

# MSCI MarketAxess Tradable Corporate Bond Indexes Methodology

December 2024

## Contents

<b>1</b>	<b>Introduction .....</b>	<b>3</b>
<b>2</b>	<b>Index Construction Rules .....</b>	<b>4</b>
2.1	Underlying Universe .....	4
2.2	Eligibility Criteria .....	4
2.2.1	Liquidity Score Eligibility .....	4
2.2.2	Size Eligibility.....	5
2.2.3	Maturity Eligibility.....	5
2.3	Index Construction.....	5
2.3.1	Updating the Eligible Universe .....	5
2.3.2	Selection of Eligible Bonds .....	5
2.4	Weighting Scheme .....	6
2.4.1	Issuer Capping .....	6
2.4.2	Sector Constraints .....	6
2.4.3	Credit Rating Constraints .....	6
<b>3</b>	<b>Index Maintenance .....</b>	<b>8</b>
3.1	Monthly Index Review.....	8
3.2	Pricing .....	9
<b>4</b>	<b>MarketAxess Data .....</b>	<b>10</b>
4.1	Relative Liquidity Score .....	10
	<b>Appendix I: Guidelines on bond selection algorithm .....</b>	<b>11</b>
	<b>Appendix II: Credit rating bucket mapping.....</b>	<b>12</b>
	<b>Appendix III: Methodology Set .....</b>	<b>13</b>
	<b>Appendix IV: Changes to this Document .....</b>	<b>14</b>

## 1 Introduction

The MSCI MarketAxess Tradable Corporate Bond Indexes<sup>1</sup> (‘the Tradable Bond Indexes’) are designed to measure the performance of a selection of relatively liquid fixed income securities from the universe of corporate bonds defined by the underlying MSCI Corporate Bond Indexes (‘the Parent Indexes’).

The methodology uses the MarketAxess’ Relative Liquidity Scores (“RLS”) in conjunction with Size and Maturity criteria to identify and select liquid fixed income securities. The index methodology further incorporates appropriate buffers in index construction and rebalancing to limit monthly turnover. In addition, index methodology incorporates sector and credit rating allocation constraints, to capture credit market beta with limited basis risk vis-à-vis the Parent Indexes.

---

<sup>1</sup> 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 Rules

### 2.1 Underlying Universe

The Selection Universe for the MSCI MarketAxess Tradable Corporate Bond Indexes is defined by the constituents of the underlying MSCI Corporate Bond Indexes.

Tradable Bond Index	Selection Universe
MSCI MarketAxess USD IG Tradable Corporate Bond Index	MSCI USD IG Corporate Bond Index
MSCI MarketAxess EUR IG Tradable Corporate Bond Index	MSCI EUR IG Corporate Bond Index
MSCI MarketAxess USD HY Tradable Corporate Bond Index	MSCI USD HY Corporate Bond Index
MSCI MarketAxess EUR HY Tradable Corporate Bond Index	MSCI EUR HY Corporate Bond Index

### 2.2 Eligibility Criteria

#### 2.2.1 Liquidity Score Eligibility

To be eligible for inclusion in the Tradable Bond Index, a security must have a current MarketAxess Relative Liquidity Score (see section 4 – “MarketAxess Data” for more information) of greater than or equal to 3. In addition to having a minimum current RLS, a security must also have a minimum Monthly Average Relative Liquidity Score (“MRLS”).

The MRLS of a security is calculated as the simple average of MarketAxess RLS over a rolling 21-day window<sup>2</sup>. MRLS is calculated only if the security has at least 11 valid observations<sup>3</sup> in the defined window. Each Tradable Bond Index constituent must have a MRLS greater than or equal to a threshold value defined for each of the Tradable Bond Indexes as tabulated below. The minimum MRLS threshold is defined differently for new additions vis-à-vis already existing Tradable Bond Index constituents, where new additions have a relatively higher MRLS threshold.

Tradable Bond Index	Minimum MRLS for New Additions	Minimum MRLS for Existing Constituents
MSCI MarketAxess USD IG Tradable Corporate Bond Index	6.0	5.0
MSCI MarketAxess EUR IG Tradable Corporate Bond Index	6.0	5.0
MSCI MarketAxess USD HY Tradable Corporate Bond Index	5.5	4.5
MSCI MarketAxess EUR HY Tradable Corporate Bond Index	5.5	4.5

<sup>2</sup> 21-day window is defined by using weekdays.

<sup>33</sup> The observation is considered valid if the bond is scored by MarketAxess and belongs to the corresponding MarketAxess liquidity group, relative to which the RLS is computed. For example, for MSCI MarketAxess USD IG Tradable Corporate Bond Index the bond should belong to the MarketAxess USHG liquidity group.

