

It only takes one index to capture the world

MSCI ACWI

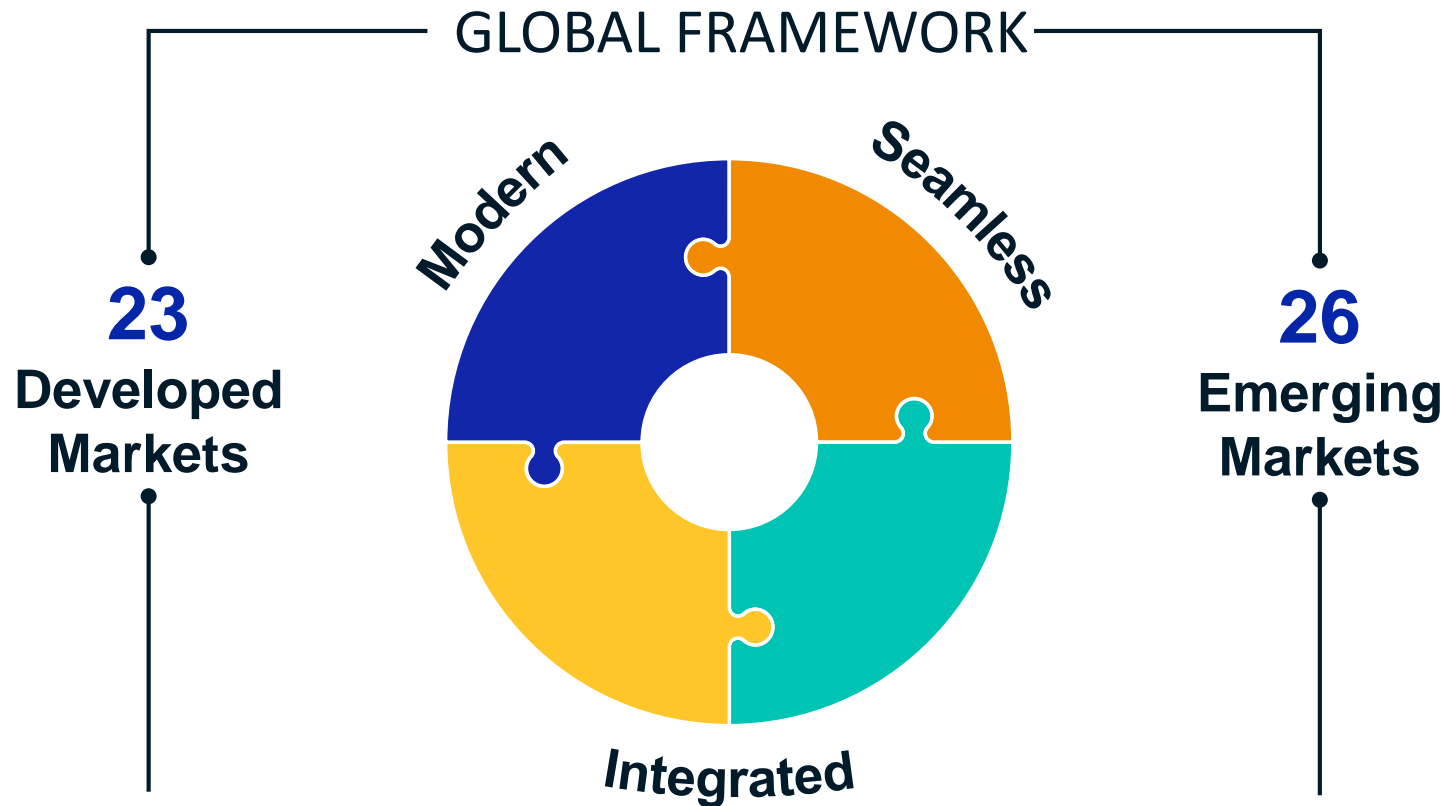
Abhishek Gupta, CFA

Executive Director, Index Research, MSCI

February 19, 2020

► The modern index strategy: a global framework

The **MSCI ACWI** Index offers a single, modern and fully integrated view with no gaps or overlaps, across all sources of equity returns and risks.



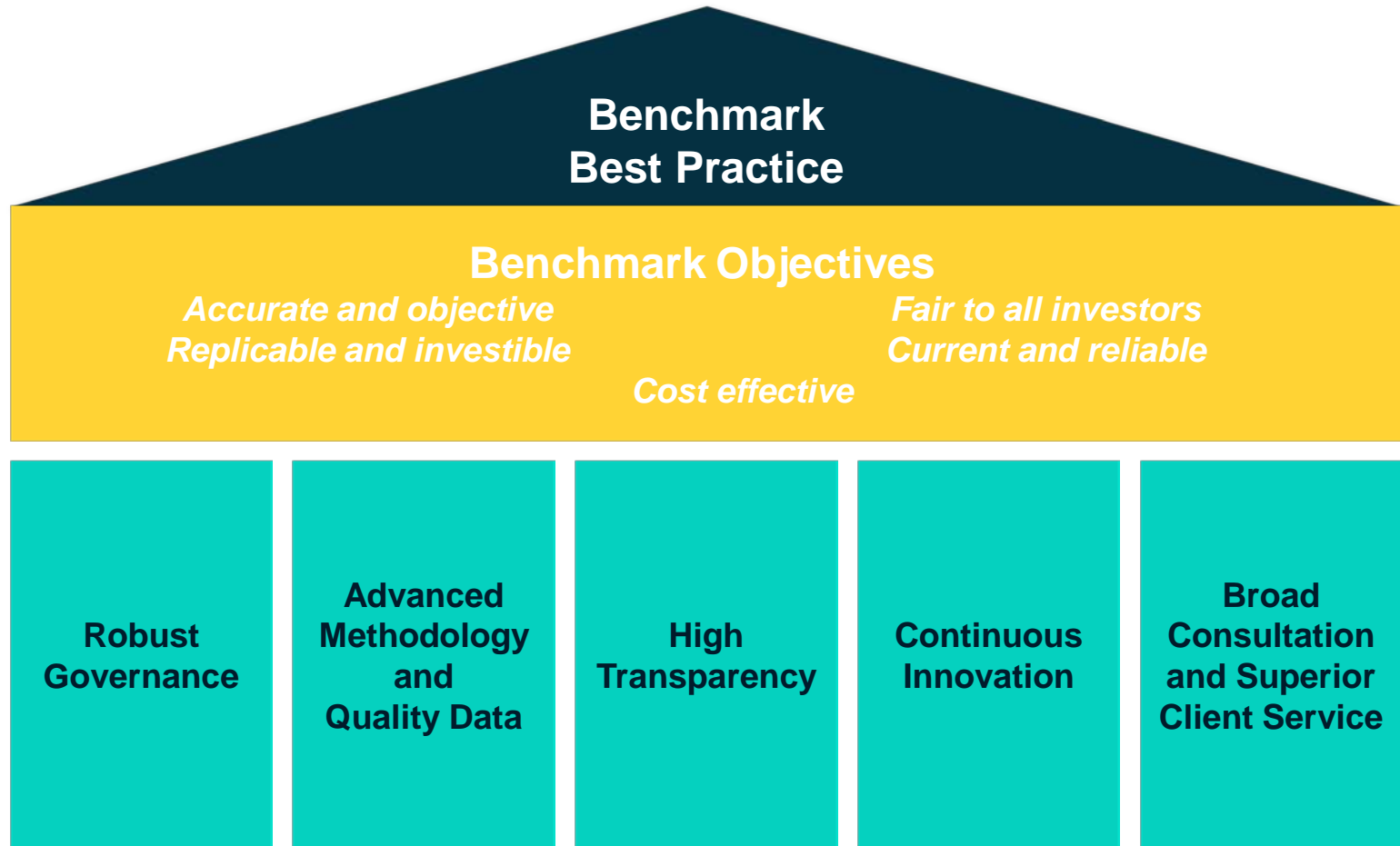
IT ONLY TAKES ONE INDEX TO CAPTURE THE WORLD

