCI World IMI Climate Adaptation Select 30 Index uses the MSCI Low Carbon Category (LCT) to select only constituents from the Parent Index that present opportunities associated with the climate transition.

Companies are required to have an LCT Category of Solutions or Neutral to be eligible for inclusion.

3.2 ADDITIONAL SCREENS

3.2.1 LIQUIDITY SCREEN

The remaining securities from above are subsequently screened for 3-month ADTV to be greater than USD 15 Million.

ADTV is defined as Average Daily Traded Volume and is calculated as:

$$ADTV_{3M} = \frac{ATV_{3M}^1}{252}$$

3.3 SECURITY SELECTION

The securities from the eligible universe are subsequently filtered to include a single security per issuer. For issuers having multiple securities which are part of the eligible universe, the security with the highest 3-month ADTV is selected. From the securities remaining post screenings, the selection is done using the optimization process, as defined below, wherein we target to select 30 securities.

3.4 WEIGHTING SCHEME

The weights of the securities are an outcome of the optimization process. The optimization process relies on factor exposures for all the securities in the remaining universe and the factor covariance matrix of the relevant Barra Equity Model². The optimization is performed in local currency.

The Optimization objective is to maximize the Utility Function with various other optimization constraints as specified in 3.5:

$$U = \alpha - Total Risk$$

Where

Total Risk = ex-ante risk of the portfolio calculated using relevant Barra Equity Model and is a combination of common factor risk and stock specific risk.

¹ MSCI Index Calculation Methodology at

<https://www.msci.com/index-methodology>

MSCI Global Investable Market Indexes Methodology at

<https://www.msci.com/index-methodology>

² Please Refer to Appendix II

CALCULATION OF THE ALPHA SCORE

$$\alpha(i) = 0.75 * DYF(i) + 0.25 * LVF(i)$$

Where,

$\alpha(i)$ = Combined alpha score for each security i

$DYF(i)$ = Factor exposure of each security i to the target Dividend Yield ³factor

$LVF(i)$ = Factor exposure of each security i to the target Low Volatility ⁴factor

3.5 OPTIMIZATION CONSTRAINTS

The MSCI World IMI Climate Adaptation Select 30 Index is constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model. The optimization uses the above selected securities as the universe of eligible securities and the specified optimization objective and constraints to determine the Index.

The Barra Open Optimizer determines the optimal solution, to achieve relatively high exposure to dividend yield and low volatility factors by maximizing the exposure to these factors less a penalty for the common factor and stock-specific risk characteristics of each potential constituent.

³ Please refer to appendix IV

⁴ Please refer to appendix IV

At each quarterly rebalance, the following optimization constraints are applied which aim to ensure investability while achieving high dividend yield and low volatility:

No.	Parameter	Constraint
1	Number of Constituents	30
2	Maximum weight of a single security	5%
3	Security Weight as a Multiple of its weight in the Parent Index	10000
4	Maximum Weight to a GICS sector	Benchmark + 10%
5	Minimum Weight to a GICS Sector	Benchmark – 10%
6	Maximum Weight to a Country	Benchmark + 10%
7	Minimum Weight to a Country	Benchmark – 10%
8	One Way Turnover	100%
9	The portfolio risk currency	Local
10	Stock Specific Risk Aversion	0.0015
11	Common Factor Risk Aversion	0.015
12	Active Exposure to Growth, Liquidity, Momentum and Size ⁵ Barra style factors	(-0.5%, 0.5%)

⁵ Please refer to Appendix IV

4 Maintenance of the Index

4.1 QUARTERLY INDEX REVIEWS

The Index is reviewed on a quarterly basis, coinciding with the May and November Semi-Annual Index Reviews and the February and August Quarterly Index Reviews of the Parent Index. The pro forma Index is announced nine business days before the effective date.

4.2 ONGOING EVENT RELATED CHANGES

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. For cases where additions are noted below, securities will be added to the Index only if added to the Parent Index. Parent Index deletions will be reflected simultaneously.

EVENT TYPE

EVENT DETAILS

New additions to the Parent Index

A new security added to the Parent Index (such as IPO and other early inclusions) will not be added to the index.

Spin-Offs

All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Merger/Acquisition

For Mergers and Acquisitions, the acquirer's post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.

If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.

Changes in Security Characteristics

A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted indexes.

The MSCI Corporate Events methodology book is available at:
<https://www.msci.com/index-methodology>

Appendix I: Values and Climate Change-Based Exclusion Criteria

The is constructed with an aim to reflect the performance of companies that are consistent with specific values- and climate change-based criteria.

