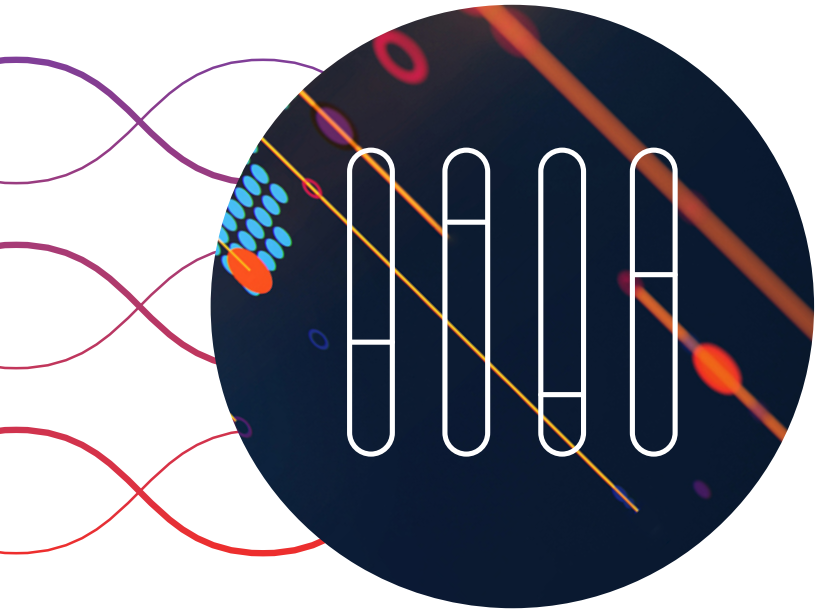
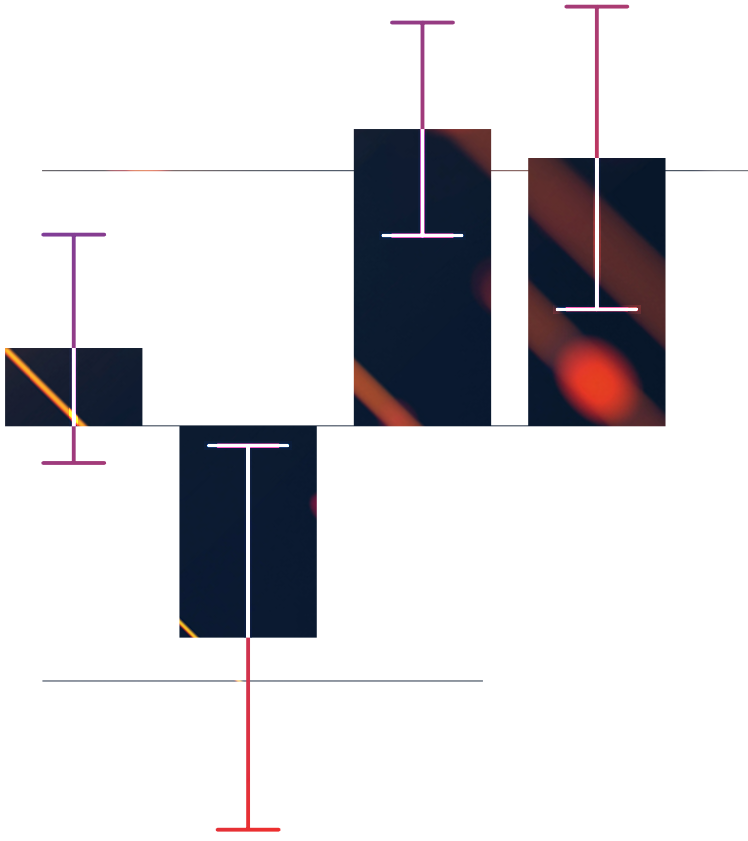
MORNINGSTAR Indexes

A balanced approach to equity factors





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A balanced approach to equity factors

Diversification is always prudent for risk management. That is true across asset classes, regions, sectors, individual securities, and factors. While industry-standard factors like value, momentum, quality, and low volatility each have strong long-term records, they all go through periods of underperformance, which can be difficult to anticipate. Diversification across factors can reduce risk, making it easier to stick with factors during inevitable rough patches and resulting in more all-weather portfolios.

