
Changes to the Morningstar Equity Style Box

Frequently Asked Questions

What changes are being made to the Style Box?

There are four major changes to the Equity Style Box methodology:

1. Source Style Box inputs from Morningstar Equity Database, using trailing twelve-month data. Previous methodology used Annual Report financial data.
2. Remove Development Status Market-Capitalization buffer
3. Replace five-value and five-growth factor percentile calculation with Z-Score calculation
4. Replace Raw X Coordinate Calculation with Z-Score calculation

For each change, what led to this decision, how is it different than the previous methodology, and why does Morningstar consider this an improvement?

Source Style Box inputs from Morningstar Equity Database, using trailing twelve-month data. Previous methodology used Annual Report financial data.

- Morningstar's equity database has improved in coverage and quality since the last major changes made to the Equity Style Box in 2004. The decision to use trailing twelve-month data compares monthly financial data to monthly price for the value-factors, whereas the previous methodology compared annual financials to a monthly price.

Remove Development Status Market-Capitalization buffer

- Morningstar, incorporating feedback from the market, will be reverting to the market-capitalization methodology used from 2004-2018. In 2018, Morningstar incorporated a development status buffer with the end goal of more closely aligning breakpoints throughout the regions. After consideration, reverting to the previous size calculation is more desirable (for consistency of comparison) than the increased breakpoint alignment of the 2018 change.

Replace five-value and five-growth factor percentile calculation with Z-Score calculation

- It became evident that some "core" indexes have moved into the growth portion of the Style Box and many funds that proclaim to be blend were also consistently placed in the growth box. Upon investigation, the individual factor bucketing approach, which places prospective yields and growth rates into buckets, was disproportionately assigning stocks to the "Plus" bucket for growth-factors and to the "Low" bucket for the value-factors. The Z-Score approach proportionally allocates factor scores from low to high within a scoring group.

Replace Raw X Coordinate Calculation with Z-Score calculation

- The effects of the disproportional factor percentile scoring were surfacing on the Raw X coordinate assignment level. These coordinates are used to place stocks and funds on the style axis of the Style Box. The Z-Score approach of Raw X coordinate assignment is consistent with the new factor-percentile scoring and ensures a more balanced calculation of scores across scoring groups. Specifically, the calculation mandates that within a scoring group the stock with the

lowest standard deviation (of net value-core-growth score) will score closest to 150 (the middle of the style box) and the stocks with standard deviation closest to $-.5$ and $.5$, will score 100 and 200 (the value and growth borders of the Style Box).

What are the key benefits to the updated Morningstar Equity Style Box methodology?

The Morningstar Equity Style Box continues to be a valuable tool in analyzing the investment style of stocks and mutual funds. The new methodology is an evolution towards the current market environment and is better aligned with the industry consensus of growth and value. Additionally, the updated methodology leverages more frequent and reliable inputs from Morningstar's equity database to better align with economic expectations. The updated methodology also assigns scores based on their underlying metric which creates cleaner and smoother final score distributions.

Can you describe the factor change on a deeper level?

Currently, stocks are placed into low, mid-minus, mid-plus, and plus buckets depending on their ratio to the scoring group trimmed mean for that factor. Stocks less than $.75$ times the mean are placed into low, stocks between $.75$ and 1 are placed in to mid-minus, stocks between 1 and 1.25 are placed into mid-plus, and stocks greater than 1.25 are placed into plus. Once stocks are placed into buckets, they score $0.00+$ (the stock with the lowest factor value) to 100 (the stock with the highest factor value). The distance between any two stocks is determined by market capitalization.

In the new methodology, Z-Scores will be used to score each of the ten individual factors, such that the stock with the lowest standard deviation to the scoring group trimmed mean will score 50 . This approach allows for a more normal distribution of factor scores within a scoring group. The exact calculation is listed on page 16 of the new methodology.

These scores, as in the previous methodology, roll up to overall Value and Growth Scores, which are used to calculate a stock's Raw Style. In short, the 10 factors will continue to exist in the calculation, and be delivered through our products, but with an adjusted approach and calculation sitting behind them.

Is there any impact to the Equity Style Box disclosure language?

No, there is no change to the Equity Style Box disclosure language. If you have custom disclosure language, you need to review and assess if the language needs to be modified.

Will Morningstar be restating prior Style Box scores for stocks and funds?

No, previous scores will not be recalculated according to the new methodology. Morningstar does not historically restate data when methodology changes occur, as our methodology is evolving by adapting to changes in the market and not "correcting" prior versions of the calculation. The new methodology will apply to any new portfolio received after October 30th, 2020 with an effective portfolio date of October 30th, 2020 or later. Those portfolios meeting both criteria will be processed using the updated methodology.

What will clients need to do to get the new Equity Style Box data?

Clients do not need to make changes to receive new Equity Style Box data. The new Equity Style Box data will flow through to products through the same process it currently does.

Will my Morningstar Category change?

Upon release of this methodology, no Morningstar Category assignment will be changed. As the Category assignment is based on the previous trailing 36 months of portfolio information, there will be no immediate change. However, over time and as we review the portfolios as part of our ongoing process, a Category change may become possible.

When are you making changes to the Equity Style Box methodology?

The new methodology will apply after October 30th, 2020.