

MSCI HIGH DIVIDEND LOW VOLATILITY INDEXES METHODOLOGY

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1 Introduction

MSCI High Dividend Low Volatility Indexes ('the Indexes') are designed to represent the performance of a fixed number of securities with high dividend yield and Quality¹ characteristics. The Indexes are inverse volatility weighted to achieve lower volatility.

¹ Please refer to section 2.2.6 for more information on the Quality factor

2 Constructing the Index

The Indexes for the Standard size-segment are constructed at the Regional or Country level by applying the following steps:

- Defining the Parent Index
- Eligible Universe Screening
- Security Selection
- Security Weighting

The Regional MSCI High Dividend Low Volatility Indexes are subsequently aggregated to construct global variants of MSCI High Dividend Low Volatility Indexes as listed in Appendix 2.

2.1 DEFINING THE PARENT INDEX

The construction of the Indexes begins with defining the Parent Index. The Parent Index for each Regional or Country MSCI High Dividend Low Volatility Index is as defined in Appendix 1.

2.2 ELIGIBLE UNIVERSE

2.2.1 LIQUIDITY SCREEN

Securities with 3-month ADTV greater than or equal to USD 5 million are eligible for inclusion in the Indexes.

ADTV is defined as Average Daily Traded Value and is calculated as:

$$ADTV_{3M} = \frac{ATV_{3M}^2}{252}$$

Where:

$ADTV_{3M}$ = 3-month Average Daily Traded Value of the security

ATV_{3M} = 3-month Annualized Traded Value of the security

To avoid multiple securities of the same company in the final index, only the most liquid security for each issuer per its 3-month Annualized Traded Value (3-month ATV) is eligible for inclusion in the Indexes. For any issuer, should two securities have the same 3-month ATV, the one with the higher free float-adjusted market capitalization is included.

² Please refer to MSCI Index Calculation Methodology at <https://www.msci.com/index-methodology> for more details on ATV calculation

2.2.2 REITS SCREEN

The Indexes exclude securities which are Real Estate Investment Trusts (REITs).

2.2.3 VOLATILITY SCREEN

The remaining securities are subsequently screened based on their volatility score. The volatility score of a security is calculated using the following formula

$$Volatility\ Score = Max(3M\ volatility, 12M\ volatility)$$

Where:

3M volatility = 3-month price volatility of a security, calculated based on the 12 weekly returns from the last business day prior to index review date

12M volatility = 12-month price volatility of a security calculated based on the last 52 weekly returns from the last business day prior to index review date

The volatility score of each security is converted into a Z-Score and only those securities with volatility Z-Score between -3 and +3 are included.

2.2.4 DIVIDEND SUSTAINABILITY SCREEN

Securities with zero or negative payout ratios³ are not considered for inclusion in the Indexes as they either do not pay dividends or have negative earnings which may put their future dividend payments at risk.

2.2.5 DIVIDEND PERSISTENCE SCREEN

Securities with a negative 5 Year DPS Growth Rate⁴ are also excluded from the Indexes as this is an indicator of shrinking dividend growth which could be a precursor to lower dividends. Securities which have insufficient data to calculate a 5 Year DPS Growth Rate are not excluded.

2.2.6 QUALITY SCREEN

Securities with a negative Quality Z-Score are not considered for inclusion in the Indexes.

The Quality Z-Score for each security is calculated using the fundamental variables, Return on Equity, Earnings Variability and Debt to Equity.

For further details on computation of the Quality Z-Score, please refer to Appendix 3.

³ Please refer to MSCI Fundamental Data Methodology on <https://www.msci.com/index-methodology> for more details on payout ratios

⁴ Please refer to MSCI Fundamental Data Methodology on <https://www.msci.com/index-methodology> for more details on 5 Year DPS Growth Rate

2.2.7 PRICE PERFORMANCE SCREEN

For each security, its Price Performance is calculated as

$$Price\ Performance = \frac{Price\ Current}{Price\ 1Y\ Back} - 1$$

Where:

Price Current = The security price as of last end of month prior to Index Review Date

Price 1Y Back = The security price as of 12 months before last end of month prior to Index Review Date

From the universe of securities with negative 1-year price performance, the bottom 5% securities, as ranked based on their price performance, are excluded.

