



Silver



Bold Portfolios: Are They Worth Their Risks?

Introducing a Multidimensional Measure of Concentration in Equity Funds



Bronze



Gold



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Important Disclosure

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Key Takeaways

- **Concentration has become a hot topic recently:** The **winners-take-all effect has changed the profile of global equity markets**. As of end-2025, the Magnificent Seven's weight in the Morningstar Global Target Market Exposure Index (22%) was higher than the seven largest non-US country exposures combined (21%).
- **We propose a multidimensional concentration score to analyze portfolios:** Our composite measure blends stock-level, sector-level, and correlation-based inputs derived from Morningstar Direct's database, which **helps to uncover forms of concentration that simple metrics like the top-10 weight or the number of holdings fail to detect**, giving investors a more accurate risk picture.
- **Passive funds generally deliver broader diversification:** Passive funds in the Morningstar Categories we have analyzed typically show lower concentration because they replicate broad market indexes that include many stocks across sectors, whereas **active managers take larger stock-specific positions to express conviction**. Passive funds are less concentrated across all dimensions: they hold many more names and have lighter top-10 weights than active funds while also displaying lower sector concentration and slightly higher diversification ratios. That said, active funds can offer deep diversification, too—for example, by employing systematic or multimanager approaches.
- **Concentration leads to more extreme outcomes:** Highly **concentrated funds show wider return dispersion, deeper drawdowns, and higher volatility**, creating a larger gap between winners and losers. Manager selection skills are particularly important for highly concentrated actively managed funds.
- **Concentrated funds tend to charge more but don't deliver more:** **More concentrated funds typically come with higher fees** and have historically generated slightly lower average returns than diversified peers across most regions. This is likely driven by cyclical factors as well. Concentrated strategies can be tougher for investors to stick with; without a clear edge, a concentrated portfolio is simply riskier.
- **Growth funds have become the most concentrated segment:** Because market leadership is increasingly dominated by a handful of high-growth mega-cap winners, growth-oriented funds now show consistently higher concentration across all key metrics. They tend to hold fewer stocks, display heavier sector tilts, and carry lower diversification ratios. **This trend has intensified over the past decade.**
- **Concentration is neither bad nor good, per se:** However, diversification matters, as **more-diversified funds can be easier to own** and carry lower risks of missing out on the few stocks that sometimes drive an outsize proportion of market gains.

A New Lens on Equity Funds' Concentration

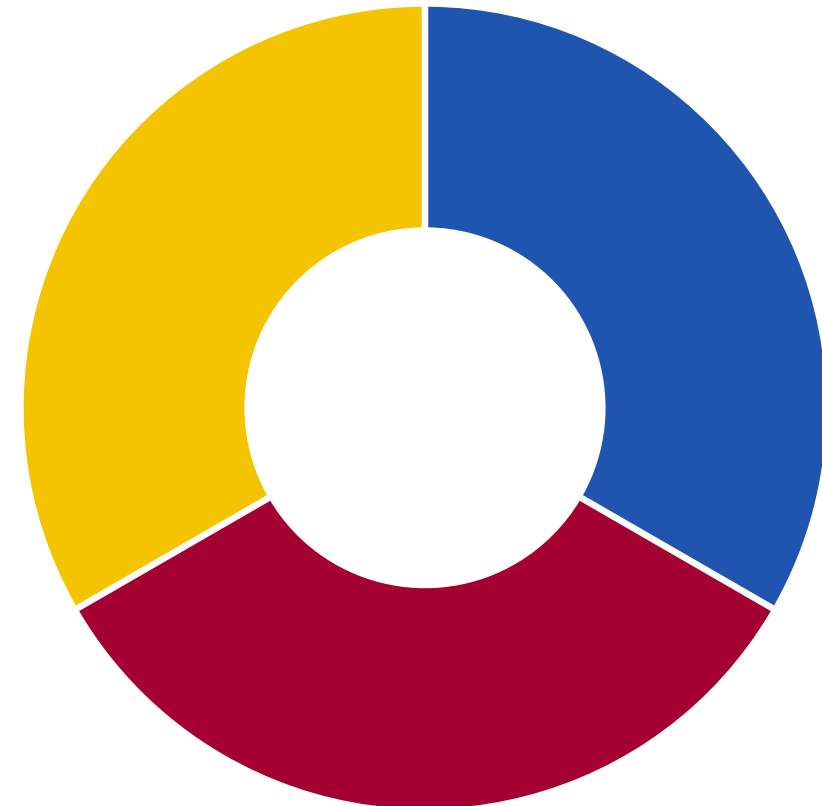
How Our Concentration Score May Reveal Risks Traditional Metrics Miss

The Concentration Score

- Investors often gauge portfolio concentration using simple indicators like the top 10 holdings' weight or the total number of positions in a portfolio.
- This approach is easy to grasp, but it overlooks key factors like sector-level concentration and correlations among securities—often major drivers of risk, return, and portfolio construction.
- We leverage Morningstar's extensive fund database and adopt an extended framework that captures additional dimensions of portfolio concentration to calculate a composite concentration score. It incorporates six variables:
 1. Logarithm of the number of holdings
 2. Top 10 holdings weight
 3. Stock-level Herfindahl-Hirschman Index
 4. Industry-level HHI
 5. Sector-level HHI
 6. Diversification ratio
- The concentration score integrates these six inputs and groups them into three equally weighted buckets: stock-level concentration, sector-level concentration, and return-based concentration.
- See Appendix for additional details.

Exhibit 1. Concentration Score

- Stock-Level Concentration (Number of Holdings, Top 10 Weight, HHI Stock Level)
- Sector-Level Concentration (HHI Sector Level, HHI Industry Level)
- Return-Based Concentration (Diversification Ratio)



Scope of the Study

- We report each measure as a standard score (z-score) to represent the distance from the average peer.
- A concentration score of 0 signals that the data point is exactly equal to the average. A concentration score of 1 indicates the portfolio is 1 standard deviation more concentrated than the average peer. By contrast, a negative concentration score points to greater-than-average diversification traits.
- To compute averages and standard deviations, we construct broader regional peer groups for each observation period and standardize scores by region and year. Within the global, Europe, and US regions, we pool the value, growth, and blend categories into a single peer group to enhance comparability across funds with different investment styles. Note that because standardization is performed separately within each time period, the resulting composite scores capture only a fund's relative position within its region at a given date and abstract from changes in the average level of concentration within the region over time.
- We analyze the 10-year period through September 2025 with yearly observations starting from September 2015, covering a sample of over 5,800 European-domiciled funds and exchange-traded funds.
- Earlier Morningstar studies also contribute relevant insights on this topic ([Big Bets Add Little Value](#); [Portfolio Concentration Has Little Sway on Returns](#)).
- The study covers all equity funds and ETFs (including obsolete products) classified in the following EAA Morningstar Categories:
 - ▶ Global Emerging Markets Equity
 - ▶ Europe Large Cap Blend Equity
 - ▶ Europe Large Cap Growth Equity
 - ▶ Europe Large Cap Value Equity
 - ▶ US Large Cap Blend Equity
 - ▶ US Large Cap Growth Equity
 - ▶ US Large Cap Value Equity
 - ▶ Global Large Cap Blend Equity
 - ▶ Global Large Cap Growth Equity
 - ▶ Global Large Cap Value Equity

How It Works | Beyond Traditional Metrics

What Does the Concentration Score Add?

The concentration score provides a more informative assessment of portfolio concentration than any single headline metric by combining several complementary dimensions of concentration into a unified measure. By jointly accounting for the number of holdings, position weights, sector exposure, and return-based diversification, the score avoids potentially misleading conclusions that can arise when concentration is evaluated using any one indicator in isolation.

For example, **Guardcap Global Equity**'s portfolio as of the end of September 2025 appears highly concentrated, with the top 10 holdings representing around 50% of assets and less than 30 stocks overall. However, the fund's concentration score is only slightly above its peers' average after accounting for its sector footprint and return-based diversification metrics. In other words, the portfolio is not as punchy and risky as it looks at first sight. This broader approach to concentration gives more credit to the portfolio construction and risk mitigation measures that may be employed by the fund manager.

Conversely, some funds may look well-diversified at first glance yet hide a high degree of concentration elsewhere. **JPM Europe Strategic Value**'s 200-stock portfolio spreads its bets widely, but its large exposure to banks and financials (27% and 41% of assets, respectively, as of the end of September 2025) lifts its overall concentration score above the peer average.

Exhibit 2. Concentration Skyline Provides a Full View of Portfolio Structure

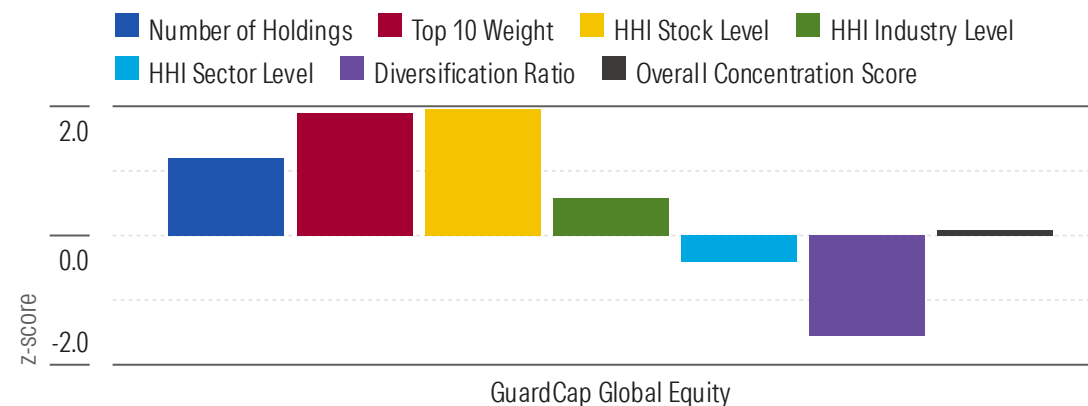
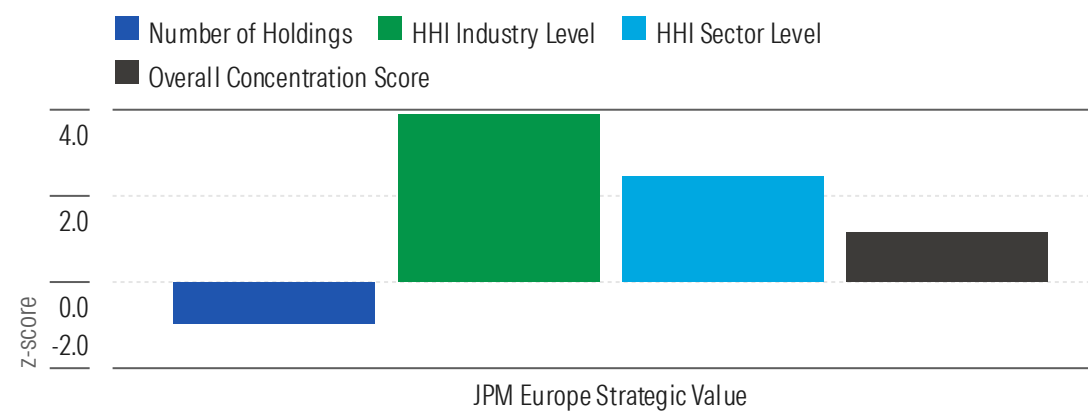


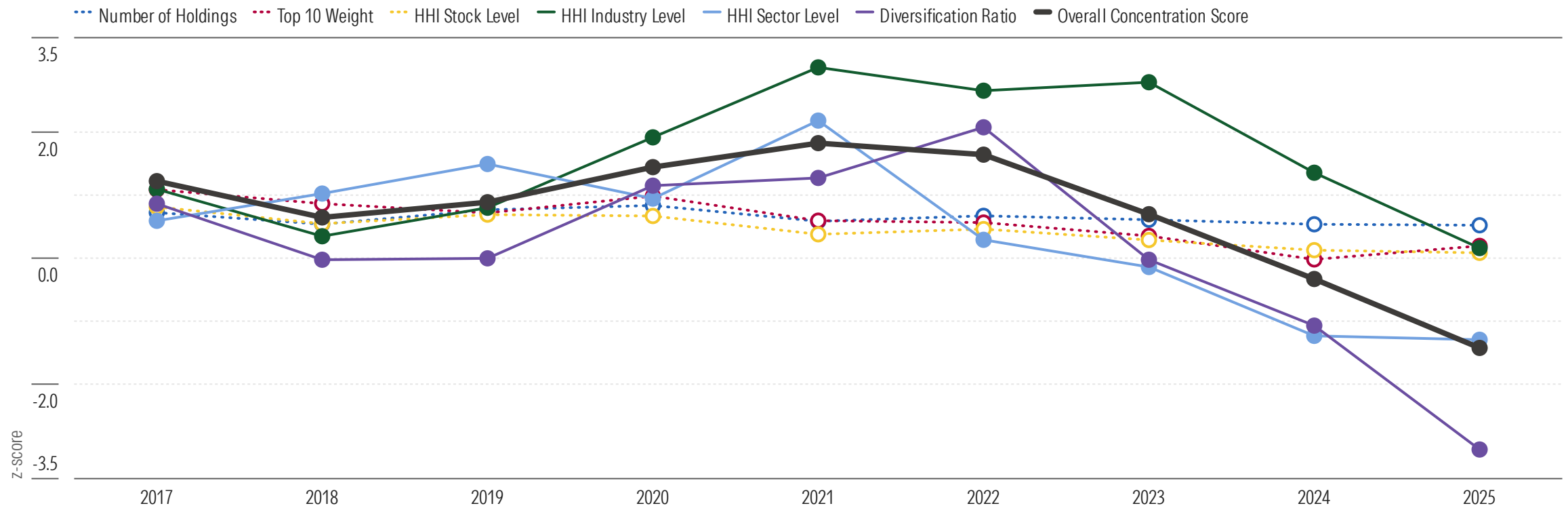
Exhibit 3. Many Holdings Do Not Necessarily Increase Diversification



How It Works | Measuring Concentration Over Time

The concentration score can also help investors monitor and detect changes in the managers' style and positioning. **GQG Partners Emerging Markets Equity** shows how the strategy progressively increased diversification in terms of industry, sectors, and diversification ratio while stock-level concentration measures remained stable over the years. In September 2021, the fund's top three sector exposures (technology, financial services, and energy) accounted for almost 75% of the fund's assets. By 2025, the fund's profile had shifted, with its top three sectors (financials, consumer defensive, and energy) representing about half of the portfolio as of the end of September, and correlations across the underlying holdings plunged.