## 2.2.2 Size Eligibility

At a security level, size is defined by its notional amount outstanding, whereas at an issuer ticker level, it is defined by issuer ticker's total amount outstanding<sup>4</sup>

At rebalancing, each security included in the MSCI MarketAxess Tradable Corporate Bond Indexes should have security size and issuer size greater than or equal to thresholds as tabulated below.

Tradable Bond Index	Minimum Security Size	Minimum Issuer Size
MSCI MarketAxess USD IG Tradable Corporate Bond Index	USD 500 million	USD 10 billion
MSCI MarketAxess EUR IG Tradable Corporate Bond Index	EUR 500 million	EUR 10 billion
MSCI MarketAxess USD HY Tradable Corporate Bond Index	USD 300 million	USD 2 billion
MSCI MarketAxess EUR HY Tradable Corporate Bond Index	EUR 300 million	EUR 2 billion

## 2.2.3 Maturity Eligibility

Each Tradable Bond Index constituent at issuance must have had a time to maturity greater than or equal to 3 years.

Additionally, each Index constituent within the two Investment Grade (IG) Tradable Bond Indexes – USD IG and EUR IG – must have a remaining time to maturity less than or equal to 30 years. There is no time to maturity capping for the two High Yield (HY) Tradable Bond Indexes – USD HY and EUR HY.

## 2.3 Index Construction

### 2.3.1 Updating the Eligible Universe

The Eligible Universe for index construction is derived from the Selection Universe and is updated by applying the eligibility screens described in Section 2.2.

### 2.3.2 Selection of Eligible Bonds

The two largest bonds by size are selected for each issuer ticker in the updated Eligible Universe. If there is only one bond for the issuer ticker in the universe, then only that one is included. Please refer to Appendix 1 for details on the bond selection algorithm.

<sup>4</sup> Computed as sum of issuer amount outstanding of all the unique issuer ids mapped to an issuer ticker. Please refer to MSCI Fixed Income Data Methodology document (<https://www.msci.com/index-methodology>) for details on the calculation of Issuer amount outstanding.

## 2.4 Weighting Scheme

The Tradable Bond Index constituents are weighted in proportion of their market values. Additionally, constituent weights are sequentially constrained. First the weights are capped at the issuer ticker level, followed by application of constraints on the sector weights and finally constraints are applied on the credit rating weights.

### 2.4.1 Issuer Capping

Constituent weights are capped at 3% at the issuer ticker level to mitigate concentration risk. The excess weight after capping is redistributed across the remaining Index issuers in proportion of their market value. Within each issuer, the bonds are still weighted in proportion of their market values.

### 2.4.2 Sector Constraints

Within the Tradable Bond Index, Global Industry Classification Standard (GICS®)<sup>5</sup> sector weights are capped/floored within  $\pm 5$  percentage points relative to the corresponding Parent Index sector weights, to reduce sector bias. For example, if we assume a sector weight in the Parent Index to be 12%, then that sector weight in the Tradable Bond Index should lie between 7% (12%-5%) to 17% (12%+5%). The excess (or lack of) weight after capping is redistributed across (or taken from) the remaining Tradable Bond Index sectors in proportion of their market value.

### 2.4.3 Credit Rating Constraints

Similar to the sector constraints, the Tradable Bond Index credit rating weights are also capped/floored within  $\pm 5$  percentage points relative to the corresponding Parent Index credit rating weights, to mitigate any credit rating bias. To achieve the credit rating constraints, we first convert the MSCI Average Rating to a broad credit rating bucket and then apply the constraints on those credit rating buckets. Please refer to Appendix 2 for details. The excess (or lack of) weight after application of the constraints is redistributed across (or taken from) the remaining Tradable Bond Index credit rating buckets in proportion of their market value.

Note that the constraints on the issuer ticker weight, sector weight and credit rating weight are calculated for the pro forma Index as of the effective date, based on the closing prices as of the Index review announcement date.

Please note that, since the constraints are applied sequentially, the issuer capping and sector weight constraints could be partially reversed (e.g. in case of narrower indexes) and only the credit weight constraints may apply fully at rebalance.

Also, in cases where the pro-forma weight at issuer ticker level, sector level or credit rating level, breaches the set constraints, because of market price movements or

<sup>5</sup> GICS, the global industry classification standard jointly developed by MSCI Inc. and S&P Dow Jones Indices.

<sup>6</sup> MSCI sources credit ratings from Standard and Poor's Rating Services (S&P) or Moody's Investor Service (Moody's). The MSCI Average Rating is the average rating of S&P and Moody's, rounded up to the nearest integer, if a half value occurs. The MSCI average rating is based on the mappings and scores tabulated in Appendix Section 12.1.1 of the MSCI Fixed Income Data Methodology.

corporate events between the announcement date and the effective date, the constraints are not applied again. Similarly, even if weight breaches the constraints because of market price movements or corporate events between two monthly reviews, the constraints are not re-applied.

