

MSCI QUALITY INDEXES METHODOLOGY

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1 Introduction

The MSCI Quality Indexes¹ aim to reflect the performance of a quality growth strategy. Quality growth companies are characterized as companies with durable business models and sustainable competitive advantages. Companies that tend to have high ROE, stable earnings that are uncorrelated with the broad business cycle, and strong balance sheets with low financial leverage are targeted for quality growth. MSCI categorizes the MSCI Quality Indexes as Factor Indexes, which are designed to reflect the systematic elements of particular investment styles or strategies. While capitalization weighted indexes aim to represent the broad market beta, there may be additional sources of systematic return associated with particular investment styles and strategies, such as value, momentum, volatility, etc., that could be represented through alternatively weighted indexes. The Quality factor is complementary to other systematic factors such as Size, Value and Low Volatility.

The MSCI Quality Indexes aim to reflect the performance of the Quality factor with a simple and transparent methodology while ensuring reasonably high trading liquidity and investment capacity of constituent companies, as well as moderate Index turnover. Quality is an objective measure of certain historical variables and is not an endorsement or recommendation by MSCI as to the future performance of any constituents or the index.

With an aim to more heavily weight the Quality factor, the MSCI Quality Indexes are constructed by selecting a set number of securities from the Parent Index (defined below) with the highest Quality Scores (defined in Section 2). The market capitalization of securities is then weighted based on the Quality Score.

In addition to the MSCI Quality Indexes, MSCI also constructs the MSCI Quality Tilt Indexes and the MSCI Sector Neutral Quality Indexes.

The MSCI Quality Tilt Indexes are constructed by including all the constituents in the Parent Index and applying Quality tilt on the market capitalization weights of securities. Please refer to Appendix V for further details on the methodology of MSCI Quality Tilt Indexes.

The MSCI Sector Neutral Quality Index aims to reflect the performance of securities that exhibit stronger quality characteristics relative to their peers within the same Global Industry Classification Standard (GICS®) Sector. They are constructed by using the Quality Score that is computed within the sector. The index methodology also targets minimal active weights on sectors while ensuring reasonably high trading liquidity and investment capacity of constituent companies. Please refer to Appendix VI for further details on the methodology of MSCI Sector Neutral Quality Indexes.

The Indexes are governed by a set of methodology and policy documents (“Methodology Set”), including the present index methodology document. Please refer to Appendix VII for more details



2 Index Construction Methodology

2.1 Applicable Universe

The applicable universe includes all the existing constituents of an underlying MSCI 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 Determination Of Quality 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 are provided in Appendix I.

2.2.1 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.

Example: Winsorization

For example, assume there are 200 securities ranked in ascending order of the variable value. The 5th percentile security is the 10th ranked security and the 95th percentile security is the 191st ranked security. For all the securities ranked from 1 through 9, their values become equal to the value of the 10th ranked security. Meanwhile, for all securities ranked from 192 through 200, their values become equal to the value of the 191st ranked security.

2.2.2 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):

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

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

2.2.3 Calculating the Quality Score

After standardizing each of the three variable values for each security, MSCI calculates a composite Quality Z-Score for each security. The Quality Z-Scores are computed by averaging the Z scores of all the three fundamental descriptor as calculated in section 2.2.2. Computation of the Quality Z Score also depends on the availability of fundamental variables as described in Appendix II.

The Quality Score is then computed from the composite Quality Z Score as follows:

$$\text{Quality Score} = \begin{cases} 1 + Z, & Z > 0 \\ (1 - Z)^{-1}, & Z < 0 \end{cases}$$

Where Z is the composite Quality Z Score determined in the previous step.

2.3 Security Selection

The MSCI Quality Index is constructed using a fixed number of securities approach. All the existing constituents of the relevant MSCI Parent Index are ranked based on their Quality Scores. If multiple securities have the same Quality Score, then the security having a higher weight in the Parent Index is given a higher rank. A fixed number of securities with the highest positive Quality Scores are predetermined for every MSCI Quality Index at initial construction with an aim to attain a high exposure to the Quality factor while maintaining sufficient index market capitalization and number of securities coverage. Rules for arriving at a fixed number of constituents at initial construction are explained in Appendix III. The fixed number for security selection determined at initial construction is evaluated at every Index Review (IR) to ensure that the Quality universe has sufficient index market capitalization coverage. Rules for evaluating the fixed number of constituents at every IR are explained in Appendix III.

