

MSCI GOVERNANCE- QUALITY INDEXES METHODOLOGY

June 2017

CONTENTS

- 1 Introduction.....3
- 2 Index Construction Methodology.....4
 - 2.1 Applicable Universe4
 - 2.2 Determination of Quality Score4
 - 2.3 Determination of Governance Score.....4
 - 2.3.1 Governance Measures4
 - 2.3.2 Governance Measures included in the Methodology.....4
 - 2.3.3 Securities not Covered by MSCI ESG Governance Metrics.....5
 - 2.3.4 Calculation of the Governance Score5
 - 2.4 Determination of Composite Quality Score6
 - 2.5 Security Selection.....6
 - 2.6 Weighting Scheme6
- 3 Maintaining MSCI Governance-Quality Indexes7
 - 3.1 Semi-Annual Index Reviews.....7
 - 3.2 Buffer Rules.....7
 - 3.3 Ongoing Event Related Changes7
 - 3.3.1 Deletions Between Semi-Annual Index Reviews.....9
- Appendix I: Description of quality score..... 10
- Appendix II: Governance Measures in methodology..... 11
- Appendix III: Rules to Determine Fixed Number of Securities at Initial Construction and in Ongoing Rebalancing..... 12

1 INTRODUCTION

The MSCI Governance-Quality Indexes aim to reflect the performance of a strategy that is seeking to capture both the financial and corporate governance aspects of Quality investing. Institutional investors worldwide are adopting stewardship codes and increasingly look beyond financial data to assess the quality of the companies they invest in. Many investors believe that investing in quality growth companies with good governance practices is key to generating long term sustainable investment returns and improve downside risk protection.

The financial aspects of the Quality factor are captured using the same fundamental data as used in the MSCI Quality Index – return on equity, financial leverage and earnings variability. The standard of corporate governance is measured through measures such as independence and diversity of board of directors, ownership and control structure of the company, accounting practices and auditor opinions. The measure of corporate governance is then used to discount security’s financial quality score.

2 INDEX CONSTRUCTION METHODOLOGY

2.1 APPLICABLE UNIVERSE

The applicable universe includes all the existing constituents of an underlying MSCI index (herein, a “Parent Index”). This approach aims to provide an opportunity set with sufficient liquidity and capacity. The relevant MSCI Parent Index would be any Country or Regional market cap weighted Index.

2.2 DETERMINATION OF QUALITY SCORE

The quality score for each security in the Parent Index is calculated as per the standard methodology of MSCI Quality Indexes. (Please see Appendix I for a brief description of Quality score, for detailed description please refer to MSCI Quality Indexes Methodology on <https://www.msci.com/index-methodology>)

2.3 DETERMINATION OF GOVERNANCE SCORE

A governance score for each security in the Parent Index is calculated by combining 11 governance measures.

2.3.1 GOVERNANCE MEASURES

Governance keymetric scores are published by MSCI ESG Research as part of MSCI ESG Governance Metrics research. MSCI ESG Research generates 96 Key Metrics to facilitate company assessment from a corporate governance perspective. Each keymetric reflects a simple pass/fail evaluation of the company on a particular dimension. Depending on the research evaluation, a company is assigned a score of 0(pass)/1(fail) on each of the 96 Key Metrics. The governance measures used in the construction of this index are based on a single key metric as well as combinations of Key Metrics (as detailed below and in Appendix II).

2.3.2 GOVERNANCE MEASURES INCLUDED IN THE METHODOLOGY

The Governance-Quality index methodology includes 17 of the 96 Key Metrics published by MSCI ESG Research. Six Key Metrics related to equal shareholder voting rights are combined into one measure which we label ‘One Share One Vote’ and two Key Metrics related to the independence of the board chair are combined into one measure called ‘Independent Chair’. For these two measures, if any component Key Metric has a score of one then the combined score governance measure is 1. See Appendix II for a complete list of governance measures, the Key Metrics they depend on and their full description. Measure selection was based on the following criteria:

- *Relevance* – Measures chosen should be those generally considered to be important by investors as part of an assessment of corporate governance.

