

METHODOLOGY BOOK FOR:

- **MSCI WORLD EX USA SELECT VALUE
MOMENTUM BLEND INDEX**
- **MSCI USA SELECT VALUE
MOMENTUM BLEND INDEX**
- **MSCI EMERGING MARKETS SELECT
VALUE MOMENTUM BLEND INDEX**
- **MSCI USA SMALL CAP SELECT
VALUE MOMENTUM BLEND INDEX**

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1 INTRODUCTION

The MSCI World ex USA Select Value Momentum Blend Index, MSCI USA Select Value Momentum Blend Index, MSCI Emerging Markets Select Value Momentum Blend Index and the MSCI USA Small Cap Select Value Momentum Blend Index are custom indexes designed to represent the performance of a strategy that seeks higher exposure to value and momentum factors within the Parent Index¹ (defined below) while also maintaining moderate Index turnover and lower realized volatility than traditional cap weighted indexes.

The MSCI Select Value Momentum Blend Indexes are constructed by including a set proportion of securities from the Parent Index with the highest Value-Momentum Z-Scores (defined in section 2.4 below). The constituents are weighted such that securities with lower realized volatility are given higher Index weights.

MSCI Select Value Momentum Blend Indexes are designed to represent the performance of systematic elements of particular investment styles or strategies. While capitalization weighted indexes aim to represent the broad market, additional sources of systematic return associated with particular investment styles and strategies, such as value, momentum, volatility, etc. could be represented through alternatively weighted indexes.

The main goals of the MSCI Select Value Momentum Blend Indexes include:

- Simple and transparent methodology to achieve exposure to Value and Momentum factors
- Relatively low concentration risk
- Moderate index turnover

¹ Until further notice, there will be no additions of China A Shares in the Index as part of corporate events such as IPOs and spin-offs.

2 INDEX CONSTRUCTION METHODOLOGY

The Index construction rules defined in sections 2.1 to 2.5 below are used to calculate two separate semi-annually rebalanced underlying Indexes (Underlying Index 1 and Underlying Index 2) which differ only by a rebalancing date gap of 3 months relative to each other. Underlying Index 1 has rebalance dates usually as of the close of the last business day of May and November while the Underlying Index 2 has corresponding dates usually as of the close of the last business day of February and August.

The final weights of the MSCI Select Value Momentum Blend Indexes are computed by combining the weights of the securities in the two underlying Indexes in equal proportion on the index review dates. This approach is designed to allow for more frequent constituent selection and re-weighting compared to either of the underlying Indexes and turnover lower than that of an underlying index with quarterly rebalancing frequency. The weights computed above may be capped² depending on the size of the active weights at the sub-regional level within the Parent Index (defined in section 2.8 below).

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 Parent Index could be any MSCI Regional or Country Index.

2.2 SCORE CALCULATION

The Sector Relative Value Z-Score and Sector Relative Momentum Z-Score calculation methodologies are defined below. Z-scores are calculated for all securities in the Parent Index.

2.2.1 SECTOR RELATIVE VALUE Z-SCORE

The Sector Relative Value Z-Score is calculated based on the steps defined under section 2.2 (up to section 2.2.2) of the MSCI Enhanced Value Indexes Methodology. The scores range between +/- 3 after winsorization.

² Active Region Upper Capping is currently applied to indexes derived from the MSCI World ex-USA and MSCI EM Indexes.

2.2.2 MOMENTUM Z-SCORE

The Momentum Z-Score is calculated based on the steps defined under section 2.2 of the MSCI Momentum Indexes Methodology. The scores range between +/- 3 after winsorization.

2.2.3 DETERMINATION OF VALUE-MOMENTUM Z-SCORE

- The Sector Relative Momentum Z-Score is then derived from the Momentum Z-Score by standardizing³ the Momentum Z-Score within each sector. The Sector Relative Momentum Z-Score is winsorized at +/- 3.
- Missing values⁴ in Sector Relative Value Z-Score and Sector Relative Momentum Z-Score are replaced with zero.
- The Value-Momentum Z-Score is computed as an equal weighted combination of Sector Relative Value Z-Score and Sector Relative Momentum Z-Score.
- The Value-Momentum Z-Score is standardized and winsorized at +/- 3.

