

# Construction Rules for the Morningstar 529 College Savings Indexes



**Overview** ..... 3

**Asset Allocation**..... 3

**Security Selection Methodology** ..... 3

**Index Construction** ..... 4

**Assigning Indexes to the Index**..... 4

**Index Weighting** ..... 5

**Portfolio Weight Calculation**..... 5

**Index Maintenance and Calculation**..... 6

**Scheduled Maintenance** ..... 6

**Index Calculation and Price Data**..... 6

**Methodology Review and Index Cessation Policy** ..... 7

**Data Correction and Precision** ..... 7

**Intraday Index Data Corrections**..... 7

**Index-Related Data and Divisor Corrections** ..... 7

**Exceptions**..... 7

**Appendixes** ..... 8

**Appendix 1: Modifications to the Rulebook**..... 8

**Appendix 2: Glossary** ..... 8

**Appendix 3: Detailed Characteristics of a 529 College Savings Plan** ..... 8

**About Morningstar Indexes** ..... 9

## Overview

The Morningstar 529 College Savings Indexes are a series of tax-advantaged investment plans designed to meet the benchmarking needs of those attempting to fund a college education as defined under Section 529 of the US Internal Revenue Code. The main component of these indexes is the construction of an optimal glide path or adjustment in asset-class exposures over time, for a given risk tolerance and target graduation date. The glide path for each index series is developed using a simulation-based utility optimization process known as surplus optimization, where the expected risk factors associated with college inflation are considered when selecting the asset class allocations. The Morningstar 529 College Savings Indexes are indexes of indexes, which may serve as useful proxies when benchmarking relative performance of 529 plans.

Morningstar Indexes has combined the principles of Morningstar Investment Management's asset allocation methodology with a collection of Morningstar indexes to create the 529 index series. The Morningstar 529 College Savings Index series consists of three risk tolerances — aggressive, moderate, and conservative — to provide appropriate target-date risk tracks. Each risk category contains a range of indexes corresponding to target graduation dates in three-year increments. Going forward, Morningstar will maintain a rolling set of indexes in each risk series.

There are two main considerations in the construction rules for the indexes:

### Asset Allocation

The asset allocation provides the optimal portfolio of stocks, bonds, and cash. It is driven by Morningstar Investment Management's asset allocation methodology.

### Security Selection Methodology

The security selection is defined by the rules-based methodology applicable to each underlying Morningstar index in the constituent list.

The industry approach to 529 funds is to allocate a majority of assets to equities early on, with the remainder in interest-bearing assets such as bonds and cash. The percentage in equities is reduced over time and allocation to other, usually safer, asset classes as the child approaches his or her target graduation date. This automatic adjustment in asset class exposure is designed to reduce risk over time and is the central theme of a 529 fund.

For more details on the indexes, refer to [Appendix 3](#).

The indexes do not incorporate environmental, social, or governance criteria.

### Index Inception and Performance Start Date

Index	Performance Start Date	Inception Date
Morningstar 529 College Savings Conservative 2016	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Moderate 2016	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2016	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2019	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Moderate 2019	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2019	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2022	June 21, 2002	January 2, 2014

Morningstar 529 College Savings Moderate 2022	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2022	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2025	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Moderate 2025	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2025	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2028	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Moderate 2028	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2028	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2031	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Moderate 2031	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2031	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2034	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Moderate 2034	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Aggressive 2034	June 21, 2002	January 2, 2014
Morningstar 529 College Savings Conservative 2037	June 21, 2002	August 6, 2019
Morningstar 529 College Savings Moderate 2037	June 21, 2002	August 6, 2019
Morningstar 529 College Savings Aggressive 2037	June 21, 2002	August 6, 2019
Morningstar 529 College Savings Conservative 2040	June 16, 2023	June 21, 2023
Morningstar 529 College Savings Moderate 2040	June 16, 2023	June 21, 2023
Morningstar 529 College Savings Aggressive 2040	June 16, 2023	June 21, 2023

## Index Construction

### Assigning Indexes to the Index

#### *Starting Universe*

Morningstar includes a robust opportunity set of 18 asset classes and uses Morningstar indexes as proxies for these asset classes. Morningstar includes two real-return asset classes in the opportunity set: Treasury Inflation-Protected Securities (TIPS) and US Real estate investment trusts (REITS), which are common in 529 products because of the inflation characteristics of the asset classes.

Morningstar believes strongly in the benefits of diversification. All else equal, a larger opportunity set of investable asset classes should result in an efficient frontier with improved risk and return characteristics. The asset classes represented by Morningstar indexes, which are used as building blocks for the 529 indexes, allows the construction of asset allocation models that should produce long-term risk and return characteristics that represent best-in-class benchmarks. The Morningstar indexes used in the 529 College Savings Indexes are listed below. Rules governing security inclusion, index

reconstitution/rebalancing, security splits/dividends/contract expirations, and other index mechanics are detailed in the rulebooks for each constituent index.<sup>1</sup>

### *Constituent Indexes*

- Morningstar US Dollar 1-Month Cash Index
- Morningstar US 1-5 Year Core Bond Index
- Morningstar US 5-10 Year Core Bond Index
- Morningstar US 10+ Year Core Bond Index
- Morningstar US Treasury Inflation-Protected Securities Index
- Morningstar Global ex-US Treasury Bond Index
- Morningstar US Large Growth Index
- Morningstar US Large Core Index
- Morningstar US Large Value Index
- Morningstar US Mid Growth Index
- Morningstar US Mid Core Index
- Morningstar US Mid Value Index
- Morningstar US Small Growth Index
- Morningstar US Small Core Index
- Morningstar US Small Value Index
- Morningstar Developed Markets ex-US Index
- Morningstar Emerging Markets Index
- Morningstar US REIT Index

### *Number of Constituents*

The indexes contain 18 predefined Morningstar indexes that meet the stated objectives of the index.