Exhibit 4. GQG Partners Emerging Markets' Concentration Scores Since Inception



Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

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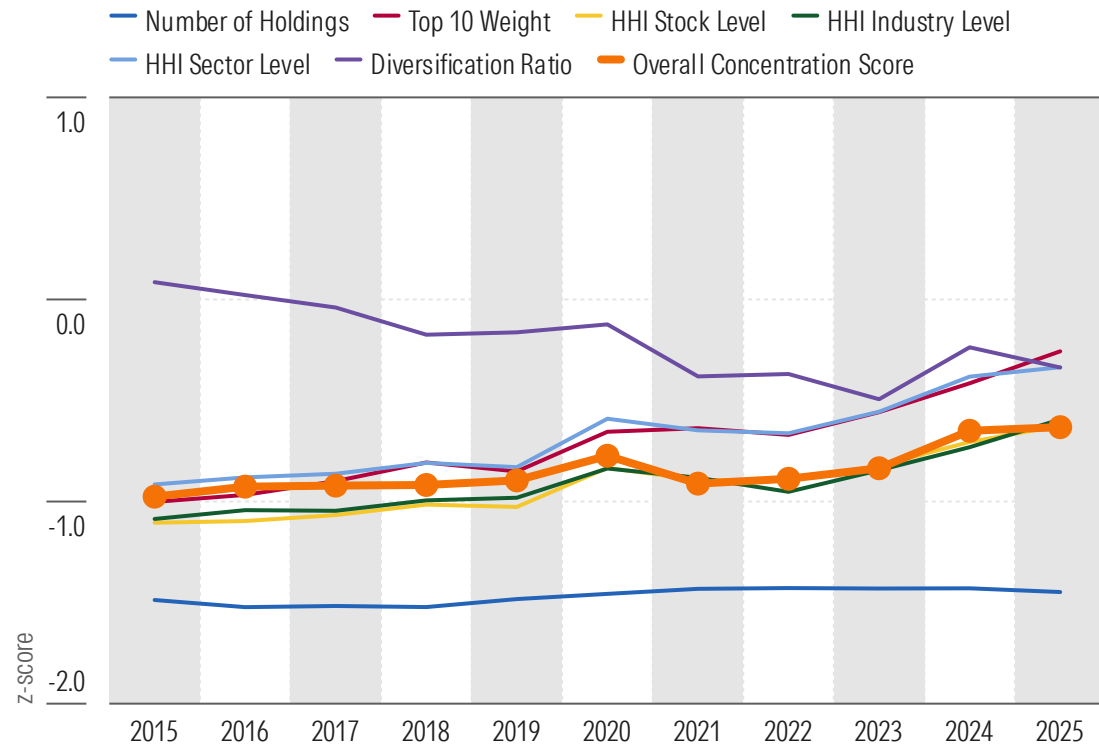
Charting the Global Benchmarks

US Market Concentration Is Rising, but Context Matters

How Concentrated Is the S&P 500, Really?

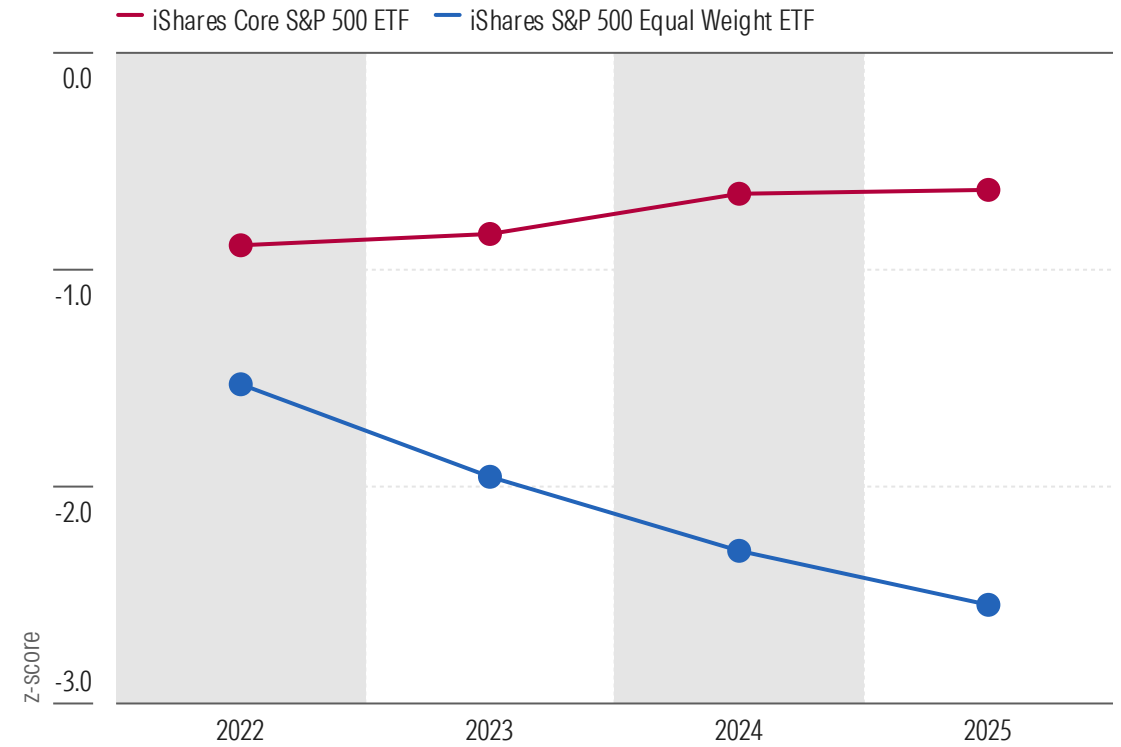
The S&P 500's concentration is indeed on the rise, especially as its top 10 holdings weight and industry concentration surged in recent years. Yet the index is still more diversified than most US-focused funds and ETFs available in Europe (by construction, the average strategy in the group scores 0).

Exhibit 5. iShares Core S&P 500 Concentration Over Time



However, its equal-weight variant has progressively become one of the most diversified choices in the space, as more funds, both active and standard market-cap weighted passive, mirrored the market's rising concentration of the past few years.

Exhibit 6. Equal Weight Version Is Among the Most Diversified US Equity Offerings
Overall Concentration Score



Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025. The peer group includes the US large-cap blend equity, US large-cap growth equity, and US large-cap value equity categories.

See Important Disclosures at the end of this report.

Concentration Across Countries

Exhibit 7. Concentration Across Morningstar’s Top 20 Country Indexes by Market Value

| Index Name | Number of Holdings | Top 10 Weight | HHI Stock Level | HHI Industry Level | HHI Sector Level | Diversification Ratio | Overall Concentration Score |
|--------------------------|--------------------|---------------|-----------------|--------------------|------------------|-----------------------|-----------------------------|
| Morningstar Denmark | Light Red | Light Red | Dark Red | Dark Red | Dark Red | Light Red | Dark Red |
| Morningstar Taiwan | Blue | Light Red | Dark Red | Dark Red | Dark Red | Light Red | Dark Red |
| Morningstar Netherlands | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red |
| Morningstar Spain | Light Red | Light Red | Light Red | Light Red | Light Red | Light Blue | Light Red |
| Morningstar Italy | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red |
| Morningstar Hong Kong | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red |
| Morningstar South Africa | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red | Light Red |
| Morningstar Sweden | Light Blue | Blue | Light Blue | Light Blue | Light Red | Light Red | Light Red |
| Morningstar Brazil | Light Red | Light Red | Light Blue | Light Red | Light Blue | Light Red | Light Red |
| Morningstar Switzerland | Light Red | Light Red | Light Red | Light Red | Light Red | Blue | Light Red |
| Morningstar Australia | Light Blue | Light Red | Light Blue | Light Red | Light Red | Blue | Light Red |
| Morningstar France | Light Red | Light Red | Light Blue | Blue | Light Blue | Light Red | Light Blue |
| Morningstar Germany | Light Red | Light Red | Light Red | Blue | Light Red | Blue | Light Red |
| Morningstar China | Blue | Light Blue | Light Blue | Blue | Light Blue | Light Red | Light Blue |
| Morningstar Korea | Light Blue | Light Red | Light Red | Light Red | Light Red | Blue | Light Red |
| Morningstar Canada | Light Blue | Light Blue | Light Red | Light Red | Light Red | Blue | Light Red |
| Morningstar US Market | Blue | Light Blue | Light Red | Blue | Light Red | Blue | Light Blue |
| Morningstar UK | Light Blue | Light Blue | Light Red | Light Red | Light Red | Dark Blue | Light Blue |
| Morningstar Japan | Blue | Blue | Light Red | Blue | Light Red | Blue | Light Blue |
| Morningstar India | Blue | Blue | Light Red | Blue | Light Red | Dark Blue | Light Blue |

- We compare the 20 largest Morningstar country indexes by total market value, revealing additional insights into their cross-sectional concentration profile.
- Indexes that look concentrated based on top 10 weight appear more diversified when other measures are considered, such as Germany and Switzerland.
- In the global arena, the US market is still much less concentrated than most single-country equity benchmarks.
- India, Japan, and the UK are the most diversified indexes in this cohort.
- Conversely, Taiwan and Denmark are the most concentrated markets according to our composite score. Just one stock (TSMC and Novo Nordisk) represents 46% and 36% of their overall market, respectively.
- In some markets, passive funds exhibit higher concentration than active funds owing to UCITS guidelines.

Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

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Key Findings

Concentration Widens the Range of Outcomes

Passives Offer Greater Diversification

Passive funds tend to have lower concentration scores than average across all categories in our sample. Intuitively, this makes sense as passive funds in large-cap equity categories tend to be more diversified than active funds because they mostly replicate broad market indexes that include a large number of securities across multiple sectors and industries, resulting in lower concentration at the stock level.

Sector-level concentration in passive funds in the categories under study is not that much lower than actives though when looking at the different concentration score's constituents. Also, as a group passive funds show little deviation from the average on the diversification ratio metric. The number of holdings, top 10 weight and HHI at the stock level are the key drivers of the lower concentration of passives.

Exhibit 8. Active and Passive Overall Concentration Scores

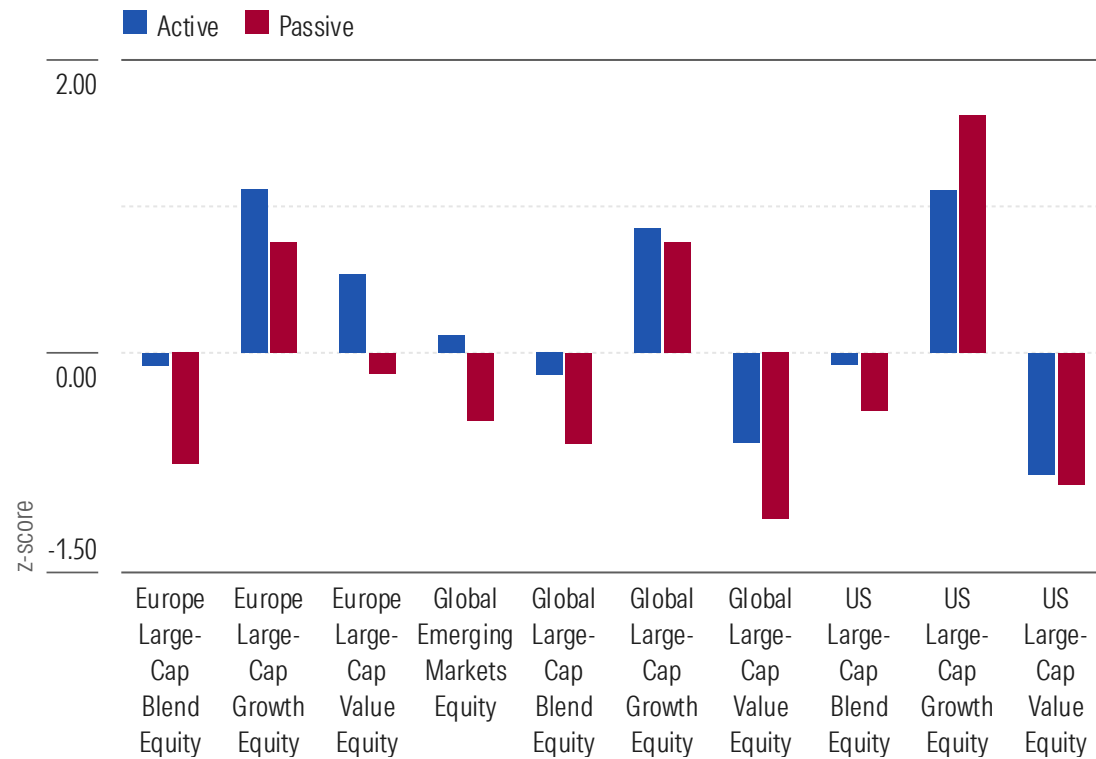
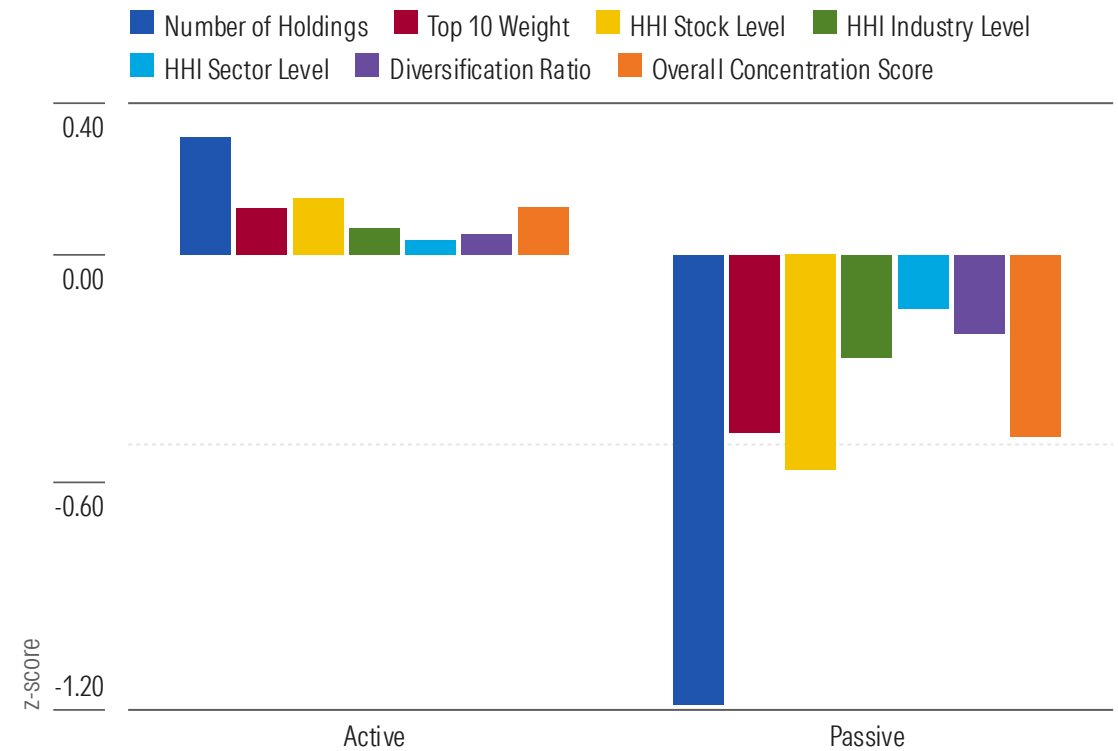


