MSCI ECONOMIC EXPOSURE INDEXES METHODOLOGY

June 2017

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1 INTRODUCTION

MSCI estimates the economic exposure of a company based on the geographic distribution of its revenues. The economic exposure of a company can serve as a complementary or an alternative definition of the country factor that has traditionally been derived from a company's country of domicile and primary listing.

The MSCI Economic Exposure Indexes aim to reflect the performance of companies with high economic exposure to specific regions and countries. The MSCI Economic Exposure Indexes could be based on exposure to different regions or countries such as:

- Developed markets indexes with high exposure to developed markets / emerging markets / specific regions such as Asia Pacific, etc.
- Emerging markets indexes with high exposure to developed / emerging markets.
- Domestic exposure indexes, for example, MSCI USA constituents with high exposure to USA.

The design of the MSCI Economic Exposure Indexes aims to strike a balance between high exposure to the target region and adequate market cap coverage. Index stability, reflected in a stable number of securities, consistent market cap coverage and low index turnover are additional desirable features of the methodology.

This document describes a generic methodology that can be applied to create MSCI Economic Exposure Indexes from any existing MSCI Equity Index.

2 INDEX CONSTRUCTION METHODOLOGY

2.1 APPLICABLE UNIVERSE

The applicable universe includes all the existing constituents of an underlying MSCI parent 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 equity index.

2.2 SECURITY SELECTION

All the existing constituents of the relevant MSCI Parent Index are ranked based on their economic exposure to the target region or country. The details of determining the economic exposure of a company to a target region or country are set forth in Appendix I. The MSCI Economic Exposure Indexes are constructed with a fixed number of companies approach. A target number of companies is predetermined for every MSCI Economic Exposure Index with an aim to attain a high exposure to the target region or country with reasonable market cap coverage. The rules for arriving at a fixed number of companies at initial construction are explained in Appendix II.

For example, in the case of the MSCI World with EM Exposure Index, all the constituents of the MSCI World are ranked according to their EM exposure. The top 300 companies with the highest economic exposure to emerging markets are selected for inclusion into the MSCI World with EM Exposure Index.

2.3 WEIGHTING SCHEME

For a given rebalancing effective date, all the securities eligible for inclusion in the MSCI Economic Exposure Indexes are weighted by the product of their market capitalization and economic exposure. The final security level inclusion factor is determined as the ratio of the security level weight and the security level pro forma market cap weight in the relevant MSCI Parent Index.

2.4 REBALANCING FREQUENCY

The MSCI Economic Exposure Indexes are rebalanced semi-annually. This approach aims to capture timely updates to economic exposures of companies and coincides with the rebalancing frequency of the relevant MSCI Parent Indexes. In addition, buffer rules are applied at the time of the semi-annual rebalancing to mitigate turnover of the MSCI Economic Exposure Indexes.

2.5 BUFFER RULES

To reduce index turnover and enhance index stability, buffer rules are applied at 20% of the fixed number of companies in the MSCI Economic Exposure Indexes. For example, the MSCI World with EM Exposure Index targets 300 companies and the buffers are applied between rank 241 and 360. The companies in the MSCI Parent Index with an economic exposure rank at or above 240 will be added to the MSCI World with EM Exposure Index on a priority basis. The existing Parent Index companies that have an economic exposure rank between 241 and 360 are then successively added until the number of companies in the MSCI World with EM Exposure Index reaches 300. If the number of companies is below 300 after this step, the remaining companies in the Parent Index with the highest economic exposure rank are added until the number of companies in the MSCI World with EM Exposure Index reaches 300. In the event of multiple companies having a rank of 300, all the companies with an economic exposure rank of 300 are included in the MSCI World with EM Exposure Index.

3 MAINTAINING MSCI ECONOMIC EXPOSURE INDEXES

3.1 SEMI-ANNUAL INDEX REVIEWS

The MSCI Economic Exposure 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 Investable Market Indexes . The pro forma MSCI Economic Exposure Indexes are in general announced nine business days before the effective date.

At each rebalancing, a constraint factor is calculated for every constituent in the MSCI Economic Exposure Index. The constraint factor is defined as the weight of a constituent in the MSCI Economic Exposure Index at the time of the rebalancing divided by its weight in the MSCI Parent Index. The constraint factor as well as the constituents in the index remain constant between index reviews except in case of corporate events as described below.

3.2 ONGOING EVENT RELATED CHANGES

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

The following section briefly describes the treatment of common corporate events within the MSCI Economic Exposure 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	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. 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.
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

APPENDIX I: DETERMINATION OF COMPANY LEVEL ECONOMIC EXPOSURE

ESTIMATING ECONOMIC EXPOSURE OF COMPANIES

The economic exposure of a company to a target region or country is the proportion of its revenues coming from that region. As a general principle, MSCI estimates economic exposure from the geographic segment distribution of revenues by final markets/destination as reported by a company and the GDP weight of the countries and regions within a specific geographic segment.

For example, in the case of determining EM exposure, all countries and regions (including frontier markets) except developed markets are included for the calculation of the EM exposure of a company. The emerging markets multiplier (EM Multiplier) of a reporting geographic segment is the GDP weight of the emerging market countries within that segment. The EM exposure of a security is derived as the weighted average of the percentage segment revenue and the EM Multiplier.

