

MSCI Diversified Multiple-Factor EU PAB Indexes Methodology

July 2023

Contents	1	Introduction	3
	2	Index Construction Methodology	4
	2.1	Applicable Universe	4
	2.2	Eligible Universe.....	4
	2.3	Defining the Exclusion Criteria	4
	2.3.1	Controversy Based Exclusion Criteria	4
	2.3.2	Business Exclusion Criteria	4
	2.4	Constituent Identification.....	5
	2.5	Weighting Scheme.....	5
	2.5.1	Calculation Of the Alpha Score.....	5
	2.6	Optimization Constraints	6
	2.7	Determining the Optimized Index	7
	3	Maintaining the Indexes	8
	3.1	Quarterly Index Reviews	8
	3.2	Ongoing Event Related changes	8
	4	MSCI ESG Research.....	10
	4.1	MSCI ESG Controversies	10
	4.2	MSCI ESG Business Involvement Screening Research	10
	4.3	MSCI Climate Change Metrics	10
		Appendix I: Business Exclusion Criteria.....	12
		Appendix II: Target Factor Definition Summary	14
		Appendix III: Calculation of Target Metrics	15
		Appendix IV: New release of Barra® Equity Model or Barra® Optimizer	18
		Appendix V: Handling Infeasible Optimizations.....	19
		Appendix VI: Changes to this Document	20

1 Introduction

The MSCI Diversified Multiple-Factor EU PAB Indexes (the “Indexes”) are designed to represent the performance of a strategy that meets the minimum standards of the EU Paris Aligned Benchmark (PAB)¹ and seek higher exposure to the four style factors - Value, Momentum, Low Size and Quality - relative to other factors from the relevant Barra Equity Model² while maintaining market risk exposure similar to the underlying Parent Index (herein, the “Parent Index”).

This index methodology aims to incorporate climate-based constraints in an optimization-based index construction approach by using risk-target optimization.³

¹ In case there are changes in the EU delegated acts and an update to the Index methodology is required, MSCI will issue an announcement prior to implementing the changes in the methodology. MSCI will not conduct a formal consultation for such an update.

² Please refer to Appendix II

³ 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 Methodology

The Indexes are constructed based on an optimization process from the underlying Parent Index using a Barra Equity Model to maximize the Index-level exposure to the targeted style factors while maintaining market risk equal to or lower than that of the Parent Index and meeting the minimum standards of the EU Paris Aligned Benchmark (PAB).

The Indexes use company ratings and research provided by MSCI ESG Research⁴ for the Index construction.

The steps for constructing the Indexes are described below.

2.1 APPLICABLE UNIVERSE

The Applicable Universe includes all the existing constituents of an underlying MSCI Parent Index. The relevant Parent Index could be any MSCI Global Investable Market Index.

2.2 ELIGIBLE UNIVERSE

The Eligible Universe is constructed by excluding securities from the Applicable Universe based on the exclusion criteria described below.

2.3 DEFINING THE EXCLUSION CRITERIA

2.3.1 CONTROVERSY BASED EXCLUSION CRITERIA

Securities of companies assessed as having involvement in ESG controversies that are classified as Red Flags (MSCI ESG Controversy Score of 0) are excluded. A Red Flag indicates an ongoing Very Severe ESG controversy implicating a company directly through its actions, products, or operations.

2.3.2 BUSINESS EXCLUSION CRITERIA

Companies that are involved in specific businesses which have high potential for negative social and/or environmental impact are ineligible for inclusion in the Index.

- Controversial Weapons
- Environmental Harm
- Tobacco

⁴ See section 4 for further information regarding ESG and climate data used in the Indexes that MSCI Limited sources from MSCI ESG Research LLC, a separate subsidiary of MSCI Inc. MSCI ESG Research is solely responsible for the creation, determination and management of such data. MSCI Limited is the benchmark administrator for the MSCI indexes.

- Thermal Coal Mining
- Oil & Gas
- Power Generation

Please refer to Appendix I for more details on these criteria.

