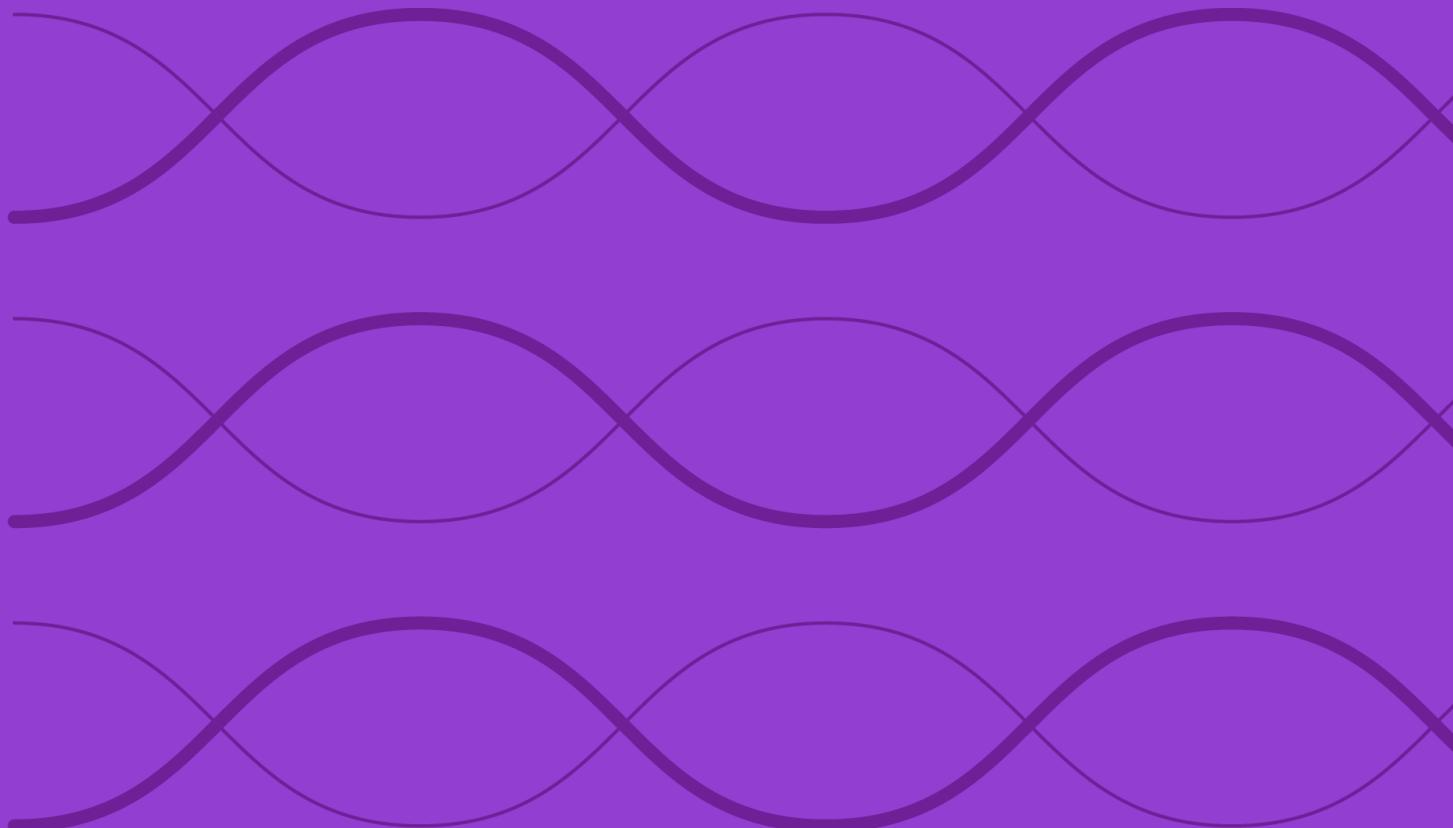


Construction Rules for the Morningstar US Bond Market Yield-Optimized Index



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Overview

The Morningstar US Bond Market Yield-Optimized Index is a broadly diversified index that targets securities that seek to deliver a high level of current income while maintaining long-term capital appreciation. The index consists of a comprehensive set of exchange-traded funds (ETFs) that collectively target various fixed income asset classes.

The index does not incorporate environmental, social, or governance criteria.

Index Inception and Performance Start Date

The index inception date is March 5, 2014, and the performance start date, when the first back-tested index value was calculated, is February 29, 2012.