Asset Owners using MSCI ACWI Indexes as policy benchmarks

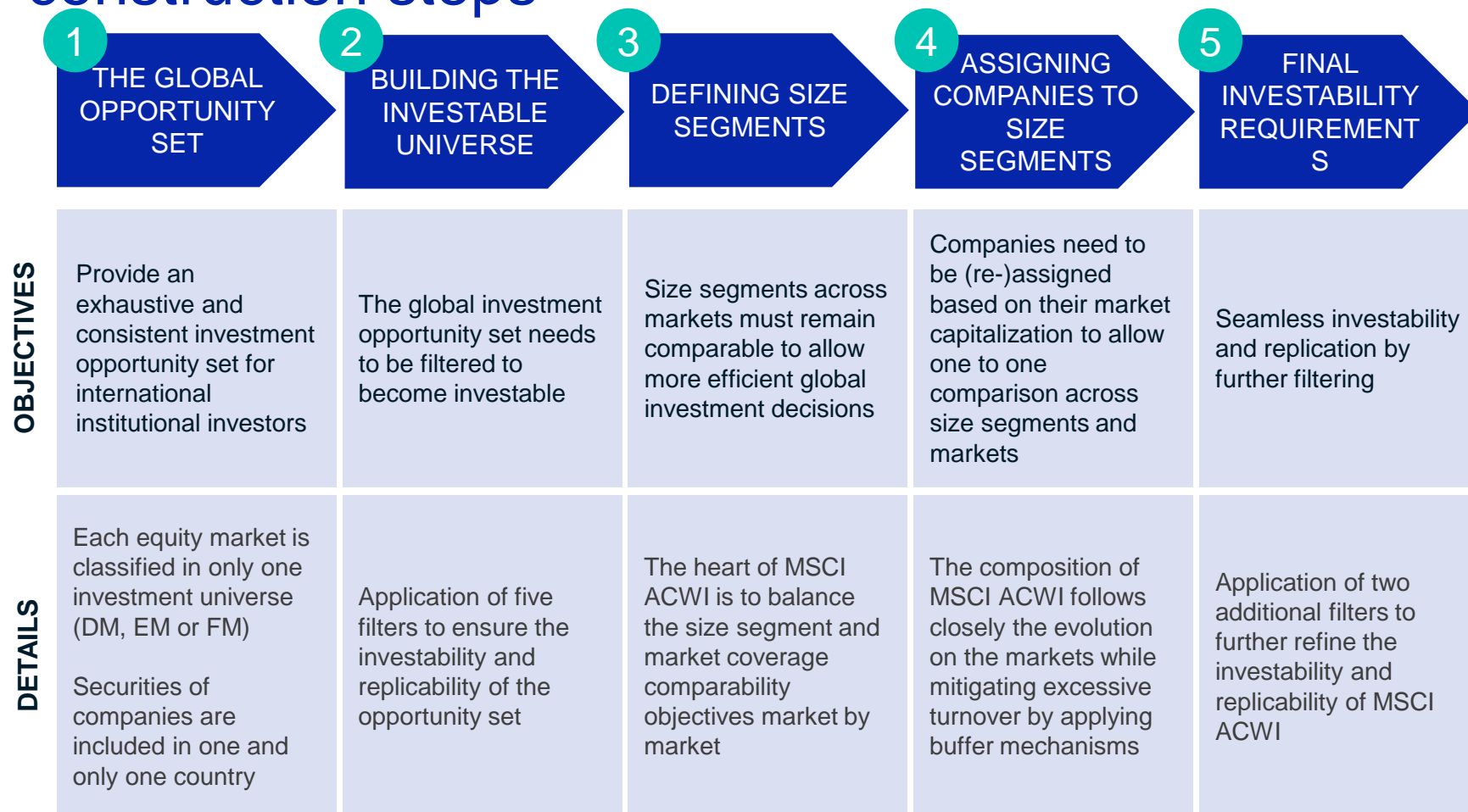
Asset Owner	Equity Policy Benchmark	Client Type	Asset Owner	Equity Policy Benchmark	Client Type
Florida State Board of Administration	ACWI IMI	Public	CSAA Insurance Exchange	ACWI	Corporate
Teachers Retirement System of Texas	ACWI	Public	City of San Jose Retirement Services Department	ACWI IMI	Public
Washington State Investment Board	ACWI IMI	Public	University of Missouri System	ACWI IMI	Endowment
Boeing	ACWI IMI	Corporate	Fire and Police Pension Association of Colorado	ACWI IMI	Public
Ohio Public Employees Retirement System	ACWI IMI	Public	Seattle City Employees' Retirement System	ACWI IMI	Public
Virginia Retirement System	ACWI IMI	Public	University of Wisconsin Foundation	ACWI	Foundation
Oregon Public Employees Retirement Fund	ACWI IMI	Public	Ewing Marion Kauffman Foundation	ACWI	Foundation
Pennsylvania Public School Employees Retirement System	ACWI IMI	Public	City of Austin Employees' Retirement System	ACWI IMI	Public
University of California Board of Regents	ACWI IMI	Endowment	Howard Hughes Medical Institute	ACWI	Foundation
Texas Treasury Safekeeping Trust Company	ACWI IMI	Public	Hawaii Employees' Retirement System	ACWI IMI	Public
Lockheed Martin Corporation	ACWI IMI	Corporate	Central Pension Fund of The International Union of Operating Engineers	ACWI IMI	Union
Colorado Public Employees Retirement System	ACWI IMI	Public	Missouri State Employees Retirement System	ACWI	Public
United Nations Joint Pension	ACWI	Public	University of Southern California	ACWI	Endowment
General Motors Investment Corporation	ACWI IMI	Corporate	New Mexico PERA	ACWI IMI	Public
Alaska Permanent Fund Corporation	ACWI IMI	Public	Arizona State Retirement System	ACWI IMI	Public
South Carolina Retirement System	ACWI IMI	Public	Wyoming Retirement System	ACWI	Public
Northrop Grumman Corporation	ACWI	Corporate	Emory University	ACWI IMI	Endowment
Exxon Mobil	ACWI IMI	Corporate	Emerson Electric Co	ACWI	Corporate
Indiana Public Retirement System	ACWI IMI	Public	AARP	ACWI IMI	Tax Exempt
Mississippi Public Employees' Retirement System	ACWI IMI	Public	Consolidated Edison Co	ACWI IMI	Corporate
Employees Retirement System of Texas	ACWI IMI	Public	Orange County ERS	ACWI IMI	Public
Boston College	ACWI	Endowment	Kern County Employee Retirement Association	ACWI IMI	Public

