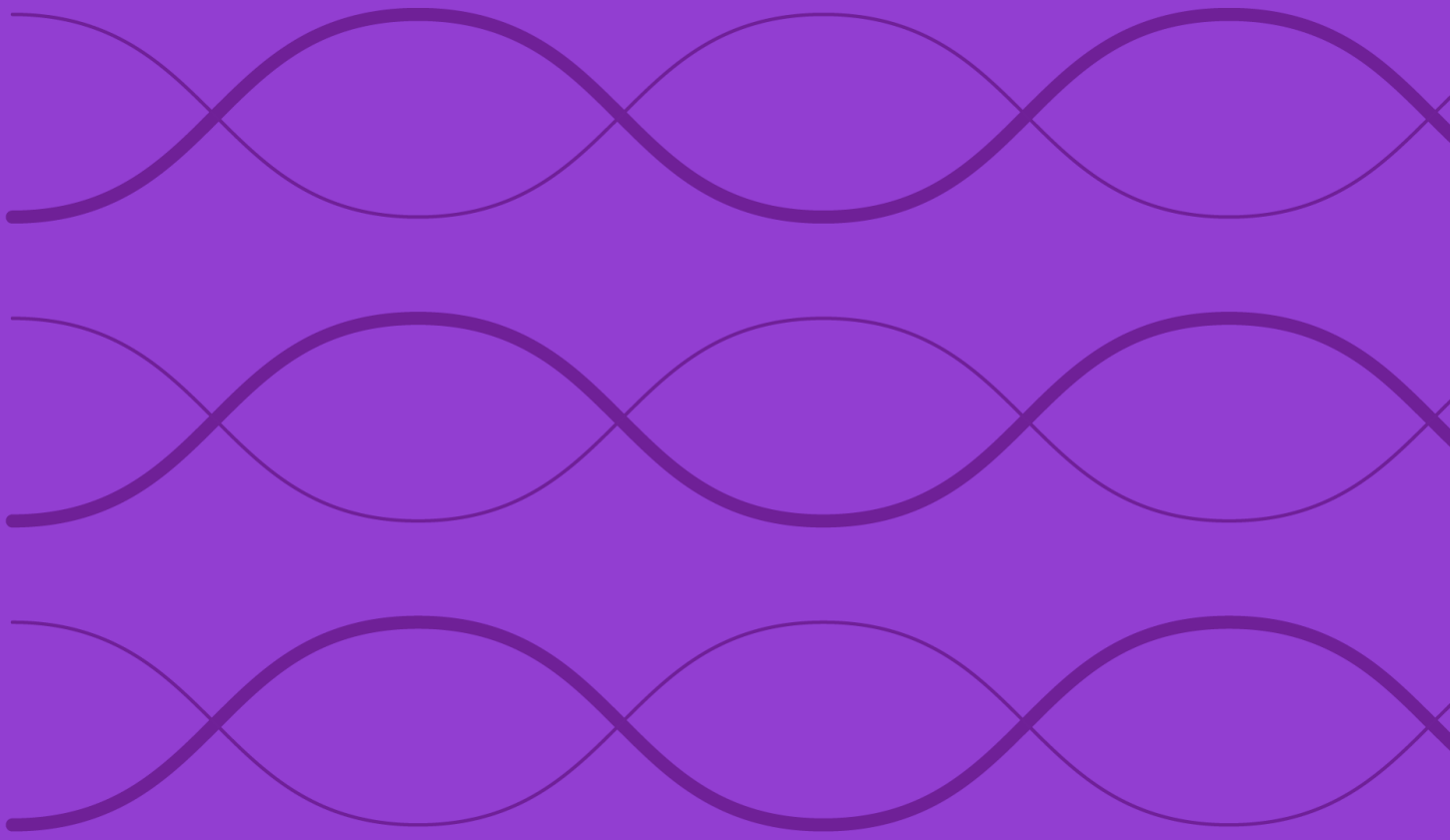
MORNINGSTAR Indexes

Morningstar® Equity Index Statistics Methodology



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Overview

The Morningstar® Equity Index Statistics are designed to provide portfolio-level statistics that are representative of the perspective of an investor replicating the index. This data can facilitate accurate performance benchmarking and research applications, providing insights into how active portfolios are positioned against their benchmarks and how various market segments are evolving. These statistics aggregate monthly constituent-level fundamental data at the index portfolio-level, including valuation ratios, growth rates, and other fundamental characteristics, as shown below.