- *Objective* – Measures chosen should be able to be assessed objectively, be easily understood and be directly related to corporate governance.
- *Differentiating* – Measures should differentiate companies in the global covered universe i.e., a meaningful proportion of companies have scored 1 and 0 in the universe (“qualified auditor opinion” is an exception to this because of its nature).
- *Universal* – Measures which are relevant and applicable to companies globally
- *Coverage* – Measures for which MSCI ESG global data coverage is excellent.

2.3.3 SECURITIES NOT COVERED BY MSCI ESG GOVERNANCE METRICS

When a security in the Parent Index is not covered by ESG Governance Metrics data, then all Key Metric scores of that security are updated with the relevant country mode for each Key Metric score. For example, if a UK company is not covered in the MSCI ESG Governance Metrics data then the company’s Key Metric scores are taken to be mode Key Metric scores of all other UK securities with complete data. If the only company from a country is not covered in the Governance Metrics data then the company’s keymetric scores are taken to be mode keymetric scores of all other securities in the universe with complete data.

2.3.4 CALCULATION OF THE GOVERNANCE SCORE

The governance score is calculated on a scale of 0 to 1, such that the scores increase with increasing standards of corporate governance. The metric ‘Qualified Auditor Opinion’ is used as a discount factor for the overall governance score: if there is a 1 assigned as the score for “Qualified Auditor Opinion” then the governance score of the company is halved. For each security in the Parent Index, a governance score is calculated as below.

Governance Score = [1 – Average (10 governance measures included in methodology)] * (1-0.5* Qualified Auditor Opinion score]

For example, if a company failed the evaluation on six metrics

- Average of 10 Key Metrics = $(6*1)/10 = 0.6$
- Subtract from 1 to create discount factor = $1-0.6 = 0.4$
- Suppose “Qualified Auditor Opinion” score = 0
 - Governance score = $[1-0.6]*(1-0.5*0) = 0.4$
- However, if the “Qualified Auditor Opinion” score = 1
 - Governance score = $[1-0.6]*(1-0.5*1) = 0.2$

2.4 DETERMINATION OF COMPOSITE QUALITY SCORE

The “Composite Quality” score combines quality score and governance score and penalizes the quality score with a discount factor if the company does not pass the test on all 11 governance measures. The “Composite Quality” score is calculated as below

$$\text{Composite Quality Score} = \text{Quality Score} * \text{Governance Score}$$

As the governance score ranges between 0 and 1, the governance score acts as a discount to security’s quality score. For example, if a company fails the test on only one governance metric, its financial quality score is discounted by a factor of 0.9.

2.5 SECURITY SELECTION

The MSCI Governance-Quality Index is constructed using a fixed number of securities approach. All the existing constituents of the relevant MSCI Parent Index are ranked based on their Composite Quality Scores. If multiple securities have the same Composite Quality Score, then the security with the higher weight in the Parent Index is given a higher rank. A fixed number of securities with the highest Composite Quality Scores are predetermined for every MSCI Governance-Quality Index at initial construction with an aim to attain a high exposure to the Composite Quality factor while maintaining sufficient index market capitalization and number of securities coverage. Rules for arriving at a fixed number of constituents at initial construction are explained in Appendix III. The fixed number for security selection determined at initial construction is evaluated at every Semi-Annual Index Review (SAIR) to ensure that the Governance-Quality universe has sufficient index market capitalization coverage. Rules for evaluating the fixed number of constituents at every SAIR are explained in Appendix III.

2.6 WEIGHTING SCHEME

At each rebalancing, all the securities eligible for inclusion in the MSCI Governance-Quality Indexes are weighted by the product of their market capitalization weight in the Parent Index and the Composite Quality Score.

$$\text{Governance-Quality Weight} = \text{Composite Quality Score} * \text{Market Capitalization Weight in the Parent Index}$$

The above weights are then normalized to 100%.