Exhibit 9. Concentration Factors—Active and Passive



Concentrated Funds Are More Expensive

Exhibit 10. Average Annual Fees by Concentration, Active Funds

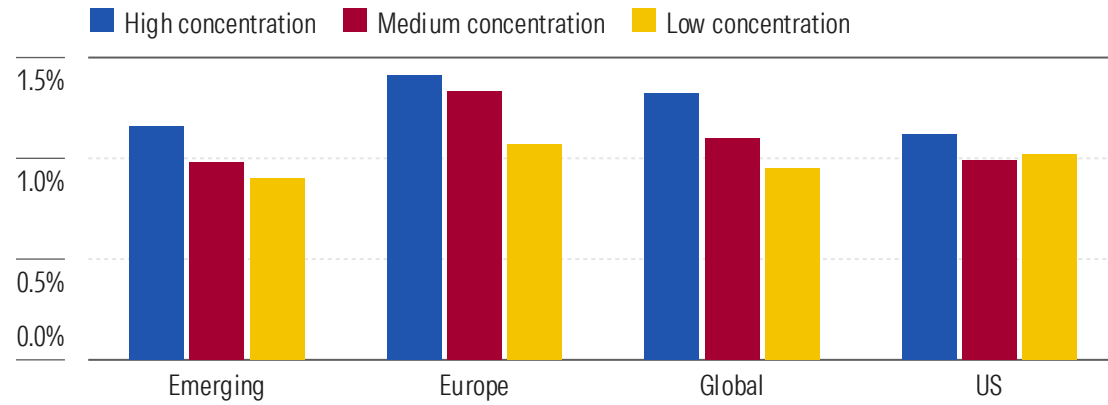
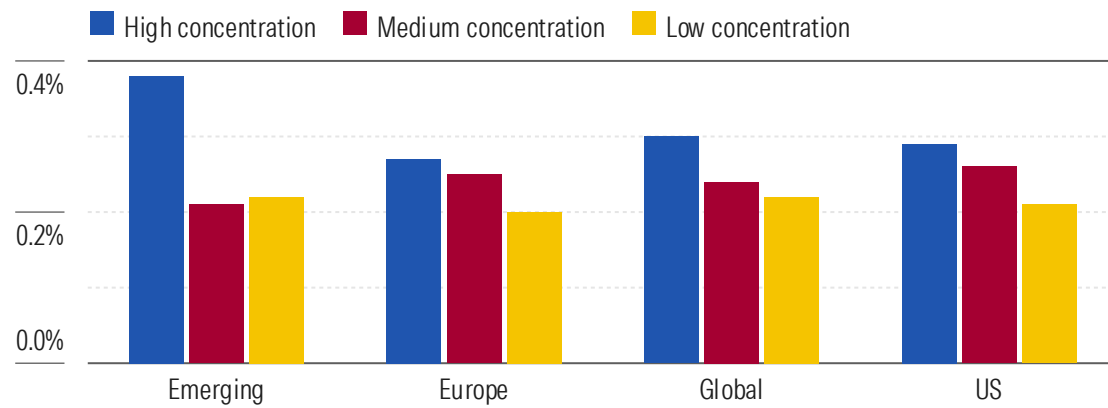


Exhibit 11. Average Annual Fees by Concentration, Passive Funds



Fees are a key determinant of investors' outcomes. Using fund characteristics measured as of September 2025, we examine how fund costs vary with portfolio concentration. The exhibits report average aggregated fund-level fees by concentration tercile (see Appendix for technical details).

The pattern is clear: Funds that are more concentrated tend to be more expensive. This likely reflects the managers' ability to charge higher fees for specialized expertise and more active decision-making, which require intensive research and are often marketed as offering greater alpha potential.

The magnitude of the difference is economically meaningful: Active funds in the most concentrated tercile charge, on average, 31 basis points more per year than those in the least concentrated tercile. One contributing factor is that highly diversified active funds are typically implemented using systematic, scalable investment processes and are therefore offered at lower fee levels.

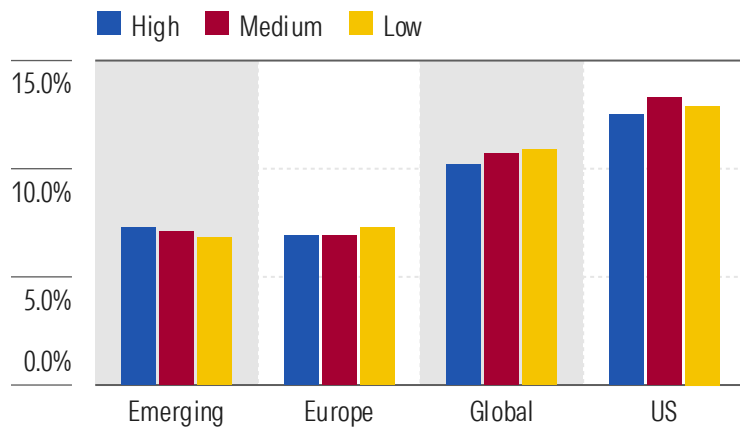
Passive funds are more diversified and are therefore not evenly distributed across concentration terciles. However, again, the least concentrated group of funds remains cheaper on average than the most concentrated funds, with an average fee difference of 9 basis points per year.

Concentration Doesn't Pay (on Average)

A key question for investors is whether concentration is rewarded. While concentrated portfolios may reflect high manager conviction and skill, they may also signal excessive risk-taking that undermines performance.

We rank all funds by concentration within their categories and divide them into terciles. Concentration is measured at the start of three nonoverlapping three-year intervals (beginning September 2016, September 2019, and September 2022). We then compare the average returns in each tercile, using the annualized cumulative return over the subsequent three years. See Appendix for further details.

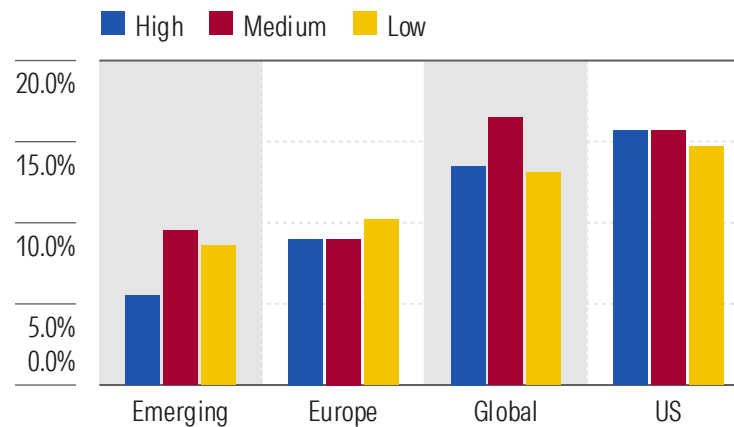
Ex. 12. Avg. Annual Returns by Concentration, Active



On average, more concentrated funds generate slightly lower returns. This is perfectly consistent with the fact established earlier: More concentrated funds tend to charge higher fees. The annual return difference between funds in the least concentrated tercile and those in the most concentrated tercile is 1.0%, and this gap is statistically significant. However, the relationship is not uniform across investment universes and strategy types.

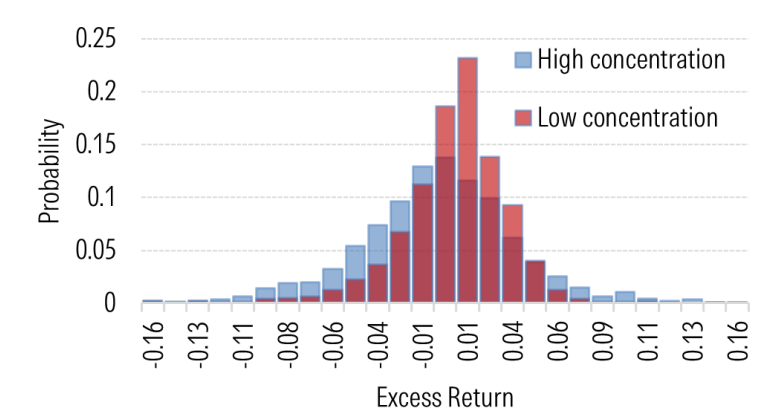
Overall, the evidence suggests that, on average, there is little to no meaningful relationship between concentration and returns.

Ex. 13. Avg. Annual Returns by Concentration, Passive



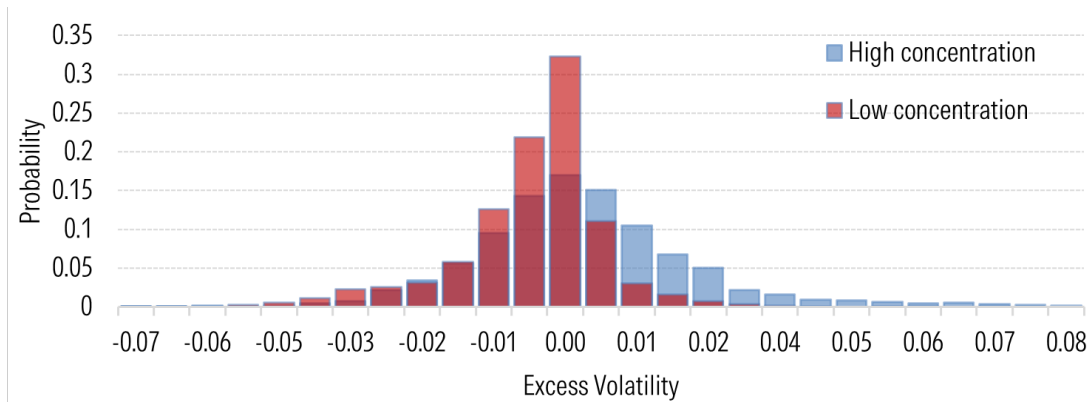
However, concentration is strongly associated with greater dispersion in fund performance. Exhibit 14 shows the distributions of deviations from category-average annual returns for funds in the top and bottom terciles of portfolio concentration. Most concentrated funds have a substantially wider spread of outcomes, with fatter tails on both sides. While concentration can lead to strong outperformance in some cases, it also results in underperformance with similar or greater frequency.

Ex. 14. Deviations from Avg. Category Return, All Funds



Concentrated Funds Are Riskier

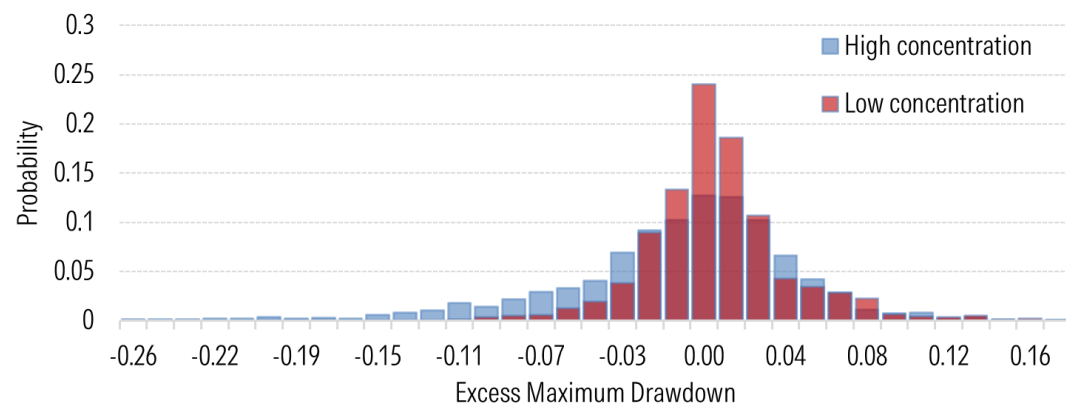
Exhibit 15. Deviations From Average Volatility by Concentration, All Funds



Portfolio theory suggests that higher concentration is linked to higher return volatility owing to greater exposure to idiosyncratic risk, which is not diversified away. This relationship is evident in the data. Funds in the highest concentration tercile exhibit a rightward shift in the distribution of deviations from category-mean portfolio volatility relative to those in the lowest tercile. The average difference is modest, approximately 0.9%, and smaller than the within-group variation, but it remains highly statistically significant.