### **Index Weighting**

Index weighting is determined by Morningstar Investment Management's asset allocation methodology. The industry approach to 529 funds is to allocate a majority of assets to equities early on, with the remainder in interest-bearing assets such as bonds and cash. The percentage in equities is reduced over time and allocated to the other, usually safer, asset classes as the child approaches his or her target graduation date. This automatic adjustment in asset-class exposure is designed to reduce risk over time and is the central theme of a 529 fund.

### **Portfolio Weight Calculation**

The first step of creating a glide path for a 529 index is to define the capital market assumptions and the opportunity set. The next step is to determine the optimal sub-asset class portfolios. Morningstar then determines the allocations by running what is known as a liability-relative optimization (also known as a surplus optimization).

To determine the optimal allocation, simulations are run to solve for the optimal glide path over each year of the remaining investing period for that child using a nonlinear optimization routine based on a constrained relative risk aversion, or CRRA,

---

<sup>1</sup> Please visit our website to access constituent index rulebooks.

utility function. Furthermore, the final glide path for each level of risk aversion is not based on the equity glide path for the newborn but rather the initial equity allocations for the different ages.

## Index Maintenance and Calculation

### Scheduled Maintenance

#### Annual Reconstitution

The indexes are reconstituted annually and implemented after the close of business on the third Friday of June and are effective the following business day.

#### Quarterly Rebalance

The indexes are rebalanced quarterly and implemented after the close of business on the third Friday of March, June, September, and December and are effective the following business day.

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

Refer to [Appendix 2](#) for details on reconstitution and rebalancing.

### Index Calculation and Price Data

#### Index Calculation

The 529 series of indexes are indexes of indexes, meaning the underlying constituents are indexes. The indexes are calculated using the Laspeyres' formula:

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

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

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

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

Where:

D(t)	=	divisor at time (t)=B(t)/Base Index Value
n	=	number of constituents in the index
pi(0)	=	closing price of constituent i at the base date
qi(0)	=	number of shares held in index of constituent i at the base
pi(t)	=	price of constituent i at time (t)
qi(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)

---


$$B(t) = \text{adjusted base date market capitalization of the index at time (t)}$$


---

It is important to note that the shares ( $q_i(t)$ ) for the index constituents are artificial constructs used for calculation purposes.

### *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 Cessation 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 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 correct 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.

## Appendixes

### Appendix 1: Modifications to the Rulebook

Section	Description of Change	Update Date
Appendix 3	Added 2034 vintage	June 2016
Appendix 3	Added 2037 vintage	June 2019
Index Construction	Switched to a new vendor for the fixed income indexes	September 2019
Appendix 3	Added 2040 vintage	June 2023
Appendix 3	Decommissioned 2013 vintage	June 2024
Entire rulebook	Moved to a new brand template	July 2024
Entire rulebook	Minor formatting changes and removed the Computational and Reporting Precision Section	May 2025

### Appendix 2: Glossary

Term	Description
Reconstitution	During each reconstitution, the membership is reset and the index weight of each constituent is adjusted.
Rebalance	During each rebalance, the weights are reset.

### Appendix 3: Detailed Characteristics of a 529 College Savings Plan

The Morningstar 529 College Savings Indexes named after Section 529 of the Internal Revenue Code, are tax-advantaged investment plans designed to encourage saving for college. Money from a 529 plan can be used for tuition, fees, books, supplies, and equipment required for study at any accredited college, university, or vocational school in the United States and at some foreign universities. The prime benefits of a 529 plan are that the principal grows tax-deferred, and distributions for the beneficiary's college costs are tax-exempt.

The starting assumption is that the birth date of the child coincides with the date of the June reconstitution each year. As of 2024 for each risk track, Morningstar has the following target graduation-date indexes: 2016, 2019, 2022, 2025, 2028, 2031, 2034, 2037, and 2040.

Every three years, a new index will be produced for each risk track. Levels will be calculated by holding the age 0 allocation from the June 2002 index inception date until the time comes that the particular child is 1 year old (since it must continue to use the age 0 allocation for the first year). This is calculated by assuming that the target graduation date coincides with the child's 18th birthday. For example, in 2025, Morningstar will produce the 2043 target graduation-date index for each risk track. While the index will be produced in 2025 for a newborn with a target graduation date of 2043, it will have been assumed to hold the age 0 allocations since June 2002 in order to be normalized with respect to previous portfolios.



Once the index has reached maturity and uses age 21 allocation, Morningstar continues to use the age 21 allocations for 10 years until the index is decommissioned.

For more details, refer to Morningstar Investment Management's [whitepaper on 529 College Savings Plans](#).

## 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 Indexes 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.

[www.indexes.morningstar.com](http://www.indexes.morningstar.com)

## Contact Us

[indexes@morningstar.com](mailto:indexes@morningstar.com)

The information in this document is the property of Morningstar, Inc. Reproduction or transcription by any means, in whole or part, without the prior written consent of Morningstar, Inc., is prohibited. While data contained in this report are gathered from reliable sources, accuracy and completeness cannot be guaranteed. All data,

information, and opinions are subject to change without notice. This document may contain back-tested or simulated performances, and the subsequent results achieved by the investment strategy may be materially different.