Index construction overview

Building effective benchmarks



MSCI Global Investable Market Indexes— high level construction steps



▶ The global opportunity set

MSCI ACWI IMI Index offers a building block approach with a rules-based, consistent and transparent methodology

MSCI ACWI & FRONTIER MARKETS INDEX									
MSCI ACWI INDEX					MSCI EMERGING & FRONTIER MARKETS INDEX				
MSCI WORLD INDEX			MSCI EMERGING MARKETS INDEX			MSCI FRONTIER MARKETS INDEX			
DEVELOPED MARKET'S			EMERGING MARKET'S			FRONTIER MARKET'S			
Americas	Europe & Middle East	Pacific	Americas	Europe, Middle East & Africa	Asia	Europe & CIS	Africa	Middle East	Asia
Canada	Austria	Australia	Argentina	Czech Republic	China	Croatia	Kenya	Bahrain	Bangladesh
United States	Belgium	Hong Kong	Brazil	Egypt	India	Estonia	Mauritius	Jordan	Sri Lanka
	Denmark	Japan	Chile	Greece	Indonesia	Lithuania	Morocco	Kuwait	Vietnam
	Finland	New Zealand	Colombia	Hungary	Korea	Kazakhstan	Nigeria	Lebanon	
	France	Singapore	Mexico	Poland	Malaysia	Romania	Tunisia	Oman	
	Germany		Peru	Qatar	Pakistan	Serbia	WAEMU ²		
	Ireland			Russia	Philippines	Slovenia			
	Israel			Saudi Arabia	Taiwan				
	Italy			South Africa	Thailand				
	Netherlands			Turkey					
	Norway			United Arab Emirates					
	Portugal								
	Spain								
	Sweden								
	Switzerland								
	United Kingdom								
MSCI STANDALONE MARKET INDEXES ¹									
						Americas	Europe & CIS	Africa	Middle East
						Jamaica	Bosnia Herzegovina	Botswana	Palestine
						Panama	Bulgaria	Zimbabwe	
						Trinidad & Tobago	Malta		
							Iceland		
							Ukraine		

This robust foundation allows institutional investors to measure exposure to all sources of equity returns using a **single global framework**

