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The Equity Style Box, Recentered

The why and the how of an updated calculation in our Morningstar Style Box methodology.

Morningstar Portfolio Methodologies
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Contents

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On Aug. 31, 2024, we are launching the first update to the Morningstar Equity Style Box methodology since 2020. The changes will address the impact of a handful of highly correlated names dominating the US equity market, which has led to a growth skew for the US large-cap equity universe in particular. The changes will ensure that each style universe, considered as its own portfolio, scores exactly at the midpoint of the value-growth spectrum. This will enhance investors' ability to make clear judgments about whether a fund or portfolio exhibits a value, blend, or growth style irrespective of its market capitalization or regional exposures.

A Brief History of the Equity Style Box

In 1992, Morningstar introduced the equity style box for funds—a revolutionary framework aiding investors in deciphering equity funds' style and size characteristics relative to the broader investment universe. Instead of simply taking fund companies' word for their positioning or having to sort through portfolios line by line, the equity style box provided investors with an intuitive, objective measure of a portfolio's style exposures based on its holdings. Since different investment styles have different levels of risk that lead to differences in returns, the style box quickly became a crucial tool in risk and return assessments, portfolio construction, and portfolio monitoring.

Over the years as markets evolved, so did the need for methodology updates to ensure that the style box remained relevant and true to its principles. Morningstar uses flexible breakpoints to determine what market capitalization constitutes a small-, mid-, or large-cap stock or what factor levels constitute a value, core, or growth stock. A stock's value orientation and growth orientation are distinct measures. Thus, each is measured using different variables. Each stock's overall growth score and overall value score are combined into a growth-minus-value score, which we later transform into a "raw x score." The style box update in 2020 introduced z-score calculations as well as a trimming algorithm that aimed to make the style box's inputs more normally distributed and the output (style scores) more valuable to our clients. In this article, the terms raw x score and style score are used interchangeably.

In our current approach, we determine a stock's style score by dividing all global stocks into 21 peer groups (also referred to as scoring groups in the equity style box methodology). These 21 groups are formed by splitting seven geographic style zones (United States, Latin America, Canada, Europe and Africa, Japan, Asia ex-Japan, and Australia/New Zealand) into large-cap, mid-cap, and small-cap stocks.

Stocks are scored relative to their scoring group peers rather than against fixed growth or value benchmarks, aiming for a neutral average score regardless of market conditions. Using a z-score calculation, we evaluate five growth-related factors and five value-related factors based on both historical and forward-looking metrics. The net of overall value and growth scores are then adjusted, using a different z-score calculation, to fit within the coordinates of our style box, designating stocks as value (a style score less than 100), growth (a style score of more than 200), and core (the middle zone).

The specific equation to derive a stock's raw x score is as follows:

$$Raw\ X_i = \left(100 \times \frac{Ş_i - \mu_i}{\sigma_i}\right) + 150$$

where:

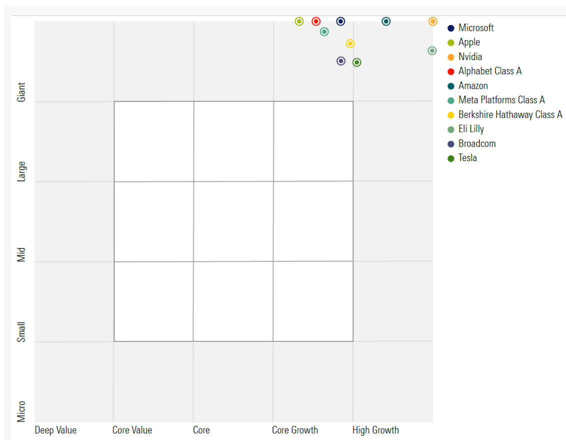
$Ş_i$	=	$G - V$, Growth—Value Score
G	=	Growth Score
V	=	Value Score
μ_i	=	Scoring group Growth—Value average
σ_i	=	Scoring group Growth—Value standard deviation
$\frac{Ş_i - \mu}{\sigma}$	=	Standard Score

What's Changing?

The 2024 update builds on the 2020 changes. While the existing methodology is effective in most market environments, we have identified a unique market dynamic that calls for a superior method of transforming growth and value scores into style scores. Exhibit 1 shows the 10 largest stocks in the US large-cap peer group, which had approximately 175 companies as of April 30. Remarkably, the top 10 stocks accounted for 40% of the peer group's total market cap, and all 10 stocks had a growth orientation.

