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# Morningstar Factor Profile User Guide

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## Morningstar Quantitative Research

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## Introduction

With the Morningstar Factor Profile, investors have a powerful new tool to analyze equity investments. The Factor Profile measures seven equity investment factors that we believe are important drivers of risk and return. This user guide will walk through several examples to give you an idea how to best use the Factor Profile in your own investment analysis.

Before we get to the examples, here is a brief description of the seven factors. For a more detailed explanation, refer to the [methodology document](#). All factors are scored in percentiles from 1 to 100, with the percentile of 1 indicating high exposure and the percentile of 100 indicating low exposure.

### Style

The style factor describes the aggregate expectations of market participants for the future growth and required rate of return for a stock, based on the same measures used for the Morningstar Style Box. A low percentile score for the style factor indicates higher growth.

### Yield

The yield factor describes the dividend and buyback yield of a company, based on the trailing 12 months. A low percentile score for the yield factor indicates higher yield for investors.

### Momentum

The momentum factor describes how much a stock has risen in price over the past year relative to other stocks, calculated by subtracting the trailing one-month return from the trailing 12-month return. A low percentile score for the momentum factor indicates the company has performed well recently.

### Quality

The quality factor describes the profitability and financial leverage of a company, based on an equally weighted mix of trailing 12-month return on equity and debt/capital ratios. A low percentile score for the quality factor indicates a higher quality of the firm.

### Volatility

The volatility factor describes the maximum observed spread in long-term returns, based on the trailing 12-month standard deviation of daily returns. A low percentile score for the volatility factor indicates larger variation in long-run outcomes.

### Liquidity

The liquidity factor describes the trading frequency of a company, based on trailing 30-day share turnover. A low percentile score for the liquidity factor indicates higher share turnover.

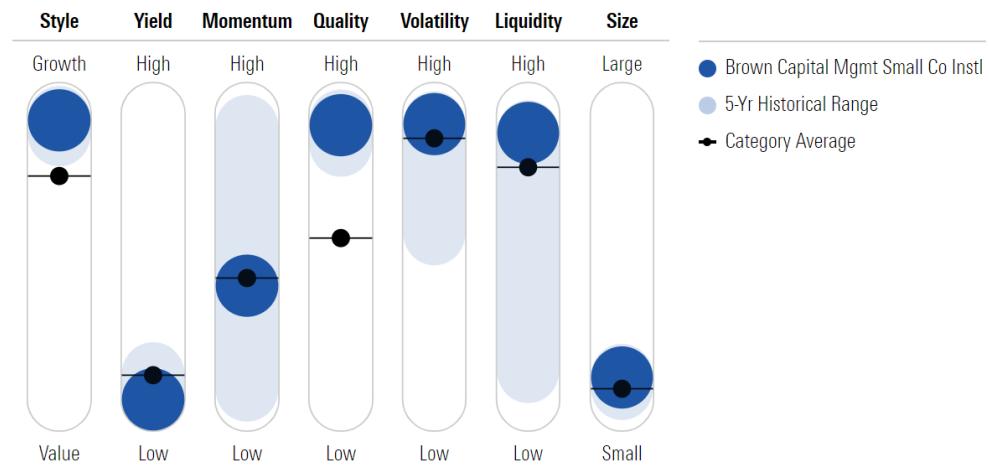
### Size

The size factor describes the market capitalization of a company, based on the same measure used for the Morningstar Style Box. A low percentile score for the size factor indicates smaller market capitalization.

### How to Use the Factor Profile

Let's look at the Factor Profile for Brown Capital Management Small Company BCSIX. This is an active strategy in the small-growth Morningstar Category. You'll find the factor names across the top of the Factor Profile visual, with graphic capsules below. Unlike the style box, which overlays two factors on top of each other, the Factor Profile shows each factor independently. The blue dot shows the current exposure based on the most recently available portfolio. The black dot shows the exposure of the average portfolio in the same category. It is important to understand how a strategy is positioned compared with its relevant peer group. For example, this strategy has a much higher quality exposure than the category average.

After looking at a fund's current exposures, the next step is to see how consistent those exposures have been through time. The shading of the five-year historical range indicates the bounds of the factor scores over the previous five years. In this example, the quality exposure has a very tight historical range, which suggests that the portfolio managers are specifically targeting quality stocks in their investment process. Conversely, the momentum factor has a huge range from very high to very low, which shows that the manager is not likely considering momentum in the investment process. It just happens to be that sometimes the stocks they own have high or low momentum. Based on looking at the historical ranges, you can surmise that Brown Capital Management Small Company targets growth stocks with low yields that are high quality and small.

**Exhibit 1** Factor Profile Visual

Fund as of Sep 30, 2019 | Category: Small Growth as of Oct 31, 2019

**Strategic-Beta Funds**

In the past several years, many strategies that target specific factor exposures have been launched. With the Factor Profile, an investor can directly compare different products against each other. In Exhibit 2, the table shows nine funds that target U.S. momentum stocks, sorted from highest momentum exposure to lowest.