Compliance with all the UN Global Compact Principles

- All companies that fail to comply with the United Nations Global Compact principles. In this filter, activities are not classified under any specific tolerance level

Values-based Exclusions Criteria

- **Tobacco**
 - All companies deriving 5% or more revenue from the manufacture of tobacco related products
 - All companies deriving 5% or more aggregate revenue from the production, distribution, retail and supply of tobacco-related products. The threshold will be updated to all companies deriving 0% or more aggregate revenue from the production, distribution, retail and supply of tobacco-related products from Semi Annual Rebalance for November 2024
- **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 Global Ex-Controversial Weapons Indexes available at https://www.msci.com/eqb/methodology/meth_docs/MSCI_Global_ex_Controversial_Weapons_Indexes_Methodology_Nov2019.pdf
- **Nuclear Weapons**
 - All companies that manufacture nuclear warheads and/or whole nuclear missiles
 - All companies that manufacture components that were developed or are significantly modified for exclusive use in nuclear weapons (warheads and missiles)
 - All companies that manufacture or assemble delivery platforms that were developed or significantly modified for the exclusive delivery of nuclear weapons
 - All companies that provide auxiliary services related to nuclear weapons

- All companies that manufacture components that were not developed or not significantly modified for exclusive use in nuclear weapons (warheads and missiles) but can be used in nuclear weapons
- All companies that manufacture or assemble delivery platforms that were not developed or not significantly modified for the exclusive delivery of nuclear weapons but have the capability to deliver nuclear weapons
- All companies that manufacture components for nuclear-exclusive delivery platforms
- All companies deriving 5% or more revenue from the production of nuclear weapons.
- All companies that manufacture components for dual-use delivery platforms.

- **Weapons**

- All companies deriving 10% or more aggregate revenue from weapons systems, components, and support systems and services
- All companies deriving a combined 5% or more revenue from the production of conventional weapons and from the manufacture and retail of civilian firearms and ammunition.

Climate Change-based Exclusions Criteria

- **Thermal Coal Mining**

- 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. The threshold will be updated to all companies deriving 0% 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 from semi annual rebalance for November 2024.

- **Unconventional Oil & Gas Extraction**

- All companies deriving more than 0% revenue (either reported or estimated) from unconventional oil and gas production. It includes revenue from the production of oil sands, oil shale (kerogen-rich deposits), shale gas, shale oil, coal seam gas, and coal bed methane, as well as revenue from onshore or offshore oil and gas production in the Arctic region. It excludes revenue from conventional oil and gas production including deepwater, shallow water, and other onshore/offshore oil and gas.

- **Conventional Oil & Gas Extraction**

- All companies deriving more than 0% revenue (either reported or estimated) from conventional oil and gas production and are deriving less than 40% revenue from products, services, or infrastructure projects supporting the development or delivery of renewable energy and alternative fuels.

The Conventional Oil & Gas Extraction revenue includes revenue from the production of deep water, shallow water, and other onshore/offshore oil and gas. It excludes revenue from unconventional oil and gas production (oil sands, shale oil, shale gas) and onshore/offshore oil and gas production in the Arctic region.

- **Thermal Coal-based Power Generation**

- All companies generating 10% or more of their total electricity from thermal coal in a given year
- All companies that have 10% or more of installed capacity attributed to thermal coal in a given year
- All companies deriving 10% or more revenue (either reported or estimated) from thermal coal-based power generation
- The above thresholds will be updated to 0% from Semi Annual Rebalance for November 2024.

- **Oil & Gas-based Power Generation**

- All companies generating 30% or more of their total electricity from liquid fuel and natural gas in a given year
- All companies that have 30% or more of installed capacity attributed to liquid fuel and natural gas in a given year
- All companies deriving 30% or more revenue (either reported or estimated) from liquid fuel- and natural gas-based power generation

- **Nuclear Power-based Power Generation**

- All companies generating 30% or more of their total electricity from nuclear power in a given year
- All companies that have 30% or more of installed capacity attributed to nuclear sources in a given fiscal year
- All companies deriving 30% or more revenue (either reported or estimated) from ownership or operation of nuclear power plants
- All companies deriving 5% or more aggregate revenue from nuclear power activities

Gambling

- All companies deriving 5% or more aggregate revenue from gambling-related business activities

Adult Entertainment

- All companies deriving 5% or more aggregate revenue from the production, distribution and retail of adult entertainment materials

Appendix II: 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 III: HANDLING INFEASIBLE OPTIMIZATIONS

During the quarterly Index review, in the event that there is no optimal solution that satisfies all the optimization constraints, the Index will not be rebalanced for that Index review.

Appendix IV: Definitions of Dividend Yield, Size, Momentum, Low Volatility and Liquidity Factor in Barra Global Total Market Equity Model for Long Term Investors

The Dividend Yield, Size, Momentum, Low Volatility and Liquidity factors are described using MSCI's Barra Global Equity Model for Long-Term Investors (GEMTLT). The precise choice of component factors used to represent each broad factor group is governed by the current model used for the optimization, which may change with a new release of the Barra Equity Model.⁶

Dividend Yield

Definition = $0.5 \cdot \text{DTOP} + 0.5 \cdot \text{DTOPF}$

Where

DTOP = Dividend Yield

Computed by dividing the trailing 12-month dividend per share by the price at the last month end.

