

MSCI ESG Ratings

Methodology:

Ownership & Control

Key Issue

MSCI ESG Research LLC

December 2024

Contents

Introduction	4
Ownership & Control Key Issue Score	5
Key Metrics	5
Category: Ownership Structure	5
Controlling Shareholder Key Metric	5
Controlling Shareholder Concerns Key Metric	6
Dispersed Ownership Concerns Key Metric	6
Cross-Shareholdings Key Metric	6
Tracking Stock Key Metric	7
Variable Interest Entities Key Metric	7
Category: One Share, One Vote	7
Multiple Equity Classes with Different Voting Rights Key Metric	7
Single Equity Class with Different Voting Rights Key Metric	8
Voting Rights Limits Shares Held Key Metric	8
Voting Rights Limits Residency Key Metric	9
Government Intervention Concerns Key Metric	9
Category: Control Mechanisms	10
Poison Pill Key Metric	10
Category: Shareholder Rights	10
Bylaws Amendments Key Metric	10
Shareholder Rights to Convene Meeting Key Metric	10
Shareholder Rights Concerns Key Metric	11
Say-on-Pay Policy Key Metric	11
Confidential Voting Key Metric	11
Category: Director Elections	12
Proxy Access Key Metric	12
Annual Director Elections Key Metric	12
Strong Classified Board Combination Key Metric	13

Majority Voting Key Metric 13

Cumulative Voting Key Metric 14

Director Removal Without Cause Key Metric 14

Category: Takeover Provisions 14

 Constituency Provision Key Metric 14

 Business Combination Provision Key Metric 15

 Fair Bid Treatment Provisions Key Metric 15

Ownership Structure Assessment 16

Introduction

This document provides essential information on the components of the Ownership & Control Key Issue to enable users of ESG Ratings to understand how our outputs are determined. Ownership & Control is a Key Issue in the Governance Pillar of the MSCI ESG Ratings model. Companies are evaluated on the ownership structure, the proportionality between the economic exposure and voting power of the largest owner (“control skew”) and other capital or ownership factors that may affect governance risk.

Companies are also evaluated on investor protection, in particular the rights of shareholders and the effectiveness of the framework to hold boards to account and the regulatory and company-specific provisions that support (or restrict) shareholders’ ability to determine the company’s future.

For additional details on the MSCI ESG Ratings Model, refer to Section 2, Data, ratings and scores, of “ESG Ratings Methodology.”

Exhibit 1: MSCI ESG Key Issue hierarchy

3 Pillars	10 Themes	33 ESG Key Issues
Environmental	Climate Change	Carbon Emissions
		Climate Change Vulnerability
		Financing Environmental Impact
		Product Carbon Footprint
	Natural Capital	Biodiversity & Land Use
		Raw Material Sourcing
		Water Stress
	Pollution & Waste	Electronic Waste
		Packaging Material & Waste
		Toxic Emissions & Waste
	Environmental Opportunities	Opportunities in Clean Tech
		Opportunities in Green Building
		Opportunities in Renewable Energy
Social	Human Capital	Health & Safety
		Human Capital Development
		Labor Management
		Supply Chain Labor Standards
	Product Liability	Chemical Safety
		Consumer Financial Protection
		Privacy & Data Security
		Product Safety & Quality
		Responsible Investment
	Stakeholder Opposition	Community Relations
		Controversial Sourcing
	Social Opportunities	Access to Finance
		Access to Health Care
		Opportunities in Nutrition & Health

3 Pillars	10 Themes	33 ESG Key Issues
Governance	Corporate Governance	Board
		Pay
		Ownership & Control
	Corporate Behavior	Accounting
		Business Ethics
		Tax Transparency

Ownership & Control Key Issue Score

The Key Issue Score is based on the aggregation of the following Key Metrics using the methodology described in Section 3.5.4, Calculating Governance Scores, of “ESG Ratings Methodology.”

Each Key Metric evaluates a specific aspect of a company’s governance risk profile.

Some Key Metrics are relevant only to companies with specific governance characteristics stemming from ownership type, management structure or other factors. Companies are distinguished by the type of issuer, indicated by the scope of each Key Metric below.

Key Metrics

Category: Ownership Structure

Controlling Shareholder Key Metric

Definition

Does any shareholder or shareholder bloc control more than 30% of the voting shares, or is able to elect more than 50% of the company’s board?

Flagged if yes.

Where the Governance Reference Entity is not an equity issuer, this evaluation is based on the ultimate owner.