The Morningstar Global Multifactor Indexes are designed to provide efficient, diversified exposure to industry standard equity factors, including value, momentum, quality, and low volatility. These indexes use optimization to maximize portfolio-level factor exposures under a set of constraints to improve diversification and limit turnover. Investors can use these indexes to target stocks that may be poised to outperform, while diversifying risks and mitigating unintended biases.

Key takeaways

- Value, momentum, quality, and low volatility have been widely vetted as factors historically associated with strong performance. While each of these factors has a strong long-term record, they all experience cyclicality.
- Diversification across factors can reduce the risk of underperforming the market, while allowing investors to participate in the upside.
- The Morningstar Global Multifactor Indexes leverage a bottom-up optimization framework to maximize portfolio-level factor exposures under a set of constraints to improve diversification, including maintaining equal active exposure to each of the targeted factors. This strengthens factor exposures relative to a simple combination of single factor portfolios, while mitigating lopsided factor exposures that many bottom-up frameworks can introduce.

Factor diversification

Factor investing is a data-driven approach to portfolio construction that focuses on common security characteristics that can help explain and predict returns. Value, momentum, quality, and low volatility[1] are among the equity factors that have historically been associated with market-beating performance over the long term, and these have been thoroughly vetted in the academic literature. Their persistence is supported by strong economic rationale, related to either risk or investor behavior.

> Spreading bets across complementary factors can reduce volatility and active risk, making it easier to stick with factors during inevitable rough patches.

The downside of factor investing is performance cyclicality. Value investors have suffered through many periods of growth stock dominance. Momentum strategies can get whipsawed by changes in market direction. Quality often lags during certain market rallies, as do low-volatility investments. Just like any investment strategy, no individual factor pays off all the time. And it can be difficult to successfully time exposure to individual factors, just as it is difficult to time exposure to individual stocks. Diversification is often the most prudent approach.

Multifactor strategies allow investors to diversify factor risk while still capturing the long-term performance benefits of the underlying factors. Spreading bets across complementary factors can reduce volatility and active risk, making it easier to stick with factors during inevitable rough patches and resulting in more all-weather portfolios. Considering multiple factor exposures together in a single strategy can also lead to more efficient portfolio construction with stronger factor exposures than might be feasible when combining separate single-factor portfolios.

The Morningstar Global Multifactor Indexes are designed to provide efficient, diversified exposure to industry standard equity factors, including value, momentum, quality, and low volatility. These indexes use an optimization framework to maximize portfolio-level factor exposures under a set of constraints to improve diversification and limit turnover, including maintaining equal active exposure to each of the targeted factors.

Targeted factors

Value, momentum, quality, and low volatility were selected because they are:

- Widely accepted and independently vetted as potential sources of outperformance
- Supported by economic rationale
- Complementary
- Able to support high investment capacity

These were not the only factors that were considered. Small size, (low) liquidity, and yield were also considered, as these factors are included in the Morningstar Standard Risk Model and generally meet the first two requirements.

[1] Low volatility has historically been associated with better risk-adjusted performance than the market, not necessarily higher absolute returns.

However, small size and liquidity were omitted to increase investment capacity. Exposure to these factors would have also been limited by the large-mid starting universe. The yield factor was omitted since it is highly correlated with value, which would have increased exposure to the value risk factor.

