
Construction Rules for the Morningstar[®] Singapore Yield Focus IndexSM

Morningstar Indexes

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Overview

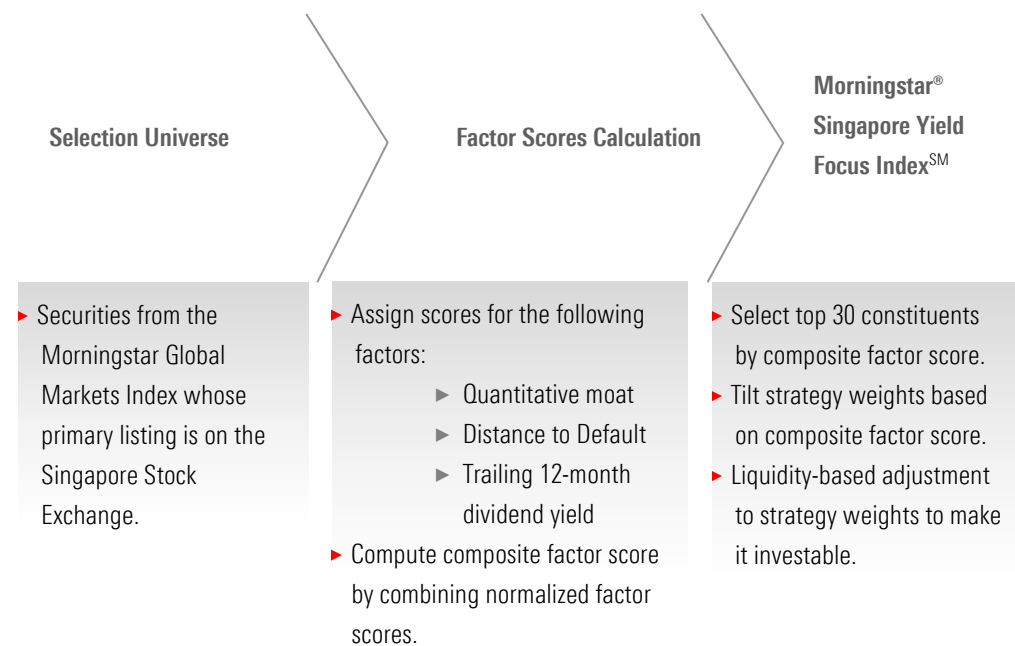
The Morningstar Singapore Yield Focus IndexSM tracks the performance of quality income strategy using the proprietary factors that underpin the Morningstar[®] Global Dividend Yield Focus Index family. The constituents of the index are a subset of stocks in the Morningstar[®] Global Markets Index whose primary listing is on the Singapore Stock Exchange.

Index Inception Date and Performance Inception Date

The inception date of the index is August 14, 2018, and the performance inception date of the index is June 17, 2005, when the first back-tested index value was calculated.

Index Construction

Exhibit 1 Morningstar Singapore Yield Focus Index Construction Process



For additional details, refer to the "Assigning Stocks to the Index" section.

Assigning Stocks to the Index

Selection Universe

At each reconstitution, securities for the Morningstar Singapore Yield Focus Index are derived from securities in the Morningstar Global Markets Index whose primary listing is on the Singapore Stock Exchange. For more details on benchmark construction, refer to the [Construction Rules for the Morningstar Global Markets Index](#).

Factor Construction

Each factor considered below for composite score calculation is normalized within the defined universe according to the following formula:

$$Z_{ji} = \frac{X_{ji} - \mu_j}{\sigma_j}$$

where :

Z_{ji}	= Normalized Factor value of the i^{th} security and j^{th} factor
X_{ji}	= Factor Value of the i^{th} security and j^{th} factor
μ_j	= Cross-sectional mean of the j^{th} factor
σ_j	= Cross-sectional standard deviation of the j^{th} factor

The factor values (X_{ji}) are winsorized at the 5th and 95th percentiles; that is, all values below the 5th percentile are set to the 5th percentile, and values above 95% percentile are set to the 95th percentile.

The normalized factor values (Z_{ji}) are then transformed as below:

$$\text{Transformed Factor } (TF_{ji}) = \begin{cases} (1 - Z_{ji})^{-1}, & \forall Z_{ji} < 0 \\ (1 + Z_{ji}), & \forall Z_{ji} \geq 0 \end{cases}$$

Where TF_{ji} represents the transformed factor of the i^{th} security and j^{th} factor.

Finally, a composite factor score is computed by combining the transformed factor scores as under:

$$\text{Composite factor score}_i = TF_{mi} * TF_{dtai} * TF_{yldi}$$

The following factors are considered to assign factor scores.