## 3 Index Maintenance

### 3.1 Monthly Index Review

The Index is reviewed monthly to coincide with the Monthly Index Review of the MSCI Corporate Bond Indexes.

The rebalanced Index composition is determined by the most recent data available three days prior to the Rebalancing Date, termed as the Cut-Off Date. If a security in the universe satisfies any inclusion or exclusion criteria after the Cut-Off Date, it will typically become effective at the next monthly rebalancing, provided conditions remain constant. In extraordinary circumstances, such as cases of input data correction, MSCI has the discretion to shorten the Cut-Off Date for Index rebalancing from T-3 to T-2, T-1, or T. In such scenarios, MSCI will inform Index clients of these changes through an announcement.

MSCI will disclose proforma index rebalancing results starting the second business day of each month. MSCI will freeze the proforma index rebalancing results as of the Cut-Off Date.

MSCI uses the latest available MarketAxess Relative Liquidity Score as of the Cut-Off Date for the rebalancing of the MSCI MarketAxess Tradable Corporate Bond Indexes.

At each Monthly Index Review, the Eligible Universe is updated, and the composition of the Index is reassessed based on methodology described in Section 2. In addition to this for each Tradable Bond Index rebalancing a buffer rule is applied to control for rebalancing turnover.

Securities that are deleted from the Tradable Bond Index are “locked out” and hence are not eligible to be re-added to the Index for a period of next 12 months. For example, if a bond is dropped from the Index as of rebalancing month T, it cannot re-enter the Index up until T+11 months and will be considered for inclusion for the T+12-month rebalancing. Securities that enter the Tradable Bond Index and continue to qualify on current RLS, size and maturity eligibility criteria defined in Section 2.2.1, Section 2.2.2, and 2.2.3, respectively, are “locked in” i.e., remain in the Index for at least a period of 12 months.

Any cash that accrues within the index each month is re-invested on a pro-rata basis across the index constituents on the effective date of rebalancing. The opening index portfolio on the Rebalancing Date starts with zero accrued cash balance.

For further information on index total return calculation and corporate events handling please refer to the MSCI Fixed Income Index Calculation Methodology<sup>7</sup>. For the holiday calendar used in the index, please refer to the MSCI Fixed Income Data Methodology.<sup>8</sup>

<sup>7</sup> Please refer to MSCI Fixed Income Index calculation methodology for further details on calculation of market value. Available at <https://www.msci.com/index-methodology>

<sup>8</sup> Please refer to MSCI Fixed Income Index Data methodology for further details on calculation of market value. Available at <https://www.msci.com/index-methodology>



## 3.2 Pricing

Historically, the Tradable Bond Index uses bid and offer prices from multiple data vendors with primary pricing source being Refinitiv. From January 2<sup>nd</sup>, 2023, onwards primary pricing source is transitioned from Refinitiv to MarketAxess CP+™.

## 4 MarketAxess Data

The MSCI MarketAxess Tradable Corporate Bond Indexes use the security-level Relative Liquidity Score product provided by MarketAxess Holdings Inc.

For details on MarketAxess' full suite of products, please refer to:

<https://www.marketaxess.com/>.

### 4.1 Relative Liquidity Score

The MarketAxess Relative Liquidity Score provides a defined measurement of the current liquidity for individual bonds and highlights the potential ease that a trader can expect to transact in that instrument. The score ranges from 10, meaning the highest level of liquidity, down to 1.

MarketAxess combines data points from multiple sources – Inventory data, MarketAxess platform data, TRACE<sup>9</sup> data, and Trax<sup>10</sup> data, to calculate multiple bond-specific factors on a relative basis over a 30-day look back period. The proprietary model then aggregates the individual factors to derive the final relative liquidity score.

For more details on Relative Liquidity score, please refer to:

<https://www.marketaxess.com/price/relative-liquidity-score>.

---

<sup>9</sup> TRACE, Trade Reporting and Compliance Engine, is the Financial Industry Regulatory Authority's (FINRA) fixed income market real-time price reporting and dissemination service.

<sup>10</sup> Trax, a wholly owned subsidiary of MarketAxess Holdings, Inc., provides capital market data, trade matching and regulatory reporting services to the global securities market.

## Appendix I: Guidelines on bond selection algorithm

The Tradable Bond Index selects up to two bonds for each issuer ticker in the Eligible Universe as defined by rules in Section 2.2. The underlying principle for the selection algorithm is to seek to select the most liquid subset, while aiming to mitigate high turnover.