The GDP data used is the most recent nominal GDP data of countries as reported by IMF and World Bank.

Exhibit 1: Example Calculation of EM Exposure for ABC Ltd.

Segment	Revenue ($ mil)	Revenue (%)	EM Multiplier	EMX contribution
France	2,000	12%	0.00	0.00
Rest of Europe	3,000	18%	0.20	0.04
United States	5,000	30%	0.00	0.00
Japan	4,000	24%	0.00	0.00
Rest of Asia	1,500	9%	0.95	0.09
Rest of the World	1,000	6%	0.67	0.04
Total	16500	100%		0.16

1.1 REVENUES BY FINAL MARKETS/DESTINATION

As a general principle, when a company reports revenue distributions by subsidiary locations and by final markets/destination, the revenue distribution by final markets/destination is used.

For re-insurance firms, the geographic segment data may be reported by subsidiary locations or by ceding company locations. The subsidiary location is the location of the reinsurance company subsidiary that is generating the revenue, while the ceding company is the insurance company that passes a part or all of its risks from its insurance portfolio to the reinsurance firm. The geographic segment distribution of revenues by ceding company locations is used wherever possible for estimating economic exposure.

In the case of companies that report revenues only by source of production or operations (e.g., mining locations or Assets) and there is no reported information on revenues by end markets or customer segments, the geographic segment revenues reported by source of production or operations may be used to estimate the company's economic exposure. In cases where companies report geographic segment revenues by production source and based on sales from end markets (by volume), the distribution of sales by volume is used to estimate economic exposure.

1.2 GEOGRAPHIC SEGMENTS REPORTED ACROSS MULTIPLE BUSINESS LINES

If a company reports its geographic segments for each of its business lines, the economic exposure is estimated at each business segment and then aggregated at the company level using the business segment revenue weights. For example, a company may present the following geographic segment revenue information:

Segment	Revenue	Revenue (%)
General Insurance		
Asia	90	90%
Rest of the World	10	10%
Total	100	100%
Life Insurance		
Asia	80	40%
Europe	60	30%
Rest of the World	60	30%
Total	200	100%
Total consolidated	300	

In this case, the aggregate exposure of the company is a weighted average of individual business segment exposures (with the weights being the individual business segment revenues). In cases where the geographic segment information is only available for some of the business segments, the exposure of the business segments where geographic segment information is unavailable is assumed to be in the same proportion as the business segments for which the information is available.

1.3 GEOGRAPHIC SEGMENT REVENUES REPORTED AS EITHER "PREDOMINANTLY" OR "MORE THAN X%"

1.3.1 IF THE GEOGRAPHIC SEGMENTS ARE REPORTED AS "PREDOMINANTLY/SUBSTANTIALLY FROM JAPAN", ALL OF THE FIRM'S REVENUES ARE ASSIGNED TO JAPAN.

1.3.2 IF THE GEOGRAPHIC SEGMENTS ARE REPORTED AS "MORE THAN X% COMING FROM JAPAN" THEN

- If x >= 90%, all of the firm's revenues are assigned to Japan
- If x<90%, Japan is assigned x% of the firm's revenues and Rest of the World is assigned (100-x)%

1.4 REVENUES FOR BANKS AND INSURANCE COMPANIES

The revenues for Financial companies are determined as the sum of Net Interest Income (NII) + Commissions and Fees + Realized Gains on Sales of Investments – Impairment Losses Recognized for Earnings + Insurance Premiums + Other Revenues.

Insurance companies' total income is defined as the sum of net premiums + fees + investment income + commissions + other income.

If such data is not available, then the geographic segment revenue distribution as reported by the company is considered for estimating economic exposure.

1.5 OTHER RELEVANT METRICS WHERE THE GEOGRAPHIC DISTRIBUTION OF REVENUES IS NOT REPORTED

For companies that do not report geographic distribution of revenues, other metrics such as the geographic distribution of dividends from investment portfolios (for holding companies), credit exposures (for banks), assets and other relevant metrics (number of restaurants or sales by volume) as reported by the company may be used to estimate economic exposure.

APPENDIX II: RULES TO DETERMINE FIXED NUMBER OF COMPANIES AT INITIAL CONSTRUCTION

1. The Economic Exposure Index can be constructed based on the relevant MSCI Parent Index as long as the number of companies in the Parent Index is at least 5.
2. Rank the companies in the Parent Index by their Economic Exposure
3. Select the number of companies such that the following criteria are satisfied in the order of priority
   - Minimum company level exposure of at least 25%
   - Free float market capitalization coverage in the Parent Index between 20% and 40%
   - Number of companies between 10% - 40% of the number of companies in the Parent Index
4. The selected number is then rounded off to the nearest step based on the following rules to arrive at the final number of companies in the MSCI Economic Exposure Index at initial construction

   Upward rounding off is done depending on the number of companies obtained in the steps outlined above.
   - If number <= 25, nearest rounding = 5 companies
   - If number >25 but <= 100, nearest rounding = 10 companies
   - If number > 100 but <= 300, nearest rounding = 25 companies
   - If number >= 300, nearest rounding = 50 companies

Note that if there are multiple companies with the same rank then the number of companies may deviate from the predetermined target number of companies for the index.

The following sections have been modified since May 2014:

- Appendix 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 3.2.

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