Additionally, constituent weights are capped at issuer level to mitigate concentration risk:

1. Issuers in the MSCI Governance-Quality Indexes based on broad Parent Indexes (e.g. MSCI World Index) will be capped at 5%
2. Issuers in the MSCI Governance-Quality Indexes based on narrow Parent Indexes will be capped at the maximum weight in the Parent Index.

Narrow Parent Indexes are defined as those indexes for which the maximum market capitalization weight in the Parent Index is more than 10%.

3 MAINTAINING MSCI GOVERNANCE-QUALITY INDEXES

3.1 SEMI-ANNUAL INDEX REVIEWS

The MSCI Governance-Quality Indexes are rebalanced on a semi-annual basis, usually as of the close of the last business day of May and November, coinciding with the May and November Semi-Annual Index Review of the MSCI Global Investable Market Indexes. The quality scores as of the end of April and October are respectively used for the May and November Semi-Annual Index Review of MSCI Governance-Quality Indexes. In general, MSCI uses MSCI ESG Research data (including MSCI ESG Ratings, MSCI ESG Controversies Scores and MSCI Business Involvement Screening Research) as of the end of the month preceding the Index Reviews for the rebalancing of Governance-Quality Indexes. For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the Index Review. For such securities, MSCI will use ESG data published after the end of month, when available, for the rebalancing of MSCI Governance-Quality Indexes. This approach aims to capture timely updates to Governance-Quality characteristics of the companies and coincides with the rebalancing of the relevant MSCI Parent Indexes. The performance MSCI Governance-Quality Indexes are in general announced nine business days before the effective date.

At each rebalancing, a constraint factor is calculated for each constituent in the MSCI Governance-Quality Index. The constraint factor is defined as the weight in the MSCI Governance-Quality Index at the time of the rebalancing divided by the weight in the Parent Index.

3.2 BUFFER RULES

To reduce Index turnover and enhance Index stability, buffer rules are applied at 20% of the fixed number of securities in the MSCI Governance-Quality Index.

For example, the MSCI World Governance-Quality Index targets 300 securities and the buffers are applied between rank 241 and 360. The securities in the MSCI Parent Index with a Composite Quality score rank at or above 240 will be added to the MSCI World Governance-Quality Index on a priority basis. The existing constituents that have a Composite Quality score rank between 241 and 360 are then successively added until the number of securities in the MSCI World Governance-Quality Index reaches 300. If the number of securities is below 300 after this step, the remaining securities in the Parent Index with the highest Composite Quality Score rank are added until the number of securities in the MSCI World Governance-Quality Index reaches 300.

3.3 ONGOING EVENT RELATED CHANGES

The general treatment of corporate events in the MSCI World Governance-Quality Indexes aims to minimize turnover outside of Index Reviews. The methodology aims to appropriately represent an investor's participation in an event based on relevant deal terms and pre-event

weighting of the index constituents that are involved. Further, changes in index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

Additionally, if the frequency of Index Reviews in the Parent Index is greater than the frequency of Index Reviews in the MSCI World Governance-Quality Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the MSCI World Governance-Quality Index.

The following section briefly describes the treatment of common corporate events within the MSCI World Governance-Quality Indexes.

No new securities will be added (except where noted below) to the Index between Index Reviews. 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	<p>For Mergers and Acquisitions, the acquirer’s post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index.</p> <p>If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.</p>
Changes in Security Characteristics	A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued

inclusion in the Index will occur at the subsequent Index Review.

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

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

3.3.1 DELETIONS BETWEEN SEMI-ANNUAL INDEX REVIEWS

In exceptional circumstances, a security may be deleted from an MSCI Composite Quality Index if there is a very substantial deterioration of their governance assessment and ratings according to MSCI ESG Research.

APPENDIX I: DESCRIPTION OF QUALITY SCORE

The quality score for each security is calculated by combining the z-scores of three fundamental descriptors, Return on Equity, Debt to Equity and Earnings Variability. A given variable z-score for a security is calculated using the mean and standard deviation of the corresponding variable computed within the MSCI Parent Index. After calculating component variable z-scores, a composite z-score for each security is computed by taking an equal-weighted average of the component z-scores. The Quality Score is then computed from the composite Z score as follows:

$$\text{Quality Score} = \begin{cases} 1 + Z & , Z > 0 \\ (1 - Z)^{-1} & , Z < 0 \end{cases}$$

Where Z is the composite Z score described earlier.