Scope: All issuers

Typical Scoring Contribution: 0¹

¹ This Key Metric adjusts the scoring for the following Key Metrics: Related-Party Transactions (if Controlling Shareholder Concerns is flagged and there are RPTs with the controlling shareholder); Independent Board Majority; Significant Votes Against Directors. The following Key Metrics can only be flagged if a Controlling Shareholder is present: Controlling Shareholder Concerns; Cumulative Voting.

Controlling Shareholder Concerns Key Metric

Definition

Does the company’s ownership structure or governance arrangements indicate special concerns for minority public shareholders?

Flagged if yes.

This can be triggered by the presence of one or more criteria, including where:

- *Any of the following Key Metrics are also flagged:*
 - *No Independent Directors; Leadership Concerns; Undersized Board; Cross Shareholdings; or Poison Pill.*
- *Or any of the following apply:*
 - *The issuer has issued golden shares;*
 - *The issuer is controlled via a stock pyramid;*
 - *The issuer is incorporated as a Partnership Limited by Shares; or*
 - *The largest shareholder holds more than 75% of the total voting rights.*

Scope: All issuers

Typical Scoring Contribution: 1.0

Dispersed Ownership Concerns Key Metric

Definition

Is the company so widely held that there are no principal shareholders or other large-bloc holders?

Flagged if yes.

This test eliminates family or founder firms, companies with a 10% or greater principal shareholder, and companies where the aggregate 5%+ holdings exceed 30%.

This metric is intended to capture companies where there is a disconnect between ownership and management. In the absence of the constraining influence of informed and involved bloc holders, there is a greater risk of the CEO and board asserting a degree of power and authority more commonly associated with controlled companies.

Scope: All issuers

Typical Scoring Contribution: 0.2

Cross-Shareholdings Key Metric

Definition

Is the company involved in a series of cross-shareholdings with other (related or unrelated) companies?

Flagged if yes.

This metric is intended to capture cross-shareholdings intended for non-investment purposes. Cross-shareholdings for the purpose of this Key Metric include direct, indirect (via subsidiary companies), circular or more complex cross-shareholding networks.

Scope: All issuers

Typical Scoring Contribution: Variable, based on size of cross-shareholdings:

Range: 0.2 to 3.2

Average: 0.628

Tracking Stock Key Metric

Definition

Is the company being traded as a tracking stock or similar trading-based entity?

Flagged if yes.

Tracking stocks are treated as an indicator of potential governance weakness.

Scope: All issuers

Typical Scoring Contribution: 0.5

Variable Interest Entities Key Metric

Definition

Does at least 5% of the group's revenue come from VIEs where the company holds less than 10% voting rights?

Flagged if yes.

A variable interest entity (VIE) is a special purpose vehicle in which the issuer holds a controlling interest in an operating company that is not based on a majority of the voting rights. Via structured contracts, the issuer is typically the primary beneficiary of the VIE.

Scope: All issuers

Typical Scoring Contribution: 0.5

Category: One Share, One Vote

Multiple Equity Classes with Different Voting Rights Key Metric

Definition

Has the company issued more than one class of equity shares and do these classes carry unequal voting rights?

Flagged if yes.

The inequality in the voting rights may be manifested via different votes per share, different votes per unit of nominal value or through the ability to vote only on certain matters, or on the election of certain directors, or grant special rights (such as the exclusive right of nominating directors).

When a share class termed as “preference,” “preferred” or similar, is classified in the annual accounts under accounting standards as an equity security rather than a liability, then it will be considered as an equity class for the purposes of this metric.

Share classes that do not carry special rights but have unequal voting rights may not be flagged if the number issued is not significant.

Scope: All issuers

Typical Scoring Contribution: Variable, based on size of voting rights differential & percentage of votes held by largest owner:

Range: 0.2 to 0.6

Average: 0.483

Single Equity Class with Different Voting Rights Key Metric

Definition

Does the capital structure include a single share class where the voting rights vary based on the duration of ownership (or extra voting rights are granted via “loyalty shares”)?

Flagged if yes.

In some literature these may also be referred to as tenured voting shares.

Scope: All issuers

Typical Scoring Contribution: Variable, based on length of required holding period and percentage of votes held by largest owner.

Range: 0.2 to 0.55

Average: 0.397

Voting Rights Limits Shares Held Key Metric

Definition

Are voting rights capped at a certain percentage, no matter how many shares the investor owns?

Flagged if yes.

This may refer to either an “ownership ceiling” or a “voting rights ceiling,” in which ownership and/or voting rights limits are applied to some or all shareholders.

This metric is derived from a company’s corporate charter and bylaws, or on the basis of applicable corporate regulation.