2.4 Weighting Scheme

At each rebalancing, all the securities eligible for inclusion in the MSCI Quality Indexes are weighted by the product of their market capitalization weight in the Parent Index and the Quality Score.

*Quality Weight = Quality Score * 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 Quality Indexes based on broad Parent Indexes (e.g. MSCI World Index, MSCI Emerging Markets Index etc.) will be capped at 5%
2. Issuers in the MSCI Quality Indexes based on narrow Parent Indexes will be capped at the maximum weight in the Parent Index.

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

3 Maintaining MSCI Quality Indexes

3.1 Index Reviews

The MSCI Quality Indexes are reviewed on a semi-annual basis, usually as of the close of the last business day of May and November, coinciding with the May and November Index Reviews of the MSCI Global Investable Market Indexes.

Fundamental variables as of the end of April and October are used respectively. This approach aims to capture timely updates to Quality characteristics of the companies and coincides with the rebalancing frequency of the relevant MSCI Parent Indexes. The pro forma MSCI Quality Indexes are in general announced nine business days before the effective date.

3.1.1 Buffer Rules

To reduce Index turnover and enhance Index stability, buffer rules are applied at 20% of the fixed number of securities in the MSCI Quality Index.

For example, the MSCI World Quality Index targets 300 securities and the buffers are applied between rank 241 and 360. The securities in the MSCI Parent Index with a Quality rank at or above 240 will be added to the MSCI World Quality Index on a priority basis. The existing constituents that have a Quality rank between 241 and 360 are then successively added until the number of securities in the MSCI World Quality Index reaches 300. If the number of securities is below 300 after this step, the remaining securities in the Parent Index with the highest Quality Score rank are added until the number of securities in the MSCI World Quality Index reaches 300.

3.2 Ongoing Event Related Changes

The general treatment of corporate events in the MSCI Quality 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 Quality Index, the changes made to the Parent Index during intermediate Index Reviews will be neutralized in the MSCI Quality Index.

The following section briefly describes the treatment of common corporate events within the MSCI Quality 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>

Appendix I: Calculation Of Fundamental Variables

Fundamental Variable	Calculation Details
Return on Equity (ROE)	(ROE) is calculated using the trailing 12 month earnings per share figure and latest book value per share $ROE = \frac{\text{Trailing 12 month earnings per share}}{\text{Latest Book Value Per Share}}$
Debt to Equity(D/E)	Debt to Equity is calculated using the latest fiscal year Total Debt and Book Value $D/E = \frac{\text{Total Debt}}{\text{Book Value}}$
Earnings Variability	Earnings Variability is defined as the standard deviation of y-o-y earnings per share growth over the last five fiscal years

For more details on the fundamental data, please refer to the MSCI Fundamental Data Methodology (<https://www.msci.com/index-methodology>)