2.3 LIQUIDITY FILTER

- A liquidity filter is applied only to indexes derived from the MSCI Emerging Markets (EM) and MSCI USA Small Cap Indexes to screen out securities with low liquidity.
- In cases where the liquidity filter is applied, a Starting Universe is created by selecting the top 90% by count of securities in the Parent Index, based on highest 12 month annualized traded value (12M ATV⁵). Missing 12M ATV values are replaced with zero. In case of securities with equal 12M ATV values, securities with higher Parent Index weights are given preference.
- Existing constituents which are part of the Parent Index as of the effective date are also included in the Starting Universe regardless of 12M ATV value.
- For Parent Indexes where the Liquidity Filter is not applied, all securities from the Parent Index are included in the Starting Universe.

³ Standardizing implies calculating the z-scores such that the standardized values have an average of zero and a standard deviation of one.

⁴ For example: Sector Relative Momentum Z-Score could have missing values if both the 6-month and 12-month Price Momentum values are missing for any security

⁵ MSCI Index Calculation Methodology at <https://www.msci.com/index-methodology>

2.4 SECURITY INCLUSION

The MSCI Select Value Momentum Blend Indexes are constructed using a fixed proportion of securities approach. At each rebalancing, the top 25% of all securities in the Starting Universe are included based on the highest Value-Momentum Z-Scores by number. If multiple securities have the same Value-Momentum Z-Score, then the security having a higher weight in the Parent Index is given preference. For indexes where the liquidity filter is not applied, the top 25% inclusion criterion is applied directly to the Parent Index. If multiple securities from the same issuer are selected, the security with the highest liquidity (12M ATV) from each issuer is retained in the index (higher parent weight is considered if 12M ATV values are identical). As a result, the number of securities included at each rebalancing may vary depending on the total count of securities in the Starting Universe.

2.4.1 INCLUSION BUFFER

To help reduce the Index turnover, inclusion buffer rules are applied at the index reviews at 60% of the number of securities computed in Section 2.4 above.

For example, if the index includes 100 securities (after application of liquidity filter and top 25% selection criteria) then the buffers are applied between ranks 41 and 160. The securities in the Starting Universe with a Value-Momentum Z-Score rank at or below 40 will be added to the index first. The existing constituents that have a Value-Momentum Z-Score rank between 41 and 160 are then successively added until the number of securities in the index reaches 100. If the number of securities is below 100 after this step, the remaining securities in the Parent Index with the highest Value-Momentum Z-Score rank are added until the number of securities in the index reaches 100.

2.5 SECURITY WEIGHTING

At each rebalancing, the securities included in the previous step are assigned weights in the inverse proportion of security level standard deviation. The fallbacks and upper/lower capping limits used in the computation of the security level standard deviation are defined in section 2.3 of the MSCI Risk Weighted Indexes Methodology.

2.6 CONSTRUCTION OF UNDERLYING INDEXES

The Index construction logic defined in sections 2.1 to 2.5 above are used to calculate two separate semi-annually rebalanced underlying Indexes (Underlying Index 1 and Underlying

Index 2) which differ only by a rebalancing calendar offset of 3 months relative to each other.

The construction parameters are as follows:

2.6.1 UNDERLYING INDEX 1

- Effective Dates: First business day of June and December (semi-annual rebalancing)
- Include Top 25% of securities in the Starting Universe based on composite Value-Momentum Z-Score (defined in section 2.4)
- 60% inclusion buffer applied on constituents of Underlying Index 1 (defined in section 2.4.1)
- Only one security per issuer is retained from the above section, based on liquidity criteria
- Inverse volatility weighting (defined in section 2.5)

2.6.2 UNDERLYING INDEX 2

- Effective Dates: First business day of March and September (semi-annual rebalancing)
- Include Top 25% of securities in the Starting Universe based on composite Value-Momentum Z-Score (defined in section 2.4)
- 60% inclusion buffer applied on constituents of Underlying Index 2 (defined in section 2.4.1)
- Only one security per issuer is retained from the above section, based on liquidity criteria
- Inverse volatility weighting (defined in section 2.5)

2.7 EQUAL-WEIGHTED COMPOSITE INDEX CONSTRUCTION

The weights of securities of the two underlying Indexes as defined in section 2.6.1 and 2.6.2 are combined in equal proportion on quarterly rebalancing dates, usually as of the close of the last business day of February, May, August and November.