2.3 SECURITY SELECTION

From the securities remaining post screenings, the top N securities with the highest dividend yield⁵ are selected.

Where N = Number of securities to be included in relevant MSCI High Dividend Low Volatility Index as defined in Appendix 1.

2.4 SECURITY WEIGHTING

At each rebalancing, the following steps are applied to arrive at the final weights for each security.

All the selected securities in the final Index are weighted in proportion of the inverse of their volatility score, as defined in section 2.1.3. The weights are then normalized to add up to 100%.

Additionally, if the above determined weight for any security is greater than 5%, then its weight will be capped at 5%. In case of indexes with less than or equal to 20 constituents at the time of index review, the weight cap is set to 7.5%.

⁵ Please refer to MSCI Fundamental Data Methodology on <https://www.msci.com/index-methodology> for more details on dividend yield

3 Maintenance of the Index

3.1 QUARTERLY INDEX REVIEWS

The MSCI High Dividend Low Volatility Indexes are reviewed on a quarterly basis, coinciding with the May and November Semi-Annual Index Reviews and the February and August Quarterly Index Reviews of the Parent Index. The pro-forma Index is announced nine business days before the effective date.

During each rebalance, the constituents of the underlying Parent Index are screened for potential inclusion in the MSCI High Dividend Low Volatility Index according to the process described in Section 2.2.

Existing constituents of the current MSCI High Dividend Low Volatility Indexes will be evaluated for continued inclusion using the following screening process:

- If a security is already an Index constituent but its 5 Year DPS growth rate turns negative, it will still be allowed to remain in the Index, provided that the 1 Year DPS growth rate of that security is non-negative. This allows current Index constituents that suffer only a temporary decline in the 5 Year DPS growth rate to remain in the Index and thus avoid excessive index turnover. Securities which do not have sufficient data to calculate a 5 Year DPS growth rate or 1 Year DPS growth rate would still be eligible to remain in the Index.
- If a security is already an Index constituent, it will remain in the Index as long as its Quality Z-Score is higher than or equal to -0.5.

If an existing constituent satisfies any of the above screens, it will be included as part of the MSCI High Dividend Low Volatility Index. Any additional constituents will be selected from the Eligible Universe in 2.2 to reach the Target number of securities as discussed in 2.3.

The final number of securities will be weighted as defined in 2.4

3.2 ONGOING EVENT RELATED CHANGES

The following section briefly describes the treatment of common corporate events within the Index.

No new securities will be added (except where noted below) to the Index between Index Reviews. For cases where additions are noted below, securities will be added to the Index only if added to the Parent Index. 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>

Appendix 1: MSCI Regional and Country High Dividend Low Volatility Indexes

The following table provides details of the MSCI Regional and Country High Dividend Low Volatility Indexes, their corresponding Parent Indexes and respective target number of constituents for each of the Indexes.

No.	MSCI High Dividend Low Volatility Index	Parent Index	Number of Constituents
1	MSCI EMU High Dividend Low Volatility Index	MSCI EMU Index	30
2	MSCI USA High Dividend Low Volatility Index	MSCI USA Index	50
3	MSCI EAFE High Dividend Low Volatility Index	MSCI EAFE Index	50
4	MSCI AC Asia Pacific High Dividend Low Volatility Index	MSCI AC Asia Pacific Index	50
5	MSCI EM High Dividend Low Volatility Index	MSCI EM Index	50
6	MSCI North America High Dividend Low Volatility Index	MSCI North America Index	50
7	MSCI Europe High Dividend Low Volatility Index	MSCI Europe Index	30
8	MSCI Pacific High Dividend Low Volatility Index	MSCI Pacific Index	20
9	MSCI North America ESG Leaders High Dividend Low Volatility Index	MSCI North America ESG Leaders Index	50
10	MSCI Europe ESG Leaders High Dividend Low Volatility Index	MSCI Europe ESG Leaders Index	30
11	MSCI Pacific ESG Leaders High Dividend Low Volatility Index	MSCI Pacific ESG Leaders Index	20