Concentrated portfolios can produce strong positive returns when managers are skilled, so volatility alone may not distinguish between successful conviction and harmful risk-taking. To confirm that concentration is associated with adverse outcomes, we therefore also examine maximum drawdown.

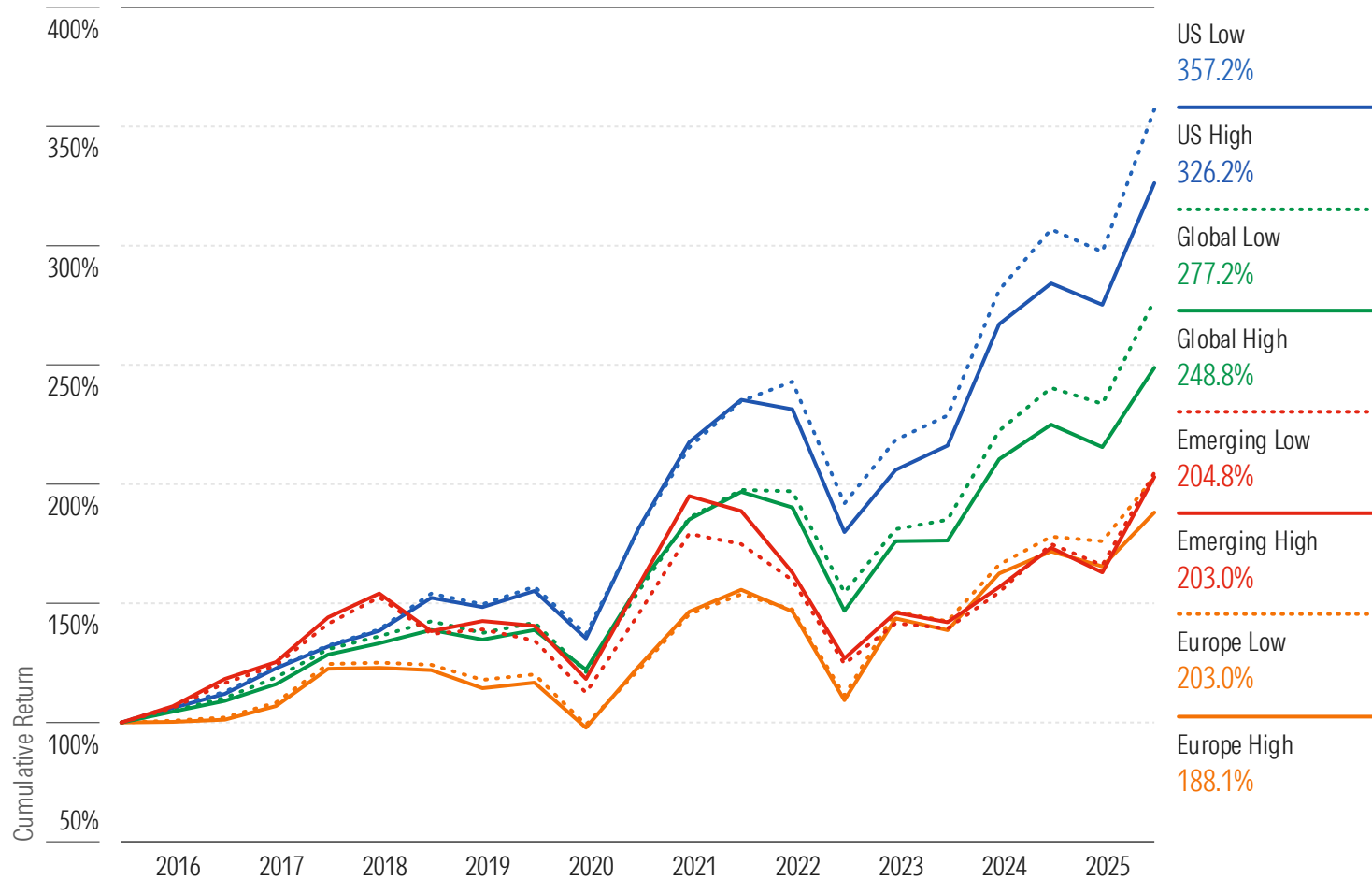
Exhibit 16. Deviations From Average Maximum Drawdown by Concentration, All Funds



The results point to an important asymmetry in outcomes. The left tail of the maximum drawdown distribution is substantially heavier for highly concentrated portfolios, indicating a higher probability of severe losses. The average difference, about 2.0% in favor of less concentrated funds, is also statistically significant. Overall, the drawdown evidence reinforces the view that concentration increases downside risk for investors.

Diversification Was a Winning Strategy the Last Decade

Exhibit 17. Cumulative Returns by Concentration, All Funds



We extend the performance analysis using a portfolio-based approach. In September 2015, funds were sorted within each category into concentration terciles. We then formed equal-weighted portfolios from funds in the lowest and highest concentration terciles and compared their buy-and-hold cumulative returns.

The low-concentration portfolio outperformed the high-concentration portfolio in all categories. The difference is minimal in emerging markets, but in the US and global categories, it amounts to approximately one-tenth of total 10-year returns, which is financially meaningful.

In short, data from the past decade suggests diversification was a winning strategy, but the full story is more nuanced. For example, over this specific period, passive funds beat active funds on average. Because passive strategies tend to be more diversified, these trends likely contributed to the stronger performance of lower-concentration portfolios.

Investors Cared More About Performance Than Concentration

Exhibit 18. 3-Year Avg. Organic Growth Rates (%) by Concentration and Category-Relative Performance Terciles

| All Funds & ETFs | Best Performance | Medium Performance | Bottom Performance |
|----------------------|------------------|--------------------|--------------------|
| Low Concentration | 0.73 | 0.42 | 0.02 |
| Medium Concentration | 0.79 | 0.33 | -0.02 |
| High Concentration | 0.61 | 0.43 | 0.03 |

Exhibit 19. 3-Year Avg. Organic Growth Rates (%) by Concentration and Category-Relative Performance Terciles

| Active Strategies | Best Performance | Medium Performance | Bottom Performance |
|----------------------|------------------|--------------------|--------------------|
| Low Concentration | 0.65 | 0.17 | -0.05 |
| Medium Concentration | 0.78 | 0.30 | -0.02 |
| High Concentration | 0.59 | 0.39 | 0.03 |

Here we calculate each fund's three-year organic growth rates (that is, cumulative three-year flows as a proportion of initial fund size) through December 2025 and show the results across category-relative concentration and returns terciles. This double-sorting approach allows to detect patterns in investors' preferences.

Overall, the data suggests that investors place far more importance on past performance than on concentration.

Exhibit 19 illustrates the same data excluding passive strategies. The picture is similar and suggests a weak relationship between flows and concentration. Active strategies in the bottom-left corner (most concentrated and top category-relative performance terciles) saw flows-driven AUM growth of 59%, on average. This is not too far from the average 65% growth rate exhibited by the least concentrated and best-performing active strategies. Growth rates decline across the board as performance rankings degrade, suggesting that past returns carry far more sway in driving investors' behavior.

Concentration Doesn't Drive Liquidation

Portfolio concentration was shown to be associated, on average, with lower fund returns, which raises the question of whether concentrated funds are also more frequently liquidated.

Exhibit 20 shows the share of funds in each concentration tercile that are liquidated in the following year. The probability of liquidation is broadly stable across terciles, with only a marginally lower rate for the most diversified funds.

When past performance is included as an additional predictor, the small difference disappears entirely. Exhibit 21 shows that liquidation decisions are largely driven by prior performance, and concentration adds no meaningful predictive power for whether a fund will be liquidated.

Exhibit 20. Percentage of Funds Liquidated Next Year, by Concentration

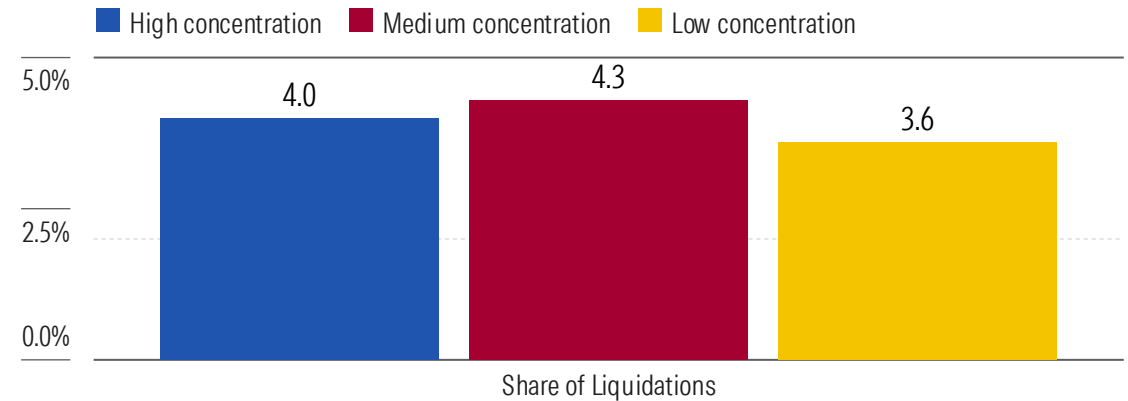


Exhibit 21. Percentage of Funds Liquidated Next Year, by Concentration and Performance

| Prior-Year Tercile | Best Performance | Medium Performance | Worst performance |
|----------------------|------------------|--------------------|-------------------|
| High concentration | 1.9% | 3.5% | 6.0% |
| Medium concentration | 3.0% | 3.6% | 6.3% |
| Low concentration | 2.3% | 3.4% | 5.8% |

Concentration by Morningstar Category

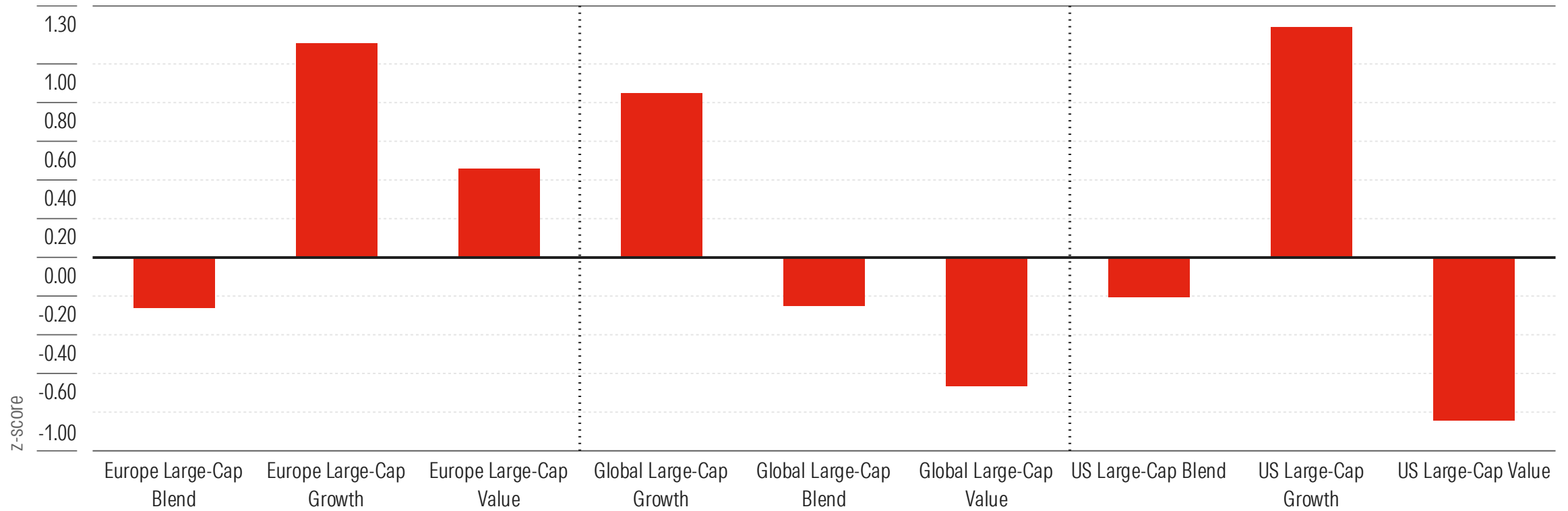
Growth Funds Are Bolder Than Ever

Concentration Scores Across Morningstar Category

Growth funds consistently show higher concentration than funds sitting in blend categories, highlighting their style-specific, narrower focus. Growth funds stand out with the most concentrated cohort of funds in Europe, global, and US equity. Note that the emerging markets category is not split by style in Morningstar’s EAA category system. To ensure fair comparison, z-scores are calculated within four broad peer groups: Europe, emerging markets, global, and US. Because the z-scores for emerging-market funds are calculated relative to a single category and not a broader peer group, the overall average z-score for these funds is 0.

