

Broadening the Nasdaq-100 Index: Can Equal Weighting Help Reduce Concentration?

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Key Takeaways

- **The Nasdaq-100 Index® (NDX®) already incorporates concentration controls** that meaningfully reduce exposure to the largest constituents versus a purely market capitalization-weighted version of the Nasdaq-100 universe.
- **Adding the Nasdaq-100 Equal Weighted™ Index (NDXE™) further reduces concentration** by lowering the weight of the largest names and flattening overall constituent exposure while maintaining exposure to the same Nasdaq-100 companies.
- **The diversification benefit may come with a performance trade-off**, as equal-weighted exposure has generally lagged market cap-weighted exposure during periods when larger companies outperformed smaller companies.
- **Based on a historical analysis through June 30, 2026, a blended NDX/NDXE allocation may improve portfolio risk characteristics**, with the historical minimum-risk portfolio occurring at approximately **24% NDX / 76% NDXE**, while the highest return/risk portfolio remained 100% NDX.

Executive Summary

The Nasdaq-100 Index® (NDX®) offers investors exposure to 100 of the largest, most innovative, non-financial companies listed on the Nasdaq Stock Exchange®. As a modified market capitalization weighted index, the largest companies comprise a larger percentage of the index weight, and all else equal, exert a proportionately higher impact on index performance. To help mitigate this effect, the NDX index methodology includes caps on the weight of any single constituent, as well as a cap on the sum of the weights of constituents that exceed a certain threshold¹ (see Appendix for an abridged discussion of the constraints). These caps limit concentration levels in NDX below even that of the much broader Russell 1000 Growth Index, as measured by the percentage of the portfolio in the top 5 and 10 names, as well as a lower Herfindahl-Hirschman Index (HHI) as of 6/30/2025 and 12/31/2025². For investors who want to retain exposure to the innovation embedded in NDX but with less concentration in the largest companies, they may consider combining the Nasdaq-100 with the Nasdaq-100 Equal Weighted™ Index (NDXE™). NDXE is comprised of all the companies in the Nasdaq-100 but on an equal weighted basis. Combining NDX with NDXE will reduce the weights of not only the largest names, but also across the most heavily weighted sectors.

In this research paper, we explore the impact of combining NDX and NDXE in different proportions, focusing on the impact on holdings-based characteristics as well as the

performance profile. Historically, implementing NDXE at increasing 10% increments would have progressively reduced the weights in the top 5 and 10 names. The weight in the technology sector would have also decreased. Given the stronger performance of market cap-weighted indexes over the last decade, it is not surprising that the historical performance declines when mixing with an equal weight portfolio. However, we also find that the risk of the portfolios declines as we add more exposure to the equal weight index, reaching the minimum risk level with 24% in NDX and 76% in NDXE. This finding may be of particular interest to investors who seek to minimize risk across a diversified, multi-asset portfolio with explicit risk targets.