2.4 CONSTITUENT IDENTIFICATION

The selection of constituents from the Eligible Universe is conducted through the process of optimization.

The optimization relies on the factor exposures for all the securities in the Parent Index and the factor covariance matrix of the relevant Barra Equity Model. The optimization is performed using a base currency. The default currency is the US Dollar.

2.5 WEIGHTING SCHEME

The optimization objective is to maximize the Alpha score (representative of the exposures to the set of target factors) under the “target risk” constraint where the risk target is equal to the ex-ante risk of the Parent Index at the time of rebalancing.

2.5.1 CALCULATION OF THE ALPHA SCORE

$$\alpha_i = 0.25 * F_{1,i} + 0.25 * F_{2,i} + 0.25 * F_{3,i} + 0.25 * F_{4,i}$$

Where,

$F_{j,i}$ = Factor exposure of each security i for each of the target factors.

The factor exposures for the target factors are sourced as follows:

- Momentum – The winsorized z-score of factor exposure for each security taken from the Momentum factor exposure in the relevant Barra Equity Model. The factor definition is given in Appendix II.
- Low Size - The winsorized z-score of factor exposure for each security taken from the relevant Barra Equity Model. The factor definition is given in Appendix II.
- Value – Sector-relative score calculated using the security-level exposures to earnings-based, asset-based and whole-firm based valuation metrics from the relevant Barra Equity Model. The factor definition is given in Appendix II.
- Quality – Sector-relative score calculated using the security-level exposures to all Quality factors from the relevant Barra Equity Model. The factor definition is given in Appendix II.

2.6 OPTIMIZATION CONSTRAINTS

At each Quarterly Index Review (QIR), the following optimization constraints are employed, which aim to ensure investability while achieving total risk in line with that of the Parent Index:

- If the Parent Index is an MSCI Standard Index or MSCI Investable Market Index (IMI), then the maximum weight of an Index constituents that belong to the Large Cap size segment will be restricted to the lower of (the weight of the security in the Parent Index + 2%) and 10 times the weight of the security in the Parent Index. The minimum weight of an Index constituent will be restricted to the higher of the (weight of the security in the Parent Index - 2%) and 0. The maximum weight of an Index constituents that belong to the Mid Cap or Small Cap size segments will be restricted to the lower of (the weight of the security in the Parent Index + 1%) or 5 times the weight of the security in the Parent Index. The minimum weight of an Index constituent will be restricted to the higher of the (weight of the security in the Parent Index - 1%) or 0.
- If the Parent Index is an MSCI Mid Cap index or an MSCI Small Cap index, the maximum weight of an Index constituent will be restricted to the lower of (the weight of the security in the Parent Index + 1%) and 5 times the weight of the security in the Parent Index. The minimum weight of an Index constituent will be restricted to the higher of (the weight of the security in the Parent Index - 1%) and 0.
- Active exposure of the Index to the target Barra style factors (factors included in the calculation of Alpha score) will be constrained to be greater than 0.1 and less than 0.6. Factors, namely, Earnings Variability, Leverage, Size, Beta and Residual Volatility if included in the calculation of Alpha score, will be constrained to be greater than -0.6 and less than -0.1 relative to the Parent Index.
- The exposure of the Index to the non-target Barra style factors will be restricted to +/-0.1 standard deviations relative to the Parent Index.
- The Global Industry Classification Standard (GICS®)⁵ sector weights of the Index will not deviate more than +/- 5% from the sector weights of the Parent Index (the Energy GICS Sector is not constrained).
- For countries with weight greater than 2.5% in the Parent Index, the weight in the Index will not deviate more than +/-5% from the country weight in the Parent Index.
- For countries with weight less than 2.5% in the Parent Index, the weight in the Index will be capped at 3 times their weight in the Parent Index.

⁵ The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P Global Market Intelligence.