APPENDIX II: GOVERNANCE MEASURES IN METHODOLOGY

#	Metric Name	Governance Metrics Pillar	Default Score* (Fail=1/Pass =0)	Description
1	Qualified Auditor Opinion	Accounting	0	Has the company's independent auditor expresses a qualified opinion, or questioned the company's ability to remain a going concern?
2	Audit Committee Independence	Board	1	Does the company have an audit committee comprising only members who meet the criteria of independence?
3	Board Attendance Failure	Board	0	Did all members attend at least 75% of all board and committee meetings?
4	Comp Committee Independence	Board	1	Are all comp committee members' non-exec directors who meet the MSCI ESG Governance Metric criteria for independence?
5	Gender Diversity	Board	1	Does the board have at least one female director?
6	Independent Board Majority	Board	1	Do a majority of the directors meet the designated criteria for independence?
7	Independent Chair**	Board	0	Does the board have an independent chair?
8	Annual Director Elections	Ownership and Control	0	Do all directors stand for annual re-election?
9	Cross Shareholding	Ownership and Control	0	Is the company involved in a series of cross-shareholdings with other (related or unrelated) companies
10	One Share One Vote (OSOV)***	Ownership and Control	0	Do all shares have equal voting rights?
11	Poison Pill	Ownership and Control	0	Has the company adopted a shareholder rights plan ("poison pill")

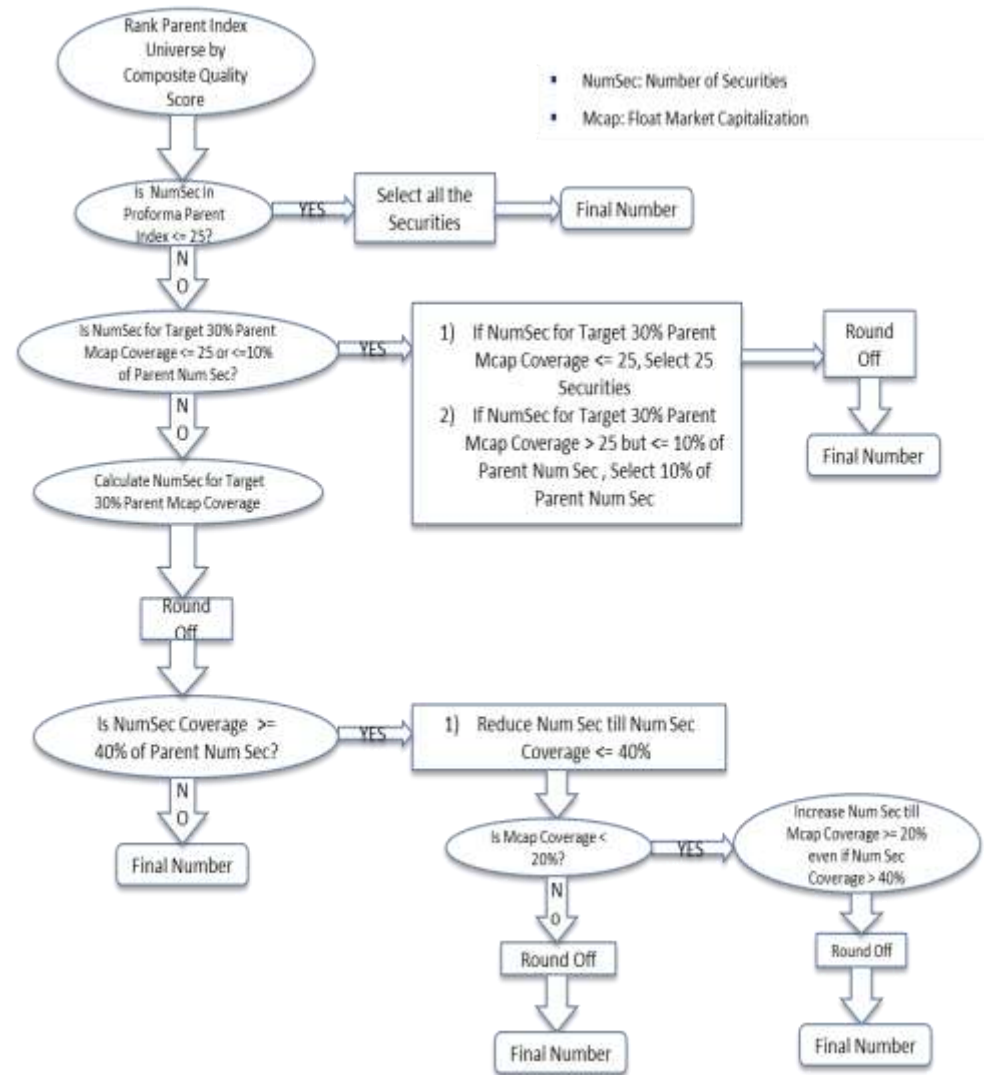
* The score implicitly assigned to a company by MSCI Governance Metrics methodology applied to Key Metrics in absence of sufficient data to conclude otherwise.