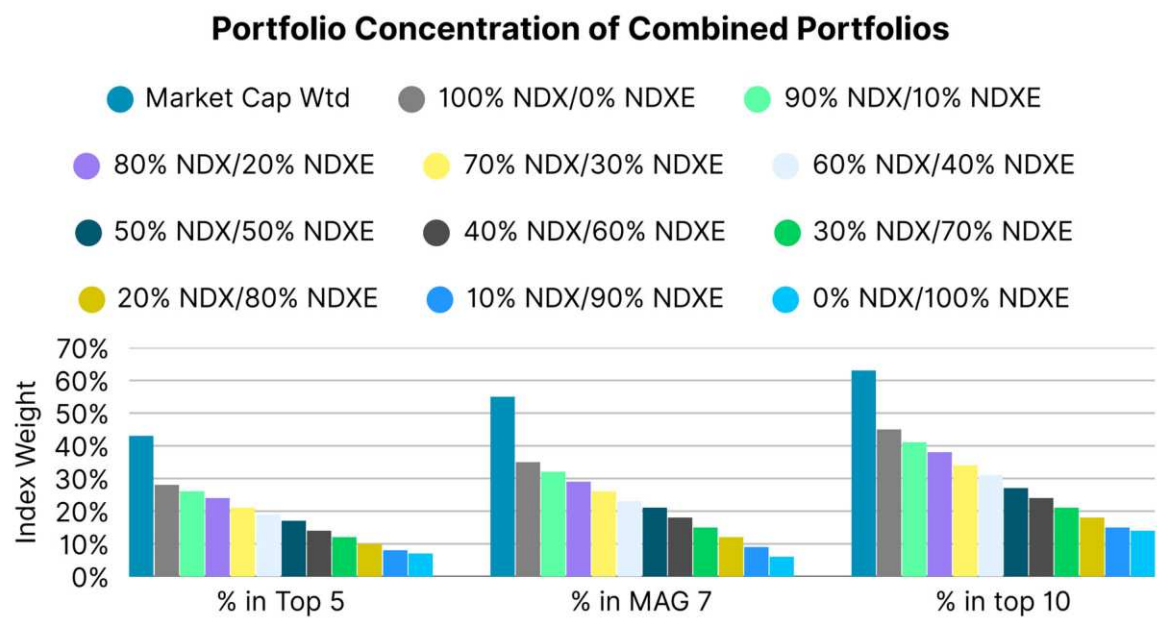
Holdings Based Analysis

To examine first the impact of the index methodology weight caps, we calculated the theoretical weights based purely on the unconstrained market capitalization of NDX constituents. The percentage of an uncapped version of NDX that would be in the top 5, Mag 7³, and top 10 based on market capitalization was 43%, 55% and 63%, respectively as of June 30, 2026. The actual NDX weights were 28%, 35% and 45%. The index’s embedded constraints reduce these weights by approximately 15 to 20 percentage points.

Starting with a 100% allocation to NDX, we incrementally add 10% of NDXE while simultaneously decreasing NDX by 10%. This ensures that the combined portfolio is long-only and sums to 100%.

