
Morningstar Indexes Recalculation Guidelines

Morningstar Indexes

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Overview

Morningstar indexes combine the science and art of indexing to give investors a clearer view into the world's financial markets. Our mission is to create better outcomes for investors by adhering to Morningstar's investment principles: investors first, independent-minded, long term, minimize costs, and holistic portfolios. We focus on creating best-in-class benchmarks and innovative strategic-beta indexes based on proprietary Morningstar intellectual property. Our indexes have transparent, rules-based methodologies backed by compelling empirical support from our intellectually honest back-tested and/or academically validated results.

The Morningstar Indexes team strives to deliver the highest-quality data. However, inaccuracies may occur, and Morningstar Indexes retains the right to recalculate and restate an index when one of the following events has occurred:

- ▶ Missed or late announcement of a corporate event.
- ▶ Error in closing price of constituent securities.
- ▶ Missed or incorrectly applied data input.
- ▶ Incorrect application of methodology.

This document explains the index recalculation process Morningstar Indexes follows. A set of well-defined guidelines leads to predictable outcomes, ensures that index recalculations are put through consistent internal procedures, and complies with the industry's voluntary standards, such as the International Organization of Securities Commissions guidelines and regional regulations.

Index Recalculation Policy

In general, index calculation data input defects, such as price, dividends, or foreign-exchange rates, that do not affect the index weighting factor if discovered within two trading days are corrected, and the index is recalculated regardless of the performance impact. If an error is found beyond the two-day trading-day period or if it affects the index weighting factor, Morningstar Indexes will escalate the issue to the Morningstar Index Methodology Committee, or IMeC, and consult with stakeholders to determine the most appropriate course of action. In such cases, all potential impact or disruption resulting from the recalculation will be considered when making a final determination.

Outlined below is the standard guideline for handling index calculation data input defects that do not affect the index weighting factor when they're discovered within two trading days:

Event	Approach
Missed or late announcement of corporate action	Corporate actions, such as stock splits, bonus issues or stock dividends and reverse stock splits, are corrected on the appropriate ex-date, and the index and affected multi-asset indexes will be recalculated.
Error in closing price	Closing prices are corrected. The index and affected multi-asset indexes will be recalculated.
Dividend	Incorrect or missed dividends are corrected on the appropriate ex-date, and the index and affected multi-asset indexes will be recalculated. Canceled dividends, if already applied, may be proactively reversed before the pay date.
Missed or misapplied data input	If it's determined that performance and/or portfolio composition is affected, the index and multi-asset indexes will be recalculated.
Multi-asset indexes	If a constituent of a multi-asset index is restated, the multi-asset index will be restated as well.

Any accuracy issues falling outside of the recalculation window or if a methodology was incorrectly applied, resulting in a portfolio composition and/or weighting error, Morningstar Indexes will consider the following when making a final decision:

- ▶ If a constituent was added or removed from the index due to incorrect eligibility determination, or its weighting was incorrectly assigned, the index portfolio may be revised proactively on a future date with at least two days' notice.
- ▶ An index will be amended retroactively only if a constituent that does not meet the eligibility criteria was added or the changes made are different from what was previously announced.

If the error is discovered during the pro forma period, the index pro forma will be restated using corrected data.

If a real-time value or end-of-day values are restated for indexes that publish intraday values, Morningstar Indexes will not recalculate real-time values. Only the end-of-day values will be restated.

Incorrect identifiers are generally discovered on the day of the error. Corrections will be included in the next scheduled file delivery.

Errors discovered in the back-testing of an index after the go-live date can be corrected without IMeC consultation, provided they are limited to index calculation data input defects that do not affect the index weighting factor. Back-test errors involving incorrect methodology application or data input errors affecting composition or weight will be escalated to IMeC.

Please note that the above guidelines are the standard approach and apply to all asset classes of indexes. Any occurrence of an unprecedented error type will be assessed individually by IMeC. In all

cases, decisions that differ from the stated process will be reviewed and announced accordingly by Morningstar Indexes.

Index Restatement Process

In case of restatements, Morningstar Indexes will review the issue upon detection and restate within a reasonable time frame. If an index is restated, the following steps will be completed:

- ▶ Morningstar Indexes will regenerate and repost all affected files.
- ▶ Morningstar Indexes will notify all clients of the restatement and file reposts once the process is completed.

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 Methodology Index Committee

The Morningstar Index Methodology Committee oversees all new indexes development, index methodology changes, the annual review of existing index methodologies and cessation of indexes. The IMeC reports to Index Leadership, escalating major and material methodology matters to the Index Oversight and Index Product Committees as warranted. The group consists of members of the index team with index research experience and product and business operations professionals who provide the first layer of governance over the index business, with regard to index design and methodology.

For More Information

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