Index Construction

Methodology Summary



Assigning ETFs to the Index

Starting Universe

At each reconstitution, securities for the Morningstar US Bond Market Yield-Optimized Index are derived from passive fixed income ETFs with fund sponsor iShares, a subsidiary of BlackRock Inc. The ETFs classified in the following sub asset classes and listed on a US exchange are considered eligible for inclusion in the index:

- US government and government related¹
- US securitized
- US investment grade credit
- US non investment grade credit
- Emerging markets debt

Fund Selection

To be eligible for inclusion in the index, all constituents must meet the following criteria:

- ETFs must have at least one year of trading history
- ETFs must have at least \$100 million in assets under management
- ETFs must have a history of dividend payment
- ETFs must have a 3-month average trading volume greater than 20,000 shares per day
- ETFs with more than 10 non-trading days in the previous quarter are excluded

The following ETF categories are not eligible:

- Tax exempt bonds

In addition, any ETFs which are on BlackRock's publicly posted [RULE 12D1-4 LIST](#) are not eligible.

Number of ETFs

The number of ETFs in the index is subject to the selection and eligibility criteria at the time of reconstitution.

Index Weighting

To maintain broad exposure and diversification, the index will maintain a weight allocation at each rebalance of:

- US government and government related: 10-50%
 - TIPS: 0-10%
- US securitized: 10-50%
- US investment grade credit: 10-50%
 - Floating rate: 0-10%
- US non investment grade credit: 0-20%
- Emerging markets debt: 0-10%

In addition, the following security level weight constraints are applied:

- Maximum single security position is 30%
- Maximum position for securities with less than \$500 million in assets under management is 10%

¹ Government related includes agency, Treasury Inflation Protected Securities, local authorities, sovereign, and supranational.

Portfolio Weight Calculation

Securities that meet the investable universe standards are selected and assigned a weight according to a variant of the mean-variance optimization equation developed by Morningstar Investment Management. The equation creates an optimal portfolio based on the return, standard deviation, correlation, and yield of the eligible securities. The weight of each select constituent of the portfolio is given by maximizing portfolio yield y_p such that expected portfolio risk σ_p is less than or equal to expected aggregate bond risk σ_m and the sector weight and the maximum per sector and per constituent allocation constraints are satisfied:

$$\max y_p(w) : \sigma_p(w) \leq \sigma_m$$

Where:

$$y_p = w'y = \sum_{i=1}^n (w_i y_i)$$

$$\sigma_p = \sqrt{w'Vw}$$

w	=	vector of constituents' weight
y	=	vector of constituents' current yield to maturity (less management fees)
V	=	variance-covariance matrix of last 36 months of total market returns
σ_m	=	trailing 36-month volatility of iShares Core Total Aggregate US Bond ETF (AGG)
n	=	number of eligible constituents

As noted above, co-variances used in the optimizer are calculated using the past 36 months of total market returns.²

Index Maintenance and Calculation

Scheduled Maintenance

Quarterly Reconstitution and Rebalance

The index is reconstituted and rebalanced quarterly and is implemented after the close of business on the last day of February, May, August, and November and is effective the following business day. The market data used for reconstitution and rebalance is as of the previous month end.

Index files are published according to the US calendar schedule. For more information, please refer to the [Morningstar Indexes Holiday Calendar](#).

² For securities with less than 36 months of performance, the prospectus benchmark is used to proxy the ETF's performance.

Index Calculation and Price Data

Index Calculation

The value (price) and total return of the index is calculated using a Laspeyres' formula. The only difference between the price return and total return index is the divisor D_t is different for the total return and price return indexes:

$$\text{Index}(t) = \left(\frac{M(t)}{B(t)} \right) * \text{BaseIndexValue}$$

$$M(t) = \sum_{i=1}^n (p_{i(t)} * q_{i(t)})$$

$$B(t) = C(t) \sum_{i=1}^n (p_{i(0)} * q_{i(0)})$$

The above formula can be simplified as: $\text{Index}(t) = \frac{M(t)}{D(t)}$

Where:

$D(t)$	= divisor at time (t)=B(t)/Base Index Value
n	= number of constituents in the index
$p_{i(0)}$	= closing price of constituent i at the base date
$q_{i(0)}$	= number of shares held in index of constituent i at the base
$p_{i(t)}$	= price of constituent i at time (t)
$q_{i(t)}$	= number of shares in index of constituent i at time (t)
$C(t)$	= adjustment factor for the base date market capitalization
t	= time the index is calculated
$M(t)$	= market capitalization of the index at time (t)
$B(t)$	= adjusted base date market capitalization of the index at time (t)

Distributions are reinvested proportionally in the index sample of the total return index variant.

Divisor Adjustments

To avoid distortions caused by corporate actions that affect the share capital of index constituents, the divisor of the index is adjusted accordingly.

Note: No divisor adjustments are necessary for constituent splits, since market capitalization does not change and the share number price are adjusted prior to the opening of trading on the split's ex-date.