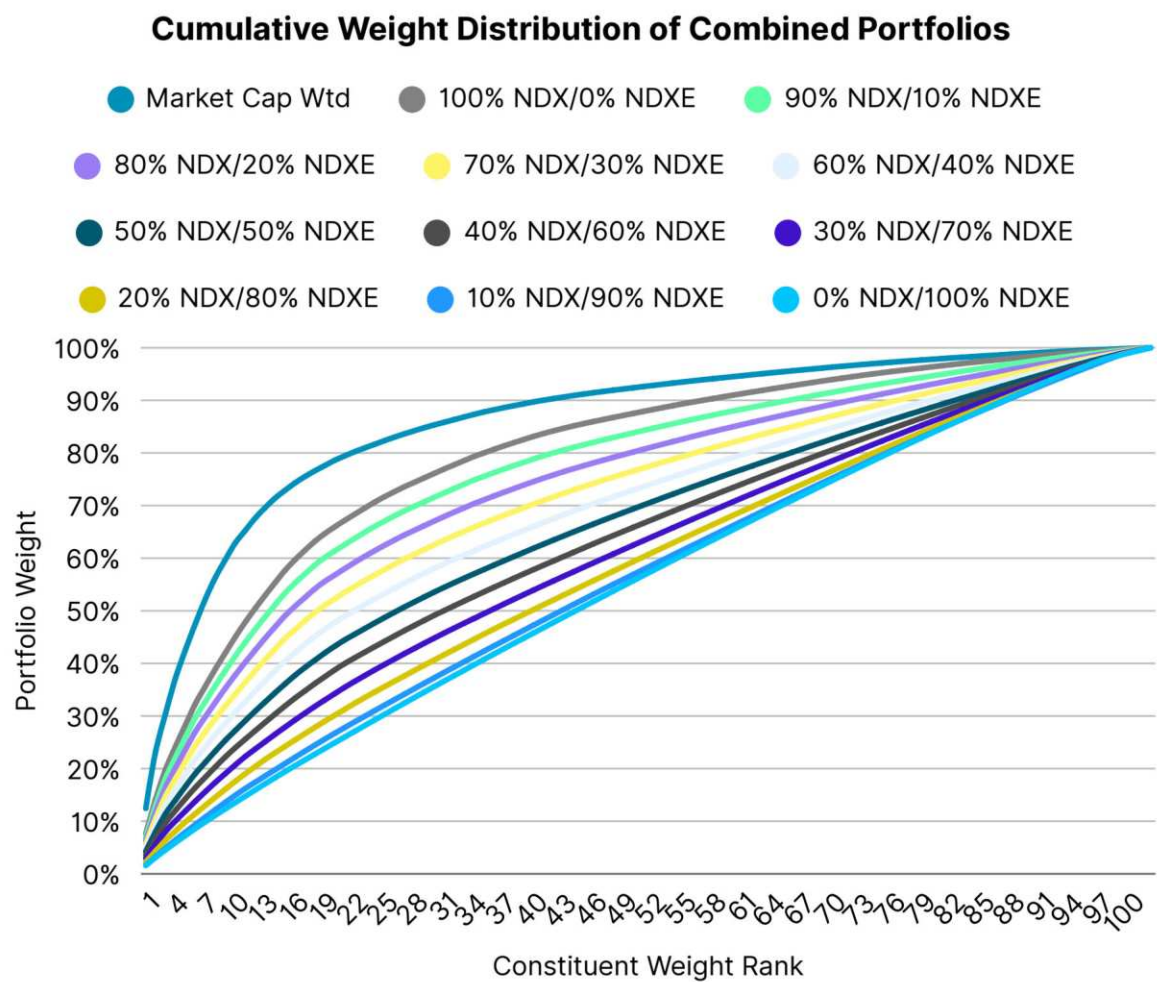
The percentages of the portfolio in the top 5, Mag 7 and & top 10 names decrease from 28%, 35% and 45% respectively, to 7%, 6% and 14% respectively as we move from 100% NDX to 100% NDXE. Chart 1 shows the effect of the built-in NDX weight caps (Market Cap Wtd vs. 100% NDX) and the progression of concentration at 10% increments of NDXE.

Chart 1



Another way to look at the portfolio concentration is by visualizing the cumulative weight of the constituents. This sums the weights of the constituents as ranked in descending order based on weight. Again, we start with the theoretical unconstrained weights based on market capitalization (Market Cap Wtd) vs. 100% NDX. We then add 10% increments of NDXE. The curve flattening as seen in Chart 2 illustrates the impact of the constraints, and subsequently adding in 10% increments of NDXE. It is interesting to note that the largest gap (i.e. reduction in concentration) presents itself when moving from the theoretical market cap-weighted version to 100% NDX, showing the impact of the built-in constraints.

