

# **MSCI FIXED INCOME LOW RISK INDEXES METHODOLOGY**

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## 1 Introduction

The MSCI Fixed Income Low Risk Indexes are designed to represent the performance of a set of companies that exhibit relatively lower Risk characteristics within the parent universe of bonds.

The MSCI Fixed Income Low Risk Indexes are part of the MSCI Fixed Income Factor Indexes, which are designed to represent the performance of the systematic elements of particular investment styles or strategies. While issuance weighted indexes aim to represent the broad market beta, these alternatively weighted indexes aim to represent additional sources of systematic return associated with particular investment styles and strategies, such as Carry, Size, Volatility, etc.

## 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.

### 2.2 Determination of Low Risk Score

The Low Risk score for each constituent is computed using bond level descriptor, namely Effective Duration.

#### 2.2.1 Calculating the Low Risk z-score

After calculating the Low Risk descriptor, a Low Risk z-score for each constituent is computed using parent universe. The z-score is derived by standardizing the Low Risk descriptor within the parent universe. The score is then winsorized at +/- 3.

#### 2.2.2 Calculating the final Low Risk score

The final Low Risk score is computed as follows:

$$Final\ Low\ Risk\ Score = \begin{cases} (1 + Z_T^j)^{-1}, & Z_T^j \geq 0 \\ (1 - Z_T^j), & Z_T^j < 0 \end{cases}$$

Where  $Z_T^j$  is a Low Risk z-score computed for each rebalancing as highlighted in previous step for each constituent.

### 2.3 Security Selection

The MSCI Fixed Income Low Risk Indexes are constructed in the following variants:

- 1) Tilted exposures – taking all constituents of parent index
- 2) High exposures – selecting a subset of constituents within parent index and constructed with a fixed number of securities approach

For high exposure variant, all the existing constituents of the relevant Parent Index are ranked based on their Final Low Risk Scores. If multiple securities have the same Final Low Risk Scores, then the security having a higher weight in the Parent Index is given a higher rank. A minimum number of securities with the highest positive Final Low Risk Scores are predetermined for every MSCI Low Risk Index at initial construction with an aim to attain a greater weight in the Low Risk factor while maintaining sufficient index issuance outstanding notional amount and number of

security coverage. Rules for arriving at a minimum number of securities at initial construction are explained in Appendix I. The minimum number for security selection determined at initial construction is evaluated at every Quarterly Index Review. Rules for evaluating the minimum number of securities at index review are also explained in Appendix.

## 2.4 Weighting Scheme

The securities selected in the previous step are assigned weights in the proportion of Issuance weight\* Final Low Risk Score and normalized to sum to 1.

The final security level inclusion factor is determined as the ratio of the final security level weight and the security level pro forma issuance weight in the relevant Parent Index.

### 3 Maintaining the Indexes

#### 3.1 Quarterly Index Reviews

The MSCI Fixed Income Low Risk Indexes are rebalanced on a quarterly basis, usually as of the close of the last business day of a month. All variables are taken as of three days prior to the index rebalancing. This approach aims to capture timely updates to the Low Risk characteristics of the companies and coincide with the rebalancing frequency of the relevant Parent Index. The pro forma MSCI Low Risk Indexes are in general announced three business days before the effective date.

##### **Buffer Rules for High Exposure Indexes:**

To reduce Index turnover and enhance index stability for high exposure indexes, buffer rules are applied as follows:

##### 3.1.1 Security Selection Buffer

A security selection buffer of 50% is applied during the on-going index review.

For example, if the existing MSCI Fixed Income Low Risk Index contains 400 securities then the buffers are applied between rank 201 and 600. The securities in the Parent Index with a Low Risk score rank at or above 200 will be added to the MSCI Fixed Income Low Risk Index on a priority basis. The existing constituents that have a Low Risk score rank between 201 and 600 are then successively added until the number of securities in the MSCI Fixed Income Low Risk Index reaches 400. If the number of securities is below 400 after this step, the remaining securities in the Parent Index with the highest Low Risk score rank are added until the number of securities in the MSCI Fixed Income Low Risk Index reaches 400. If the number of securities is below the Minimum Number of securities, the remaining securities in the Parent Index with the highest Low Risk score rank are added until the number of securities in the MSCI Fixed Income Low Risk Index reaches the Minimum Number of securities.

##### 3.1.2 Turnover Buffer

A turnover buffer of 50% is applied during the on-going index review.