DTOPF = Analyst-Predicted Dividend-to-Price

Computed by dividing the 12-month forward-looking dividend per share (DPS) by the current price. Forward-looking DPS are defined as a weighted average between the average analyst-predicted DPS for the current and next fiscal years.

Momentum

Differentiates stocks based on their performance over the trailing 12 months. When computing Momentum exposure, we exclude the most recent returns in order to avoid the effects of short-term reversal.

Momentum = $0.5 \cdot \text{RSTR} + 0.5 \cdot \text{HALPHA}$

Where

RSTR = Relative Strength

The non-lagged Relative Strength is first computed from the returns from the trailing 252 days:

⁶ Please refer to Appendix II

$$RS(t) = \sum_{\tau=0}^{251} w_{\tau} [\ln(1 + r_{t-\tau}) - \ln(1 + r_{m,t-\tau})]$$

where, r_t is the stock excess return, and $r_{m,t}$ is the capitalization-weighted market excess return on day t, and w_{τ} is the exponential weight with a 126-day half-life. The final RSTR descriptor is then computed as the equal-weighted average of the RS from an 11-day window lagged by 11 days.

HALPHA = Historical Alpha

First, non-lagged values of historical alpha are computed by the time-series regression of HBETA. Historical alpha is then computed as the equal-weighted average of non-lagged values over the previous 11 to 21 trading days. This treatment introduces a lag while avoiding undue jumps in historical alpha exposures when large returns enter the estimation window.

Size

Represents strong source of equity return covariance, and captures return differences between large-cap stocks and small-cap stocks. We measure Size by the log of market capitalization.

Liquidity

Definition = $0.25 \cdot \text{STOM} + 0.25 \cdot \text{STOQ} + 0.25 \cdot \text{STOA} + 0.25 \cdot \text{ATVR}$

Where

STOM = Monthly Share Turnover

Computed as log of share turnover over the previous month:

$$\text{STOM} = \ln\left(\frac{V}{S}\right)$$

where, V is the trading volume for the month and S is the number of outstanding shares.

STOQ = Quarterly Share Turnover

Let STOM_t be the share turnover for month t. The quarterly share turnover is given by:

$$STOQ_t = \ln\left[\frac{1}{T} \sum_{\tau=1}^T \exp(STOM_t)\right]$$

Where, T = 3 months

STOA = Annual Share Turnover

Let $STOM_t$ be the share turnover for month t. The annual share turnover is given by:

$$STOA_t = \ln\left[\frac{1}{T} \sum_{\tau=1}^T \exp(STOM_t)\right]$$

Where, T = 12 months

ATVR = Annualized Traded Value Ratio

First, the daily traded value ratio (DTVR) is the volume divided by the number of shares. Then, the monthly traded value ratio (MTVR) is the median DTVR on traded days times the number of traded days in last 21 weekdays. The annual traded value ratio (ATVR) is the exponential weighted average of the MTVR in the last 252 days with a half-life of 63 days. The descriptor uses natural logarithm of the computed value.

Low Volatility

Definition = $0.3 \cdot \text{BETA} + 0.7 \cdot \text{RESVOL}$

BETA = Historical Beta

Computed as the slope coefficient from a time-series regression of stock excess returns against the cap-weighted excess returns of the estimation universe over a trailing window of 504 trading days, with a 252-day half-life.

The returns are aggregated over four-day windows to reduce the effect of non-synchronicity and auto-correlation.

RESVOL = Residual Volatility = $0.4 \cdot \text{HSIGMA} + 0.4 \cdot \text{DASTD} + 0.2 \cdot \text{CMRA}$

HSIGMA = Historical Sigma

Computed as the volatility of the residual returns from the HBETA regression.

DASTD = Daily Standard Deviation

Computed as the volatility of daily excess returns over the past 252 trading days with a 42-day half-life.

CMRA = Cumulative Range

The cumulative excess log return over the past T months, with each month defined as the previous 21 trading days, is first computed as:

$$Z(t) = \sum_{\tau=0}^{T-1} \ln(1 + r_{t-\tau})$$

Where, r_t is the stock excess return for the month t. The CMRA description is then given by:

$$\text{CMRA}(t) = Z_{\max} - Z_{\min}$$

Where, $Z_{\max} = \max\{Z(T)\}$, $Z_{\min} = \min\{Z(T)\}$ for $T = 1 \dots 12$.

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

Sydney	+ 61 2 9033 9333
Taipei	008 0112 7513 *
Thailand	0018 0015 6207 7181 *
Tokyo	+ 81 3 5290 1555

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 *



ABOUT MSCI

MSCI is a leader provider of critical decision support tools and services for the global investment community. With over 45 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.

* = toll free

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 redisseminated in whole or in part without prior written permission from MSCI.

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 be 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 Standard & Poor's. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and Standard & Poor's.

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 ESG Research LLC collects and uses personal data concerning officers and directors, please refer to our Privacy Notice at <https://www.msci.com/privacy-pledge>.