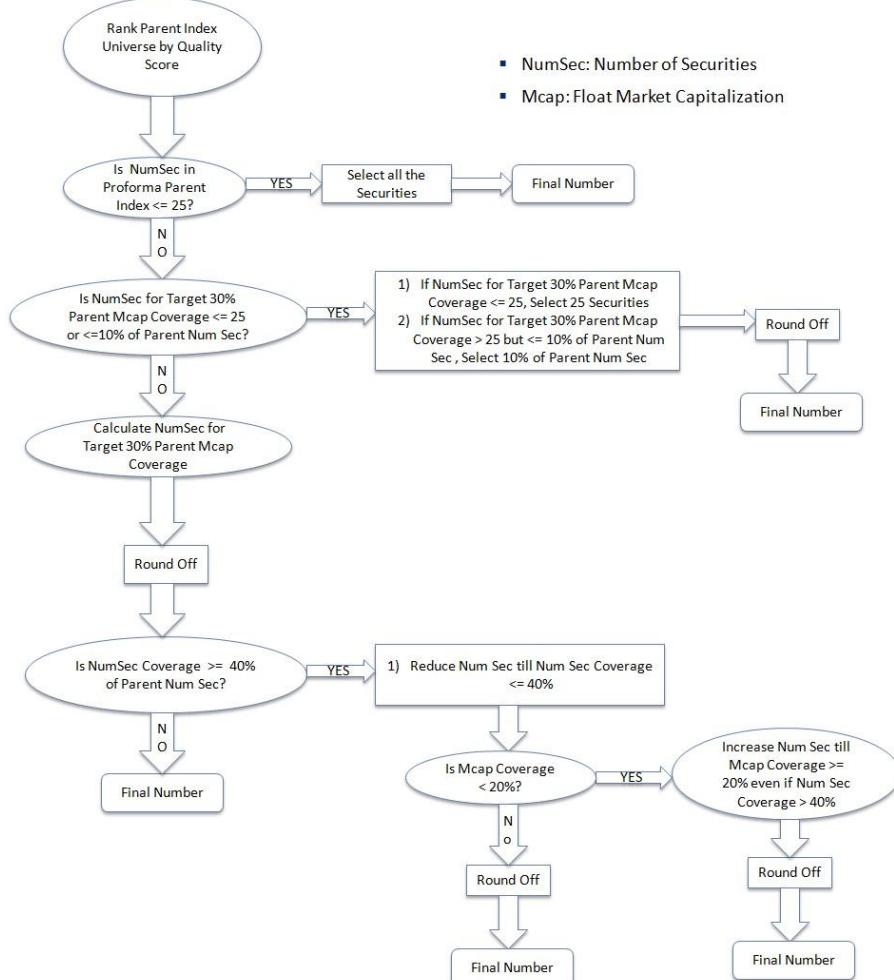
Appendix II: Quality Z-Score Computation

Computation of the Quality Z-Score also depends on the availability of fundamental variables as described below:

Case	Detail	Action
Case 1	ROE is missing	If ROE is missing, Composite Quality Z Score is not calculated and the security will not be part of the MSCI Quality Index
Case 2	Debt to Equity is missing	If Debt to Equity is missing, Composite Quality Z Score is not calculated and the security will not be part of the MSCI Quality Index
Case 3	Earnings Variability is missing, but other two variables are available	Composite Quality Z Score is calculated using ROE & Debt to Equity Z Scores
Case 4	All three variables are missing	Composite Quality Z Score is not calculated and the security will not be part of the MSCI Quality Index

Appendix III: Rules to Determine Fixed Number of Securities at Initial Construction and in Ongoing Rebalancing

Algorithm to Determine Fixed Number of Securities at Initial Construction



Rounding Off Rules:

Upward rounding off is applied to the NumSec Obtained in the Previous Box Step

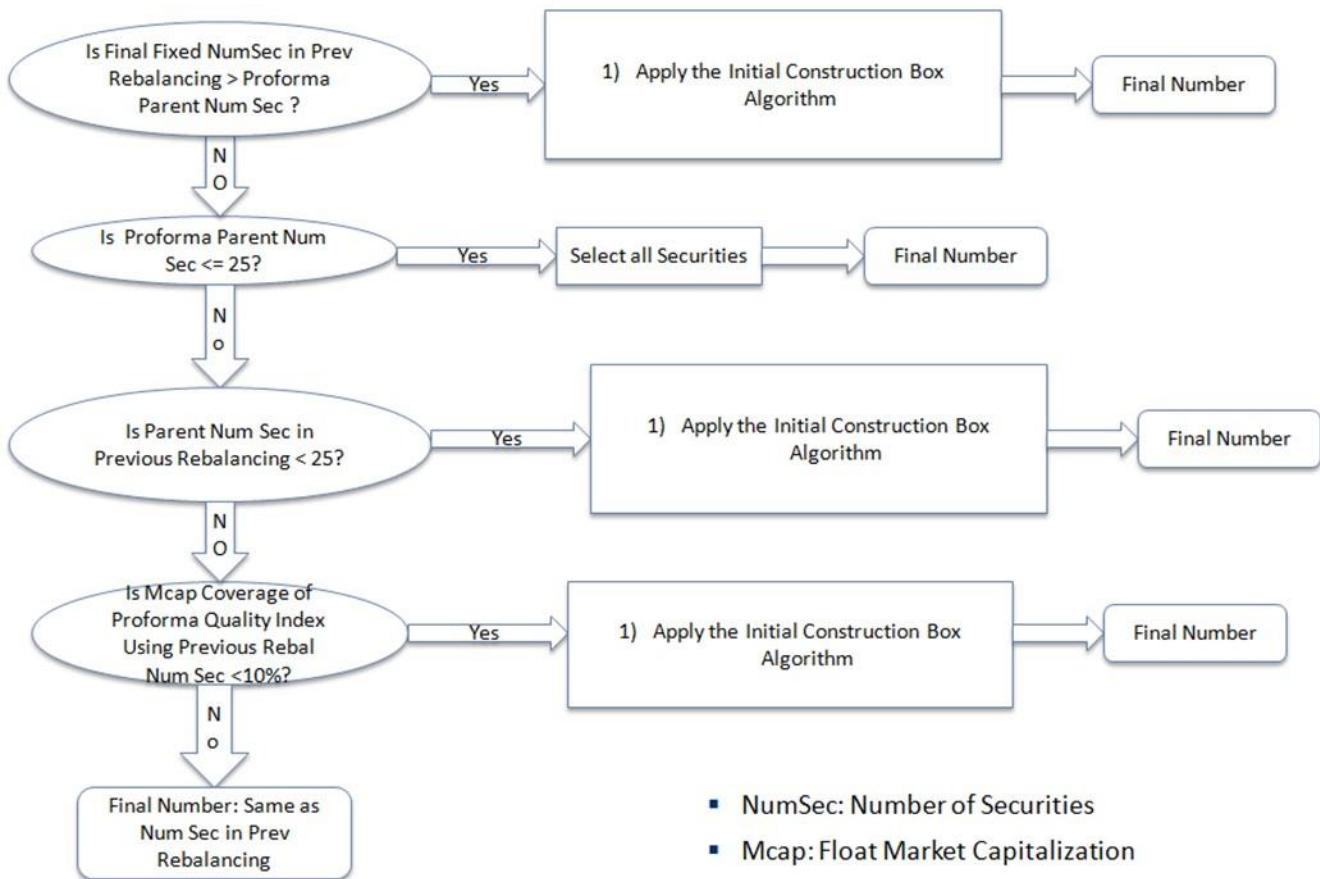
- If NumSec in Previous Step < 100, Upward Rounding Off to 10 Securities
- If NumSec in Previous Step ≥ 100 but < 300, Upward Rounding Off to 25 Securities
- If NumSec in Previous Step ≥ 300 , Upward Rounding Off to 50 Securities

Examples: Initial Construction, major Regions

MSCI Quality Indices Initial Construction as of 1 June, 2012

Region	Parent Num Sec	Num Sec for 30% Mcap	Final Num Sec	Mcap Coverage	Num Sec Coverage
ACWI	2448	479	500	31.3%	20.4%
World	1629	291	300	31.1%	18.4%
EM	820	187	200	32.8%	24.4%
Europe	448	102	125	39.0%	27.9%
USA	605	114	125	32.3%	17.7%

Algorithm to reevaluate Fixed Number of Securities at Semi Annual Rebalancing



Appendix IV: Issuer Weight Capping

For Broad Regional/Country Indexes issuer weight is capped at 5%. For other narrow Country/Regional Indexes issuer weight is capped at a maximum of 10% and maximum issuer weight in the Parent Index.

Cap for narrow Country/Regional Indexes = max (10%, maximum issuer weight in the Parent Index)

For the following broad regional Quality Indexes, the issuer weight is capped at 5%:

1. MSCI ACWI Quality Index
2. MSCI World Quality Index
3. MSCI EM Quality Index
4. MSCI Europe Quality Index
5. MSCI USA Quality Index

Appendix V: Constructing MSCI Quality Tilt Index

The MSCI Quality Tilt Indexes aim to reflect the performance of a Quality strategy with high investment capacity. The MSCI Quality Tilt Indexes are created by including all the constituents in the Parent Index and tilting the market capitalization weights of securities, based on Quality Score. By comparison, the MSCI Quality Indexes are constructed by selecting a set number of securities from the underlying Parent Index with an aim to emphasize the Quality factor.