Scope: All issuers

Typical Scoring Contribution: Variable, based on ownership or voting-limit percentage.

Range: 0.1 to 0.3

Average: 0.246

Voting Rights Limits Residency Key Metric

Definition

Are voting rights different for foreign or non-resident shareholders?

Flagged if yes.

This provision sets limits on the ability of foreign or non-resident parties to vote on corporate matters, regardless of the number or type of shares held, and includes cases in which foreign shareholders are prohibited from voting. This may refer either to an aggregate limit on shares or voting rights held by shareholders of a stated nationality or to a limit on holdings of one shareholder based on that shareholder's nationality.

This metric is derived from a company's corporate charter and bylaws, or on the basis of applicable corporate regulation.

Scope: All issuers

Typical Scoring Contribution: Variable, based on ownership or voting-limit percentage.

Range: 0.15 to 0.3

Average: 0.181

Government Intervention Concerns Key Metric

Definition

Do the company's capital and ownership structures include a "golden share" provision, are there equivalent provisions in national or state laws, or is there a government representative on the board?

Flagged if yes.

A "golden share" provision allows a single shareholder, usually a national government, to override all other shareholder voting rights on certain decisions.

Scope: All issuers

Typical Scoring Contribution: 0.5

Category: Control Mechanisms

Poison Pill Key Metric

Definition

Has the company adopted a takeover defense such as a poison pill, shareholder rights plan, or equivalent provision?

Flagged if yes.

A takeover defense may shield management and the board from accountability (board entrenchment). Takeover defenses may include a formal shareholder's rights plan, poison pill, protective preference shares or equivalent provision.

Scope: All issuers

Typical Scoring Contribution: 0.5

Category: Shareholder Rights

Bylaws Amendments Key Metric

Definition

Does the board have the unilateral right to amend the company's bylaws / Articles of Association without shareholder approval?

Flagged if yes.

Most U.S. companies grant the board unilateral control over the bylaws, so most U.S. companies are flagged for this metric, but in other regions this remains a helpful indicator of governance strength. This metric is derived from a company's corporate charter and bylaws, or on the basis of applicable corporate regulation.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Shareholder Rights to Convene Meeting Key Metric

Definition

Do shareholders lack the right to requisition an extraordinary general meeting (EGM) or does the threshold required to request an EGM exceed 10% of the voting rights?

Flagged if yes.

Some companies may apply a different threshold to append a resolution to the agenda of an existing meeting – see Shareholder Rights Concerns Key Metric.

Scope: Equity issuers

Typical Scoring Contribution: Variable, based on voting-rights threshold required to requisition a meeting.

Range: 0.1 to 0.3

Average: 0.251

Shareholder Rights Concerns Key Metric

Definition

Are shareholders limited in their ability to make changes at the company due to the nature of provisions in the governing documents?

Flagged if yes.

Does a change to the governing documents require a vote in favor from more than 67% of the total capital or from more than 75% of the votes cast? Are shareholders both unable to act by written consent in a majority vote AND does the threshold required to request inclusion of a shareholder proposal at the annual general meeting (AGM) exceed 1% (or is not permitted)?

Scope: Equity issuers

Typical Scoring Contribution: 0.2

Say-on-Pay Policy Key Metric

Definition

Has the company failed to implement regular say-on-pay votes?

Flagged if yes.

Shareholders should be granted a vote on either the policies themselves, the amounts paid pursuant to these policies, or on the report of the pay committee that sets out these items, i.e., this should be a broad-based vote on policy or total pay, and not just a vote on the policy or total amount of one component of pay. The scope of the say-on-pay vote must include any executive directors on the board of directors, or the most senior executive, if there is no executive director on the board. The vote may be in respect of all the executive directors collectively or by separate votes for each executive director individually. Votes should be held on a regular basis, at intervals of no more than three years.

The Key Metric will not be flagged if there are no executives (e.g., for investment trusts).

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Confidential Voting Key Metric

Definition

Has the company failed to implement confidential voting, barring reasonable exceptions?

Flagged if yes.

Confidential voting is intended to protect the anonymity of shareholders who wish to vote against management, or against a particular director, but who may be concerned about the possibility of redress. This metric is derived from a company's corporate charter and bylaws, or on the basis of applicable corporate regulation.

For the U.S. and Canada, this metric is flagged unless the required evidence is identified to confirm confidential voting is in place. For other markets, this metric is only flagged if specific evidence is identified to indicate the absence of confidential voting.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Category: Director Elections

Proxy Access Key Metric

Definition

Does the company not allow qualified shareholders to nominate directors for election at the annual general meeting, such nominees to be included in the meeting agenda circulated by the company to its shareholders?