Price Ratios

- Price/Earnings (trailing 12 months)
- Price/Unadjusted Earnings (trailing 12 months)
- Price/Book (trailing 12 months)
- Price/Sales (trailing 12 months)
- Price/Cash Flow (trailing 12 months)

Yields

- Buyback Yield (trailing 12 months)
- Dividend Yield (trailing 12 months)
- Dividend Yield (forward)
- Index Dividend Yield (trailing 12 months)

Portfolio per share Metrics

- Earnings per Share
- Unadjusted Earnings per Share
- Book Value per Share
- Sales per Share
- Cashflow per Share
- Dividend per Share

Growth Rates

- Earnings Growth (year over year)
- Unadjusted Earnings Growth (year over year)
- Book Value Growth (year over year)
- Cash Flow Growth (year over year)
- Sales Growth (year over year)

- Dividend Growth (year over year)

Index Market Capitalization

- Average Market Cap
- Average Float Market Cap
- Aggregate Market Cap
- Aggregate Float Market Cap

Sector Weights

- Sector Weights

Others

- Return on Equity (ROE)
- Payout Ratio
- Unadjusted Payout Ratio

The values will be the same across all return variants of the same index because these data points are calculated at the index-portfolio level.

Available History

Data is available monthly back to June 2008, or the index performance start date, whichever is more recent. Data for the dividend yield (forward) begins from June 2013.

Index Ratio Aggregation Methodology

Price Ratios

Aggregate price ratios at portfolio level are computed using the weighted harmonic mean of the respective security-level price ratios of the underlying index constituents.

$$\text{Price Ratio} = \frac{\sum_{1}^{N} W(i)}{\sum_{1}^{N} W(i) \cdot \frac{1}{Price\ Ratio\ (i)}}$$

Where,
W(i) = Weight of i^{th} security in the portfolio
N = Number of securities in the portfolio

Price Ratio(i) = Respective Price Ratio of the i^{th} security in the portfolio

The above formula is applicable for:

- Price to Earnings (P/E) using normalized earnings

- Price to Unadjusted Earnings (P/E) using non-normalized earnings
- Price to Book (P/B)
- Price to Sales (P/S)
- Price to Cash Flow

Refer to Appendix 1 for further information on the data point definitions.

If the aggregate ratio is negative, the value will be shown as Null.

Yields

Aggregate portfolio-level yields are computed using the weighted average of the security-level yields of the underlying index constituents:

$$\text{Yield} = \frac{\sum_1^N W(i) \cdot SecurityYield(i)}{\sum_1^N W(i)}$$

Where,
W(i) = Weight of i^{th} security in the portfolio
N = Number of securities in the portfolio
Yield(i) = Yield of i^{th} security in the portfolio

The above formula is applicable for:

- Buyback yield
- Dividend yield (trailing 12 months)
- Dividend yield (forward)

Index Dividend Yield (trailing 12 months)

The aggregate portfolio level yield is calculated using the trailing 12 months index dividend points divided by current index level.

$$\text{Index Dividend Yield TTM} = \frac{\Sigma\ Trailing\ 12M\ Dividend\ points}{Current\ Index\ Level_{PR}}$$

If dividend points are present in IDX close file, they will be used. If not present, dividend points will be calculated using the following formula: Dividend Point (t) = $\left[(1 + Returns_{TR}) * Index\ Level_{PR(t-1)}\right] - Index\_level_{PR(t)}$

Portfolio Per Share Metrics

Portfolio Per Share metrics are calculated as:

$$\text{Portfolio per share metrics} = \frac{Current\ Index\ Level_{PR}}{Index\ level\ price\ ratio}$$

The above formula is applicable for:

- Earnings per share (EPS) using price to earnings ratio
- Unadjusted Earnings per share using price to unadjusted earnings
- Book Value per share using price to book value ratio

- Sales per share using price to sales ratio
- Cash flow per share using price to cashflow ratio

Dividend per share

This represents the portfolio level dividends per share, which is calculated from the index level (price return) times the index level dividend yield.