- The above country weight constraint will also apply on China A Stock Connect listings as a group separately in addition to the usual country weight constraint on China.
- The one-way turnover of the Index is constrained to a maximum of 10% at each QIR.
- In addition to the above-mentioned constraints, the climate objective constraints are applied as detailed in Table 1 below:

No.	Climate Objectives	
1.	Minimum reduction in Greenhouse Gas (GHG) Intensity relative to EVIC (Scope 1+2+3 ⁶) relative to the Parent Index	50%
2.	Minimum average reduction (per annum) in GHG Intensity (relative to EVIC) relative to GHG Intensity of the Index at the Base Date ⁷	7%
3.	Minimum active weight in High Climate Impact Sector relative to Parent Index as defined in Appendix III	0%

Table 1: Constraints imposed to meet climate objectives

2.7 DETERMINING THE OPTIMIZED INDEX

The MSCI Diversified Multiple-Factor EU PAB Indexes are constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model⁸. The optimization uses the Eligible Universe and the Applicable Universe and the specified optimization objective and constraints to determine the constituents and the weights of the Index. The Eligible Universe is used to determine the securities eligible in the Index and the Applicable Universe is used to define other constraints like “target risk”. Infeasible optimizations are handled as explained in Appendix V.

⁶ Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Indexes, the Weighted Average Carbon Emissions Intensity relative to EVIC has been calculated based on Scope 1+2 Emissions.

⁷ Prior to the May 2020 Semi-Annual Index Review (SAIR) of the Indexes, the average reduction in Weighted Average Carbon Emissions Intensity relative to EVIC has been calculated using Scope 1+2 Emissions since Inception.

⁸ Please refer to Appendix IV for the detailed information on model usage

3 Maintaining the Indexes

3.1 QUARTERLY INDEX REVIEWS

The MSCI Diversified Multiple-Factor EU PAB Indexes are rebalanced on a quarterly basis, usually as of the close of the last business day of February, May, August and November, coinciding with the regular Index Reviews of the MSCI Global Investable Market Indexes. The Barra Equity Model data as of the day before the rebalancing day is used. This approach aims to capture timely updates to the risk characteristics of the companies and coincide with the rebalancing frequency of the relevant Parent Index.

In general, MSCI uses MSCI ESG Research data⁹ (including MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics) as of the end of the month preceding the Index Reviews for the rebalancing of the Indexes.

The pro forma MSCI Diversified Multiple-Factor EU PAB Indexes are in general announced nine business days before the effective date.

3.2 ONGOING EVENT RELATED CHANGES

The general treatment of corporate events in the 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 Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the Index.

The following section briefly describes the treatment of common corporate events within the Index.

No new securities will be added (except where noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously.

⁹ See section 4 for details of data sourced from MSCI ESG Research used in the Indexes

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>.

4 MSCI ESG Research

The Indexes are products of MSCI Inc. that utilize information such as company ratings and research produced and provided by MSCI ESG Research LLC (MSCI ESG Research), a subsidiary of MSCI Inc. In particular, the Indexes use the following MSCI ESG Research products: MSCI ESG Controversies, MSCI ESG Business Involvement Screening Research and MSCI Climate Change Metrics. MSCI Indexes are administered by MSCI Limited.

4.1 MSCI ESG CONTROVERSIES

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

The MSCI ESG Controversies methodology can be found at:
<https://www.msci.com/esg-and-climate-methodologies>

4.2 MSCI ESG BUSINESS INVOLVEMENT SCREENING RESEARCH

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

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

4.3 MSCI CLIMATE CHANGE METRICS

MSCI Climate Change Metrics provide climate data & tools to support institutional investors seeking to integrate climate risk & opportunities into their investment strategy and processes. This includes investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, alignment with temperature pathways and factoring climate change research into their risk management processes, in particular through climate scenario analysis for both transition and physical risks.

The dataset spans across the four dimensions of a climate strategy: transition risks, green opportunities, physical risks and 1.5° alignment.

For more details on MSCI Climate Change Metrics, please refer to
<https://www.msci.com/climate-solutions>

Appendix I: Business Exclusion Criteria

Companies whose activities meet the following values and climate change-based criteria, as evaluated by MSCI ESG Research, are excluded from the MSCI Diversified Multiple-Factor EU PAB Indexes.