The following rules are used in selecting at most two bonds for each issuer ticker. The preference order for selection is as follows:

1. Select bonds that entered the Tradable Bond Index over the past 11 months and continue to qualify on current RLS, size and maturity criteria as defined in Section 2.2.1, Section 2.2.2, and Section 2.2.3, respectively.
2. In case we have less than two bonds for an issuer ticker selected from Step 1, then select remaining bonds with higher security size.
3. In case we have multiple bonds with same security size, then following parameters in the given order are used as tiebreakers for selection.
  - Higher MRLS score
  - Higher Time to Maturity
  - Higher Coupon

## Appendix II: Credit rating bucket mapping

MSCI sources credit ratings from Standard and Poor's Rating Services (S&P) or Moody's Investor Service (Moody's). The MSCI Average Rating is the average rating of S&P and Moody's, rounded up to the nearest integer, if a half value occurs. The MSCI average rating is converted to a broader credit rating bucket as per the table below.

MSCI Average Rating	Credit Rating Bucket (used for capping)
AAA	AAA
AA+, AA, AA-	AA
A+, A, A-	A
BBB+, BBB, BBB-	BBB
BB+, BB, BB-	BB
B+, B, B-	B
CCC+, CCC, CCC-	CCC
CC+, CC, CC-	CC
C+, C, C-	C
D	D

## Appendix III: Methodology Set

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

- Description of methodology set –  
<https://www.msci.com/index/methodology/latest/FIInfo>
- MSCI Fixed Income Data Methodology –  
<https://www.msci.com/index/methodology/latest/FIDATA>
- MSCI Fixed Income Calculation Methodology –  
<https://www.msci.com/index/methodology/latest/FIINDEXCALC>
- MSCI Fixed Income Glossary of Terms –  
<https://www.msci.com/index/methodology/latest/FIGLOSS>
- MSCI Fixed Income Index Policies –  
<https://www.msci.com/index/methodology/latest/FIINDEXPOLICY>
- MSCI Corporate Bond Indexes Methodology –  
<https://www.msci.com/index/methodology/latest/FIIGCORP>

The Methodology Set for the Indexes can also be accessed from MSCI’s webpage <https://www.msci.com/index-methodology> in the section ‘Search Methodology by Index Name or Index Code’.

## Appendix IV: Changes to this Document

**The following sections have been modified as of December 2024:**

Appendix III: Methodology Set

- Added details on the Methodology Set for the Index.

**The following modifications have been since December 2023:**

- Minor change in page 8, where the name MarketAxess Composite+™ was changed to MarketAxess CP+™.
- Clarified treatment of Cut Off Date for exceptional cases.

**The following modifications have been since October 2023:**

- Updated to reflect the launch of the: MSCI MarketAxess EUR IG Tradable Corporate Bond Index, MSCI MarketAxess USD IG Tradable Corporate Bond Index and MSCI MarketAxess EUR HY Tradable Corporate Bond Index.
- Modification to Section 2 to reflect the methodology changes, that resulted from the MSCI MarketAxess USD HY Tradable Corporate Bond Index Consultation.

## Contact us

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

### AMERICAS

Americas	+ 1 888 588 4567 *
Canada	+ 1 416 687 6270
Brazil	+ 55 11 4040 7830
Mexico	+ 52 81 1253 4020

### EUROPE, MIDDLE EAST & AFRICA

South Africa	+ 27 21 673 0103
Germany	+ 49 69 133 859 00
Switzerland	+ 41 22 817 9777
United Kingdom	+ 44 20 7618 2222
Italy	+ 39 02 5849 0415
France	+ 33 17 6769 810

### ASIA PACIFIC

China	+ 86 21 61326611
Hong Kong	+ 852 2844 9333
India	+ 91 22 6784 9160
Malaysia	1800818185 *
South Korea	+ 82 70 4769 4231
Singapore	+ 65 67011177
Australia	+ 612 9033 9333
Taiwan	008 0112 7513 *
Thailand	0018 0015 6207 7181 *
Japan	+ 81 3 4579 0333

\* 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.

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](https://www.msci.com/index-regulation).

To learn more, please visit [www.msci.com](https://www.msci.com).

## Notice and disclaimer

This document is research for informational purposes only and is intended for institutional professionals with the analytical resources and tools necessary to interpret any performance information. Nothing herein is intended to promote or recommend any product, tool or service.

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. 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 may include "Signals," defined as quantitative attributes or the product of methods or formulas that describe or are derived from calculations using historical data. Neither these Signals nor any description of historical data are intended to provide investment advice or a recommendation to make (or refrain from making) any investment decision or asset allocation and should not be relied upon as such. Signals are inherently backward-looking because of their use of historical data, and they are not intended to predict the future. The relevance, correlations and accuracy of Signals frequently will change materially.

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 investible 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](http://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](http://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) and MSCI Deutschland GmbH.

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>.