Dividend per share = $Current\ Index\ Level_{PR} * Index\ level\ dividend\ yield(TTM)$

Growth Rates

Aggregate growth rates are computed as the year-over-year growth of per-share figures at the portfolio level.

$$\text{Index EPS Growth (Year Over Year)} = \frac{\text{Index EPS (Y0)} - \text{Index EPS (Y1)}}{\text{Index EPS (Y1)}}$$

Where,
Y(0) = Trailing 12 Months Index EPS as of current date
Y(1) = Trailing 12 Months Index EPS as of previous year

The above formula is applicable for:

- Earnings Growth (Year Over Year)
- Unadjusted Earnings Growth (Year Over Year)
- Book Value Growth (Year Over Year)
- Cash Flow Growth (Year Over Year)
- Sales Growth (Year Over Year)

For Dividend Growth, Year-Over-Year Growth Rate are computed as:

$$\text{Index DPS Growth (year over year)} = \frac{\text{Index DPS (Y0)} - \text{Index DPS (Y1)}}{\text{Index DPS (Y1)}}$$

Where,
Y(0) = Trailing 12 Months Index DPS as of current date
Y(1) = Trailing 12 Months Index DPS as of previous year

The year-over-year growth metrics are calculated in the base currency of the portfolio.

Index Market Capitalizations

Average Market Cap

The portfolio level Average Market Cap is computed using the weighted arithmetic mean of the security-level total market capitalization of the underlying constituents:

$$\text{Average Market Cap} = \frac{\sum_1^N W(i) lMarketCapitalization(i)}{\sum_1^N W(i)}$$

Where,
W(i) = Weight of ith security in the portfolio
N = Number of securities in the portfolio
Market Capitalization (i) = Full Market Capitalization in base currency of ith security in the portfolio

Average Float Market Cap

The portfolio level Average Float Market Cap is computed using the weighted arithmetic mean of the security-level float market capitalization of the underlying constituents:

$$\text{Average Float Market Cap} = \frac{\sum_1^N W(i) \cdot FloatMarketCapitalization(i)}{\sum_1^N W(i)}$$

Where,
W(i) = Weight of ith security in the portfolio
N = Number of securities in the portfolio
Float Market Capitalization (i) = Float Market Capitalization in base currency of ith security in the portfolio

Aggregate Market Cap

The portfolio level Aggregate Market Cap is computed using the sum of the security-level market capitalization of the underlying constituents:

$$\text{Aggregate Market Cap} = \sum_1^N MarketCapitalization(i)$$

Where,
N = Number of securities in the portfolio
Market Capitalization (i) = Full Market Capitalization in base currency of ith security in the portfolio

Aggregate Float Market Cap

The portfolio level Aggregate Float Market Cap is computed using the sum of the security-level float market capitalization of the underlying constituents:

$$\text{Aggregate Float Market Cap} = \sum_1^N FloatMarketCapitalization(i)$$

Where,
N = Number of securities in the portfolio
Float Market Capitalization (i) = Float Market Capitalization in base currency of ith security in the portfolio

Sector Weights

Sector Weight

The sector weight data points represent the aggregate weight of index constituents in following sectors based on GECS sector classification:

- Basic Materials
- Communication Services
- Consumer Cyclical
- Consumer Defence

- Energy
- Financial Services
- Healthcare
- Industrials
- Real Estate
- Technology
- Utilities

$Sector\ Weight_s = \sum_{i \in s} W_i$
Where:
W_i = Weight of security i
s = sectors in GESC classification

Other

Return on Equity (ROE)

The portfolio level ROE is computed using the portfolio level price/book ratio and price/earnings (trailing 12 months) ratio:

$$\text{ROE} = \frac{Index\ Price\ to\ Book\ Ratio}{Index\ Price\ to\ Earnings\ Ratio}$$

Payout Ratio

The portfolio level payout ratio is computed using product of trailing 12-month dividend yield and trailing 12-month price to earnings:

$$\text{Payout Ratio} = Dividend\ Yield\ TTM * Price\ to\ Earnings\ TTM$$

Unadjusted Payout Ratio

The portfolio level payout ratio is computed using product of trailing 12-month dividend yield and trailing 12-month price to unadjusted earnings:

$$\text{Unadjusted Payout Ratio} = Dividend\ Yield\ TTM * Price\ to\ Unadjusted\ Earnings\ TTM$$

Winsorization of Fundamental Data

Morningstar Indexes winsorizes the absolute value of yields at 99th percentile value of the Morningstar Global All Cap TME universe. Consequently, for securities with an absolute value of yield greater than 99th percentile, the absolute value of yield will be set to the 99th percentile value. Post winsorization, the original sign of the yields will be restored. This applies to:

- Normalized Earnings Yield
- Non-Normalized Earnings Yield
- Book Value Yield
- Sales Yield
- Cash Flow Yield
- Dividend Yield (TTM)

- Dividend Yield (Forward)
- Buyback Yield

Null Handling

Securities with null fundamental data values are excluded from the calculation of aggregate portfolio level ratio. If securities with null fundamental data values are greater than 50% of the portfolio by weight, the aggregate portfolio level ratio will not be calculated. Negative valuation ratios at portfolio level will also be shown as null. Morningstar Indexes will provide the reason for which an aggregate portfolio-level data point is missing.

Restatement

If the constituent weights for underlying index are restated, Morningstar Indexes will recalculate all the aggregate portfolio-level ratios for the affected index. However, updates to the security-level fundamental data will not trigger a recalculation of the portfolio-level ratios.

Methodology Review

This methodology is continually reviewed to ensure it achieves all stated objectives. Subscribers will be notified before any methodology changes are made. For more details, refer to the Morningstar Indexes Methodology Change Policy.

File Maintenance and Delivery

The index statistics (IDXSTAT) files will be generated monthly based on data as of the last business day of the most recent month. These files will be delivered by the third business day of the month. Each data point is calculated at the index-portfolio level, rather than at the return variant-level. All return variants of the same index will have the same values.

Exceptions

While Morningstar will seek to apply the method described above, 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 relevant 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: Data Point Definitions

Dividend Yield

This ratio represents the company's dividend over the past 12 months relative to its current stock price.

Trailing Dividend Yield (TDY) = Trailing Dividend/Stock Price

Where Trailing Dividend represents total regular cash dividends paid out within the past 12-month period.

Exception Rules

Trailing Dividend must > 0, else TDY is Zero
Stock Price must be >0, and cannot be stale, otherwise TDY is Null
If Cash Dividend values are Null, set the Trailing Dividend to zero

Price to Earnings Ratio

This ratio represents the company's current stock price relative to its earnings per share over the past 12 months. This is calculated using Stock Price divided by EPS (TTM).

Company-level earnings yield is used to calculate the index-level aggregated P/E ratio. Earnings yield represents the value of a company's earnings per share relative to its stock price.

P/E = 1/ Earnings Yield

Where Earnings Yield is calculated using EPS (trailing 12 months) divided by Stock Price based on the following priority:

Priority	Formula	Condition
1	Diluted EPS/Stock Price	Diluted EPS is non-null
2	Basic EPS/Stock Price	Diluted EPS is Null and Basic EPS is non-null

Diluted EPS: This data point represents the value of a company's earnings relative to its diluted weighted average shares outstanding. This can be used to measure a company's net income from normal operations on a diluted per-share basis.

$$\text{Diluted EPS} = \frac{\text{Net Income from Continuing Operations}}{\text{Diluted Weighted Average Shares Outstanding}}$$

Basic EPS: This data point represents the value of a company's earnings relative to its basic weighted average shares outstanding. This can be used to measure a company's net income from normal operations on a basic per-share basis.

$$\text{Basic EPS} = \frac{\text{Net Income from Continuing Operations}}{\text{Basic Weighted Average Shares Outstanding}}$$

Exception Rules

If Diluted EPS > Basic EPS, Diluted EPS is set equal to Basic EPS.

Stock Price must be >0, and cannot be stale, otherwise Earnings Yield is Null.

Normalized Price to Earnings Ratio (Normalized P/E)

This ratio represents the company's current stock price relative to its normalized earnings per share over the past 12 months. This is calculated using Stock Price divided by Normalized EPS (TTM).

A company-level normalized earnings yield is used to calculate the index-level aggregated Normalized P/E ratio. Normalized earnings yield represents the value of a company's normalized earnings per share relative to its stock price.

Normalized P/E = 1/Normalized Earnings Yield

Where Normalized Earnings Yield is calculated using Normalized EPS (trailing 12 months) divided by Stock Price based on the following priority:

Priority	Formula	Condition
1	Normalized Diluted EPS/Stock Price	Normalized Diluted EPS is Non-Null
2	Normalized Basic EPS/Stock Price	Normalized Diluted EPS is Null and Normalized Basic EPS is Non-Null

Normalized Diluted EPS: This data point represents the value of a company's normalized earnings relative to its diluted weighted average shares outstanding. This can be used to measure a company's net income from normal operations, excluding unusual or nonrecurring items, on a diluted per-share basis.