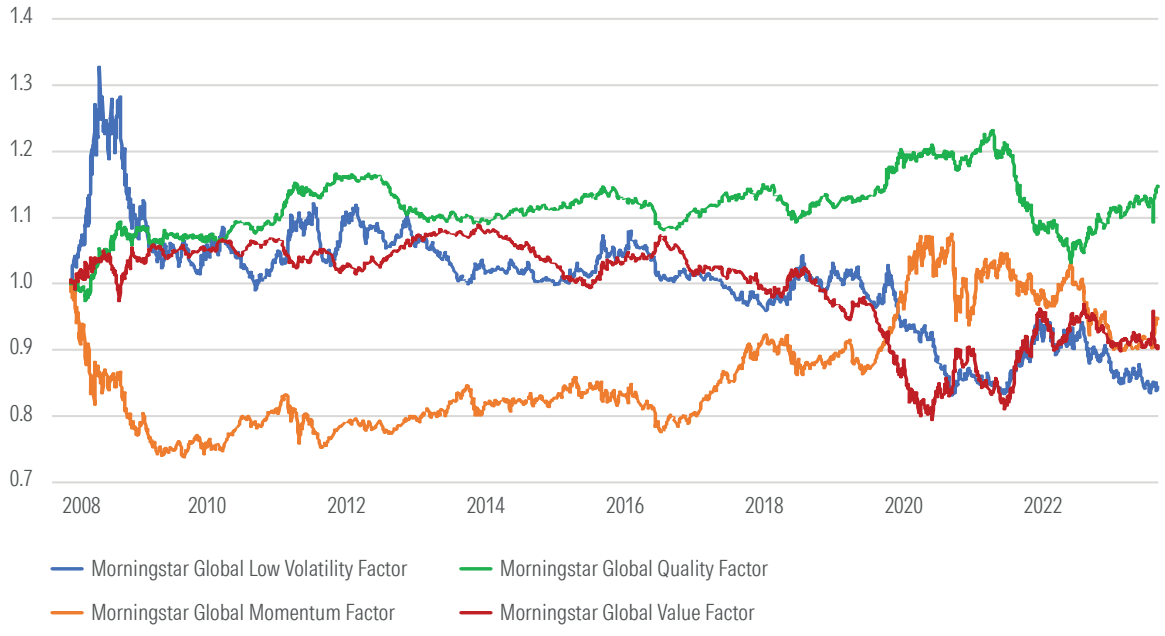
The remaining factors offer strong diversification benefits relative to each other. For instance, value tends to zig when momentum zags. Likewise, low volatility and quality have low correlations and tend to hold up better during market downturns. Exhibits 1 and 2 show the correlations and time series plots of the market-relative returns of each targeted factor.

Exhibit 1: Active return correlation matrix

	Morningstar Global Low Volatility Factor	Morningstar Global Momentum Factor	Morningstar Global Quality Factor	Morningstar Global Value Factor
Morningstar Global Low Volatility Factor	1.00			
Morningstar Global Momentum Factor	-0.12	1.00		
Morningstar Global Quality Factor	0.10	0.18	1.00	
Morningstar Global Value Factor	0.18	-0.46	-0.49	1.00

Source: Morningstar Indexes. Data as of 31/01/2024. Note: Active returns are calculated against the Morningstar Global TME Index.

Exhibit 2: Relative wealth (versus Morningstar Global TME)



Source: Morningstar Indexes. Data as of 31/01/2024

Factor combination approaches

Multifactor indexes typically combine factors in one of two ways: top-down or bottom-up. A top-down multifactor construction methodology combines separate stand-alone single-factor portfolios. Its advantages are simplicity, transparency, ease of attributing performance to individual factors, and lower tracking error relative to the broad equity market.

The disadvantage to a top-down approach is that factor exposures get diluted at the portfolio level. The factor exposures of the individual sleeves can offset. For example, stocks with strong value characteristics in isolation may have negative momentum.

Bottom-up multifactor construction refers to the idea of considering each stock's overall combination of factor characteristics together. This approach does not favor stocks with the strongest absolute exposure to any single factor, but the best overall combination of factor characteristics. This allows the entire portfolio to work together to achieve stronger portfolio-level factor exposures. This mitigates exposure to stocks that score well on one factor but poorly on others, which could otherwise dilute the portfolio-level factor exposures.

The trade-off is greater complexity and often higher active risk. In our view, this can be justified, as it may allow a multifactor portfolio to deliver greater upside potential than a similar top-down equivalent. As such, this is the approach the Morningstar Global Multifactor Indexes apply.

Morningstar Global Multifactor Indexes portfolio construction

The Morningstar Global Multifactor Indexes[2] use optimization to target low volatility, momentum, quality, and value. As a part of this optimization framework, the indexes aim to maximize portfolio-level factor characteristics under constraints to limit unintended risk and transaction costs, while offering significant liquidity.

Morningstar Indexes offers multifactor indexes derived from various broad regional parent indexes, and the construction rules that follow are applied similarly for each variant. Exhibit 3 shows the multifactor indexes in the family, as well as their parent benchmarks.

Exhibit 3: Morningstar Multifactor Indexes

Multifactor index	Parent benchmark
Morningstar Developed Markets Multifactor Index	Morningstar Developed Markets Target Market Exposure Index
Morningstar Developed Markets Europe Multifactor Index	Morningstar Developed Markets Europe Target Market Exposure Index
Morningstar Developed Markets ex-North America Multifactor Index	Morningstar Developed Markets ex-North America Target Market Exposure Index
Morningstar Developed Markets ex-US Multifactor Index	Morningstar Developed Markets ex-US Target Market Exposure Index
Morningstar Emerging Markets Multifactor Index	Morningstar Emerging Markets Target Market Exposure Index
Morningstar Global Multifactor Index	Morningstar Global Target Market Exposure Index
Morningstar US Multifactor Index	Morningstar US Target Market Exposure Index

Source: Morningstar Indexes. Data as of 31/01/2024.

