

MSCI FAIR VALUE INDEX CALCULATION METHODOLOGY

Index Calculation Methodology for the MSCI Fair Value Indexes

March 2020

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Introduction

This methodology book describes MSCI's Index calculation methodology for the MSCI Fair Value Equity Indexes.

Please note that the index construction methodology and other guiding principles for MSCI Indexes can be found at www.msci.com.

MSCI Equity Indexes

The MSCI Equity Indexes measure the performance of a set of equity securities over time. The MSCI Equity Indexes are calculated using the Laspeyres' concept of a weighted arithmetic average together with the concept of chain-linking.

MSCI country and regional equity Indexes are calculated in "local currency" as well as in USD, with price, gross and net returns.

Index levels are also available in several other currencies such as AUD, BRL, CAD, CHF, CNY, EUR, GBP, HKD, INR, JPY, KRW, RUB and SGD.

While the local currency series of regional indexes cannot be replicated in the real world, it represents the theoretical performance of an index without any impact from foreign exchange fluctuations — a continuously hedged portfolio.

Indexes are calculated 5 days a week, from Monday to Friday with the exception of a selection of indexes that have Sunday calculations available.

In certain cases, where there are no qualifying securities, it is possible for MSCI Indexes to be empty following a security deletion or GICS change. If an index becomes empty it would be dynamically discontinued or 'ruptured'. It is then possible for the index to be re-started once a new security qualifies for the index, and this index level would be rebased to an appropriate level at that time.

1 MSCI Indexes with Fair Value Pricing

The MSCI Indexes with IDCo Fair Value Pricing and MSCI Indexes with ITG Fair Value Model make it simpler for active mutual fund managers, pension plans and consultants to explain artificial tracking error between a fund's fair value adjusted NAV and an MSCI index calculated using local closing prices. The indexes are expected to serve as reference tools for marketing and reporting, internal reporting and fund evaluation and research.

MSCI Indexes with IDCo Fair Value Pricing and MSCI Indexes with ITG Fair Value Model are calculated by adjusting the closing index level by the fair value return. The fair value return for an index on day t is calculated as follows:

$$FairValueReturnUSD_t = \sum_{s \in I, t+1} InitialSecurityWeight_{s,t+1} \times SecurityFairValueReturnUSD_{s,t}$$

where:

- $InitialSecurityWeight_{s,t+1}$ is the initial weight for security s in the index I on day $t+1$ (known as of the close of t) or, equivalently, the rebalanced weight of the security s for day t . The calculation details are provided in section 1.2.2 of the MSCI Index Calculation Methodology that can be found in: www.msci.com/index-methodology.
- $SecurityFairValueReturnUSD_{s,t}$ is the fair value return of security s , on day t . It is calculated as

$$SecurityFairValueReturnUSD_{s,t} = \frac{FairValuePricePerShare_{s,t} \times FXrate_{4PM\ UK,t}}{PricePerShare_{s,t} \times FXrate_{4PM\ EST,t}} - 1$$

$FairValuePricePerShare_{s,t}$ is set to $PricePerShare_{s,t}$ when it is not available from the fair value data provider. WM/Reuters spot FX rates are used in the calculation.

The Fair Value Index Level is then derived as following:

$$FairValueIndexLevel_t = IndexLevel_t \times (1 + FairValueReturnUSD_t)$$

The same fair value return adjustment is used for price, net and gross total return index series.

MSCI Fair Value Indexes with IDCo Fair Value Pricing and MSCI Indexes with ITG Fair Value Model are calculated using fair value adjustment factors as of the close of the New York Stock Exchange.

In certain instances, due to an extraordinary event or exceptional technical issue, Fair Value Prices needed as of a calculation date may not be available as expected from MSCI's data sources. In such cases, MSCI sets the Fair Value Price to the official close price of the same business day.

APPENDICES

Appendix I: Exchange Rates

Closing Spot Rates

In case WM/Reuters does not provide spot rates for specific markets on given days (for example Christmas Day and New Year Day), the previous business day's rates are used.

MSCI independently monitors the exchange rates on all its indexes. MSCI may under exceptional circumstances elect to use alternative sources of exchange rates if MSCI determines that the WM/Reuters rates are not reflective of market circumstances for a given currency on a particular day (for example divergence between onshore and offshore rates). In such circumstances, an announcement would be sent to clients with the related information. All such determinations are made by the MSCI Equity Index Committee (EIC). If appropriate, MSCI may conduct a consultation with the investment community to gather feedback on the most relevant exchange rate.

MSCI Fair Value Index Calculation Methodology Book Tracked Changes

The following section has been updated since July 2018.

2018

August:

- MSCI Fair Value Index Calculation Methodology
 - Document creation

2020

March:

- 1 MSCI Indexes with Fair Value Pricing
 - Addition of language regarding Fallback Provision For Data Outages

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