Appendix 2: Construction of MSCI Global High Dividend Low Volatility Indexes

At each Index review, the following MSCI Regional High Dividend Low Volatility Indexes are combined to construct the MSCI World High Dividend Low Volatility Index based on component weights as mentioned below.

MSCI Regional High Dividend Low Volatility Index	Parent Index	Number of Constituents	Weight of Component Index
MSCI North America High Dividend Low Volatility Index	MSCI North America Index	50	50%
MSCI Europe High Dividend Low Volatility Index	MSCI Europe Index	30	30%
MSCI Pacific High Dividend Low Volatility Index	MSCI Pacific Index	20	20%

At each Index Review, the following regional High Dividend Low Volatility Indexes are aggregated to construct the MSCI World ESG Leaders High Dividend Low Volatility Index based on component weights as mentioned below.

MSCI Regional High Dividend Low Volatility Index	Parent Index	Number of Constituents	Weight of Component Index
MSCI North America ESG Leaders High Dividend Low Volatility Index	MSCI North ESG Leaders America Index	50	50%
MSCI Europe ESG Leaders High Dividend Low Volatility Index	MSCI Europe ESG Leaders Index	30	30%
MSCI Pacific ESG Leaders High Dividend Low Volatility Index	MSCI Pacific ESG Leaders Index	20	20%

Appendix 3: Determination of Quality Z-Score

The Quality score for each security is calculated by combining Z-Scores of three winsorized fundamental variables, namely Return on Equity, Debt to Equity and Earnings Variability. The details of the calculation of the fundamental variables can be found in MSCI Fundamental Data Methodology

1. WINSORIZING THE VARIABLE

As part of the standardization process, outlier fundamental variable values are winsorized to ensure that the average values used to standardize the variables are less affected by extreme values. To do this, for a given variable, the values for all securities are first ranked in ascending order within each MSCI Parent Index. Missing values are excluded from the ranking. Then, for securities that lie below the 5th percentile rank or above the 95th percentile rank, their value is set equal to the value of the 5th percentile ranked or 95th percentile ranked security, as applicable. This process is repeated for each of the three fundamental variables.

2. CALCULATING THE Z-SCORES

After winsorizing all the three variables within each MSCI Parent Index, the Z-Score for each of the three variables for each security can be calculated using the mean and standard deviation of the relevant variable within each MSCI Parent Index.

Computing a Z-Score is a widely used method of standardizing a variable in order to combine it with other variables that may have a different unit of measurement or a different scale. Because it has a mean value of 0 and standard deviation of 1, the value of z-scores show how many standard deviation a given value lies from the mean.

The Z-Score is defined as follows for ROE (Return on Equity):

$$z = \frac{x - \mu}{\sigma}$$

Where:

x is the winsorized variable for a given security

μ is the mean of the winsorized variable in the MSCI Parent Index Universe, excluding missing values

σ is the standard deviation of the winsorized variable in the MSCI Parent Index Universe, excluding missing values

The Z-Score is defined as follows for the Debt to Equity and Earnings Variability:

$$z = -\frac{x - \mu}{\sigma}$$

A negative Z-Score is calculated for Debt to Equity and Earnings Variability to ensure that a security having higher Debt to Equity or higher Earnings Variability gets a lower respective Z-Score.

3. CALCULATING THE QUALITY Z-SCORE

After standardizing each of the three variable values, a composite Quality Z-Score for each security is calculated. The Quality Z-Scores are computed by averaging the Z scores of all the three fundamental descriptors as calculated previously.

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