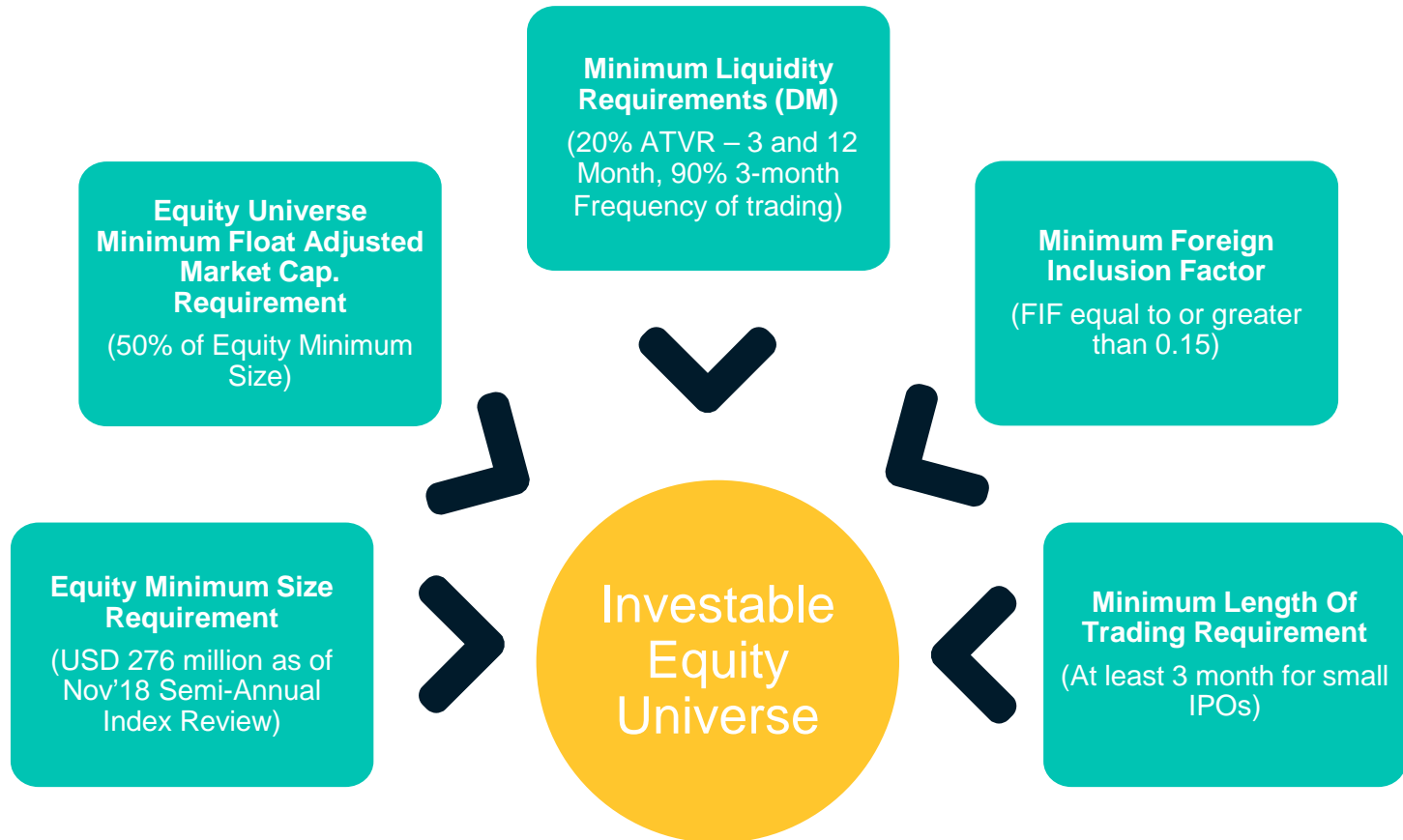
¹ The MSCI Standalone Market Indexes are not included in the MSCI Emerging Markets Index or MSCI Frontier Markets Index. However, these indexes use either the Emerging Markets or the Frontier Markets methodological criteria concerning size and liquidity.

² The West African Economic and Monetary Union (WAEMU) consists of the following countries: Benin, Burkina Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal and Togo. Currently the MSCI WAEMU Indexes include securities classified in Senegal, Ivory Coast and Burkina Faso.

³ MSCI Panama Index has been launched as a Standalone Market Index.

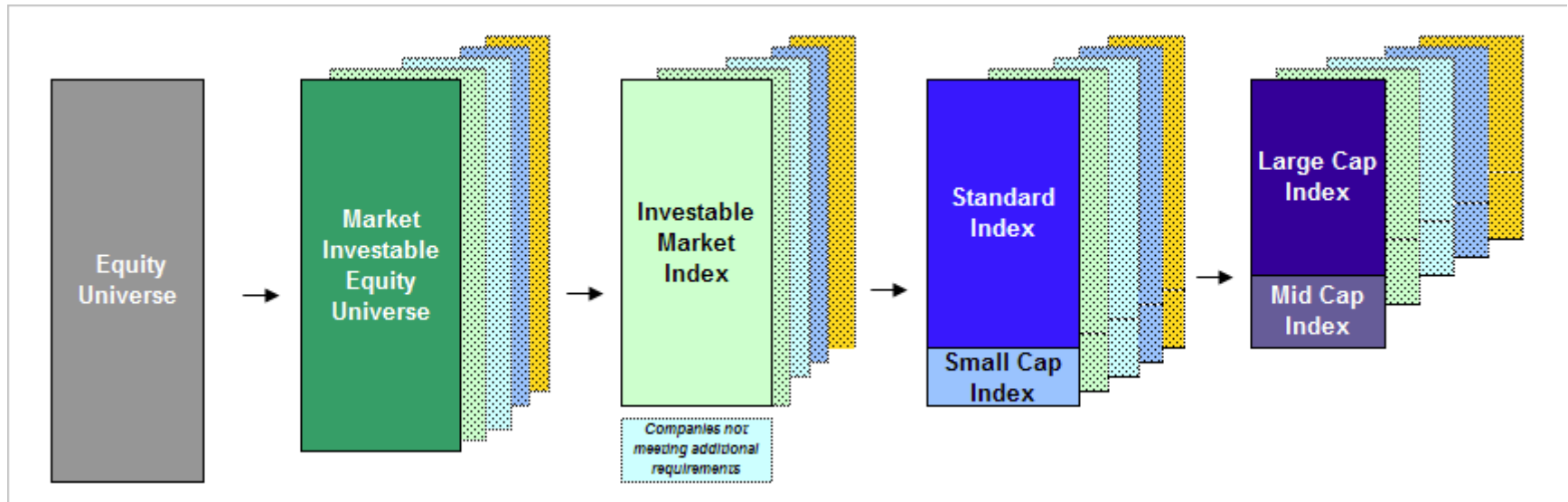
Building the Investable Universe

Multiple investability screens ensure that the index represents the investable opportunity set for international institutional investors