- **ESG Controversy Score (“Red Flags”)**
 - Securities of companies assessed as having involvement in ESG controversies that are classified as Red Flags (MSCI ESG Controversy Score of 0) are excluded. A Red Flag indicates an ongoing Very Severe ESG controversy implicating a company directly through its actions, products, or operations. For more details on MSCI ESG Controversies Score, please refer to: <https://www.msci.com/esg-and-climate-methodologies>.
- **Controversial Weapons Involvement**
 - All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons), as defined by the methodology of the MSCI Ex-Controversial Weapons Indexes available at <https://www.msci.com/index/methodology/latest/XCW>.
- **Environmental Harm**
 - All companies having faced very severe and severe controversies pertaining to Environmental issues – Defined as companies with an Environment Controversy Score of 0 or 1.
- **Tobacco**
 - All companies that are involved in the manufacturing of Tobacco products.
- **Thermal Coal Mining**
 - All companies deriving 1% or more revenue (either reported or estimated) from the mining of thermal coal (including lignite, bituminous, anthracite and steam coal) and its sale to external parties. It excludes revenue from metallurgical coal, coal mined for internal power generation (e.g., in the case of vertically integrated power producers), intracompany sales of mined thermal coal, and revenue from coal trading (either reported or estimated).
- **Oil & Gas**
 - All companies deriving 10% or more revenue from oil and gas related activities, including distribution / retail, equipment and services, extraction and production, pipelines and transportation and refining but excluding biofuel production and sales and trading activities.

- **Power Generation**

- All companies deriving 50% or more revenue from thermal coal-based power generation, liquid fuel-based power generation and natural gas-based power generation¹⁰.

¹⁰ As per https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter7.pdf, thermal coal based power generation, liquid fuel based power generation and natural gas based power generation have median lifecycle emissions exceeding 100gCO₂/kWh.

Appendix II: Target Factor Definition Summary

The style factors targeted in the MSCI Diversified Multiple-Factor EU PAB Index are the four style factor families and their combinations: Value, Quality, Momentum and Low Size. These factor families are described using individual factor scores from the current release of the MSCI Barra Equity Model. The choice of factors used within each factor family is governed by the current model used for the optimization, which may change with a new release of the Barra Equity Model (as specified in Appendix IV). The model data will be used from a day prior to the rebalancing date. All factor exposures are re-normalized at the Parent Index level prior to the calculation of the Alpha score. Following are the definitions of factor families currently used in the Index. For more detailed information on individual factors in GEMTL, please refer to <https://www.msci.com/portfolio-management>.

Value:

The Value score for each security is calculated by combining the security-level exposures to two factors, Book-to-Price and Earnings Yield, from the relevant Barra Equity Model (currently GEMTL). A sector-relative score is derived from the combined score by standardizing (z-score) the latter within each sector and winsorizing at +/- 3.

$$\text{Value}_i = (0.33) * \text{BtoP}_i + (0.67) * \text{EarningsYield}_i$$

Quality:

The Quality score for each security is calculated by combining in equal proportion the security-level exposures to five factors - Profitability, Investment Quality, Earnings Quality, Leverage and Earnings Variability - from the relevant Barra Equity Model (currently GEMTL). A sector-relative score is derived from the combined score by standardizing (z-score) the latter within each sector and winsorizing at +/- 3.

$$\begin{aligned} \text{Quality}_i = & (0.2) * \text{Profitability}_i + (0.2) * \text{Investment Quality}_i + (0.2) * \text{Earnings Quality}_i \\ & + (-1) * (0.2) * \text{Earnings Variability}_i + (-1) * (0.2) * \text{Leverage}_i \end{aligned}$$

Momentum:

The Momentum score for each security is the standardized (z-score) Momentum factor score from the relevant Barra Equity Model (currently GEMTL) within the Parent Index and winsorized at +/- 3.