- ▶ Quality: The quality factor (Z_{mi}) is a normalized value of the quantitative moat score within the global universe. A score of zero can be interpreted as average, and a positive (negative) value implies high (low) quality.
- ▶ Financial health: The financial health factor (Z_{dtai}) is the normalized value of the Distance to Default (DtD) score of the given company within its sector and regional classification (For more information refer Appendix 3). Higher scores imply stronger financial health and therefore a lower risk of bankruptcy.
- ▶ Dividend yield: The dividend yield factor (Z_{yldi}) is the normalized value of the trailing 12-month (TTM) dividend yield of the companies within the global universe. Higher scores imply attractive dividend yield.

A broad overview of the Morningstar Quantitative Moat Rating and the Morningstar Distance to Default is provided in Appendix 2. For more details on the global universe, refer to the [Construction Rules for the Morningstar Global Markets Index](#).

Index Selection

- ▶ Select top 30 securities from the eligible universe based on composite factor score, subject to the below constraint:
 - ▶ Assuming a hypothetical fund with SGD 50 million in assets under management that trades no more than 40% of any security's three-month average daily traded volume, or ADTV, an added security must have less than 10 days to trade given its weight in the index.

Number of Stocks

The index targets 30 stocks based on a transparent ranking system subject to selection and eligibility criteria at reconstitution. However, if securities fall short of the selection and eligibility criteria or if securities are added or deleted because of corporate action after reconstitution, the index can have more or fewer than 30 securities. During reconstitution, if the number of securities is less than the target, the weights of the constituents will be determined based on the index weighting scheme. The schedule for reconstitution and corporate actions is available in the "Index Maintenance and Calculation" section.

Index Weighting

The weight of each security in the index is calculated as:

$$w_i = \frac{(TF_{mi} * TF_{dt di} * TF_{yld i}) * FMC_i}{\sum_i^n ((TF_{mi} * TF_{dt di} * TF_{yld i}) * FMC_i)}$$

where :

TF_{mi}	= Transformed Moat Factor Score of the i^{th} security
$TF_{dt di}$	= Transformed Distance to Default Factor Score of the i^{th} security
$TF_{yld i}$	= Transformed TTM Dividend Yield Tilt Factor Score of the i^{th} security
FMC_i	= Float Market Cap of the i^{th} security

Security Capping Algorithm

- ▶ Security weights are capped at 10%.
- ▶ The security weights are adjusted based on their liquidity such that:

$$|w_i - cw_i| \leq \frac{\text{Days to trade} * ADTV_i * \% ADTV \text{ being traded in 1 day}}{AUM}$$

Where:

cw_i	= current weight of the i^{th} security in the index
$ADTV_i$	= Average Daily Trading Volume of the i^{th} security
Days to trade	= 2
AUM	= SGD 50 million
%ADTV being traded in one day	= 40%

For additions, the current weight in the portfolio cw_i is 0. Note that if a security is deleted from the benchmark, the same would be deleted from the index, irrespective of its liquidity.

- ▶ The residual weights are redistributed to remaining liquid securities.
- ▶ Security weights are capped again in case the maximum weight is more than 10%. For more details, refer to the [Morningstar Indexes Calculation Methodology rulebook](#).

Index Maintenance and Calculation

Scheduled Maintenance

The index is reconstituted and rebalanced semiannually and implemented after the close of business on the third Friday of June and December and is effective the following Monday. If Monday is a holiday, it is effective on the immediate following business day. The market data used for reconstitution and rebalancing is as of the last trading day of May and November.

Refer to Appendix 1 for details on reconstitution and rebalancing.

Corporate Action

The treatment of corporate actions can be found in the [Morningstar Indexes Corporate Actions Methodology](#) rulebook.

Index Calculation and Price Data

Details about index calculations and price data can be found in their respective rulebooks: [Morningstar Indexes Calculation Methodology](#) and [Equity Closing Prices Used for Index Calculation](#).

Methodology Review and Index Cessation Policy

The index methodology is continually reviewed to ensure it achieves all stated objectives. These reviews take into account corporate action treatment, selection, and maintenance procedures. Subscribers to the index will be notified before any methodology changes are made. For more details, refer to the [Morningstar Index Methodology Change Process](#).

Morningstar also notifies all subscribers and stakeholders of the index that circumstances might arise that require a material change to the index, or a possible cessation of the index. Circumstances that could lead to an index cessation include, but are not limited to, market structure change, product definition change, inadequate supply of data, insufficient revenue associated with the index, insufficient number of clients using the index, and/or other external factors beyond the control of the Morningstar Index Committee.

Because the cessation of the index or benchmark index could disrupt subscriber products that reference this index, all subscribers are encouraged to have robust fallback procedures if an index is terminated. For more details, refer to the [Morningstar Index Cessation Process](#).

Data Correction and Precision

Intraday Index Data Corrections

Commercially reasonable efforts are made to ensure the accuracy of data used in real-time index calculations. If incorrect price or corporate action data affect index daily highs or lows, they are corrected retroactively as soon as is feasible.

Index-Related Data and Divisor Corrections

Incorrect pricing and corporate action data for individual issues in the database will be corrected upon detection. In addition, an incorrect divisor of an index, if discovered within five days of its occurrence, will always be fixed retroactively on the day it is discovered to prevent an error from being carried forward. Commercially reasonable efforts are made to correct an older error subject to its significance and feasibility.