Each multifactor index is derived from its corresponding standard parent benchmark from the Morningstar Target Market Exposure Indexes, representing the top 85% of equity market capitalization in its segment. The focus on large- and mid-cap stocks facilitates high-investment capacity.

The portfolios are long only and enforce a minimum nonzero weight of 1 basis point (0.01%) to avoid economically insignificant allocations. To limit unintended active risk against the parent index, sector and country constraints are enforced. This allows a bit of flexibility for the optimizer to over- and underweight securities relative to the parent indexes, while limiting the deviations to mitigate unintended biases. Turnover is also controlled to mitigate transaction costs.

[2] For a comprehensive discussion of index construction, see the Construction Rules for the Morningstar Global Multifactor Indexes.

Factor purity

Since factor diversification is a key objective for many investors in multifactor portfolios, it is desirable to have a balanced exposure to each of the targeted risk factors. As such, this is directly incorporated into the construction rules for the Morningstar Global Multifactor Indexes. This is intended to achieve an equal level of active exposure, relative to the parent benchmark, across each of the four targeted factors, a concept known as active factor exposure parity.

> The Morningstar Global Multifactor Indexes provide balanced exposure to each targeted factor by enforcing active factor exposure parity.

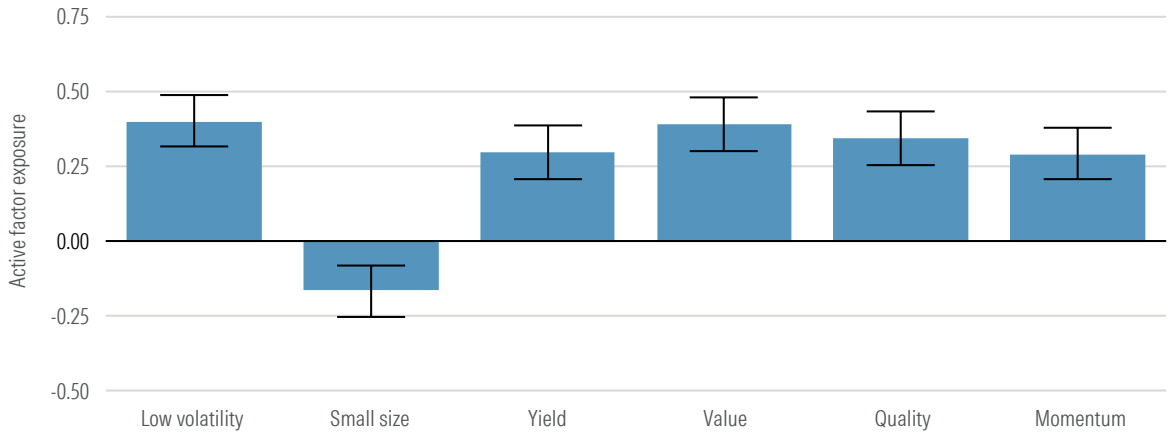
Without explicit constraints, most multifactor portfolios do not have balanced exposure to their targeted factors, which can limit their effectiveness at diversifying factor risk. This is true of both bottom-up and top-down construction techniques.

The advantage of Morningstar Indexes' bottom-up active factor exposure parity approach is particularly stark compared with a top-down approach. Exhibit 4 shows the factor exposures of the Morningstar Global Multifactor Index, while Exhibit 5 shows the corresponding values for a simple top-down combination of the targeted single-factor indexes. Exhibits 6 and 7 show the performance comparison data.

The Morningstar Global Multifactor Index has greater exposure to the low volatility, momentum, and value factors. In fact, the top-down equivalent has negative exposure to value because of the strong growth orientation of the momentum and quality sleeves. The only factor where the top-down approach delivered stronger exposure was quality. More importantly, the factor exposures were much more balanced with the bottom-up optimization approach. The top-down solution leaned heavily into quality and momentum while failing to deliver strong exposure to low volatility or value.