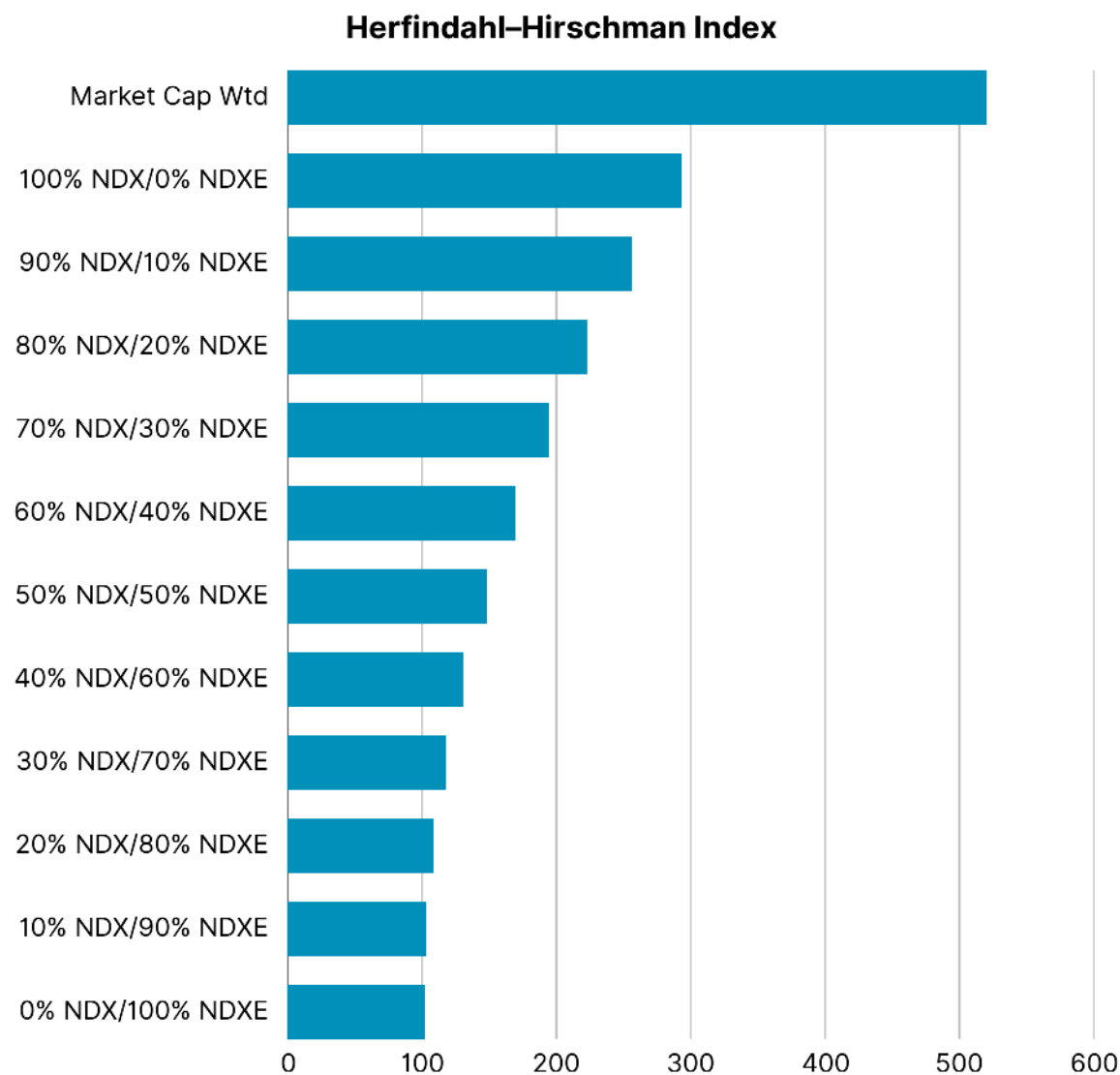
Chart 2



Source: Nasdaq Global Indexes. Data as of June 30, 2026.

The Herfindahl–Hirschman Index⁴ (HHI) is a statistical measure of concentration that sums the squares of the weights. A value of 10,000 means maximum concentration while a value of 0 indicates maximum diversification. Chart 3 shows the HHI value for each of our combined portfolios. The theoretical market-cap weighted index has the highest HHI value at over 520 while NDX has a HHI value of under 300 indicating significant diversification from the weight caps. This is further enhanced by the inclusion of NDXE at increasing proportions until we reach 100% NDXE which has a HHI value of 102.