** Independent Chair: – combines 1) “Combined CEO/Chair” and 2) “Independent chair”

*** OSOV (One Share One Vote)– combines (1) Multiple equity classes with differential voting rights, (2) Golden shares, (3) Voting rights limits shares held, (4) Voting rights limits residency, (5) Voting rights limits duration, (6) Voting rights limits min holding period.

APPENDIX III: RULES TO DETERMINE FIXED NUMBER OF SECURITIES AT INITIAL CONSTRUCTION AND IN ONGOING REBALANCING

Algorithm to Determine Fixed Number of Securities at Initial Construction



Rounding Off Rules:

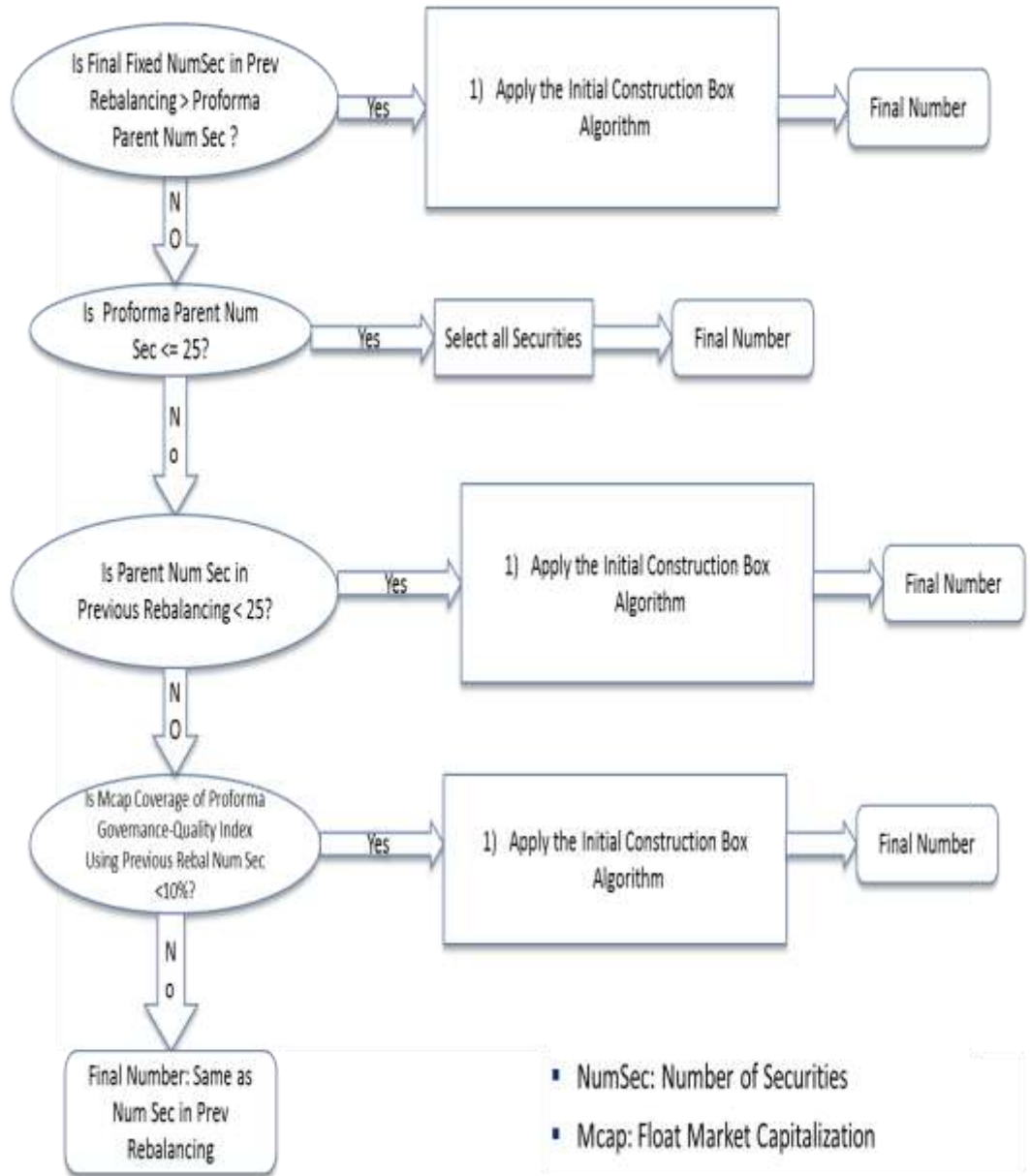
Upward rounding off is done depending on NumSec Obtained in the Previous Box Step