Normalized Diluted EPS =

$$\frac{\text{Net Income from Continuing Operations } +/- \text{ any tax affected unusual or non recurring items}}{\text{Diluted Weighted Average Shares Outstanding}}$$

Normalized Basic EPS: This data point represents the value of a company's normalized earnings relative to its basic weighted average shares outstanding. This can be used to measure a company's net income from normal operations, excluding unusual or nonrecurring items, on a basic per-share basis.

Normalized Basic EPS =

$$\frac{\text{Net Income from Continuing Operations } +/- \text{ any tax affected unusual or non recurring items}}{\text{Basic Weighted Average Shares Outstanding}}$$

Exception Rules

If Normalized Diluted EPS > Normalized Basic EPS, set Normalized Diluted EPS equal to Normalized Basic EPS.

Stock Price must be >0, and cannot be stale, otherwise Normalized Earnings Yield is Null

Price to Book Ratio (P/B)

This ratio represents the company's current stock price relative to its common equity book value per share. This is calculated using Stock Price divided by Common Equity Book Value per share.
Company-level book value yields are used to calculate the index-level aggregated P/B ratio.

Book Value Yield represents the value of a company's common equity book value per share relative to its stock price. This is calculated using Common Equity Book Value Per Share divided by Stock Price.

Price to Book Ratio = 1/Book Value Yield
Book Value Yield = Common Equity Book Value Per Share/Stock Price
Common Equity Book Value Per Share =

$$\frac{\text{Common Equity Book Value}}{\text{Total shares outstanding as of the financial report period end date}}$$

Common Equity Book Value represents the amount that all common shareholders have invested in a company. This can be used to measure the original proceeds a company receives from issuing common equity and the changes related to the earnings, losses and dividends paid out.

Common Equity Book Value is calculated based on the following priority.

Priority	Formula	Condition
1	Equity Attributable to Parent Stockholders - Preferred Equity – Stock Options/Warrants/Deferred Shares/Convertible Debentures	Equity Attributable to Parent Stockholders is not Null
2	Total Partnership Capital - Preferred Unit – Stock Options/Warrants/Deferred Shares/Convertible Debentures, LP	Equity Attributable to Parent Stockholders is Null & Total Partnership Capital is not null
3	Total Equity - Noncontrolling/Minority Interests - Preferred Equity - Preferred Unit – Stock Options/Warrants/Deferred Shares/Convertible Debentures - Stock Options/Warrants/Deferred Shares/Convertible Debentures, LP	Equity Attributable to Parent Stockholders and Total Partnership Capital are both Null. Using the newest Total Equity value and other inputs from the same report. If the other inputs are not available in the same report, then trail back up to one year for the other inputs using the following priority for Report Type 'Last Known > First Known > Preliminary Last Known > Preliminary First Known'.

Exception Rules

Common Equity Book Value Per Share must be Non-Null. Using the latest value available in First Known or Preliminary First Known in the last fiscal year/365 days.

Stock Price must be >0, and cannot be stale, else Book Value Yield is Null

Price to Sales Ratio (P/S)

This valuation ratio compares a company's current stock price with its revenue over the past 12 months. The Price/Sales Ratio is an indicator of the value placed on each dollar of a company's revenue.

Company-level sales yields are used to calculate the index-level aggregated Price/Sales Ratio (P/S).
Sales Yield represents the value of a company's total revenue per share relative to its stock price. This is calculated using Total Revenue (Trailing 12 Months) Per Share divided by Stock Price.

Price/Sales ratio (P/S) = 1/Sales Yield
Sales Yield = Total Revenue Per Share/Stock Price
Total Revenue Per Share =

$$\frac{\text{Total Revenue}}{\text{Average Shares Outstanding Over the Accounting Period}}$$

Total Revenue (other than banks) = All revenues from operational activities – discounts – sales return – allowances
Total Revenue for Banks = Net Interest Income + Noninterest Income

Exception Rules, Special Logic, Business Rules
Total Revenue Per Share >0, else Sales Yield is Null. Using the latest TTM available in First Known or Preliminary First Known, in the last fiscal year/365 days.
Stock Price must be >0, and cannot be stale, else Sales Yield is Null

Forward Price to Earnings Ratio

This ratio represents the company's current stock price relative to its projected earnings per share. This is calculated using Stock Price divided by the Consensus estimate for the Current Fiscal Year EPS.