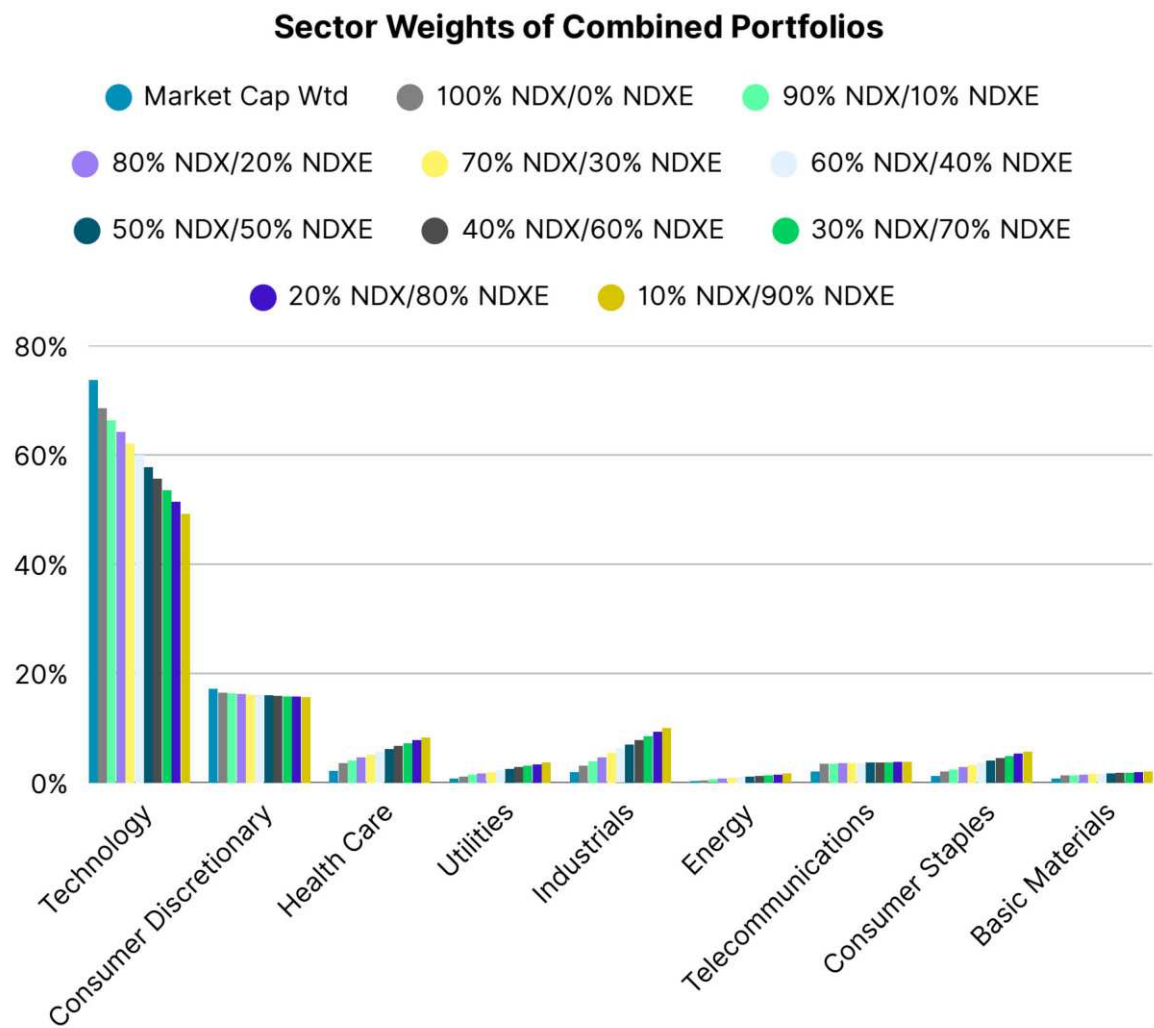
Chart 3



Source: Nasdaq Global Indexes. Data as of June 30, 2026.

Looking at the sector weights, we see a slightly smaller impact from both the NDX constraints and adding NDXE. This is because there are a large number of technology names in NDX so even as we reduce the weight of some of the biggest names, the excess weight gets redistributed back into some of the smaller names within the technology and consumer discretionary sectors. The notable exception is in the industrials sector as NDXE has relatively more names in that sector than in some of the other, smaller sectors.

Chart 4



Source: Nasdaq Global Indexes. Data as of June 30, 2026.

Performance Analysis

The Nasdaq-100 has outperformed both the theoretical market cap-weighted index and its equal weighted counterpart from December 31, 2007 through June 30, 2026, illustrating the unique value proposition of its modified market cap-weighted methodology. The theoretical market cap-weighted index generated a simulated price return of 1,312.24%. This is approximately 40 percentage points lower than NDX, with a higher standard deviation. NDXE produced a price return of 693.17% with the lowest standard deviation. See Table 1 for additional performance data.