Low Size:

The Low Size score for each security is the standardized (z-score) Size factor score with sign reversed from the relevant Barra Equity Model (currently GEMTL) within the Parent Index and winsorized at +/- 3.

$$\text{Low Size}_i = -(1)\text{Size}_i$$

Appendix III: Calculation of Target Metrics

Calculation of GHG Intensity relative to EVIC

For Parent Index constituents where the Scope 1+2+3 Emissions Intensity is not available, the average Scope 1+2+3 Emissions Intensity of all the constituents of the MSCI ACWI in the same GICS Industry Group in which the constituent belongs is used.

Security Level GHG Intensity =

$$\frac{\text{Scope 1 + 2 + 3 Carbon Emissions} * (1 + EVIAF)}{\text{Enterprise Value + Cash (in M\$)}}$$

Enterprise Value Inflation Adjustment Factor (EVIAF) =

$$EVIAF = \left(\frac{\text{Average(Enterprise Value + Cash)}}{\text{Previous (Average(Enterprise Value + Cash))}} \right) - 1$$

Weighted Average GHG Intensity of Parent Index =

$$\sum (\text{Weight in Parent Index} * \text{Security Level GHG Intensity})$$

Weighted Average GHG Intensity of Derived Index =

$$\sum (\text{Index Weight} * \text{Security Level GHG Intensity})$$

Calculation of Average Decarbonization

On average, the Indexes follow a 7% decarbonization trajectory since the Base Date. The Weighted Average GHG Intensity relative to EVIC at the Base Date (W_1) is used to compute the target Weighted Average GHG Intensity relative to EVIC at any given Semi-Annual Index Review (W_t) as per the below formula.

$$W_t = W_1 * 0.93^{\frac{(t-1)}{2}}$$

Where 't' is the number of Semi-Annual Index Reviews since the Base Date.

Thus, for the 3rd Semi-Annual Index Review since the Base Date (t=3), the target Weighted Average GHG Intensity relative to EVIC will be $W_1 * 0.93$.

Calculation of GHG Intensity relative to Sales

For Parent Index constituents where the Scope 1+2+3 Emissions Intensity is not available, the average Scope 1+2+3 Emissions Intensity of all the constituents of the

MSCI ACWI in the same GICS Industry Group in which the constituent belongs is used.

Security Level GHG Intensity =

$$\frac{\text{Scope 1 + 2 + 3 Carbon Emissions} * (1 + EVIAF)}{\text{Sales (in M\$)}}$$

Climate Impact Sectors

NACE¹¹ is the European Union's classification of economic activities. As per the draft DA, stocks in the NACE Section codes A, B, C, D, E, F, G, H, L are classified as "High Climate Impact" sector and other stocks are classified 'Low Climate Impact' sector. The GICS¹² Sub-Industry code for each security is mapped to the corresponding "Climate Impact Sector" using a mapping. This mapping is constructed in the following steps:

1. MSCI has published a mapping¹³ between the NACE classes and GICS Sub-Industry.
2. For each GICS Sub-Industry, the number of NACE classes which fall under the High Climate Impact Sector (say the number of classes is N_H) and Low Climate Impact Sector (say the number of classes is N_L) is identified.
3. If all the NACE classes for a given GICS Sub-Industry are identified in the High Climate Impact Sector ($N_L = 0$), then the GICS Sub-Industry is mapped to the High Climate Impact Sector. Conversely, if all the NACE classes for a given GICS Sub-Industry are identified in the Low Climate Impact Sector ($N_H = 0$) then the GICS Sub-Industry is mapped to the Low Climate Impact Sector.
4. In case a GICS Sub-Industry is mapped to some NACE classes in the High Climate Impact Sector and the others in the Low Climate Impact Sector, the GICS Industry is mapped to the Climate Impact Sector in the following manner:
 - a. **$N_H \geq N_L$:** If the number of NACE classes in the High Climate Impact Sector is at least equivalent to the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the High Climate Impact Sector.