From listed equities to an equity index

Defining Market Capitalization Size-Segments for Each Market

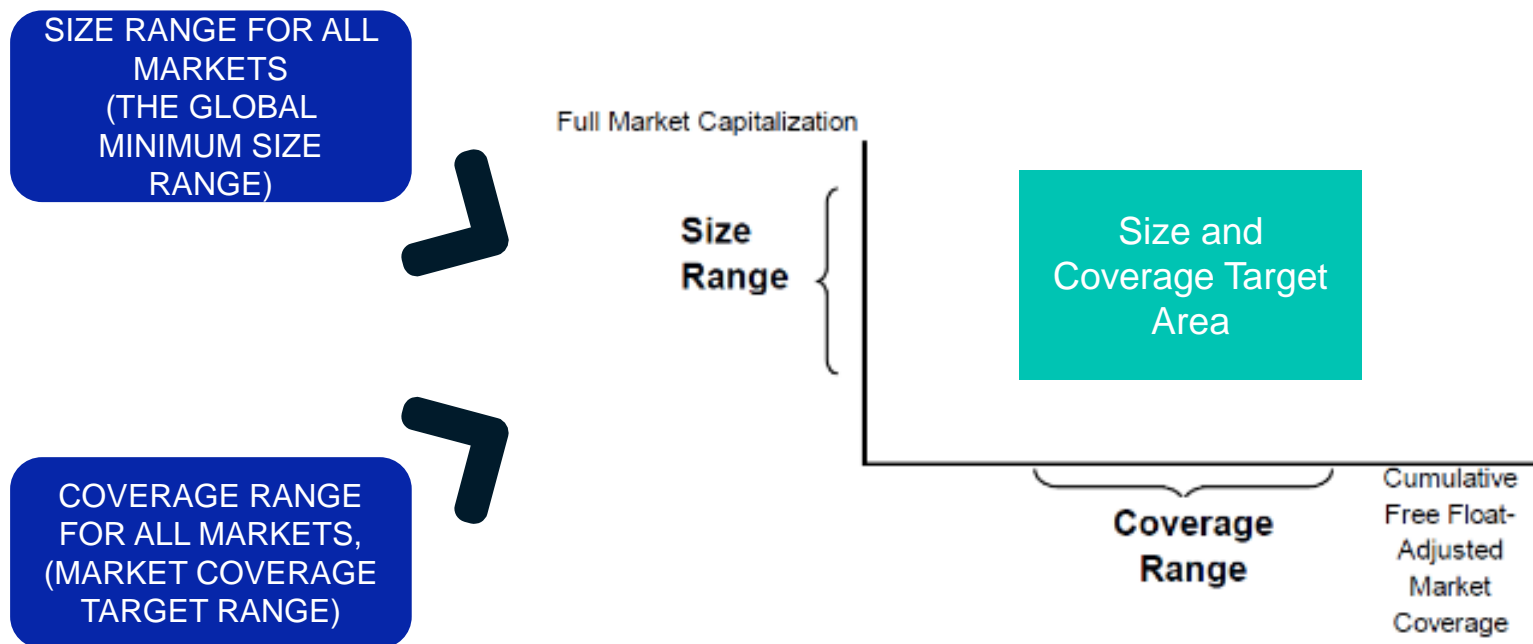


Defining the Coverage Target Range for each Size-Segment

- Large Cap: 70% \pm 5%
- Standard Index: 85% \pm 5%
- Investable Market Index: 99% +1% or -0.5%

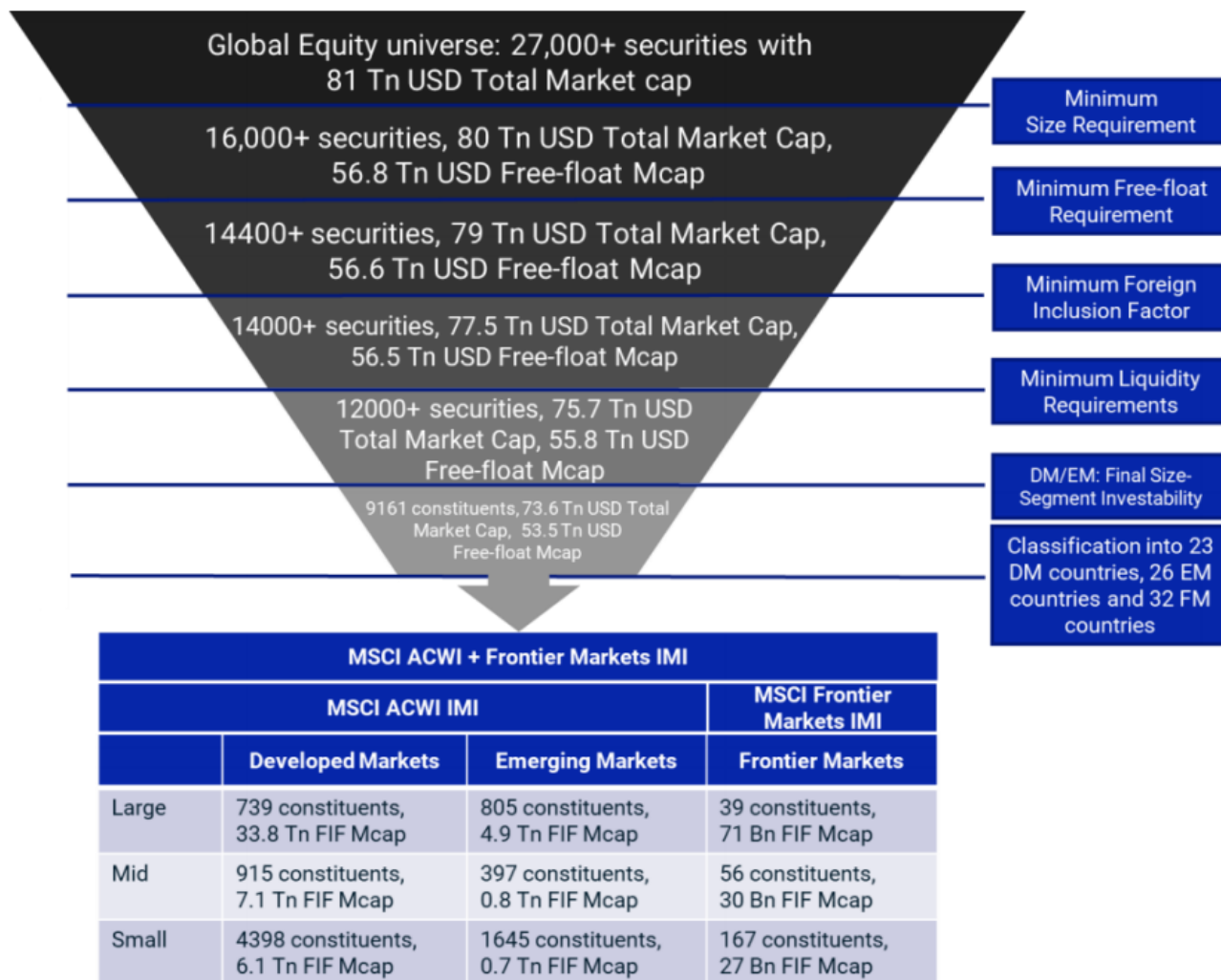
Defining Size Segments - Key Point of the Methodology