Exhibit 22. Growth Funds Are Punchier

Concentration Scores by Morningstar Category (Average z-Scores)

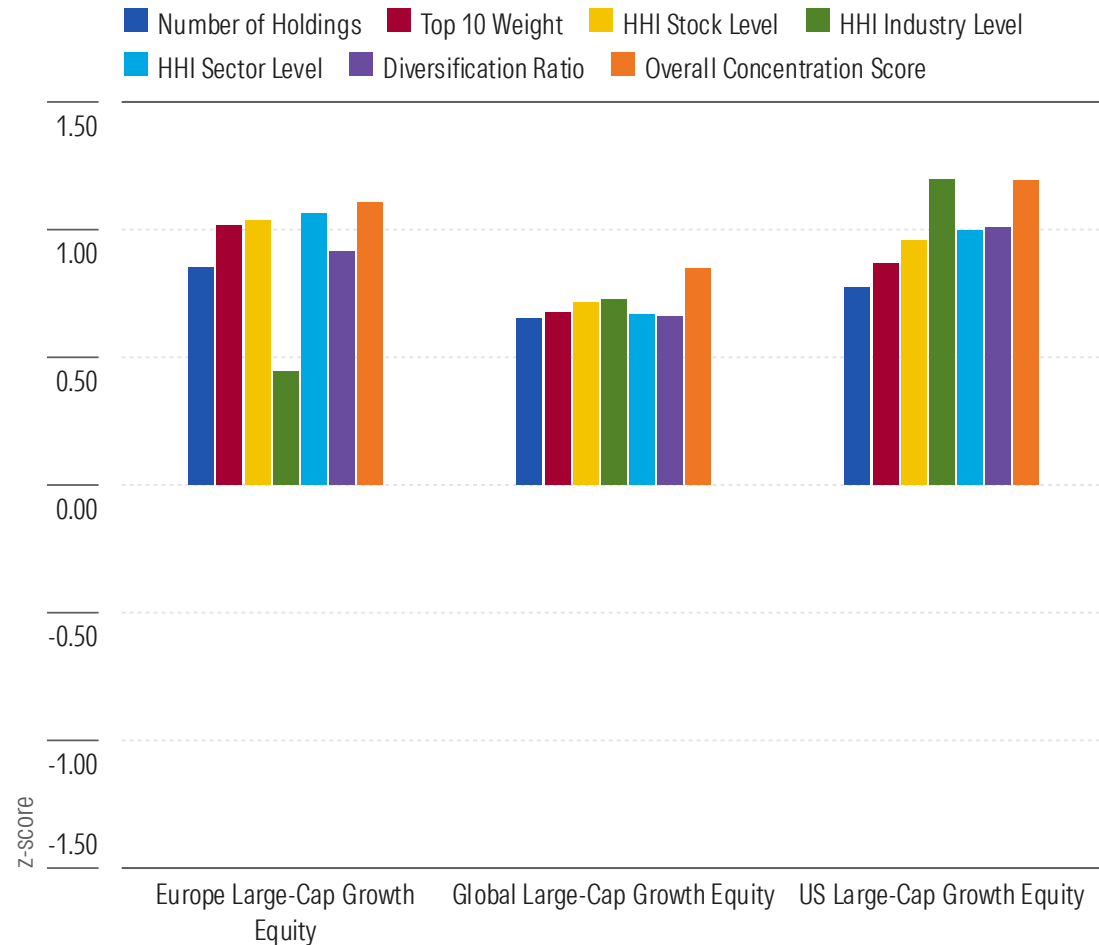


Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

See Important Disclosures at the end of this report.

Growth Funds Are More Concentrated Across All Dimensions

Exhibit 23. Concentration Factors for the Morningstar Growth Categories

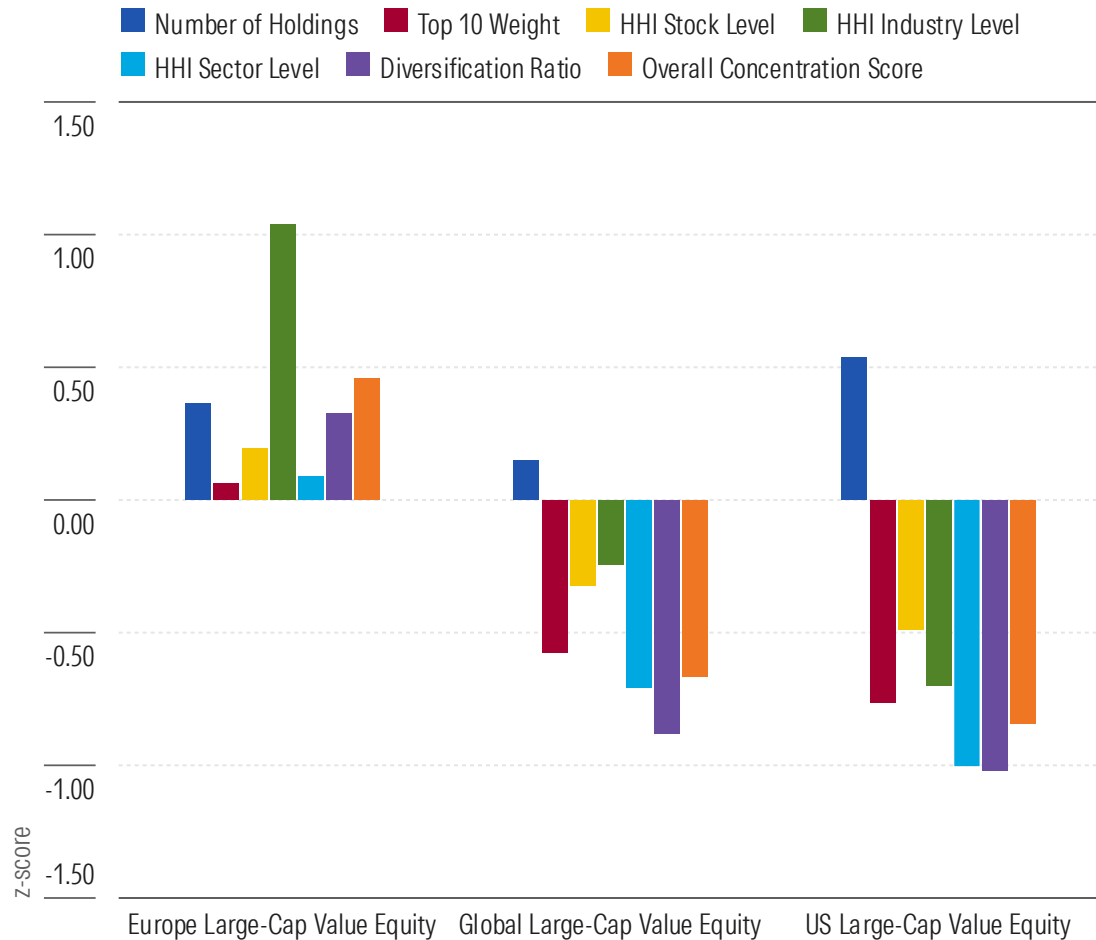


The higher concentration in growth funds compared with other funds invested in the same region stems from different factors and is not only driven by a higher weight of their top 10 holdings, as one may assume given the increasingly top-heavy nature of the universe of large-cap growth stocks in the US and in Europe in recent years. Growth funds typically hold fewer securities, carry more sector concentration, and have much lower diversification ratios (larger values reflect lower diversification to be directionally consistent with other metrics) than other funds.

In the US, growth investing is increasingly dominated by mega-cap technology and platform companies, and managers typically concentrated capital in what they viewed as the highest-quality franchises (also managing their benchmark-relative risk). In Europe, portfolio managers tend to concentrate heavily in a limited set of global champions in software, luxury goods, healthcare, and technology, leading to portfolios that are far more concentrated than the average European equity fund.

US and Global Value Funds Are More Diversified

Exhibit 24. Concentration Factors for the Morningstar Value Categories



US and global value funds tend to be less concentrated across most metrics. They own slightly fewer holdings than the average, contributing positively to their overall score, while all other factors reduce their concentration rank: Their portfolios tend to be less top-heavy, and their sector footprint is more spread out. They also feature better diversification ratios (the diversification ratio contributes negatively to their overall concentration score).

The drivers may be intentional—value managers often lean toward stocks with weaker fundamentals and are perhaps paying more attention to idiosyncratic risks, therefore spreading their bets—but this also come from the wider range of sectors offering value opportunities in the US and, by extension, in the global equity market.

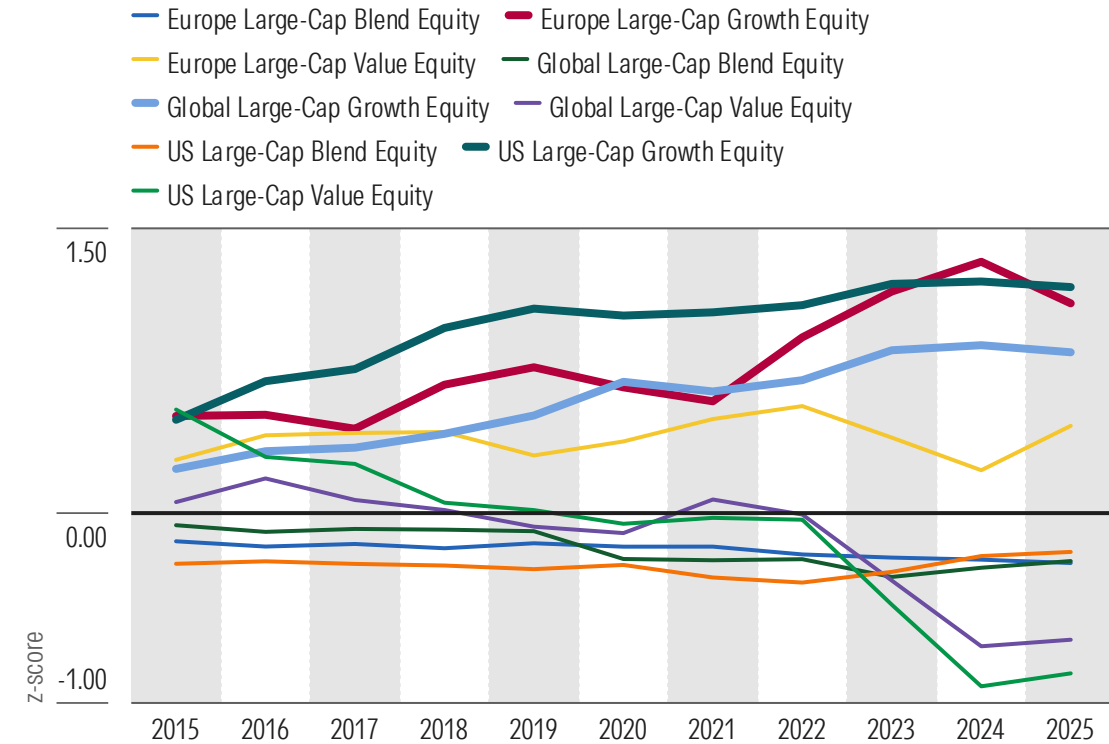
By contrast value-oriented funds tend to be more concentrated within the context of the European equity market. Their investable value universe is structurally narrow as value opportunities cluster in a small number of legacy and regulated sectors—such as banks, energy, utilities, and telecoms. The financial services sector routinely makes up a third or more of the Morningstar Developed Europe Value index. This scarcity may force managers to take larger positions in fewer names in Europe, explaining why European value funds tend to be more concentrated than their peers in other geographies.

Relative Concentration Increased For Growth Funds

Growth funds have shown increasing relative concentration over the past 10 years in Europe and in the US. The winner-takes-most effect in growth stocks has been amplified since 2020. The dominance of the Magnificent Seven meant that strong earnings growth has been concentrated in a small number of companies with scalable, asset-light business models, strong pricing power, and global reach.

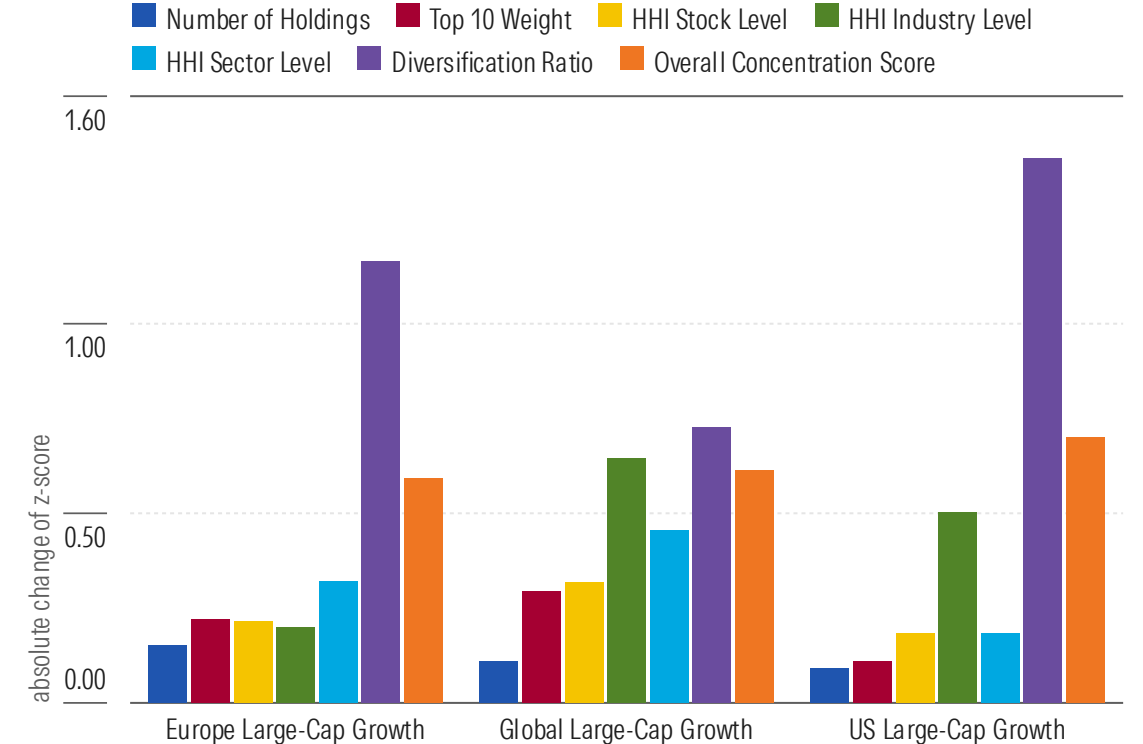
Exhibit 25. Concentration Score Through Time

Growth Categories in Bold



The dominant driver behind the massive increase of concentration in growth funds is a lower diversification ratio. Correlation spikes in 2020 and 2022 in the US and European markets with the pandemic and postpandemic shocks, alongside a change in the interest rate regime, have led to stronger correlation amongst growth stocks, which has mechanically lowered diversification ratios for growth-oriented funds.