While there are times when such lopsided factor exposures can help performance, that positioning hurts diversification. And in the back-test period, the Morningstar Global Multifactor Index delivered higher returns with lower risk. Because it can achieve stronger factor exposures in aggregate, it should also offer greater upside potential than the top-down equivalent over the long run.

Exhibit 4: Morningstar Global Multifactor Index factor exposures



Source: Morningstar Indexes. Data as of 31/01/2024.

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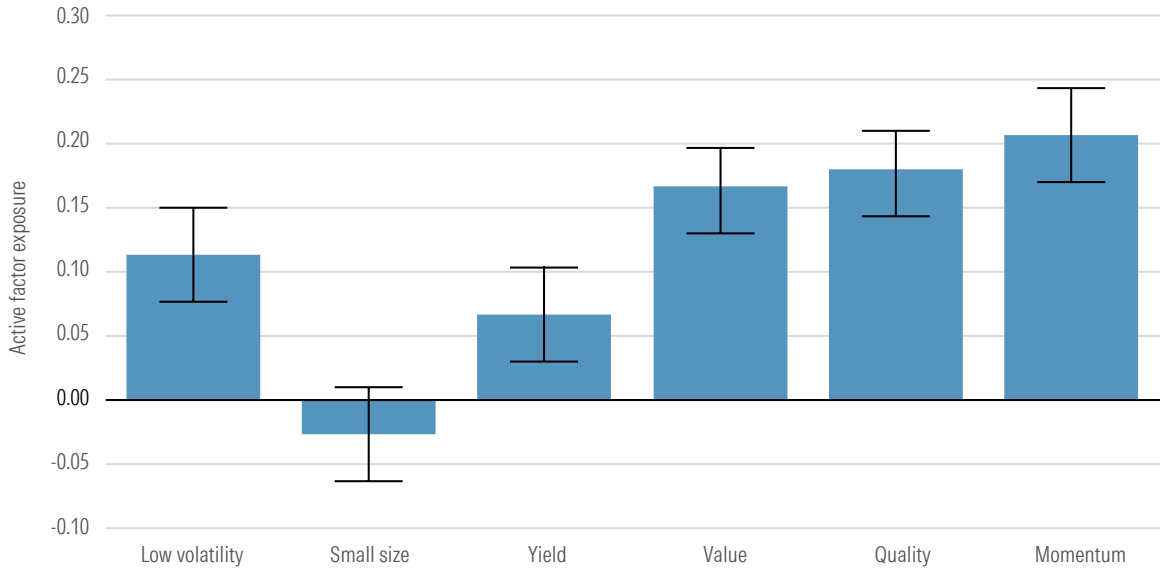
Exhibit 5: Factor exposures for equivalent top-down combination of single factor indexes



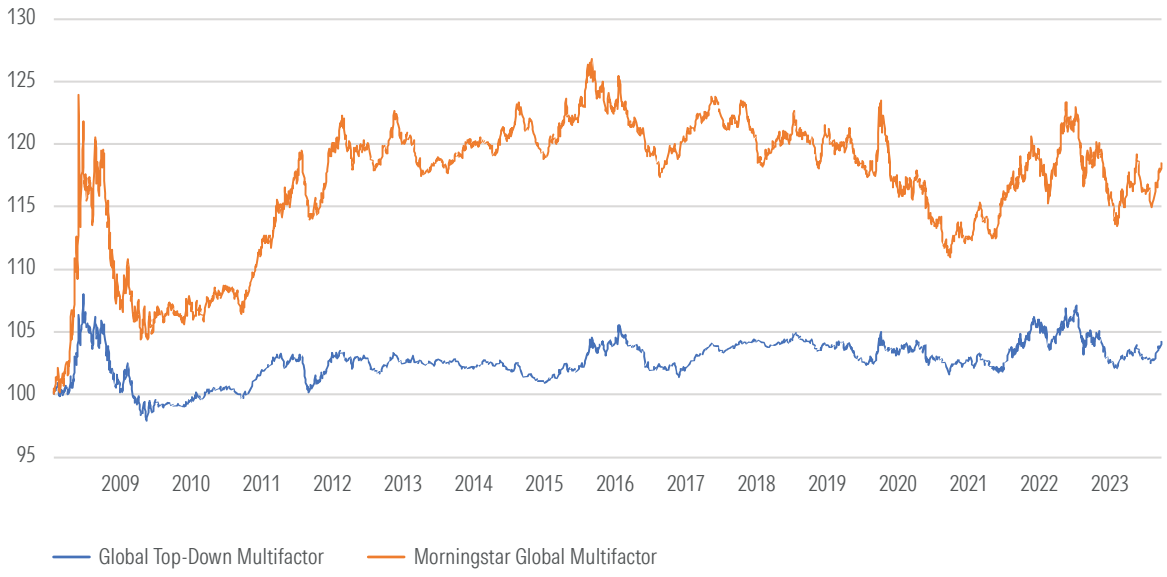
Source: Morningstar Indexes. Data as of 31/01/2024.