Flagged if yes.

Proxy access is a measure of the shareholder's ability to influence the composition of the company's board. This metric is derived from a company's corporate charter and bylaws, or on the basis of applicable corporate regulation.

Scope: Equity issuers

Typical Scoring Contribution: 0.2

Annual Director Elections Key Metric

Definition

Do any shareholder-elected directors stand for re-election at intervals greater than one year?

Flagged if yes.

This metric captures both classified boards, where director re-election is staggered, and boards where all directors stand simultaneously for re-election albeit less often than annually. Boards undergoing declassification over an extended period are treated as classified until this process has been completed – i.e., until all the board members are being re-elected annually. The metric does not refer to employee-appointed directors, being specifically focused on shareholder-elected directors.

Scope: Equity issuers

Typical Scoring Contribution: Variable, based on percentage of board subject to re-election and frequency of reelection:

Range: 0.1 to 0.2

Average: 0.108

Strong Classified Board Combination Key Metric

Definition

Does the company have a classified or staggered board in combination with other limitations on shareholder rights that further limit shareholders ability to affect the make-up of the board?

Flagged if yes.

A company has a strong classified board combination if, in addition to having a Classified Board, any of the following are true:

- *Director Removal for Cause Only is Yes, and Shareholder Can Fill Board Vacancies is No and the Bylaw Vote Percent is = 0% or > 51%;*
- *Director Removal for Cause Only is Yes, and Shareholder Can Fill Board Vacancies is No and the Effective Classified Board is Yes;*
- *Director Removal without Cause Vote % > 51%, and Shareholder Can Fill Board Vacancies is No and Bylaw Vote Percent is = 0% or > 51%; or*
- *Director Removal Without Cause Vote % > 51%, and Shareholder Can Fill Board Vacancies is No, and Effective Classified Board is Yes.*

Scope: Equity issuers

Typical Scoring Contribution: 0.2

Majority Voting Key Metric

Definition

Has the company failed to use or adopt binding majority voting in the election of directors (with immediate resignation, if the director does not receive a majority of the votes cast)?

Flagged if yes.

MSCI ESG Research uses a strict majority standard for this metric, flagging plurality, plurality plus resignation and majority plus resignation standards. Where a director fails to achieve a majority of the votes cast, this standard requires the director to immediately depart (unless the company would have below the legal minimum number of directors, in which case they remain only briefly pending a new appointment). Implementation of majority voting is a measure of the shareholder's ability to influence the composition of the board.

Scope: Equity issuers

Typical Scoring Contribution: Variable, based on voting standard and whether director vote is binding.

Range: 0.1 to 0.3

Average: 0.181

Cumulative Voting Key Metric

Definition

Does the company with a controlling shareholder use a plurality vote standard for director elections, yet does not allow cumulative voting (whether as the default election standard or at the request of shareholders)?

Flagged if yes.

Cumulative voting is a method of election of the board of directors whereby a stockholder may cast as many votes for directors as he or she has shares of stock, multiplied by the number of directors to be elected. The purpose of cumulative voting is to facilitate the representation of minority stockholders on the board. The stockholder may cast all his or her votes for one or more, but not all, of the directors on the ballot, which therefore promotes representation of small shareholders.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Director Removal Without Cause Key Metric

Definition

Do shareholders lack the right to remove individual directors without cause?

Flagged if yes.

If director removal without cause is permitted, a bidder that is hostile to current management may seek to remove existing directors and replace them with the bidder's nominees.

Where there is no evidence of this right, from either national or stock exchange regulation or from the company's documents, the Key Metric will be flagged.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Category: Takeover Provisions

Constituency Provision Key Metric

Definition

Does the company have a constituency provision or is it subject to constituency protection under applicable law?

Flagged if yes.

Constituency provisions allow a board to take into account interests other than those of shareholders in making corporate decisions, including decisions about changes of control. Typical other constituencies would include employees, communities, customers, suppliers and the environment.

The Key Metric will be flagged where there is explicit evidence of this provision from either national or stock exchange regulation or from the company’s constitutional documents.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Business Combination Provision Key Metric

Definition

Does the company have a business combination provision in place or is it subject to business combination protection under applicable law?

Flagged if yes.

A business combination provision requires that a company not engage in a transaction with a shareholder holding a certain percentage (usually dubbed an “interested shareholder”) for a period of time after the shareholder went over the threshold, or that such a transaction be approved by a higher-than-usual percentage of shares. A different variation of a “business combination” may also list a higher-than-usual percentage of shares for approving a merger but not list a time period during which a merger would be prohibited.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Fair Bid Treatment Provisions Key Metric

Definition

Does the company not have a fair price provision (with a mandatory bid requirement which does not exceed 33.3%) in place or is it not subject to fair price protection under applicable law?