The following formula will be used for divisor adjustments due to corporate action:

$$D(t+1) = D(t) * \frac{(\sum_i^n P_i(t) * Q_i(t)) + \Delta MV(t+1)}{(\sum_i^n P_i(t) * Q_i(t))}$$

Where:

Where:

$D(t)$	= divisor at time (t)
$D(t + 1)$	= divisor at time (t+1)
$p_i(t)$	= price of constituent i at time (t)
$q_i(t)$	= number of shares of constituent i at time (t)
$DMC(t + 1)$	= add new components' market capitalization and adjusted market capitalization

Calculated with adjusted closing prices and shares effective at time t+1 and/or minus market capitalization of constituents to be deleted

Note: If the current trading price of a constituent is unavailable, the previous trading session's closing price is used. However, if the constituent is affected by any corporate action that requires an adjustment, then the adjusted price is used.

Distribution Reinvestment

Distributions are reinvested proportionally into the index sample on the ex-date. The ex-date rather than the pay date is used because the marketplace price adjustment for the distribution occurs on the ex-date. A divisor adjustment for the Total Return index is performed to reflect distribution reinvestment. The total distributions paid by all constituents in the index on the ex-date are considered a market value change and the divisor is adjusted accordingly.

Price data

Price data is the end of day total return index level of index constituents calculated by third parties for index level calculation.

Methodology Review and Index Decommissioning Policy

The index methodology is continually reviewed to ensure it achieves all stated objectives. These reviews consider 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 Policy](#).

Morningstar Indexes notifies all subscribers and stakeholders of the index that circumstances might arise that require a material change to, or a possible cessation of, the index. These circumstances are generally not within Morningstar's control and may include significant changes to the underlying market structure, inadequate access to necessary data, geo-political events, and regulatory changes. In addition, factors such as low usage or methodology convergence may result in the cessation of an index.

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 Decommissioning Policy](#).

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 affects index calculations, corrections are applied prospectively.

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 if discovered within two days of its occurrence will 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](#).

Exceptions

While Morningstar will seek to apply the methodology as described within this document, the market environment, supervisory, legal, financial, or tax reasons may require an alternative approach to be adopted. A decision to take an alternative approach will be made by the Morningstar Index Methodology Committee, and in all instances, the application of a nonstandard process will be reported to the Morningstar Index Oversight Committee.

Appendices

Appendix 1: Modifications to the Rulebook

Section	Description of Change	Update Date
Selection universe	Emerging markets debt is added as a sub asset class with a 0-10% range	August 2016
Index weighting	Modified flooring to 10% for US government and government related, US securitized and US investment grade credit	August 2016
Entire rulebook	Moved to a new brand template and included clarifications regarding security eligibility and selection	May 2024
Index maintenance and calculation	Clarified description of holiday calendar according to updated guidance from calculation agent	February 2025
Entire rulebook	Minor formatting changes Removed Computational and Reporting Precision Section	June 2025

About Morningstar Indexes

Morningstar Indexes was built to keep up with the evolving needs of investors—and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals,

institutions, wealth managers, and advisors in navigating investment opportunities across major asset classes, styles, and strategies. From traditional benchmarks and unique IP-driven indexes to index design, calculation, and distribution services, our solutions span an investment landscape as diverse as investors themselves.

Morningstar Index Methodology Committee

The Morningstar Index Methodology Committee oversees all new index development, index methodology changes, and cessation of indexes for any indexes where Morningstar owns the intellectual property. This committee is also charged with ensuring that indexes align with Morningstar Research principles and values. The group comprises members of the index team with index research, product development, product management, client service, index implementation, and operation expertise who provide the first layer of governance over index design and methodology.

Morningstar Index Operations Committee

The Morningstar Index Operations Committee governs the processes, systems, and exception handling of the day-to-day management of all live indexes, including index rebalancing and reconstitution, restatements, market classification, and contingency management. The committee oversees the annual review of index methodology (as required by U.K. and EU benchmark regulations, or BMR), ensuring that methodologies remain fit for purpose and continue to achieve their stated investment objectives. The group comprises members of the index team with data, operations, corporate actions, product development, index launch, client service, and index management experience who provide the first layer of governance over index operations.

Morningstar Index Oversight Committee

The Morningstar Index Oversight Committee is responsible for the index oversight function as per the requirements of the U.K. and European BMR, providing independent oversight of all aspects of the governance of benchmark administration as required by the relevant BMR. Its remit extends to all calculation and administration-related business activities of Morningstar Indexes, including administration of Morningstar-owned benchmarks as well as client-owned benchmarks and index calculation. The oversight function is part of the organizational structure of Morningstar but is separate and independent from the index business, index management, and the other index committees.

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