Company-level Forward Earnings Yields are used to calculate the index-level aggregated Forward P/E ratio.
The Forward Earnings Yield represents the value of a stock's projected EPS relative to its price. This can be used to measure the projected earnings produced by each dollar invested in the stock.

Forward Price to Earnings Ratio = 1/Forward Earnings Yield
Forward Earnings Yield = Consensus Estimate EPS/Stock Price
Where Consensus Estimate EPS for the Current Fiscal Year is the median for the Current Fiscal Year EPS Estimates, which are sourced from a third-party vendor.

Exception Rules
Consensus Estimate EPS for Current Fiscal Year must be Non-Null, else Forward Earnings Yield is Null

Stock Price must be >0, and cannot be stale, else Forward Earnings Yield is Null

Market Capitalization

Market capitalization is the total market value of a company. It is the product of the total shares outstanding and the current market price.

The most current share class-level market capitalization is derived from the most recent closing price for a particular share class multiplied by the most recent reported shares outstanding for that particular share class. Share-level market capitalization has the same currency as the trading currency of the shares class.

Market Capitalization = Total Outstanding Shares * Stock Price

Price to Cash Flow (P/CF)

This ratio represents the company's current stock price relative to its operating cash flow over the past 12 months. This is calculated using Stock Price divided by Cash Flow from Operating Activities before changes in Net Working Capital per share (trailing 12 months).

Company-level cash flow yields are used to calculate the index-level aggregated Price/Cash Flow ratio (P/CF).
Cash Flow Yield represents the value of a company's cash flow from operating activities relative to its stock price. This is calculated using Cash Flow From Operating Activities (Trailing 12 Months) Per Share/Stock Price.

Price to Cash Flow ratio (P/S) = 1/Cash Flow Yield
Cash Flow Yield = Cash Flow From Operating Activities (Trailing 12 Months) Per Share/Stock Price
Cash Flow from Operating Activities (Trailing 12 Months) Per Share =

$$\frac{\text{Cash Flow From Operating Activities Used for Calculations}}{\text{Average Shares Outstanding Over the Accounting Period}}$$

Cash Flow from Operating Activities Used for Calculations represents the latest Cash Flow from Operating Activities (trailing 12 months) before changes in Working Capital.

Cash Flow from Operating Activities Used for Calculations = Net Cash Flow from Operating Activities – Changes in Net Working Capital.

Exception Rules

Cash Flow from Operating Activities Used for Calculations (per share) must be Non-Null. Using the latest TTM available in First Known or Preliminary First Known, in the last fiscal year/ 365 days.

Stock Price must be >0 and cannot be stale, else Cash Flow Yield is Null

Buyback Yield

This ratio represents the value of common stock a company has repurchased relative to its market cap. This is calculated by using Issuance of/Payments for Common Stock divided by Market Capitalization.

Buyback Yield = [Issuance of/Payments for Common Stock * -1]/Market Capitalization

Exception Rules, Special Logic

Issuance of/Payments for Common Stock, Net must be Non-Null. Using the latest TTM available in First Known or Preliminary First Known, in the last fiscal year/ 365 days.
If Issuance of/Payments for Common Stock = 0, Buyback Yield is then 0
If Issuance of/Payments for Common Stock > 0, Buyback Yield is Null
Market Capitalization must be >0, else Buyback Yield is Null

Dividend Yield (Forward)

This ratio represents the value of the share's estimated dividend distributions over the next year relative to its price.

Dividend Yield (Forward) = Forward Dividend/Stock Price

The Forward Dividend represents the stock dividend expected to be paid out over the next year. This is calculated by annualizing the last cash dividend paid or the latest announced cash dividend.

Exception Rules, Special Logic

Forward Dividend must > 0, else Forward Dividend Yield is Zero
Stock Price must be >0 and cannot be stale, else Forward Dividend Yield is Null
If the forward dividend is Null, then the Forward Dividend Yield is zero

Return On Equity (ROE)

This ratio represents the value of a company's net income relative to its common equity book value. This can be used to determine how much profit a company generates on the money shareholders have invested in the firm.

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 European Benchmarks Regulation ("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 European Benchmark Regulation ("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

Contact Us

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