2.8 ACTIVE REGION UPPER CAPPED INDEX CONSTRUCTION⁶

Active Region Upper Capping may be applied on the Equal Weighted Composite Index defined above. Security weights in the Parent Index and the Equal Weighted Composite Index (defined in section 2.8 above) are calculated for each sub-region⁷. The capping rules are designed to limit the overweights in sub-regions of the Equal-Weighted Composite Index relative to the Parent Index within the defined threshold (5%). Underweights in sub-regions in excess of 5% in magnitude are allowed. The detailed capping rules are defined in Appendix I.

⁶ Active Region Upper Capping is currently applied only to indexes derived from the MSCI World ex-USA and MSCI EM Indexes.

⁷ Sub-regions within the EM Index are: EM Asia, EM EMEA and EM LATAM. The sub-regions within the World ex-USA are: North America, Europe & Middle East ex UK, UK, Japan and Pacific ex Japan.

3 MAINTAINING THE INDEXES

3.1 INDEX REVIEWS

The Underlying Indexes are rebalanced on a semi-annual basis, usually as of the close of the last business day of May and November (for Underlying Index 1 defined in section 2.6.1) and usually as of the close of the last business day of February and August (for Underlying Index 2 defined in section 2.6.2). The May and November rebalances coincide with the May and November Semi-Annual Index Reviews (SAIRs) of the MSCI Global Investable Market Indexes. The February and August rebalances coincide with the February and August Quarterly Index Reviews (QIR) of the MSCI Global Investable Market Indexes. Fundamental variables as of the end of April and October are used respectively in Underlying Index 1 while the fundamental variables as of end of January and July are used respectively in Underlying Index 2.

The Equal Weighted Composite Index (defined in section 2.7) and the Active Region Upper Capped Indexes (defined in section 2.8) are rebalanced quarterly and the changes are implemented as of the close of the last business day of February, May, August and November.

The pro forma MSCI Select Value Momentum Blend 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 MSCI Select Value Momentum Blend Indexes aims to minimize turnover outside of the rebalances. 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 rebalances in the MSCI Select Value Momentum Blend Indexes, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the MSCI Select Value Momentum Blend Index.

The following section briefly describes the treatment of common corporate events within the MSCI Select Value Momentum Blend Indexes.

No new securities will be added (except where noted below) to the Index between rebalances. 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 of the corresponding Underlying Index.
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 of the corresponding Underlying Index.

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 1: CALCULATION OF ACTIVE REGION UPPER CAPPED INDEX WEIGHTS

Security weights in the Parent Index and the Equal Weighted Composite Index (defined in section 2.8 above) are calculated for each sub-region⁷. The capping logic limits the overweights in sub-regions of the Equal-Weighted Composite Index relative to the Parent Index within the defined threshold (5%). Underweights in sub-regions above 5% in magnitude are allowed.

1. Each sub-region with more than 5% overweight is assigned an absolute weight = parent weight in sub-region + 5%
2. Remaining weight is calculated as $1 - \text{sum of all the assigned sub-region weights}$ (where the overweight was greater than 5% prior to step 1)
3. The remaining weight is distributed among the sub-regions (where there was no overweight breach) in proportion to the weights in these sub-regions
4. Weights in other sub-regions are checked for breaches after re-distribution of weights (the above steps are then repeated⁸ as required until all sub-regions have maximum 5% overweight)
5. The calculated sub-region weights are mapped back to the securities

⁸ The capping is infeasible if the final capped weights in sub-regions do not add up to 100% even after all the sub-regions have been assigned weights according to the rules defined in steps 1 to 4 above. In such instances, the capping threshold (currently 5%) may be relaxed to more than 5% to achieve feasibility.

The following sections have been modified since August 2017:

- Added a footnote in Section 1 to reflect the treatment of China A securities in the MSCI Emerging Markets Select Value Momentum Blend Index for the May 2018 Semi-Annual Index Review

The following sections have been modified since May 2018:

- Sections 2.4, 2.6.1 and 2.6.2 have been updated to reflect the treatment of multiple securities from each issuer, if selected in the index

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