Flagged if yes.

These terms generally involve all holders being entitled to receive the same price for their shares, the price being within some range of the average market price over some period of time prior to the offer, the offer remaining open for a minimum amount of time, and similar protections. In the U.S., this is generally presented as an exception to the business combination provision’s prohibition or higher vote requirement that applies when an acquisition offer contains certain terms designed to ensure fairness and eliminate the possibility that shareholders will feel coerced to agree to the offer.

Scope: Equity issuers

Typical Scoring Contribution: 0.1

Ownership Structure Assessment

The ownership structure of a company is evaluated along three axes.

The first dimension of ownership assessment is the level of control asserted by the largest owner. Principal-agent concerns are primarily applicable to widely held companies with highly dispersed ownership. For closely held companies, however, governance risk is primarily a function of the identity and degree of control wielded by a company’s dominant shareholder. The ultimate owner is the focus of our assessments where stock pyramids are present and in our assessment of the ownership structure of private companies.

Exhibit 22: Largest Owner Classification

Classification	Description
Controlling	Largest shareholder or shareholder group holds 30% or more of the voting rights.
Principal	Largest shareholder or shareholder group holds between 10% and 30% of the voting rights.
Widely Held	No shareholder or shareholder group holds more than 10% of the voting rights.

The second dimension of the ownership assessment focuses on the background and motivations of the dominant owner, which might be a company founder or family descendants, state or corporate owner.

Exhibit 33: Key Owner Types

Classification	Description
Founder	The founder/s of the company play an active role in the company – e.g., serves as chair and/or CEO, is a director or senior executive, is a current shareholder (regardless of the size of their shareholding).
Family	Family holds 10% or more of the voting rights and maintains at least one board seat.
State	State directly or indirectly controls 10% or more of the voting rights. ² The state identified in the Country of Classification of the issuer must match the state owning the shares.
Corporate Parent	Issuer is a subsidiary (50% or more of the voting rights) of a corporate, which itself may be listed.

² Where a shareholding is not directly held by the state, the intent behind the holding is reviewed. A holding by a government holding company for strategic investments will generally result in a state ownership classification, whereas holding by a pension plan for government employees that is managed by independent trustees will not.

The third dimension evaluates whether control skew is present, i.e., where the voting power of the largest owner is misaligned with its entitlement to cash flows (see Exhibit 4), which may adjust the governance risk profile.

Exhibit 44: Control Skew

Classification	Description
Stock Pyramid	Control is exercised through a chain of controlled companies – each of which is also typically listed – that ultimately results in a shareholder gaining voting power that is misaligned with its economic interest. Such a structure allows the top-level shareholder to exercise control (holding at least 30% of the total voting rights) through each level of the pyramid, and to maintain control of the issuer despite having a relatively small entitlement to cash flows.
Control Group Includes Cross-Shareholding	The cross-shareholding is held by parties related to a controlling shareholder group to maintain effective voting control, such as a holding by another listed entity with common control. Cross-shareholdings are where two or more entities hold at least 0.5% of shares in each other, or via a circular or more complex cross-shareholding arrangement.
Multiple Equity Classes with Unequal Voting Rights	Multiple equity classes with unequal voting rights typically fall into the following main types: <ul style="list-style-type: none"> • Different votes per share;³ • Different votes per unit of nominal value; and • Different class rights in the election of directors or other special rights.
Single Equity Class with Unequal Voting Rights	Tenured voting shares (sometimes referred to as “loyalty shares”) are a provision that allows shareholders who have held shares throughout a qualifying holding period to acquire additional voting rights at the end of that period. The additional voting rights are available until the qualifying shares are sold. These provisions fall into two main types: <ul style="list-style-type: none"> • Additional voting rights apply within a single equity class; and • The use of separate “loyalty share” class without economic interest.

³ Share classes that account for less than 5% of both the total votes and total capital are excluded from our analysis.

Contact us

msci.com/contact-us

AMERICAS

United States	+ 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.

About MSCI ESG Research Products and Services

MSCI ESG Research products and services are provided by MSCI ESG Research LLC, and are designed to provide in-depth research, ratings and analysis of environmental, social and governance-related business practices to companies worldwide. ESG ratings, data and analysis from MSCI ESG Research LLC are also used in the construction of the MSCI ESG Indexes. MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc.

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

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

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

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

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

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