This Size and Coverage Target Area is used to determine the number of companies and the associated size **cut-off that will define a size segment** within each market



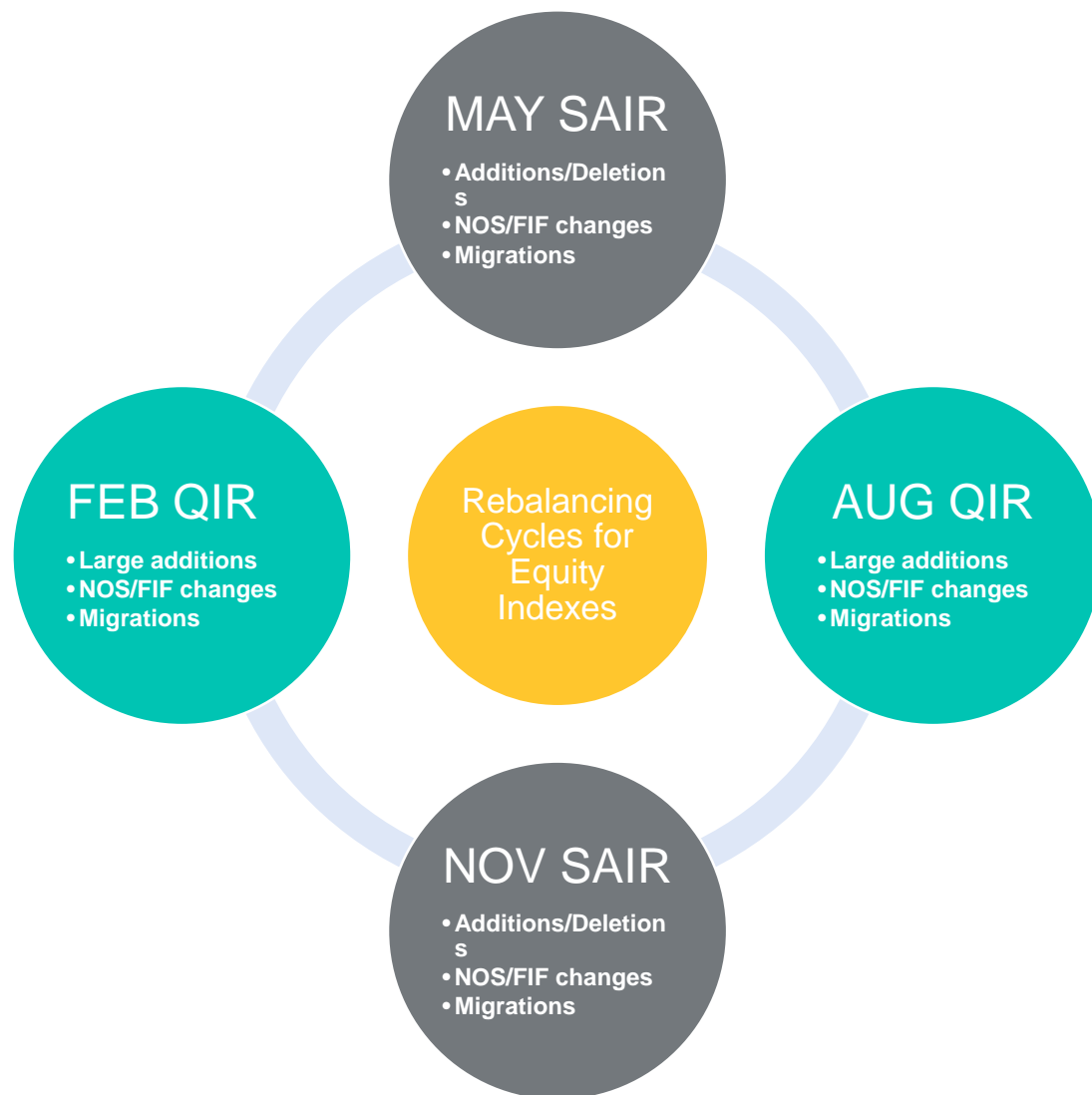
In the markets where both size and coverage objectives (as defined above) cannot be met, **the size objective is assigned higher priority**, i.e. the size objective can be reached at the expense of breaching the coverage objective

From listed equities to an equity index



Source: MSCI. As of 17 April 2019 (the price cutoff date of the semi-annual index review as defined in the MSCI Global Investable Market Indexes Methodology).

Index maintenance cycle



SEMI-ANNUAL INDEX REVIEWS (SAIR)