If NumSec in Previous Step < 100 , Nearest Rounding = 10 Securities

If NumSec in Previous Step ≥ 100 but < 300 , Nearest Rounding = 25 Securities

If NumSec in Previous Step ≥ 300 , Nearest Rounding = 50 Securities

Algorithm to reevaluate Fixed Number of Securities at Semi Annual Rebalancing



The following sections have been modified since June 2015:

Section 3: Maintaining MSCI Governance-Quality Indexes

- Clarification on the use of ESG data for securities whose data were published later than at the end of the month preceding Index Review.

The following sections have been modified since May 2017:

- Appendix IV in the previous version of the methodology book describing the Corporate Events treatment has been deleted. The details on the Corporate Events treatment are now included in Section 3.3.

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
Sao Paulo	+ 55 11 3706 1360
Toronto	+ 1 416 628 1007

EUROPE, MIDDLE EAST & AFRICA

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

ASIA PACIFIC

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

* = toll free

ABOUT MSCI

For more than 40 years, MSCI's research-based indexes and analytics have helped the world's leading investors build and manage better portfolios. Clients rely on our offerings for deeper insights into the drivers of performance and risk in their portfolios, broad asset class coverage and innovative research.

Our line of products and services includes indexes, analytical models, data, real estate benchmarks and ESG research.

MSCI serves 98 of the top 100 largest money managers, according to the most recent P&I ranking.

For more information, visit us at www.msci.com.

NOTICE AND DISCLAIMER

- This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the “Information”) is the property of MSCI Inc. or its subsidiaries (collectively, “MSCI”), or MSCI’s licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the “Information Providers”) and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or disseminated in whole or in part without prior written permission from MSCI.
- The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.
- The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.
- Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.
- Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.
- The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.
- None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.
- It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, “Index Linked Investments”). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.
- Index returns do not represent the results of actual trading of investable assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.
- The Information may contain back tested data. Back-tested performance is not actual performance, but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.
- Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.
- Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on www.msci.com.
- MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.’s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.’s company filings on the Investor Relations section of www.msci.com.
- MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI’s products or services are not intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.
- Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD, FEA, InvestorForce, 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.