For more details, refer to the [Recalculation Guidelines](#).

Computational and Reporting Precision

For reporting purposes, index values are rounded to two decimal places and divisors are rounded to appropriate decimal places.

Appendixes

Appendix 1: Glossary

Terms	Description
Reconstitution	During each reconstitution, the steps mentioned in the index construction process are performed, resulting in membership reset.
Rebalance	During each rebalancing, the weights are adjusted for updated free-float and shares outstanding data.

Appendix 2

Morningstar Economic Moat Rating

In a free market economy, capital seeks the areas of highest return. Whenever a company develops a profitable product or service, it doesn't take long before competitive forces drive down its economic profits. Only companies with an economic moat—a structural competitive advantage that allows a firm to earn above-average returns on capital over a long period of time—are able to hold competitors at bay.

To help investors identify companies that possess a moat, Morningstar's Equity Research analysts assign one of three economic moat ratings: none, narrow, or wide. There are two major requirements for firms to earn either a narrow or wide rating: 1) The prospect of earning above-average returns on capital and 2) some competitive edge that prevents these returns from quickly deteriorating.

For more information on the moat rating process performed by Morningstar Equity Research, refer to the [Morningstar Equity Research Methodology](#).

Distance to Default

Distance to Default is a structural or contingent claim model that takes advantage of both market information and accounting financial information. The firm's liabilities are viewed as a call option on the value of the firm's assets. If the value of the assets is not sufficient to cover the firm's liabilities (the strike price), default is expected to occur.

For more information on the Distance to Default, please refer to the [Morningstar Indexes Distance to Default Methodology Paper](#).

Morningstar Quantitative Moat Rating

The Quantitative Economic Moat Rating is analogous to Morningstar's Economic Moat Rating in that both are meant to describe the strength of a firm's competitive position. It is calculated using an algorithm designed to predict the economic moat rating a Morningstar analyst would assign to the stock. The quantitative rating is expressed as none, narrow, or wide. If the input data required for the algorithm is not available, a quantitative rating will not be assigned.

For further details on the Morningstar quantitative moat, please refer to [Morningstar's Quantitative Equity & Credit Ratings methodology](#).

Appendix 3: Sector and Region Definitions

Morningstar Sectors

Each benchmark constituent is considered for one of the 11 industry sectors, which are then consolidated into three Super Sectors that are a broader representation of Morningstar sectors.

- ▶ Cyclical Super Sector
 - ▶ Basic materials
 - ▶ Consumer cyclical
 - ▶ Financial services
 - ▶ Real estate

- ▶ Defensive Super Sector
 - ▶ Consumer defensive
 - ▶ Healthcare
 - ▶ Utilities

- ▶ Sensitive Super Sector
 - ▶ Communication services
 - ▶ Energy
 - ▶ Industrials
 - ▶ Technology

Morningstar Regions

Each benchmark constituent is considered for one of the following eight regions.

- ▶ Developed Markets
 - ▶ Developed Asia Pacific
 - ▶ Developed Europe
 - ▶ Developed Middle East and Africa
 - ▶ Developed North America

- ▶ Emerging Markets
 - ▶ Emerging Asia
 - ▶ Emerging Europe
 - ▶ Emerging Latin America
 - ▶ Emerging Middle East and Africa

About Morningstar, Inc.

Morningstar, Inc. is a leading provider of independent investment research in North America, Europe, Australia, and Asia. Morningstar offers an extensive line of products and services for individual investors, financial advisors, asset managers, and retirement plan providers and sponsors. Morningstar provides data on approximately 510,000 investment offerings, including stocks, mutual funds, and similar vehicles, along with real-time global market data on more than 17 million equities, indexes, futures, options, commodities, and precious metals, in addition to foreign exchange and Treasury markets. Morningstar also offers investment management services through its investment advisory subsidiaries.

About Morningstar Indexes

Morningstar® Indexes combine the science and art of indexing to give investors a clearer view into the world's financial markets. Our indexes are based on transparent, rules-based methodologies that are thoroughly back-tested and supported by original research. Covering all major asset classes, our indexes originate from the Morningstar Investment Research Ecosystem—our network of accomplished analysts and researchers working to interpret and improve the investment landscape. Clients such as exchange-traded fund providers and other asset management firms work with our team of experts to create distinct, investor-focused products based on our indexes. Morningstar Indexes also serve as a precise benchmarking resource.

Morningstar Index Committee

The [Morningstar Index Committee](#) is currently comprised of senior officials who possess the appropriate levels of knowledge in relation to Indexes. A wide array of business groups are represented to allow for a broad voice to be heard and for a wider view to be expressed in evaluating all subjects brought up during Committee meetings. The Committee seeks to create indexes of the highest quality that meet the recognized qualities of a good benchmark.

For More Information

For any queries, reach out to us via our [communication page](#).



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