

# **MSCI VOLATILITY TILT INDEXES METHODOLOGY**

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## 1 INTRODUCTION

The MSCI Volatility Tilt Indexes aim to reflect the performance of a low volatility strategy with high investment capacity. The MSCI Volatility Tilt Indexes are created by including all the constituents in the Parent Index (defined below) and tilting the market capitalization weights of securities, based on inverse of security price variance.

MSCI categorizes the MSCI Volatility Tilt Indexes as part of family of MSCI Factor Indexes (Risk Premia), which are designed to reflect the systematic elements of particular investment styles or strategies. While capitalization weighted indexes aim to capture the broad market beta, institutional investors may also wish to see additional sources of systematic return associated with particular investment styles and strategies, such as value, momentum, volatility, etc., that may be captured through alternatively weighted indexes.

The MSCI Volatility Tilt Indexes aim to capture the low volatility premium with a simple and transparent methodology while maintaining reasonably high trading liquidity and investment capacity of constituent companies, as well as moderate Index turnover.

The main potential applications of the MSCI Volatility Tilt Indexes include:

- Strategic asset allocation: equity market exposure with lower risk
- Portfolio diversification: combine with other systematic betas
- Investment research: tools to study the characteristics of low risk strategies

## 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 Index.

### 2.2 WEIGHTING SCHEME

For a given rebalancing effective date, all the securities in the Parent Index are weighted by the product of their market capitalization weight in the Parent Index and the inverse of security level price variance. The details of security variance calculations are discussed in section 2.1.1.

Volatility Tilt Weight = Inverse of Security Variance\*Market Capitalization Weight in the Parent Index

The above weights are then normalized to 100%. The final security level inclusion factor is determined as the ratio of the final security level weight and the security level pro forma market capitalization weight in the relevant MSCI Parent Index.

Additionally, constituent weights are capped at issuer level to mitigate concentration risk:

1. Issuers in the MSCI Volatility Tilt Indexes based on broad parent MSCI Indexes (e.g. MSCI World Index, MSCI Emerging Markets Index etc.) will be capped at 5%.
2. Issuers in the MSCI Volatility Tilt Indexes based on narrow parent MSCI Indexes will be capped at the maximum weight in the Parent Index.

Narrow parent MSCI Indexes are defined as those indexes for which the maximum market capitalization weight in the Parent Index is more than 10%.

#### 2.2.1 DETERMINATION OF SECURITY LEVEL PRICE VARIANCE

The security level variance ( $\sigma_j^2$ ), used in the above calculation, is the squared term of security level standard deviation ( $\sigma_j$ ) computed using weekly returns over three years prior to the rebalancing date. In case the price data is not available for three year period, the respective country-sector average of volatility is used for that security. In events of country-sector average being unavailable, country average volatility is used. This aims to avoid

estimating risk over different volatility regimes. Security standard deviation is capped at 80% on upside and 12% on downside. Only non-zero weekly returns are considered for computation of variance to deal with stale prices due to suspensions/ market disruptions etc.

### **3 MAINTAINING MSCI VOLATILITY TILT INDEXES**

#### **3.1 SEMI-ANNUAL INDEX REVIEWS**

The MSCI Volatility Tilt Indexes are rebalanced on a semi-annual basis, 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 Standard Indexes. The pro forma MSCI Volatility Tilt Indexes are announced nine business days before the effective date.

Note that the capping of the issuer weight is done for the pro forma index as of the effective date, based on the closing prices as of the index review announcement date. In a case where an issuer weight breaches the cap as a result of market price movements or corporate events between the announcement date and the effective date, the capping is not applied again. Similarly, even if any issuer weight breaches the cap as a result of market price movements or corporate events between two Quarterly Index Reviews, no capping is applied.

#### **3.2 ONGOING EVENT RELATED CHANGES**

In general, the MSCI Volatility Tilt Indexes follow the event maintenance of the MSCI Parent Index.

##### **3.2.1 IPOs AND OTHER EARLY INCLUSIONS**

IPOs and other newly listed securities will only be considered for inclusion at the next semi-annual Index review in the MSCI Volatility Tilt Index, even if they qualify for early inclusion in the MSCI Parent Index.

##### **3.2.2 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 Volatility Tilt Indexes.

A constituent deleted from the MSCI Parent Index following a corporate event or during the Quarterly Index Review of the Parent Index will be simultaneously deleted from the MSCI Volatility Tilt Index.

Please refer to Appendix I for more details on the treatment of corporate events.

## APPENDIX I: CORPORATE EVENTS TREATMENT

This appendix describes the treatment of the most common corporate events in the MSCI Indexes. Details regarding the treatment of all other corporate events not covered in this appendix can be found in the MSCI Corporate Events Methodology book, available at

[http://www.msccibarra.com/products/indexes/international\\_equity\\_indexes/gimi/stdindex/methodology.html](http://www.msccibarra.com/products/indexes/international_equity_indexes/gimi/stdindex/methodology.html)

Event Type	Event details	Action
Acquisition	Volatility Tilt Index constituent acquires another Volatility Tilt Index constituent	Maintain acquiring company and remove acquired company
	Volatility Tilt Index constituent acquires non Volatility Tilt Index constituent	Maintain acquiring company
	Non Volatility Tilt Index constituent acquires Volatility Tilt Index constituent	Remove acquired company without adding acquiring company
Merger	Volatility Tilt Index constituent merges with Volatility Tilt Index constituent	Add new company with a constraint factor that is the weighted average of the two constituents
	Volatility Tilt Index constituent merges with non Volatility Tilt Index constituent	Add new company if MSCI links its price history to the Volatility Tilt Index constituent. New company not added if price history is linked to the non Volatility Tilt Index constituent
IPO	IPO added to Parent Index	Security will be considered for inclusion in the Volatility Tilt Index at the next Semi-Annual Index Review
Spin-off	Volatility Tilt Index constituent spins off security	Add spun-off security to the Volatility Tilt index with the constraint factor of the spinning security, if it is included in the Parent Index
Conversion	Security A converted to B, A deleted from Parent Index, B added	B inherits constraint factors from A
Country Reclassification	Domicile of company reviewed: Security A deleted from country A, security B added to country B	B inherits constraint factors from A if it is added to the Parent Index

Event Type	Event details	Action
Stock exchange reclassification	Stock exchange (price source) of company reviewed: Security A deleted, security B added	B inherits constraint factors from A if it is added to the Parent Index



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