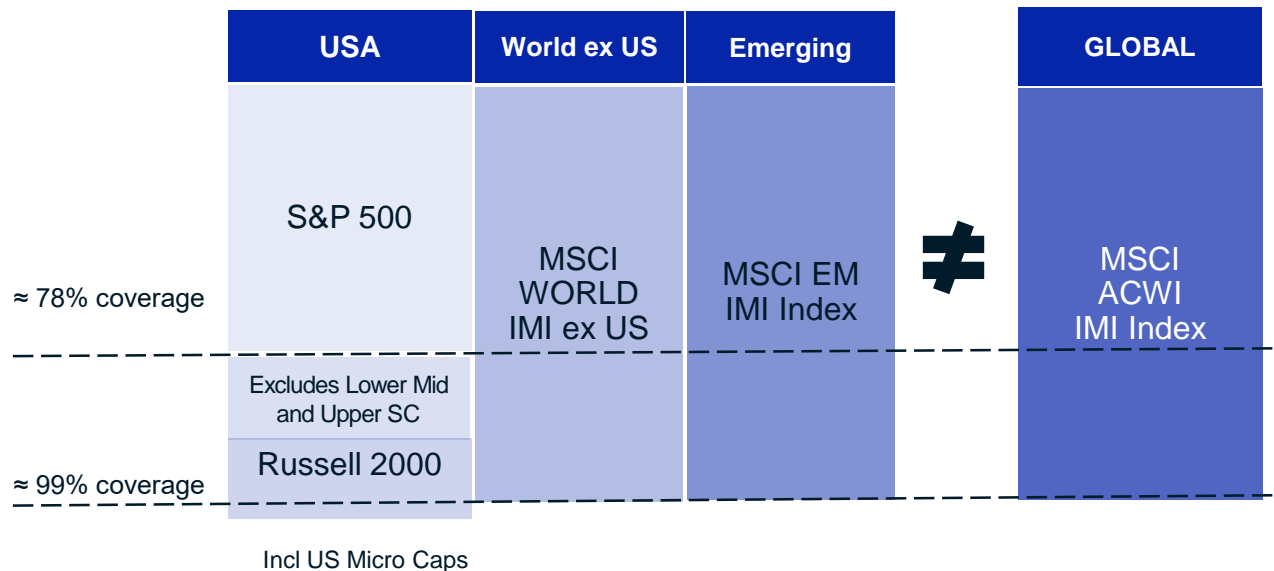
- Fully reassess equity investable universe and size-segmentation
- Update Foreign Inclusion Factors (FIFs) and Number of Shares (NOS) for the whole equity universe

QUARTERLY INDEX REVIEWS (QIR)

- Reflect only large newly eligible securities, such as IPOs
- Reassess size only for securities with very large changes
- Reflect the impact of significant market events on FIFs and update NOS

▀ The issue of benchmark misfit

Cobbling Together Benchmarks Can Create Significant Deviations Due to Gaps and Overlaps ...



...and May Not Be Cost Effective¹

- Generates tracking error
- Can consume a large amount of the risk budget

- **MSCI** is the only index provider with a consistent methodology across all regions, including the US
 - **MSCI USA** avoids benchmark misfit and unrewarded risks
 - **MSCI USA** leverages and benefits from global best practices of MSCI ACWI methodology
- **Rules Based / Transparent** • **Investable** • **Timely** • **Cost effective**

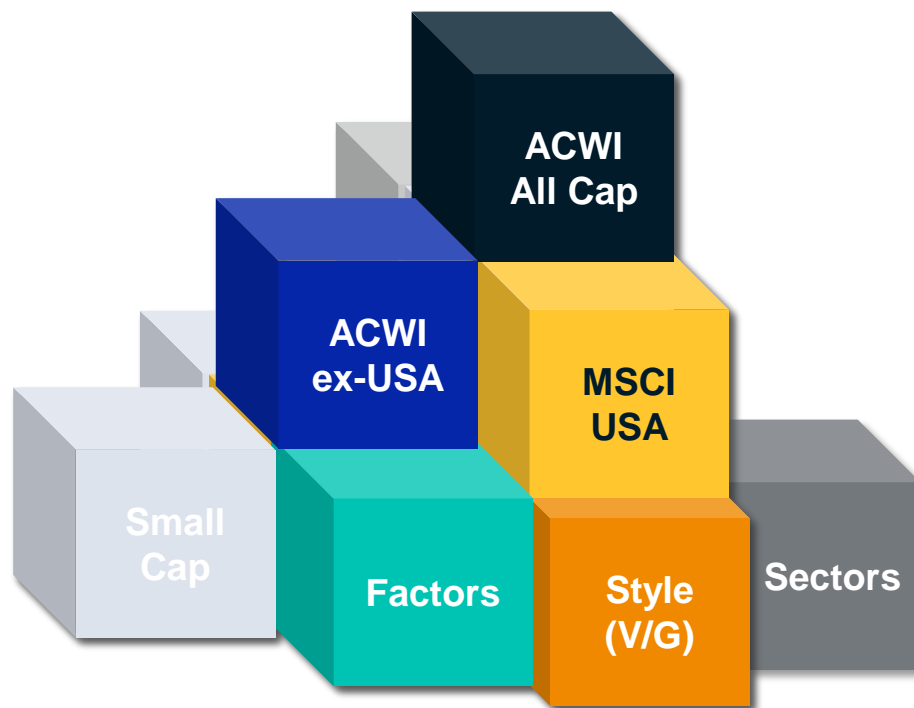
Aligning US and global benchmarks

MSCI USA is part of the global ecosystem utilizing the MSCI ACWI Index framework

MSCI ACWI All Cap Index offers a building block approach with a rules-based, consistent and transparent methodology

This robust foundation allows investors to measure exposure to all sources of equity returns using a **single global framework**

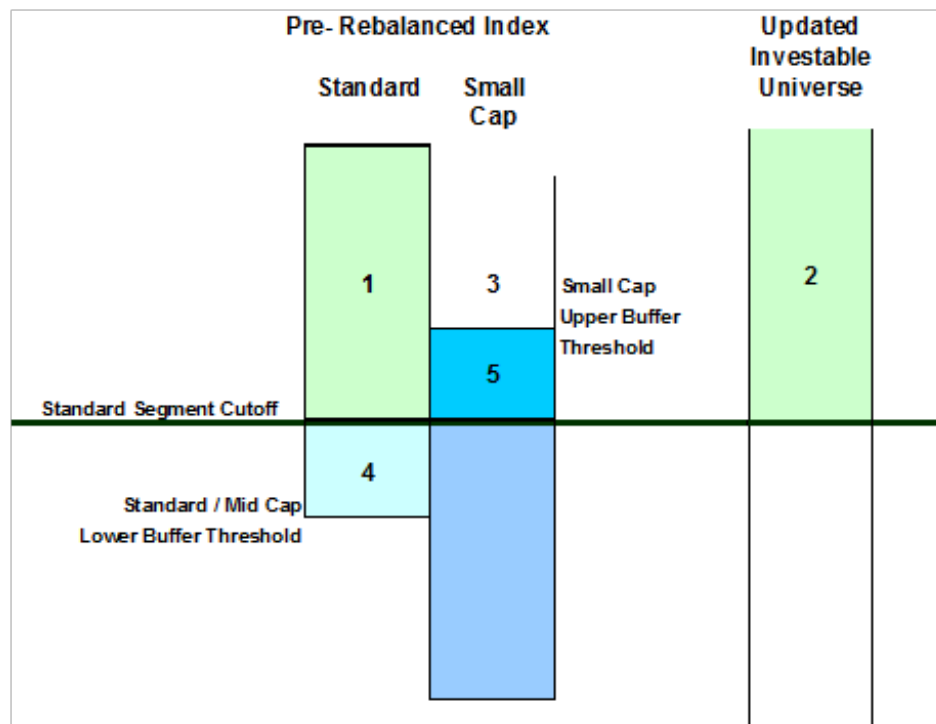
MSCI USA Comprises Almost 55% of ACWI and is part of a single, modern seamless global benchmark solution