Exhibit 26. Change to z-Scores (End-Sept. 2025 Versus End-Sept. 2015)



Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

Insightful Case Studies

How Some Medalist-Rated Strategies Map Through the Concentration Lens

A Sensible Diversifier | M&G European Strategic Value

- As **M&G European Strategic Value** demonstrates, strong outperformance does not necessarily require a concentrated portfolio. The fund's returns top its Europe large-value category over the trailing five and 10 years through December 2025.
- The strategy's experienced portfolio manager, Richard Halle, adopts a sensible and prudent process around portfolio construction, as he aims to maintain a broad diversification of risks across multiple dimensions rather than relying on concentrated bets. This is evident in the fund's z-scores across all concentration variables. The manager's approach is still largely benchmark-unaware, with sector and country weightings the outcome of bottom-up stock selection. All in all, the strategy offers reliable exposure to cheap, out-of-favor European companies and does so in a risk-conscious way, primarily exploiting a behavioral edge and benefiting from temporary dislocations between price and fundamental value.

Exhibit 27. Rolling 3-Year Excess Return Versus Morningstar Developed Europe Value TME NR EUR Index

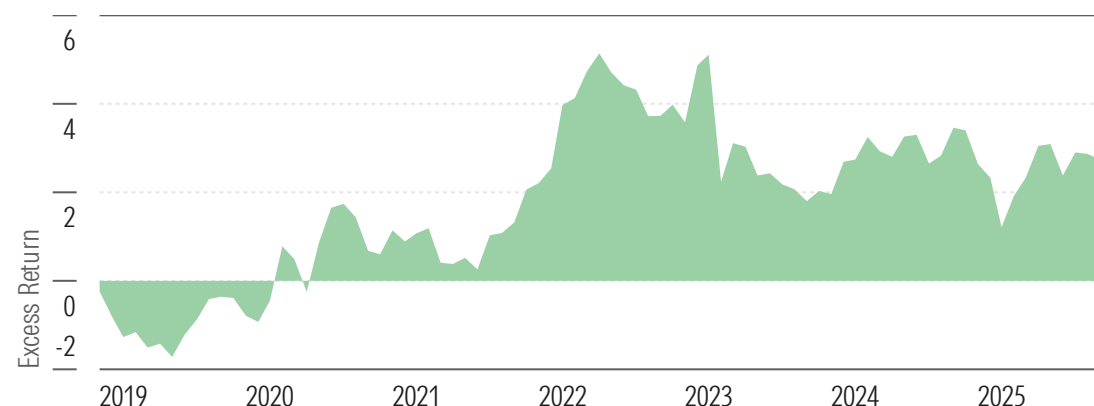
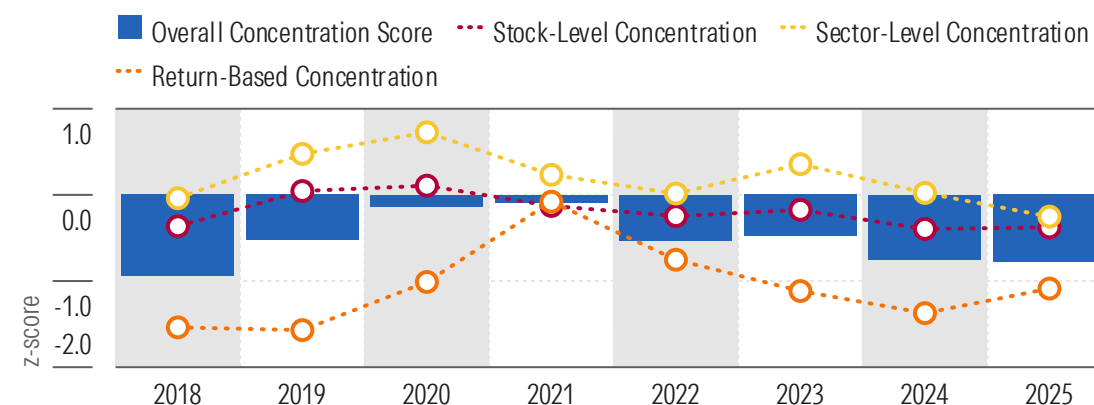


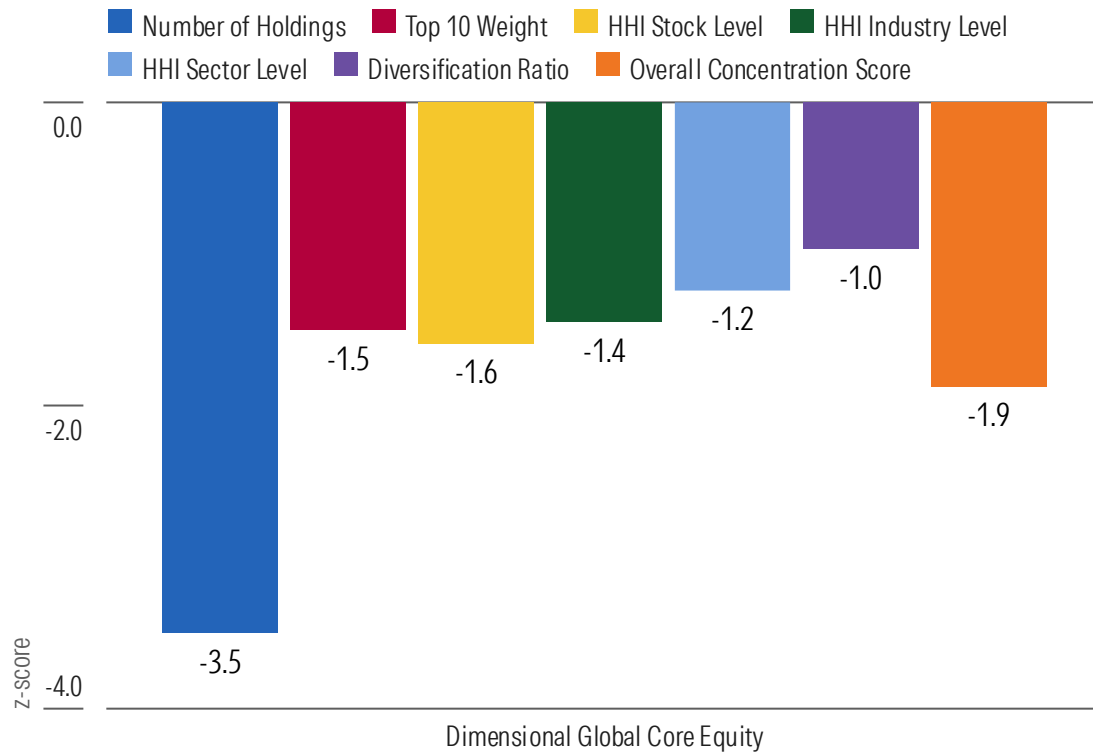
Exhibit 28. M&G European Strategic Value Concentration Scores



The Most Diversified | Dimensional Global Core Equity and Capital Group New World

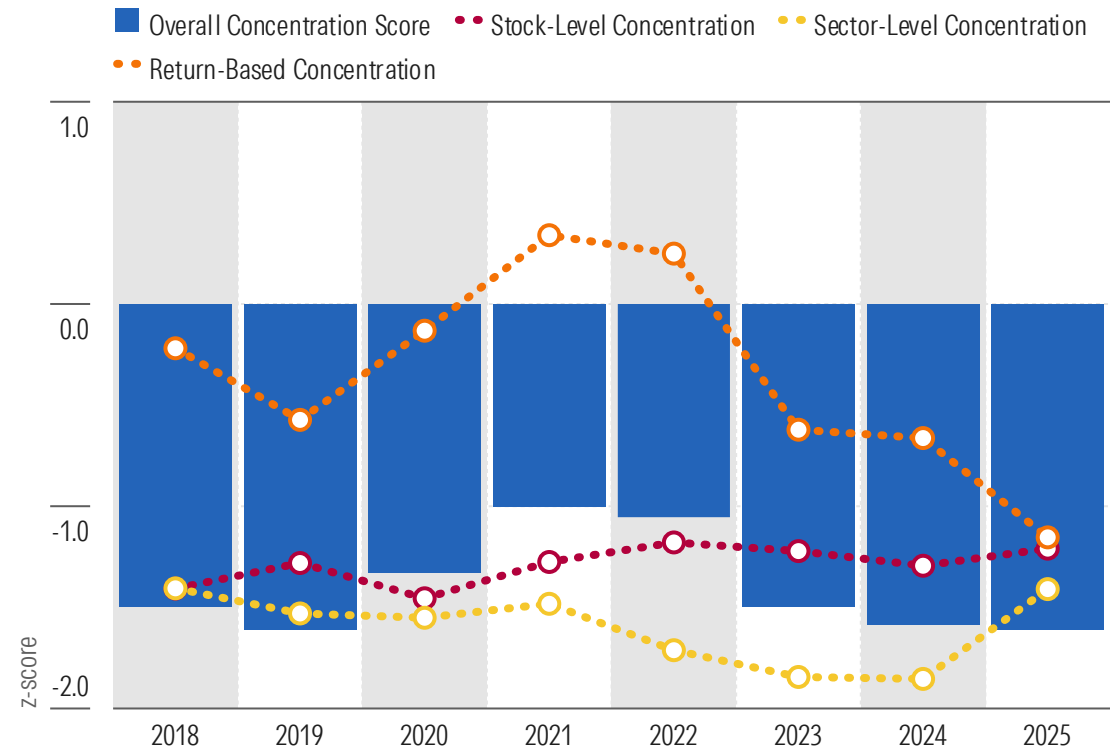
Dimensional Global Core Equity ranks as one of the most diversified portfolios in our study, even more than the category benchmark itself. The fund's vast number of holdings (around 8,000 vs. 2,600 for the Morningstar Global TME Index as of end-2025) illustrates the impressive breadth of the portfolio and its deep diversification.

Exhibit 29. Dimensional Global Core Equity Concentration Scores (Sept. 2025)



Capital Group New World benefits from the firm's hallmark multimanager system and huge pool of seasoned investors. In total, 12 named managers split the asset base, with varying investment approaches and mandates. The result is a broad and deeply diversified portfolio by several measures.

Exhibit 30. Capital Group New World Concentration Scores Over Time



Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

See Important Disclosures at the end of this report.

The Most Concentrated | BlackRock Global Unconstrained

Among analyst-covered strategies with the highest Morningstar Medalist Ratings, **BlackRock Global Unconstrained** is one of the most concentrated. The fund is intended to represent the team's best fundamental ideas, with managers seeking businesses capable of growing faster than their rivals and that are widening their competitive advantages over a longer horizon than most investors consider. The strategy is punchy, but managers have marginally broadened the fund's portfolio on a sector and industry basis recently. As market concentration increased, the fund's relative positioning came down slightly, although it remains a bold portfolio and one of the most concentrated strategies on our coverage list.