**Exhibit 2** Nine U.S. Momentum Funds

| Name   | Style | Yield | Momentum | Quality | Volatility | Liquidity | Size |
|--|-------|-------|----------|---------|------------|-----------|------|
| Alpha Architect US Quantitative Momentum ETF | 4     | 97    | 1        | 37      | 11         | 8         | 20   |
| Fidelity SAI US Momentum Index               | 18    | 74    | 3        | 67      | 80         | 71        | 85   |
| Invesco DWA Momentum ETF                     | 8     | 89    | 4        | 59      | 56         | 32        | 31   |
| iShares Edge MSCI USA Momentum Factor ETF    | 17    | 70    | 5        | 49      | 68         | 68        | 84   |
| AQR Large Cap Momentum Style I               | 22    | 73    | 6        | 63      | 71         | 57        | 57   |
| Vanguard US Momentum Factor ETF              | 21    | 87    | 6        | 54      | 23         | 18        | 18   |
| Fidelity Momentum Factor ETF                 | 18    | 79    | 7        | 50      | 66         | 62        | 75   |
| JPMorgan US Momentum Factor ETF              | 18    | 77    | 9        | 58      | 56         | 42        | 50   |
| Invesco Russell 1000 Momentum Factor ETF     | 32    | 58    | 21       | 54      | 68         | 70        | 84   |

Source: Morningstar, Inc. Data as Oct 31, 2019.

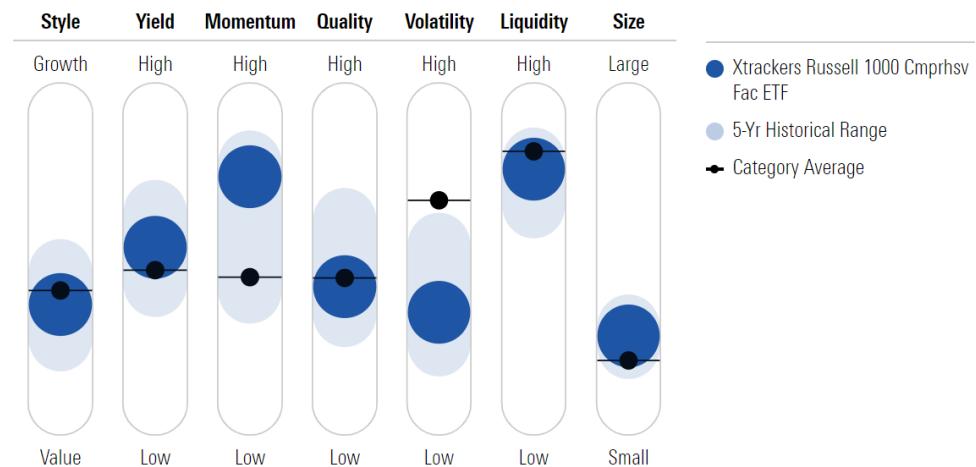
All of the momentum funds are within the top 10 percentile except for one. Invesco Russell 1000 Momentum Factor ETF OMOM has a score of 21, which means that over 20% of the global investment universe has higher exposure to the momentum factor. OMOM is more of a core portfolio with a tilt to momentum stocks than a true momentum-focused fund. Unfortunately, an investor would have had no way to know this just by looking at the fund's marketing literature. Factor Profile's industry standard definitions make the comparison of different strategies simple.

### Multifactor Strategic-Beta ETF

According to its prospectus, the Xtrackers Russell 1000 Comprehensive Factor ETF DEUS targets exposure to value, momentum, quality, low volatility, and small stocks. Because some factors like quality and value are negatively correlated, it can be difficult to combine certain factors in the same portfolio. A stock that has a strong value tilt will often also have a low-quality profile. A multifactor strategy will have to make compromises when constructing the portfolio because it will be impossible to have very high exposure to five different factors.

Let's evaluate whether DEUS can capture all of its different factors. The biggest difference between DEUS and the Russell 1000 is in the size score. The Russell 1000 has a size score of 74, while DEUS is only 23, which means that DEUS owns much smaller companies than the original index. A common method to attempt to outperform is to own smaller stocks than your benchmark. While there is nothing wrong with owning smaller stocks, it is unfair to compare a smaller stock portfolio to a larger one. The Morningstar Category system corrects for this by categorizing DEUS in the mid-cap blend category. In Exhibit 3, all of the factor scores are compared with the mid-cap blend category average.

**Exhibit 3** Multifactor Strategic-Beta ETF



Fund as of Oct 31, 2019 | Category: Mid-Cap Blend as of Oct 31, 2019

DEUS tends to own more value stocks, but it isn't that much different from the category average. It is a case where even though the strategy tilts toward value, so do its peers, which means that the value tilt isn't going to drive excess returns versus category. DEUS has consistently higher momentum and lower volatility than the category, which means the performance of the momentum and volatility factors will drive over- or underperformance versus the category. Finally, the quality exposure is very near the category average and not a differentiating feature.

Overall, the compromises of trying to invest in five different factors mean that DEUS will likely perform similar to other mid-cap blend funds and over- or underperform based on whether momentum and low-volatility returns are positive.

**Summary**

Factor Profile gives an investor a snapshot of a fund's exposures to seven different equity factors that are important drivers of risk and return. Morningstar's factor definitions were chosen based on a review of academic literature and an examination of how the industry typically defines the factors. We settled on definitions that were simple and consistent with definitions used in academia.

Factor Profile gives investors new insights into the investment process of both active and passive strategies. It provides a transparent, unbiased method for comparing equity investments against one another.

### **About Morningstar® Quantitative Research**

Morningstar Quantitative Research is dedicated to developing innovative statistical models and data points, including the Morningstar Quantitative Rating, the Quantitative Equity Ratings and the Risk Model.

### **For More Information**

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