Table 1

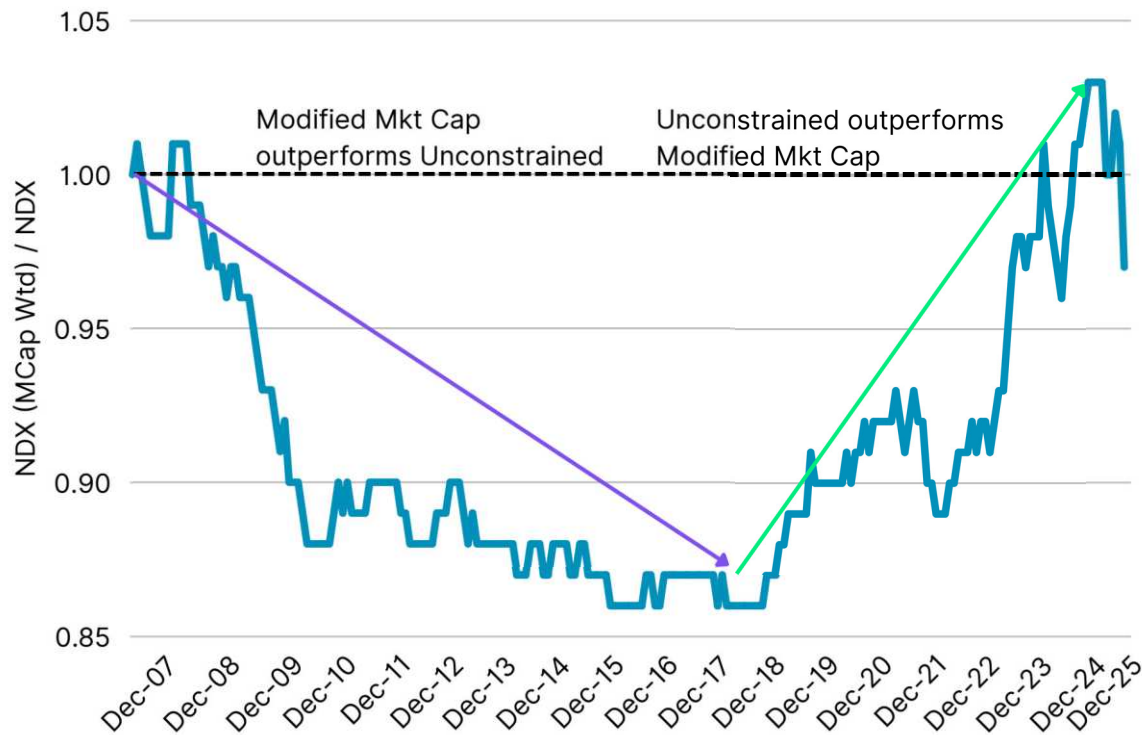
From 12/31/2007 to 6/30/2026			
Cumulative Return	NDX (Mcap) ⁵	NDX	NDXE
YTD	13.13%	19.91%	19.34%
1 year	31.67%	33.50%	24.27%
3 years	112.85%	99.46%	58.84%
5 years	123.06%	108.02%	51.62%
10 years	664.62%	585.34%	306.36%
Since Inception of Analysis Period	1312.24%	1352.15%	693.17%
CAGR	15.39%	15.56%	11.85%
Annualized Std Dev	19.57%	18.97%	18.47%
Return/Risk	78.63%	82.05%	64.14%
Max Drawdown	-47.05%	-46.43%	-48.83%

Source: Nasdaq Global Indexes. Data as of June 30, 2026.

In comparing the unconstrained market-cap weighted portfolio to NDX, it is informative to examine the performance of the very largest companies that would be disproportionately represented in the unconstrained portfolio. These “mega-cap names” (the top end of the market cap spectrum) lagged the broader large cap universe from 2008 through 2018. Thus, we saw NDX (as a modified market cap-weighted index) outperform the unconstrained market cap index. Starting in 2019 and really accelerating in 2023, mega-cap names have strongly outperformed, though that started reversing sharply in the first half of 2026. See Chart 5 for a visual display of these performance trends.