Exhibit 31. BlackRock Global Unconstrained Concentration Scores

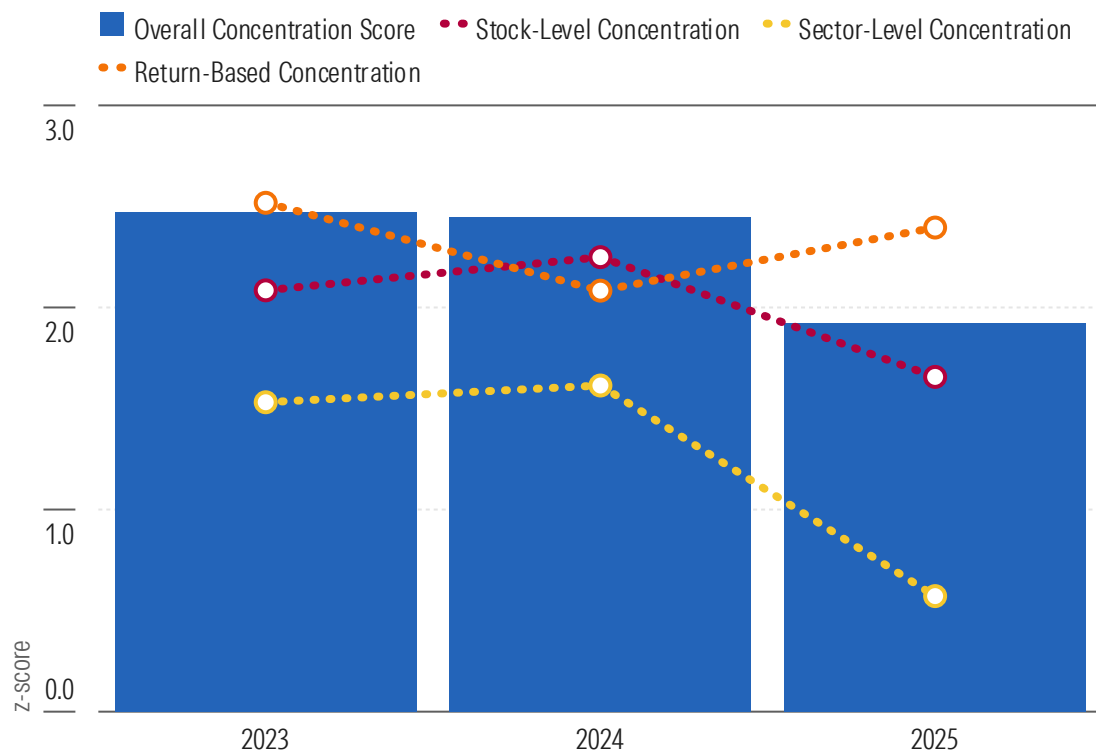
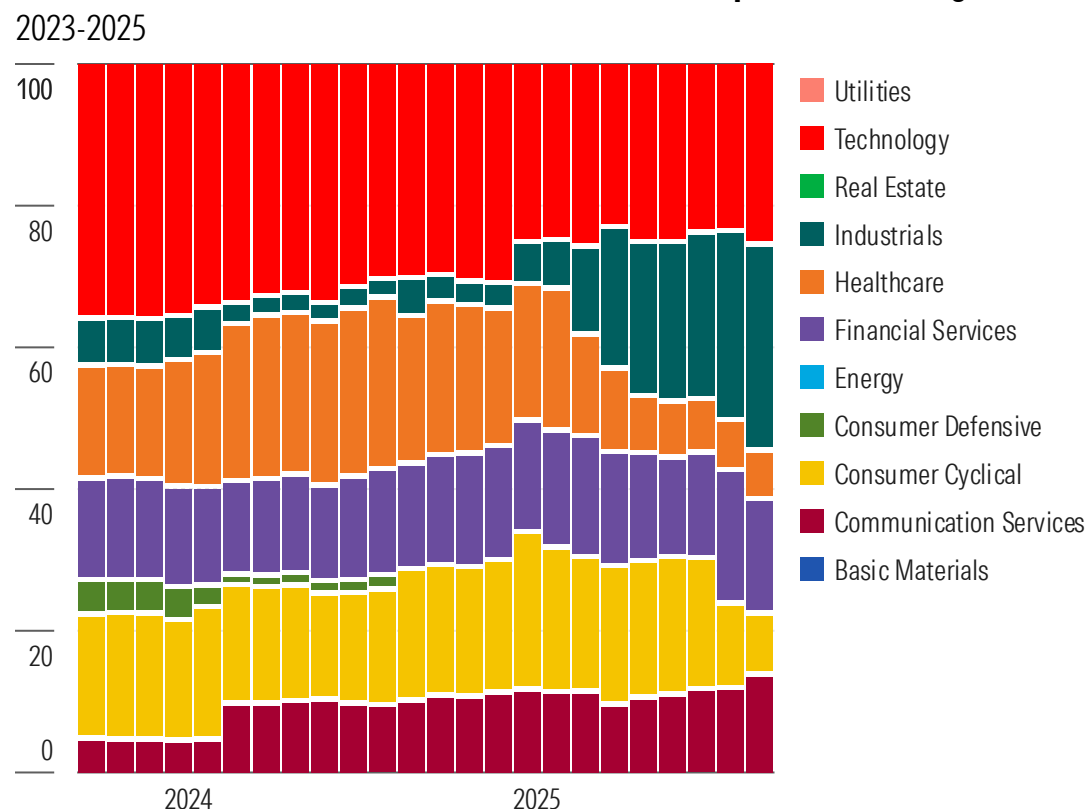


Exhibit 32. BlackRock Global Unconstrained Sector Exposure Percentage 2023-2025



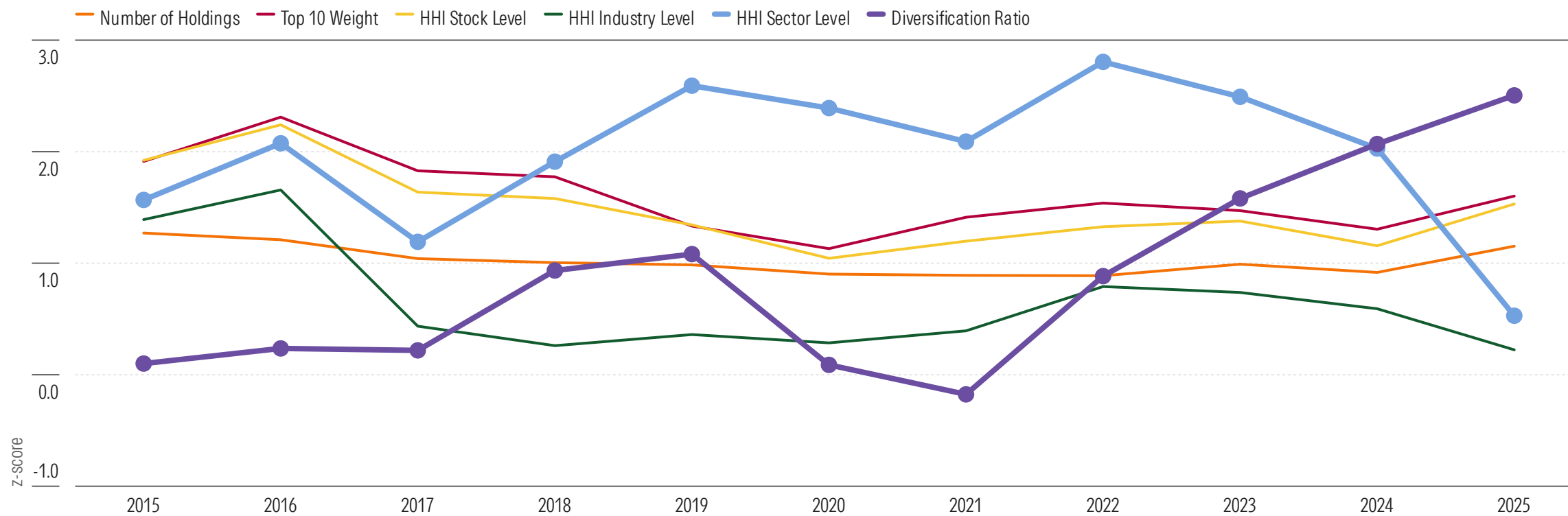
Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

See Important Disclosures at the end of this report.

The Most Concentrated | Comgest Growth Europe

Comgest Growth Europe maintains a high-conviction approach focused solely on quality growth stocks. The concentrated nature of the portfolio and its unique characteristics leave little room for stock-picking mistakes and can lead to short-term underperformance, but its disciplined implementation has led to outstanding long-term results. Over time, the managers have maintained a consistent profile. Still, sector concentration came down lately, with healthcare exposure declining to 20% of assets from 35% since 2022, just as the diversification ratio increased, signaling greater correlation across its holdings, in part reflecting the impact of rising rates across its portfolio holdings.

Exhibit 33. Comgest Growth Europe Concentration Scores



Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025.

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












Our Highest-Rated Active Funds and Their Overall Concentration Score | Europe

| Fund Name | Fund size (EUR Bln) | Morningstar Category | Morningstar Medalist Rating People Pillar | Morningstar Medalist Rating Process Pillar | Morningstar Medalist Rating Parent Pillar | Concentration Score |
|---|------------------------|--------------------------------|---|--|---|------------------------|
| BlackRock Global Funds - European Fund | 1.27 | Europe Large-Cap Growth Equity | High | Above Average | Above Average | 1.34 |
| BlackRock Global Funds - European Special Situations Fund | 0.80 | Europe Large-Cap Growth Equity | High | Above Average | Above Average | 1.79 |
| BlackRock Global Funds - European Value Fund | 1.41 | Europe Large-Cap Value Equity | High | Above Average | Above Average | 1.59 |
| Brandes European Value Fund | 1.10 | Europe Large-Cap Value Equity | High | Above Average | Above Average | -1.16 |
| Comgest Growth Europe | 3.15 | Europe Large-Cap Growth Equity | Above Average | High | Above Average | 1.81 |
| Comgest Growth Europe ESG Plus | 0.24 | Europe Large-Cap Growth Equity | Above Average | High | Above Average | 1.61 |
| Fidelity Funds - European Dynamic Growth Fund | 1.21 | Europe Large-Cap Growth Equity | High | High | Above Average | 0.46 |
| Robeco QI European Conservative Equities | 0.51 | Europe Large-Cap Blend Equity | High | Above Average | Above Average | -1.02 |
| Wellington Strategic European Equity Fund | 5.09 | Europe Large-Cap Blend Equity | High | Above Average | High | -0.73 |

Our Highest-Rated Active Funds and Their Overall Concentration Score | Emerging Markets

| Fund Name | Fund size (EUR Bln) | Morningstar Category | Morningstar Medalist Rating People Pillar | Morningstar Medalist Rating Process Pillar | Morningstar Medalist Rating Parent Pillar | Concentration Score |
|--|---------------------|--------------------------------|---|--|---|---|
| Capital Group New World Fund (LUX) | 0.57 | Global Emerging Markets Equity | High | Above Average | High |  -1.61 |
| Dodge & Cox Worldwide Emerging Markets Stock Fund | 0.03 | Global Emerging Markets Equity | Above Average | Above Average | High |  -1.00 |
| Fidelity Funds - Emerging Markets Fund | 2.73 | Global Emerging Markets Equity | Above Average | High | Above Average |  0.77 |
| GQG Partners Emerging Markets Equity Fund | 1.80 | Global Emerging Markets Equity | High | High | Above Average |  0.17 |
| J O Hambro Capital Management Global Emerging Markets Opportunities Fund | 0.30 | Global Emerging Markets Equity | Above Average | High | Above Average |  0.28 |
| JPMorgan Funds - Emerging Markets Dividend Fund | 0.83 | Global Emerging Markets Equity | Above Average | High | Above Average |  0.36 |
| JPMorgan Funds - Emerging Markets Equity Fund | 3.76 | Global Emerging Markets Equity | High | Above Average | Above Average |  0.46 |
| MFS Meridian Funds - Emerging Markets Equity Fund | 0.05 | Global Emerging Markets Equity | Above Average | Above Average | High |  -0.02 |
| Robeco Emerging Stars Equities | 3.06 | Global Emerging Markets Equity | Above Average | High | Above Average |  1.86 |
| Robeco QI Emerging Conservative Equities | 2.49 | Global Emerging Markets Equity | High | Above Average | Above Average |  -1.21 |
| Skerryvore ICAV - Global Emerging Markets Equity Fund | 0.10 | Global Emerging Markets Equity | High | High | Above Average |  -0.64 |
| T. Rowe Price Funds SICAV - Emerging Markets Discovery Equity Fund | 0.12 | Global Emerging Markets Equity | Above Average | Above Average | High |  0.28 |

















Our Highest-Rated Active Funds and Their Overall Concentration Score | Global

| Fund Name | Fund size (EUR Bln) | Morningstar Category | Morningstar Medalist Rating People Pillar | Morningstar Medalist Rating Process Pillar | Morningstar Medalist Rating Parent Pillar | Concentration Score |
|---|------------------------|--------------------------------|---|--|---|---|
| Artisan Global Value Fund | 5.10 | Global Large-Cap Value Equity | High | High | Above Average |  -0.05 |
| Baillie Gifford Worldwide Long Term Global Growth Fund | 4.37 | Global Large-Cap Growth Equity | High | High | Above Average |  1.16 |
| BlackRock Global Unconstrained Equity Fund | 3.47 | Global Large-Cap Growth Equity | High | Above Average | Above Average |  1.92 |
| Capital Group New Economy Fund (LUX) | 1.11 | Global Large-Cap Growth Equity | Above Average | Above Average | High |  1.14 |
| Capital Group New Perspective Fund (LUX) | 17.02 | Global Large-Cap Growth Equity | High | Above Average | High |  -0.84 |
| Dimensional Global Core Equity | 7.83 | Global Large-Cap Blend Equity | Above Average | Above Average | High |  -1.87 |
| Dodge & Cox Worldwide Global Stock Fund (UCITS) | 5.95 | Global Large-Cap Value Equity | High | High | High |  -1.35 |
| Fundsmith Equity | 18.44 | Global Large-Cap Growth Equity | High | Above Average | Above Average |  1.42 |
| GQG Partners Global Equity Fund | 3.41 | Global Large-Cap Growth Equity | High | High | Above Average |  -1.43 |
| GuardCap Global Equity Fund | 2.35 | Global Large-Cap Growth Equity | High | High | Average |  0.08 |
| JPMorgan Funds - Global Focus Fund | 8.86 | Global Large-Cap Blend Equity | High | High | Above Average |  -0.01 |
| JPMorgan Investment Funds - Global Select Equity Fund | 7.97 | Global Large-Cap Blend Equity | High | High | Above Average |  -0.07 |
| MFS Investment Funds - Global Value Fund | 0.07 | Global Large-Cap Value Equity | Above Average | Above Average | High |  -0.72 |
| MFS Meridian Funds - Contrarian Value | 2.55 | Global Large-Cap Value Equity | Above Average | High | High |  -0.17 |
| MFS Meridian Funds - Global Concentrated Fund | 0.23 | Global Large-Cap Blend Equity | High | Above Average | High |  0.74 |
| MFS Meridian Funds - Global Equity Fund | 1.94 | Global Large-Cap Blend Equity | High | Above Average | High |  -0.43 |
| Pinnacle ICAV - Hyperion Global Growth Companies Fund - UCITS | 0.02 | Global Large-Cap Growth Equity | High | Above Average | High |  2.88 |
| Pinnacle ICAV - Life Cycle Global Equity Fund - UCITS | 0.16 | Global Large-Cap Blend Equity | High | Above Average | Above Average |  -0.71 |
| Pinnacle ICAV - Life Cycle Global Equity Select Fund - UCITS | 0.92 | Global Large-Cap Blend Equity | High | Above Average | Above Average |  0.04 |
| Robeco BP Global Premium Equities | 6.24 | Global Large-Cap Value Equity | Above Average | High | Above Average |  -0.59 |
| Robeco QI Global Conservative Equities | 0.45 | Global Large-Cap Blend Equity | High | Above Average | Above Average |  -1.31 |
| T. Rowe Price Funds SICAV - Global Focused Growth Equity Fund | 3.36 | Global Large-Cap Growth Equity | High | High | High |  0.64 |
| T. Rowe Price Funds SICAV - Global Growth Equity Fund | 0.34 | Global Large-Cap Growth Equity | High | High | High |  0.02 |
| T. Rowe Price Funds SICAV - Global Value Equity Fund | 0.70 | Global Large-Cap Value Equity | Above Average | Above Average | High |  -1.44 |
| Vanguard Global Equity Fund | 0.59 | Global Large-Cap Blend Equity | Above Average | Above Average | High |  -1.24 |
| Veritas Global Focus Fund | 1.99 | Global Large-Cap Blend Equity | High | High | Above Average |  0.45 |
| Wellington Global Stewards Fund | 1.85 | Global Large-Cap Blend Equity | Above Average | Above Average | High |  0.29 |

Source: Authors' calculation based on Morningstar Data. Data as of Sept. 30, 2025, for concentration score, and January 2026 elsewhere.

