

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 2.2.1.

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 (σ_j^2), used in the above calculation, is the squared term of security level standard deviation (σ_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

The general treatment of corporate events in the MSCI Volatility Tilt Indexes aims to minimize turnover outside of Index Reviews. 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 Index Reviews in the MSCI Volatility Tilt Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the MSCI Volatility Tilt Index.

The following section briefly describes the treatment of common corporate events within the MSCI Volatility Tilt Indexes.

No new securities will be added (except where noted below) to the Index between Index Reviews. 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.

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.

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>

The following sections have been modified since June 2014:

- Appendix I in the previous version of the methodology book describing the Corporate Events treatment has been deleted. The details on the Corporate Events treatment are now included in Section 3.2.

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Our line of products and services includes indexes, analytical models, data, real estate benchmarks and ESG research.

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