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Index Methodology

# MSCI All Peru Index Methodology

Index Construction and Methodology for the All Peru Index

February 2011

# 1. Introduction

The MSCI All Peru Index is a free float-adjusted market capitalization index designed to serve as a benchmark and research tool for investment in listed companies in the Broad Peru Equity Universe.

## 2. Constructing the MSCI All Peru Index

### 2.1 Defining the Broad Peru Equity Universe

The Broad Peru Equity Universe is defined as equity securities classified in Peru according to the MSCI Global Investable Market Indices Methodology as well as equity securities from companies that are headquartered in Peru and have the majority of their operations based in Peru but are not listed in Peru and therefore not classified in Peru according to the MSCI Global Investable Market Indices Methodology.

The Broad Peru Equity Universe also includes securities that exhibit characteristics of equity securities except mutual funds, ETFs, equity derivatives, limited partnerships, and most investment trusts.

### 2.2 Selecting the MSCI All Peru Index Constituents

The securities of the Broad Peru Equity Universe are ranked by their decreasing free float-adjusted market capitalization. Only one security per issuer is considered. The largest securities are selected for inclusion in the MSCI All Peru Index until the free float-adjusted market capitalization of the index captures 98% of the free float-adjusted market capitalization of the Broad Peru Equity Universe according to the following rules:

- If a company has two types of shares or more on the Lima Stock Exchange (hereafter “the local market”), the eligible security for inclusion is the one with the most liquidity, as measured by the Annualized Traded Value Ratio (ATVR)<sup>1</sup>.
- If a company’s shares are listed both on the local and on a foreign market, the eligible listing for inclusion is the one with the most liquidity.
- If a company has American Depositary Receipts (ADRs) or Global Depositary Receipts (GDRs) listed in a foreign market in addition to its locally listed shares, the eligible security for inclusion is the one with the most liquidity.

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<sup>1</sup> The ATVR, a measure which offers the advantage of screening out extreme daily trading volumes and taking into account the free float-adjusted market capitalization size of securities, is used to measure liquidity.

## 3. Maintaining the MSCI All Peru Index

### 3.1 Updating the Broad Peru Equity Universe

During the Annual Index Review, which takes place each November, the Broad Peru Equity Universe is updated by identifying all eligible securities according to Section 2.1.

### 3.2 Updating the MSCI All Peru Index Constituents

At each Annual Index Review, the securities included in the Broad Peru Equity Universe are ranked in descending order of free float-adjusted market capitalization. Only one security per issuer is considered based on the rules set forth in Section 2.2.

In order to mitigate index turnover, the following rules are employed at each Annual Index Review:

- If a current constituent's free float-adjusted market capitalization or Annualized Traded Value (ATV)<sup>2</sup> falls below the 120<sup>th</sup> percentile rank (e.g. rank 30 of the Broad Peru Equity Universe if the index has 25 securities), it is selected for deletion.
- If a non-constituent security's free float-adjusted market capitalization reaches the 80<sup>th</sup> percentile rank (e.g. rank 20 of the Broad Peru Equity Universe if the index has 25 securities) or higher, it is selected for inclusion.

If the free float-adjusted market capitalization of the index captures less than 98% of the free float-adjusted market capitalization of the Broad Peru Equity Universe excluding the less liquid of every company's securities, the securities with the largest free float-adjusted market capitalization from the Broad Peru Equity Universe will be added until the index reaches 98%.

All additions are subject to a minimum liquidity requirement of 10% ATVR.

### 3.3 Corporate Events

Corporate events are handled according to the MSCI Global Investable Market Indices Methodology.

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<sup>2</sup> The ATV is calculated as the ATVR multiplied by the free float-adjusted market capitalization.

### 3.3.1 IPOs

IPOs are considered for inclusion on a quarterly basis if they are added to the MSCI Peru Standard Index. Smaller IPOs and other newly listed securities will only be considered for inclusion at the next Annual Index Review.

### 3.3.2 Additions and Deletions due to Corporate Events

The general treatment of additions and deletions due to corporate events aims at minimizing turnover in the MSCI All Peru Index. There will be no early inclusion of new securities to the index, except when the new security results from an event affecting an existing constituent (e.g., spin off, merger).

### 3.3.3 Quarterly Index Review of Changes in Foreign Inclusion Factors (FIFs) and Number of Shares (NOS)

Significant changes in free float estimates and corresponding FIFs are reflected at the Quarterly Index Reviews.

Small changes in NOS, typically less than 5% of the shares outstanding, are generally updated at the Quarterly Index Reviews rather than at the time of the change, to minimize index turnover.

## 4. Appendix

In addition to the free float-adjusted market capitalization weighting scheme, two indices with concentration constraints to account for regional regulations are also made available.

### 4.1 10/40 version

The MSCI All Peru Index in its 10/40 version takes into account the current UCITS III (Undertakings for Collective Investment in Transferable Securities) directives by applying 10/40 concentration constraints according to the MSCI 10/40 Equity Index Methodology.

### 4.2 Capped version

The MSCI All Peru Index (hereafter “the parent index”) in its capped version (hereafter “the capped index”) takes into account the 25/50 constraint requirement for Regulated Investment Company (RIC) compliant funds, where no issuer can exceed 25% of the index weight and all issuers with weights above 5% cannot exceed 50% of the index weight.

#### 4.2.1 Framework

The MSCI All Peru Index in its capped version uses an iterative algorithm<sup>3</sup>. At each index rebalancing, the pro forma index aims to have:

- Minimum weight distance from the pro forma parent index.
- Minimum transaction cost (proxy for index turnover) of rebalancing from the current capped index to the pro forma capped index.

#### 4.2.2 Buffer Rules

The issuers' weights are capped at levels below the 25/50 constraint. Specifically, a buffer of 10% of the value of each constraint is implemented. As a result, no issuer exceeds 22.5% of the index weight and all issuers with weights above 4.5% cannot exceed 45% of the index weight.

#### 4.2.3 Maintenance Rules

The capped index is rebalanced quarterly, effective on the first business day of each March, June, September and December to coincide with the Quarterly Index Reviews of the MSCI All Peru Index.

There is no capped index rebalancing due to non-compliance between Quarterly Index Reviews.

A security added to the parent index following a corporate event is added to the capped index with an estimated capped weight, without rebalancing of the capped index.

The deletion of a constituent from the parent index following a corporate event triggers its deletion from the capped index, without rebalancing of the capped index.

#### 4.2.4 Optimization Parameters

- Default risk aversion parameter of 0.0075, which is widely used in mean-variance optimizations.
- One-way transaction cost of 0.5%, which aims to achieve a balance between minimizing active risk and minimizing turnover.
- Minimum weight of capped index constituents equal to the weight of the smallest constituent in the parent index. This avoids the situation where the optimized index holds a security with a very small weight.
- Diagonal covariance matrix with the same risk for each constituent (1) and zero for all off-diagonals.

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<sup>3</sup> See [www.barra.com/support/library/optimizer\\_practical\\_convex\\_quadratic\\_programming.pdf](http://www.barra.com/support/library/optimizer_practical_convex_quadratic_programming.pdf) for a detailed description of the Barra Mean-Variance Optimizer.

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