Appendix

Assigning companies to size segments

- Companies with full market capitalization greater than or equal to that of the full market capitalization of the company that defines the Market Size-Segment Cutoff are assigned to that size-segment
- Turnover is managed by the use of **buffer zones** to control the migration of companies between size-segments while reflecting the investment process and allowing for **timely representation** of market developments



Final investability requirements

The application of **more stringent additional investability requirements** ensures further the replicability of MSCI ACWI

MINIMUM FREE FLOAT-ADJUSTED MARKET CAPITALIZATION REQUIREMENT

For IMI/Standard Size-Segments, the Free Float-Adjusted market Capitalization must be above 50% of the Market Size-Segment cutoff for the IMI/Standard Size-Segments

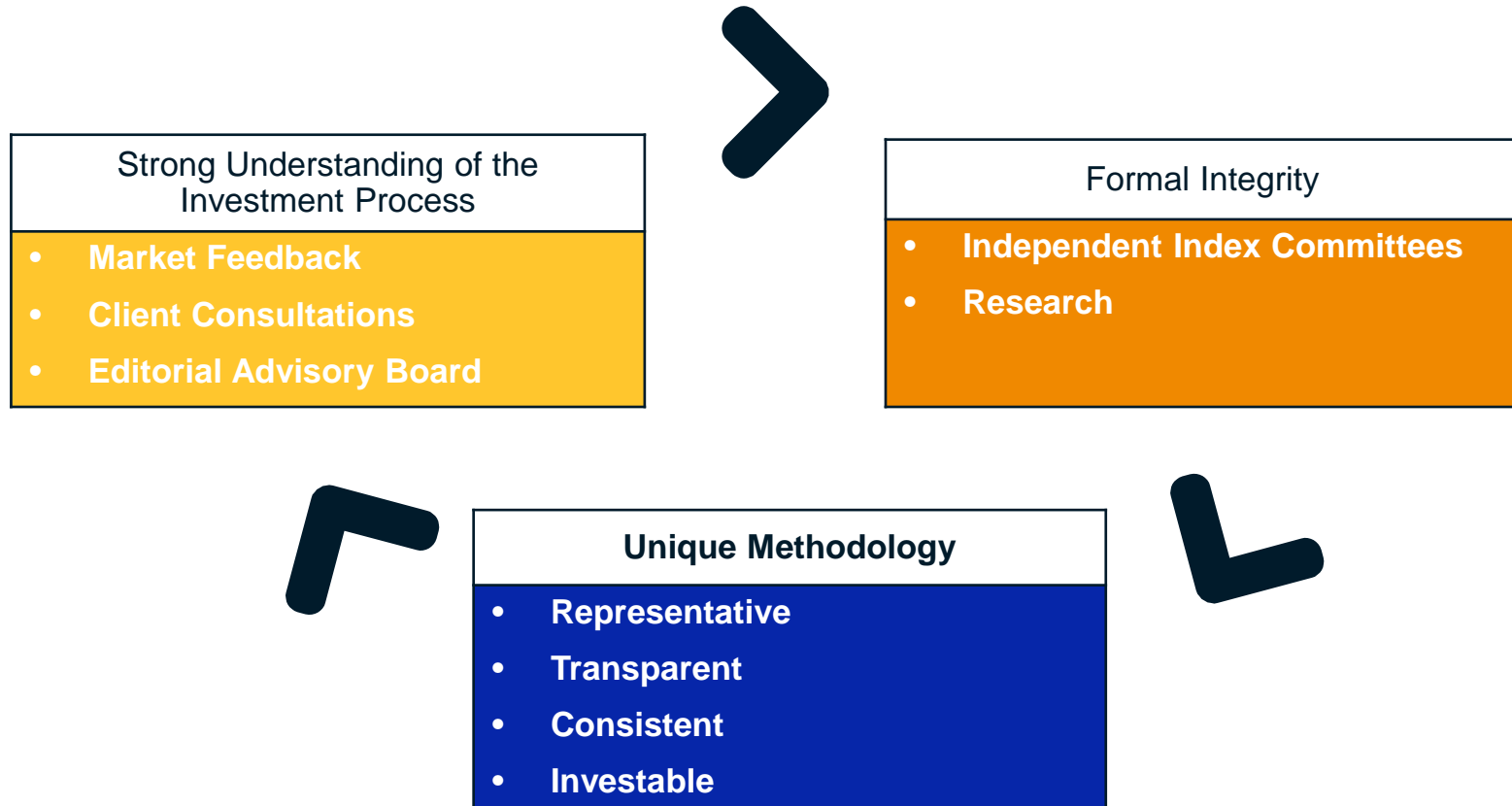
Securities missing these requirements are not included in any Size-Segments of the MSCI GIMI

MINIMUM FOREIGN ROOM REQUIREMENT

For a security that is subject to a Foreign Ownership Limit (FOL) to be included in the Investable Market Index at its entire free-float adjusted market capitalization, the proportion of shares still available to foreign investors relative to the maximum allowed (referred to as “foreign room”) must be at least 25%

MSCI index process

MSCI regularly assesses market developments and trends to assure the quality and usability of its indexes



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 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 investible 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 Inc. 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 Inc. 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.