



Morningstar® Global Factor Indexes™

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Factors are common security characteristics used to both analyze and predict returns. Within equities, several have been identified as having outperformed the market over long periods. They include Value, Momentum, Quality, Small Size, Yield, and Low Volatility. These factors have been academically vetted and their persistence is supported by strong economic rationale, related to either compensation for risk or investor behavior.

The Morningstar Global Factor Indexes are designed to deliver efficient, strong exposure to industry standard equity factors. The indexes are constructed with transparent, rules-based methodology that aims to mitigate unintended sector and regional biases and facilitate investability.

Factor definitions

The indexes leverage industry-standard factor definitions from the Morningstar Risk Model.² Value, Quality, Yield, and Small Size are defined on a sector-relative basis within each region. Most of the historical benefits from these factors have come from intra-sector stock selection, as sector-specific dynamics reduce cross-sector comparability.^{3, 4}

Low Volatility and Momentum are ranked on an absolute basis within each region. These price-based factors tend to be faster-moving than the other four factors and more comparable across sectors, leading to less persistent sector biases. Here, factor driven sector tilts may be more beneficial.

- Value: The Morningstar Global Factor indexes define value in accordance with the Morningstar Style Box methodology.
 As such, lower growth and higher value characteristics both translate into higher value scores. The valuation inputs (weightings in parentheses) include:
 - Price/earnings forward (50%)
 - Dividend yield (12.5%)

- Price/book (12.5%)
- Price/cash flow (12.5%)
- Price/sales (12.5%)
- Quality: ROA (50%) and Debt/Invested Capital (50%)
- Yield: Trailing 12-month shareholder yield, which includes dividends and net buybacks
- Size: Market capitalization
- Low Volatility: Weighted average of idiosyncratic volatility (50%), MAX5/lottery factor (25%) and total volatility (25%)
- Momentum: Total return (in local currency) over trailing 12 months, excluding most recent one, minus the local risk-free rate.

Index eligibility and portfolio construction

The Morningstar Global Factor Indexes derive their constituents from the large/mid cap versions of the Morningstar Target Market Exposure Indexes, which include stocks representing the top 85% of equity market capitalization across developed and emerging markets globally.

Stocks from the relevant parent index are ranked by their exposure to the targeted factor, and the highest-ranking stocks representing 30% of the float-adjusted market capitalization of the parent index are targeted for inclusion. This threshold is consistent across each factor index.

1

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

² The momentum indexes follow a slightly different momentum definition from the version included in the risk model, using local price returns in place of US dollar denominated returns

 $^{{}^3\}underline{www.morningstar.com/content/dam/marketing/shared/pdfs/Research/The_Impact_of_Industry_Tilts_on_Factor_Performance.pdf}$

 $^{^4\,\}underline{www.morningstar.com/articles/935493/quality-and-value-without-the-side-sector-bets}$

Constituents are tilt weighted from their float-adjusted market capitalization based on the strength of their factor exposures. Sector, regional, and individual stocks weights are constrained relative to the parent index to limit unintentional bias and facilitate higher investment capacity. These constraints are looser for the Momentum

and Low Volatility factor indexes than for the others. Turnover buffer rules are also applied to mitigate unnecessary turnover.

Reconstitution and rebalancing

The indexes are reconstituted and rebalanced semi-annually in June and December.

Construction process

Starting universe

Eligibility

Portfolio construction

- Morningstar Target Market Exposure Indexes
 - Large- and mid-cap indexes representing the top 85% of the investable market
- Securities must be covered by the Morningstar Risk Model.
- For the momentum factor indexes, there must be at least 6 months of continuous return data
- Stocks are ranked based on their targeted factor exposure, and those representing the top 30% of the parent index (by float-adjusted market cap) are targeted for inclusion
- Constituent weights are tilted from their float-adjusted market cap based on the strength of their factor exposures
- Stock, sector, and regional weighting constraints are applied to limit unintended biases

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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.

Please visit indexes.morningstar.com for more information.