Chart 5

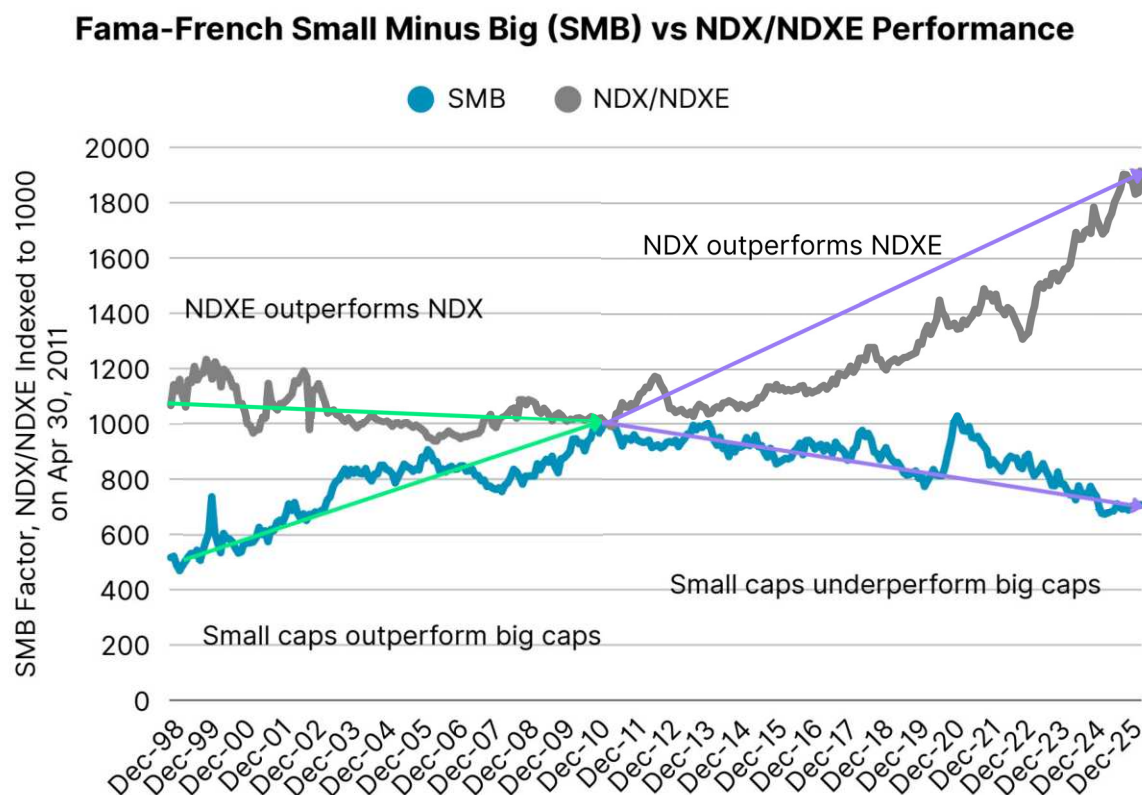
Ratio of Performance of NDX Market Cap Weighted (Unconstrained) vs. NDX Modified Market Cap Weighted



Source: Nasdaq Global Indexes. Data as of June 30, 2026.

Save for a brief period following the Covid market bottom that started in April 2020, larger stocks have been generally outperforming smaller stocks for well over a decade. When small caps underperform large caps, equal-weighted strategies tend to underperform market cap-weighted strategies. Chart 6 shows the indexed performance of the “Small Minus Big” (SMB) factor in the Fama-French 3 Factor Model (FF3)⁶ vs the ratio of NDX to NDxE performance. Following a period of strong outperformance by small caps from 1999 through early 2011 when we saw NDxE outperform NDX, small caps have lagged behind large caps with the underperformance becoming particularly acute in the last 5 years. This has been accompanied by strong outperformance of NDX vs NDxE.