See Important Disclosures at the end of this report.

Our Highest-Rated Active Funds and Their Overall Concentration Score | US

| Fund Name | Fund size (EUR Bln) | Morningstar Category | Morningstar Medalist Rating People Pillar | Morningstar Medalist Rating Process Pillar | Morningstar Medalist Rating Parent Pillar | Concentration Score |
|--|------------------------|----------------------------|---|--|---|--|
| Brandes US Value Fund | 1.52 | US Large-Cap Value Equity | High | Above Average | Above Average |  -0.71 |
| Capital Group Investment Company of America (LUX) | 1.03 | US Large-Cap Blend Equity | Above Average | Above Average | High |  -0.67 |
| Dodge & Cox Worldwide US Stock Fund | 3.31 | US Large-Cap Value Equity | High | High | High |  -1.42 |
| GQG Partners US Equity Fund | 1.43 | US Large-Cap Blend Equity | High | High | Above Average |  -0.30 |
| JPMorgan Funds - US Growth Fund | 6.23 | US Large-Cap Growth Equity | High | Above Average | Above Average |  1.38 |
| JPMorgan Funds - US Select Equity Plus Fund | 7.60 | US Large-Cap Blend Equity | Above Average | High | Above Average |  0.02 |
| JPMorgan Investment Funds - US Select Equity Fund | 8.57 | US Large-Cap Blend Equity | Above Average | High | Above Average |  0.33 |
| MFS Meridian Funds - U.S. Concentrated Growth Fund | 0.31 | US Large-Cap Growth Equity | Above Average | Above Average | High |  1.44 |
| MFS Meridian Funds - U.S. Growth | 0.09 | US Large-Cap Growth Equity | Above Average | Above Average | High |  1.82 |
| MFS Meridian Funds - U.S. Value Fund | 1.57 | US Large-Cap Value Equity | Above Average | High | High |  -0.48 |
| Natixis International Funds (Lux) I - Harris Associates U.S. Value Equity Fund | 1.89 | US Large-Cap Value Equity | High | High | Average |  0.02 |
| Natixis International Funds (Lux) I - Loomis Sayles U.S. Growth Equity Fund | 5.48 | US Large-Cap Growth Equity | High | High | Average |  0.94 |
| Polen Capital Focus U.S. Growth Fund | 1.10 | US Large-Cap Growth Equity | Above Average | High | Above Average |  1.82 |
| Robeco BP US Large Cap Equities | 2.15 | US Large-Cap Value Equity | High | Above Average | Above Average |  -1.33 |
| T. Rowe Price Funds SICAV - US Blue Chip Equity Fund | 0.89 | US Large-Cap Growth Equity | Above Average | Above Average | High |  1.56 |
| T. Rowe Price Funds SICAV - US Large Cap Growth Equity Fund | 2.52 | US Large-Cap Growth Equity | Above Average | Above Average | High |  2.12 |

Appendix

Methodology: Sample Selection and Input Variables

Sample Selection

We focus exclusively on equity funds. We exclude funds of funds, feeder funds, inverse/short funds, leveraged funds, and synthetically replicated passive funds from our sample. Only funds with valid holdings data are retained. The analysis focuses solely on the equity portion of each portfolio; observations in which equities account for less than 85% of total assets are removed. For the remaining portfolios, equity holdings are rescaled to sum to one. Portfolios with fewer than 10 distinct equity positions are also excluded. Funds are classified as passive if *Index Fund* = "Yes", and as active otherwise. All returns and sizes are expressed in euros.

Composite Components

1. Logarithm of number of holdings: We use the natural logarithm of the number of distinct securities in the portfolio (different securities from the same company are treated as separate holdings). The log transformation captures diminishing marginal effects: adding one stock to a small portfolio changes diversification more than adding one to a very large portfolio. It also compresses scale differences across funds, making comparisons and the composite construction more robust.

2. Top 10 holdings: This is the cumulative weight of the 10 largest equity positions in a portfolio.

3. Stock-Level Herfindahl-Hirschman Index: The HHI is a way to measure concentration and can be used for a portfolio. HHI calculates this by summing the squares of each holding's weight. If one stock is 50% of the portfolio, its square ($0.5^2 = 0.25$) makes the HHI big, hence the portfolio is highly concentrated. If 100 stocks each have 1% weight, their squares ($0.01^2 = 0.0001$) add up to a small number, and the portfolio is less concentrated. Larger values reflect higher concentration.

4. Industry-Level HHI: This HHI is measured at the industry level, using the squared weights of the portfolio's GICS industry exposure. Larger values reflect higher concentration.

5. Sector-Level HHI: This HHI is measured at the Morningstar-defined sector level. Larger values reflect higher concentration.

6. Diversification Ratio: The diversification ratio is the weighted average of individual-stock volatilities relative to the overall portfolio volatility:

$$\text{Diversification Ratio} = \frac{\sum_{i=1}^n w_i \cdot \sigma_i}{\sigma_p}$$

Where:

- w_i = weight of stock i
- σ_i = volatility of stock i
- σ_p = volatility of the entire portfolio

In simpler terms, the diversification ratio compares how risky each stock is on its own to how risky the entire portfolio is. When assets are not perfectly correlated, the portfolio's total volatility is lower than the weighted average of individual volatilities. This makes the diversification ratio greater than 1, which indicates that diversification is working. A ratio close to 1 means the assets move together and the portfolio gains little diversification benefit. To compute the portfolio's overall volatility, we use a variance-covariance matrix estimated from the previous 3 years of weekly returns, with a minimum horizon of 1 year (52 weeks). Before estimating the variance-covariance matrix, all equity returns are winsorized at 1%-99% at the date level. If a fund holds more than 10,000 different securities, only the 10,000 largest holdings are considered. This value is multiplied by -1 for consistency, with larger values reflecting lower diversification (=higher concentration).

To construct the concentration composite score, we follow a multistep procedure.

1. Computation of raw components

We first calculate the individual concentration measures as defined above.

2. Outlier treatment

To prevent extreme observations from disproportionately influencing the results, highly skewed variables are winsorized. Specifically, all HHI measures are winsorized at the 99th percentile.

3. Standardization of components

To combine the individual measures into a single composite, each component is standardized by converting it into a z-score, obtained by subtracting the sample mean and dividing by the sample standard deviation. In the baseline specifications, these z-scores are computed using the full sample of funds.

4. Construction of the composite index.

The Concentration composite score is then calculated as

$$\text{Concentration} = \frac{1}{3} \left[\frac{1}{3} z(\log(N \text{ holdings})) + \frac{1}{3} z(\text{Top10 Weight}) + \frac{1}{3} z(\text{HHI Stock}) \right] + \frac{1}{3} \left[\frac{1}{2} z(\text{HHI Industry}) + \frac{1}{2} z(\text{HHI Sector}) \right] + \frac{1}{3} z(\text{Div Ratio})$$

5. Final normalization

The resulting composite score is standardized once more to have a mean of 0 and a standard deviation of 1.

6. Application to index data

The same procedure is applied to the separate universe of 20 indexes.

Methodology: Charts and Tests

Concentration Tercile Construction

For all statistics based on concentration terciles, we first sort funds within Morningstar categories and then aggregate the resulting groups based on fund activeness and/or broader classifications. This within-category sorting is more granular than in other tests and ensures that each tercile contains a representative mix of investment styles, thereby preventing the results from being driven primarily by cross-category differences rather than by concentration itself.

Baseline Performance Analysis

To examine the relationship between concentration and performance, we divide the sample period into three nonoverlapping three-year intervals starting in September 2016, September 2019, and September 2022. Concentration is measured at the beginning of each interval, while performance is defined as the cumulative three-year return over the subsequent period. The analysis is conducted at the fund level. Three-year fund returns are constructed from monthly data. Specifically, monthly net returns are first aggregated from the share-class level to the fund level using asset-weighted averages. Fund-level monthly returns are then compounded to obtain the three-year return. Finally, all concentration–return observations across the three intervals are pooled to form the final sample. All raw monthly return series are winsorized at the first and 99th percentiles.

Distribution Graphs

For distribution graphs, we demean the variables of interest within category and date, in order to take into account the effects of different group averages, being interested only in deviations from the mean due to concentration.

Volatility and Drawdown Measures

Volatility is measured as the standard deviation of weekly net returns over a three-year window, computed using the oldest share class of each fund. Maximum drawdown is calculated based on weekly net returns over the same three-year period. All weekly net return series are winsorized at the first and 99th percentiles.

Cumulative Return Dynamics

For the analysis of cumulative return dynamics, the sample includes all funds with valid holdings data as of September 2015. At that date, funds are sorted into portfolios according to their concentration levels. Portfolios are constructed using equal weights, and their returns are calculated on a buy-and-hold basis through September 2025. If a fund becomes obsolete, its remaining value is reinvested in the remaining portfolio constituents according to the portfolio's current weights.

It should be noted that loads are not included in this calculation; therefore, the resulting strategy returns do not represent the actual returns an investor would realize. Nevertheless, the approach provides a useful approximation of investor experience.

Methodology: Charts and Tests

Fees

For statistics on fees, we use the representative cost variable provided by Morningstar Direct. It is provided on a share class level and represents total costs investors pay for owning a fund, including both ongoing charges and performance-based fees. Note, however, that this variable does not include one-off fees, like front-end and back-end loads. We obtain fund-level fees by aggregating share class information using asset weighting. We use equal weighting whenever data on share class sizes are not available. We drop observations with resulting fund-level fees smaller than 3 basis points or larger than 5%. All fees are measured as of September 2025.

Liquidations

Liquidation charts show the proportion of funds that become obsolete within one year after the concentration measurement, grouped by prior concentration and prior performance. The sorting into concentration–performance groups is performed independently. Prior performance is measured as the fund-level three-year net return. Observations from September of each year between 2015 and 2025 are pooled to form the final sample. The fund is considered obsolete when all its share classes are obsolete, and its obsolescence date is the latest obsolescence date among them.

Methodology: Variables Used in the Study

| Variable name in Morningstar Direct | Variable description | MS Direct Universe |
|--|--|--------------------|
| Fund-level data | | |
| <i>SecId</i> | Main share class identifier | Funds |
| <i>FundId</i> | Main fund identifier | Funds |
| <i>Obsolete Date</i> | Share class obsolescence date | Funds |
| <i>Index Fund</i> | Index fund indicator | Funds |
| <i>Inverse/Short Fund</i> | Inverse/Short fund indicator | Funds |
| <i>Leveraged Fund</i> | Leveraged fund indicator | Funds |
| <i>Fund of Funds</i> | Fund of funds indicator | Funds |
| <i>Feeder Fund</i> | Feeder fund indicator | Funds |
| <i>Strategy Indexing Approach - Synthetic Replication</i> | Synthetically replicated fund indicator | Funds |
| <i>Weekly Return</i> | Share class net return, weekly | Funds |
| <i>Monthly Return</i> | Share class net return, monthly | Funds |
| <i>Total Ret % Rank Cat 3 Yr (Mo-End)</i> | Share class return rank within Morningstar Category, monthly | Funds |
| <i>Net Assets - share class (Monthly)</i> | Share class size, monthly | Funds |
| <i>Fund Size - comprehensive (Monthly)</i> | Fund size, monthly | Funds |
| <i>Estimated Fund-Level Net Flow - comprehensive (Monthly)</i> | Value of fund-level net flows, monthly | Funds |
| <i>Morningstar Category</i> | Morningstar Category, monthly | Funds |
| <i>Representative Cost ex Transaction Fee (Annualised)</i> | Representative Costs, annually | Funds |
| Security-level data | | |
| <i>Detail Holding Type</i> | Security type | Portfolio |
| <i>Portfolio Weighting %</i> | Weight of a security in the portfolio | Portfolio |
| <i>GICS Industry</i> | GICS Industry | Stocks |
| <i>Sector</i> | Morningstar-defined Sector | Stocks |
| <i>Weekly Return</i> | Stock return, weekly | Stocks |

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