¹¹ For further details regarding NACE, please refer to https://ec.europa.eu/eurostat/statistics-explained/index.php?title=NACE_background

¹² For further information regarding GICS, please refer to <https://www.msci.com/gics>

¹³ This mapping is available in the [Handbook of Climate Transition Benchmarks, Paris-Aligned Benchmark and Benchmarks' ESG Disclosures](#)

- b. $N_H < N_L$:** If the number of NACE classes in the High Climate Impact Sector is less than the number of NACE classes in the Low Climate Impact Sector, the GICS Sub-Industry is mapped to the Low Climate Impact Sector.
5. Using the GICS Sub-Industry to Climate Impact Sector mapping created in Step 4, and the security-level GICS Sub-Industry, each security in the Parent Index is classified in either High Climate Impact Sector or Low Climate Impact Sector.

Appendix IV: New release of Barra® Equity Model or Barra® Optimizer

The methodology presently uses MSCI Barra Global Equity Model for Long-Term Investors (“GEMTL”) for the optimization. A new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.

Appendix V: Handling Infeasible Optimizations

During the Quarterly Index Review, in the event that there is no optimal solution that satisfies all the optimization constraints defined in Section 2.6, the following constraints will be relaxed, until an optimal solution is found:

- Relax the maximum weight multiple in steps of 2 for the Large Cap size segment and in steps of 1 for the Mid Cap and Small Cap size segments, up to a maximum of 5 iterations based upon the following formula:

$$wm_{i+1} = step + wm_i \text{ for } i = 0 - 4$$

Where wm_i = Maximum Active weight multiple

$wm_0 = 10$ and $step=2$ for the Large Cap size segment

$wm_0 = 5$ and $step=1$ for the Mid Cap and Small Cap size segment

- Relax the turnover constraint in steps of 2%, up to a maximum of 20%.
- The maximum weight multiple constraint and the maximum turnover constraint are alternately relaxed until a feasible solution is achieved. For example, constraints relaxation is executed in the sequence as illustrated below:

Order of Relaxation	Maximum Asset Weight Multiple	Turnover Limit
1	12 times (for Large Cap)/ 6 times (for Mid Cap and Small Cap) the weight of the security in the Parent Index	10%
2	12 times (for Large Cap)/ 6 times (for Mid Cap and Small Cap) the weight of the security in the Parent Index	12%
3	14 times (for Large Cap)/ 7 times (for Mid Cap and Small Cap) the weight of the security in the Parent Index	12%
4	14 times (for Large Cap)/ 7 times (for Mid Cap and Small Cap) the weight of the security in the Parent Index	14%

In the event that no optimal solution is found after the above constraints have been relaxed over all the iterations, the relevant MSCI Diversified Multiple-Factor EU PAB Index will not be rebalanced for that Quarterly Index Review.

Appendix VI: Changes to this Document

The following sections have been modified since July 2023:

- Methodology book was updated to reflect the transition of the MSCI Global Investable Market Indexes (GIMI) to Quarterly Comprehensive Index Reviews.
- All references to “Semi-Annual Index Reviews” and “Quarterly Index Reviews” of the MSCI GIMI were replaced with “Index Reviews”.

Section 2.3.1, Appendix I: Clarified the exclusion criteria for companies involved in ESG Controversies

Section 4: ESG Research

- Moved that section after Section 3.
- Updated the descriptions of MSCI ESG Research products.

Contact us

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

AMERICAS

Americas	1 888 588 4567 *
Atlanta	+ 1 404 551 3212
Boston	+ 1 617 532 0920
Chicago	+ 1 312 675 0545
Monterrey	+ 52 81 1253 4020
New York	+ 1 212 804 3901
San Francisco	+ 1 415 836 8800
São Paulo	+ 55 11 3706 1360
Toronto	+ 1 416 628 1007

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 *
Thailand	0018 0015 6207 7181 *
Tokyo	+ 81 3 5290 1555

* 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.

To learn more, please visit www.msci.com.

The process for submitting a formal index complaint can be found on the index regulation page of MSCI's website at: <https://www.msci.com/index-regulation>.

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. 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 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).

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>.