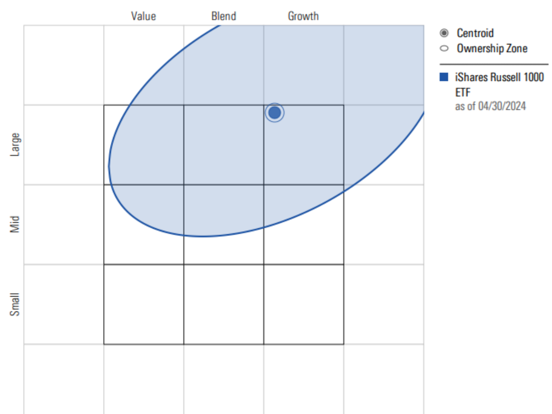
This level of concentration, combined with the correlation between size and growth orientation, is rare. The magnitude of this dynamic has caused the average security in the peer group to deviate from neutral such that there is a growth bias in style scores for all stocks in that peer group. Since a fund's style score is simply a weighted average of the style scores of that fund's underlying stock holdings, funds that invest in large-cap US stocks are materially impacted. To illustrate this, Exhibit 2 shows the style map for iShares Russell 1000 IWB, an exchange-traded fund that tracks the Russell 1000 Index. We can see that the ETF's style score is not tracking the neutral 150 mark as closely as we would expect, despite owning every large-cap US stock, in addition to some mid- and small-cap stocks. In fact, the ETF is currently plotting in growth. This anomaly has significantly advanced in recent months.

Exhibit 1 Style Map of the Top 10 US Large-Cap Companies



Source: Morningstar Direct.

Exhibit 2 Style Map of iShares Russell 1000 ETF

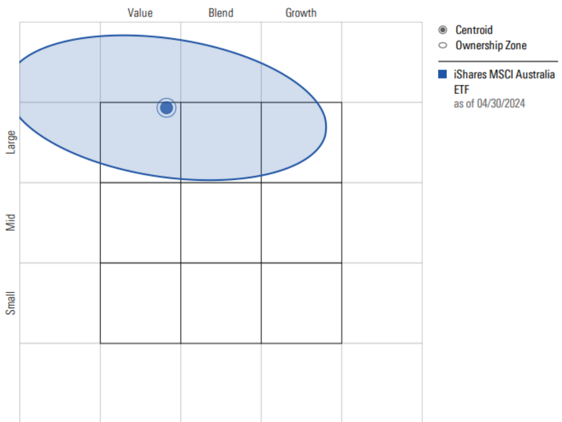


Source: Morningstar Direct.

Note that for funds, thresholds for value and growth differ slightly. Style scores outside of 125 and 175 are needed for funds to qualify as value and growth funds, respectively.

This market dynamic is largely confined to only a few of our 21 peer groups. In addition to large-cap US stocks, large-cap Australian stocks are seeing a similar phenomenon, although in the opposite direction. Exhibit 3 illustrates the style map for iShares MSCI Australia ETF EWA, which tracks the Australian stock market, indicating a value drift for that scoring group.

Exhibit 3 Style Map of iShares MSCI Australia ETF



Source: Morningstar Direct.

The 2024 methodology update will immunize our style scores from such unintended style drift. Returning to the equation above, in the current methodology, the scoring group growth-minus-value average is an equal-weighted average, and the standard deviation term is based on equally weighted growth-minus-value scores. Going forward, instead of equal weighting our means and standard deviations, we will update both to use market-cap weighting. These market-weighted inputs that underpin our z-score calculation for raw x will ensure that each scoring group's central tendency is precisely 150. The introduction of this refinement to the current calculation promises a more standardized depiction of fund style scores, aligning with one of Morningstar's key objectives for the style box—to provide a descriptive framework that accurately portrays a fund's size and style scores relative to its peers, independent of market conditions.

How Will the Change Affect Funds' Placement in the Style Box?

This update, which is scheduled to be implemented on Aug. 31, will have a global impact on equity fund style scores. We anticipate varying changes in the direction and magnitude of these adjustments. For scoring groups that currently have central tendencies above 150 (such as the US large-cap group), style scores will decrease, whereas those below 150 (like Australian large caps) will see increases.

The US and Australian large-cap groups that are seeing the largest dislocations because of this phenomenon are therefore the ones that will witness the most signification adjustments. European large-cap stocks will also likely see a decrease in scores, though the changes will not be as large as those the US and Australia will see. While all style scores will be affected, the result will be quite muted for the majority of the scoring groups. It is also worth mentioning that size scores for stocks and funds will not be affected by this change.

Morningstar acknowledges the ripple effects that these changes will have across various category groups. While most funds will not shift Morningstar Categories, some adjustments have been forecast through rigorous testing and evaluation of back-tested style scores. Style-based categories whose funds predominantly invest in large-cap stocks in the US, Europe, and Australia could see turnover of about 10% because of this update. The test data will help to inform and guide our category team's decisions on specific fund adjustments. However, we will not make the category changes until November of this year, which will allow us to evaluate two months of live scores under the 2024 methodology before finalizing decisions. These category changes will also cascade downstream, affecting both Morningstar Ratings and Morningstar Medalist Ratings, as they rely on peer groups established through fund category classifications.

Wrapping Up

The Morningstar Style Box methodology has been a cornerstone of investor portfolio decisions for over three decades, continuously evolving to meet the needs of investors seeking to understand fund style and size characteristics. This latest update reflects our commitment to enhancing the style box and empowering clients to better grasp the style and size characteristics of their investments. Through these updates, Morningstar remains committed to improving transparency and accuracy within the investment landscape and supporting informed decision-making for investors worldwide. M

For More Information

For current Morningstar clients, please reach out to your respective Client Success Manager for more information on how you can best leverage this research within your firm.

For all others, please reach out to our business development team at dtainsidesales@morningstar.com to learn more about Morningstar's various offerings and more details about how you can leverage this research.

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