Exhibit 6: Performance summary

	Morningstar Global TME	Top-down	Bottom-up
Return (%)	7.30	7.60	8.50
Risk (%)	16.80	15.70	14.30
Return/risk	0.40	0.50	0.60
Sharpe-ratio	0.40	0.40	0.50
Max drawdown (%)	-51.10	-48.40	-41.90
Active return (%)	0.00	0.30	1.20
Tracking error (%)	–	2.20	4.60
Information ratio	–	0.10	0.30
Beta	1.00	0.93	0.82

Source: Morningstar Indexes. Data as of 31/01/2024.

Exhibit 7: Relative wealth (versus Morningstar Global TME)



Source: Morningstar Indexes. Data as of 31/01/2024.

Balancing factor risk

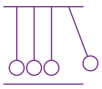
As Harry Markowitz once explained, "diversification is the only free lunch" in investing. This applies across individual securities, sectors, regions, asset classes, and factors. The Morningstar Global Multifactor Indexes are built to effectively diversify factor risk by explicitly applying an active factor exposure parity constraint. This ensures balanced factor exposures, mitigating the risk of unintentionally loading up on any single factor. Investors can use these indexes to target stocks that may be poised to outperform, while effectively diversifying risks and mitigating unintended biases.

Appendix

Factor definitions

Low volatility: This factor is the weighted average of idiosyncratic volatility over the past six months (50%), total volatility over the past six months (25%), and MAX5/lottery factor (25%), which is based on the highest five-day returns over the past month where lower values are favored. This composite provides a more complete view of risk than a security's total volatility alone.

Stocks with low past volatility have tended to offer better risk-adjusted performance than those with high volatility. Unlike many of the other factors, there isn't a clear risk-based explanation for this effect. The anomaly is typically explained through investor behavior, given leverage and tracking error constraints. Professional investors overly focused on returns and unable to leverage their portfolios might crowd into volatile stocks, which have greater upside potential than their more-staid counterparts. Retail investors looking for lotterylike upside might do the same. As a result, not only are low-volatility stocks more resilient during "risk-off" market environments, but they may also be priced to offer a more favorable risk/reward trade-off over the long term.

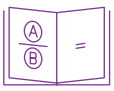


Momentum: This factor is measured as the trailing 12-month total return (in local currency), excluding the most recent month, minus the local risk-free rate. This definition aligns with the momentum factor as defined by the academic literature.

Momentum describes short-term performance persistence. Momentum strategies target stocks with strong recent returns, based on the premise they are likely to continue to outperform. Prices may adjust more slowly than they should to new information, as investors often initially underreact. This alone can cause performance to persist. Once a trend is established, more investors may continue to buy, further fueling price momentum.

Quality: This is measured as the equally weighted z-score of a company's profitability (trailing 12-month return on assets) and the z-score of its financial leverage (trailing 12-month debt/invested capital).

The shares of companies with strong profitability and balance sheets have performed better historically than less profitable and more highly indebted counterparts. They have tended to hold up better than the market during downturns, which intuitively wouldn't lead to an expectation of higher returns. However, investors may have historically underestimated the long-term durability of these firms' strong cash flows, leading to an impressive long-term track record of risk-adjusted returns.



Value: The factor is in accordance with the Morningstar Style Box™ methodology, which incorporates historical and forward-looking value and growth metrics. The actual factor is value-growth, where the value inputs include price/earnings (50%), price/book (12.5%), price/cash flow (12.5%), price/sales (12.5%), dividend yield (12.5%).

Value investing is about buying low and selling high—targeting stocks trading at low multiples on fundamental measures like earnings, book value, cash flow, sales, and dividends. Value investing is backed by strong economic rationale and empirical evidence. Lower valuations should reflect higher expected returns, either as compensation for risk or because investors may be overly pessimistic about these stocks' prospects.

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.

For more information, visit indexes.morningstar.com, or contact us at indexes@morningstar.com