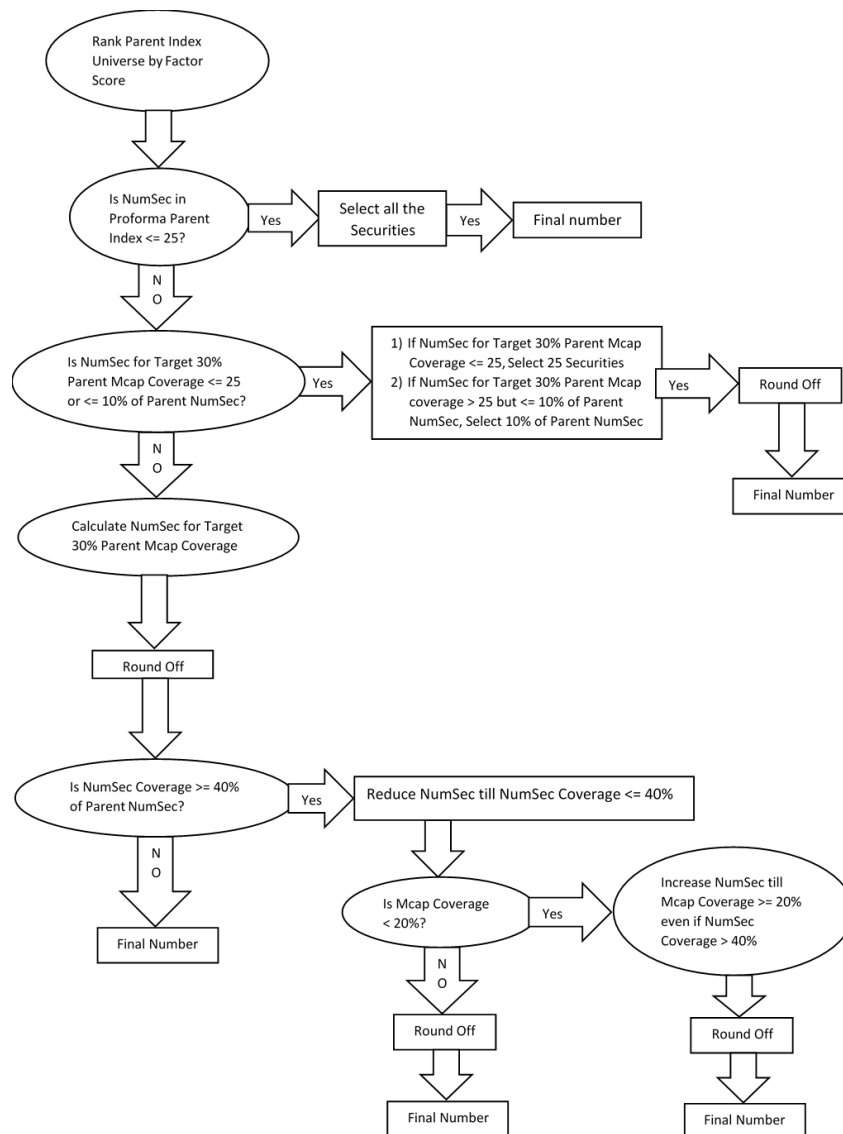
For example, if the on-going rebalancing results in changing the weight of a security from x% to y%, then the effective change in weight will be:

$$\text{Effective pro forma constituent weight} = x + (y-x)/2$$

The turnover buffer is not applied on deletions.

## Appendix: Rules to Determine Minimum Number of Securities at Initial Construction and in Ongoing Rebalancing for high exposure indexes

### Algorithm to Determine Minimum Number of Securities at Initial Construction

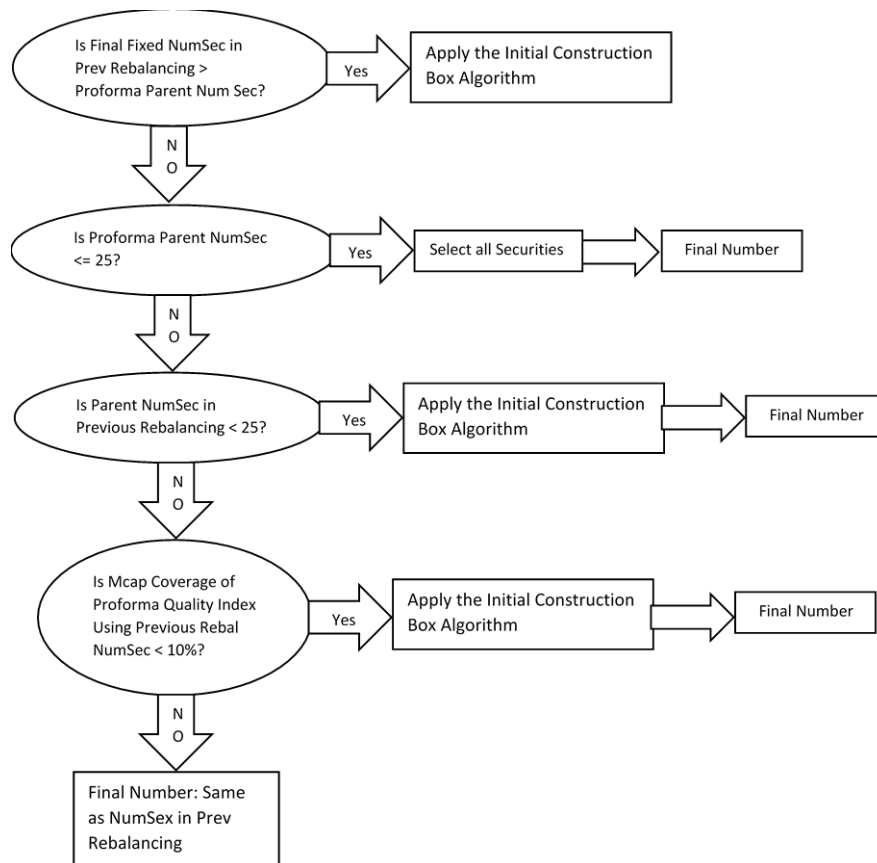


**Rounding Off Rules:**

**Upward rounding off** is done depending on Minimum Number of securities Obtained in the Previous Box Step

- If Minimum Number of securities in Previous Step < 100, Nearest Rounding = 10 securities
- If Minimum Number of securities in Previous Step >= 100 but < 300, Nearest Rounding = 25 securities
- If Minimum Number of securities in Previous Step >= 300, Nearest Rounding = 50 securities

**Algorithm to reevaluate minimum number of securities at Quarterly Rebalancing**





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\* = toll free

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