The MSCI Quality Tilt Index includes all the existing constituents of underlying Parent Index for which Quality Scores are available. Please refer to Appendix II for further details on Quality Score computation. The MSCI Quality Tilt Index follows the same weighting scheme as the MSCI Quality Index. Please refer to Section 2 for further details on weighting scheme. The MSCI Quality Tilt Index follows the same rebalancing schedule and corporate events treatment as the MSCI Quality Index and as described in Section 3.

Appendix VI: Constructing MSCI Sector Neutral Quality Index

The MSCI Sector Neutral Quality Index aims to reflect the performance of securities that exhibit stronger quality characteristics relative to their peers within the same GICS® sector. They are constructed by using the Quality Score that is computed within the sector.

Calculating the sector-relative quality score

The “composite quality z-score” for each security is first computed as described in the section 2.2. A sector-relative quality score is then derived from the composite quality z-score. It is arrived at by standardizing the composite quality z-score within each sector. The sector-relative quality scores are winsorized at +/- 3.

The Quality Score is then computed from the sector-relative quality score as follows:

$$\text{Quality Score} = \begin{cases} 1 + Z_{\text{rel}i_T^i}, & Z_{\text{rel}i_T^i} > 0 \\ (1 - Z_{\text{rel}i_T^i})^{-1}, & Z_{\text{rel}i_T^i} < 0 \end{cases}$$

Where $Z_{\text{rel}i_T^i}$ is the sector-relative quality score determined in the previous step.

Sector neutral weighting

The selection of securities for inclusion in the index and the index weighting is done as described in Section 2 using the Quality Score computed as mentioned in the above step. These weights are then updated to implement sector neutrality i.e., the weight of each sector in the MSCI Sector Neutral Quality Index is equated with the weight of that sector in the Parent Index at the rebalancing. This is done by normalizing the weights of the constituents within each sector to reflect the Parent Index sector weight. If no securities are selected from any particular sector(s) of the Parent Index to the MSCI Sector Neutral Quality Index during rebalancing, the proforma weight of that sector in the Parent Index will be re-distributed amongst remaining sectors of the MSCI Sector Neutral Quality Index.

Appendix VII: Methodology Set

The Indexes are governed by a set of methodology and policy documents ("Methodology Set"), including the present index methodology document as mentioned below:

- Description of methodology set –
<https://www.msci.com/index/methodology/latest/ReadMe>
- MSCI Corporate Events Methodology –
<https://www.msci.com/index/methodology/latest/CE>
- MSCI Fundamental Data Methodology –
<https://www.msci.com/index/methodology/latest/FundData>
- MSCI Index Calculation Methodology –
<https://www.msci.com/index/methodology/latest/IndexCalc>
- MSCI Index Glossary of Terms –
<https://www.msci.com/index/methodology/latest/IndexGlossary>
- MSCI Index Policies –
<https://www.msci.com/index/methodology/latest/IndexPolicy>
- MSCI Global Industry Classification Standard (GICS) Methodology –
<https://www.msci.com/index/methodology/latest/GICS>
- MSCI Global Investable Market Indexes Methodology –
<https://www.msci.com/index/methodology/latest/GIMI>

The Methodology Set for the Indexes can also be accessed from MSCI's webpage <https://www.msci.com/index-methodology> in the section 'Search Methodology by Index Name or Index Code'.

Appendix VIII: Changes to this Document

The following sections have been modified since March 2014:

- Update of the introduction of the MSCI Quality Indexes
- Addition of Appendix V containing methodology details of MSCI Quality Tilt Index

The following sections have been modified since June 2014:

- Update of the introduction of the MSCI Quality Indexes
- Addition of Appendix VI containing methodology details of MSCI Sector Neutral Quality Index

The following sections have been modified since August 2014:

- Appendix V 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.

The following sections have been modified as of May 2022:

- Update of the Appendix VI to clarify the index treatment when no securities from any particular sector(s) from the Parent Index are eligible to be added to the MSCI Sector Neutral Quality Index.

The following sections have been modified as of May 2025:

- Update of the Appendix II to make both Return on Equity (ROE) and Debt to Equity figures mandatory for computation of the Quality Z Score.
- Addition of Appendix VII providing details on the Methodology Set of the Index

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