Chart 6



Source: Nasdaq Global Indexes. Dartmouth.edu (Tuck). Data as of April 30, 2026.

Just as we combined NDX and NDXE at 10% increments to analyze the impact on portfolio concentration levels, we can conduct a similar analysis on portfolio performance. Using index levels starting on December 31, 2007, we constructed a risk/return frontier of combined portfolios. We start with 100% NDX and add NDXE in 10% increments while reducing NDX by 10%. We do this until we reach 100% NDXE with 0% NDX. We also calculate the weight allocation that would have generated the minimum risk (as measured by standard deviation) as well as the maximum return/risk. The minimum risk portfolios would have had a 24% allocation to NDX and a 76% allocation to NDXE, a highly useful combination with lower standard deviation than either NDX or NDXE on a standalone basis. This comes from the increased diversification from allocating to both indexes. Any allocation to NDXE above 76% would have reduced both risk and return historically. The maximum return/risk⁷ portfolio would have been a 100% allocation to NDX. Chart 7 shows the frontier including each 10% increment portfolio and the minimum risk and maximum return/risk portfolios.

Chart 7



Source: Nasdaq Global Indexes. Data as of June 30, 2026.

Conclusion

The Nasdaq-100 methodology includes constraints on individual securities and groups of higher-weighted constituents, which helps reduce concentration and has historically lowered risk relative to an unconstrained market-cap-weighted version of the same universe. Combining NDX with NDXE can⁸ further reduce concentration and may lower risk, while still maintaining exposure to all Nasdaq-100 companies.

The performance impact, however, depends heavily on the market environment. When mega-cap stocks lead, a more concentrated or unconstrained market-cap-weighted approach may outperform. When mega-cap stocks lag, NDX's concentration controls can be beneficial. Similarly, NDXE has tended to perform better when smaller constituents outperform, while NDX has generally outperformed when larger constituents dominate.

For investors who want exposure to Nasdaq-100 companies but prefer a more diversified allocation, blending NDX and NDXE may be a useful approach. The key trade-off is that diversification benefits may come with different performance outcomes depending on the market regime.

Direxion Nasdaq-100 Equal Weighted Index ETF (Nasdaq: QQQE)

The Direxion NASDAQ-100 Equal Weighted Index ETF seeks investment results, before fees and expenses, that track the NASDAQ-100 Equal Weighted Index. There is no guarantee the fund will achieve its stated investment objective.

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Distributor: ALPS Distributors, Inc.

Appendix

NDX Modified Market-cap weighting

Concentration safeguards

- Quarterly Rebalance (with capping and additions/deletions)
 - any issue >24% capped at 20%
 - group of issuers >4.5% capped at 40% if aggregate exceeds 48%
- Annual Reconstitution (with capping process)
 - any issue >15% capped at 14%
 - Top 5 capped at 38.5% if aggregate exceeds 40%
 - all other securities capped at 4.4% (or the #5 weight, if lower)

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¹ The weighting process is explained in the methodology document at https://indexes.nasdaqomx.com/docs/Methodology_NDX.pdf.

² For a more detailed explanation, see <https://www.nasdaq.com/articles/global-indexes/ndx-ecosystem-institutional-investors>

³ MAG 7 names are Amazon (AMZN), Apple (AAPL), Alphabet (GOOG/GOOGL), Meta (META), Microsoft (MSFT), NVIDIA (NVDA) and Tesla (TSLA).

⁴ https://en.wikipedia.org/wiki/Herfindahl-Hirschman_index

⁵ NDX (Mcap) is a theoretical index calculated by including the Nasdaq-100 constituents at each year end, weighted by their full market capitalization as of the NDX Reference Date (the last Friday in November of each respective year).

⁶ https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research

⁷ The maximum return/risk portfolio is directionally similar to the maximum Sharpe portfolio but does not deduct the risk-free rate in the calculation.

⁸ The equal weighted portfolio has, by definition, the lowest security level concentration as no security has more weight than any other. Adding an equal weight portfolio to any other portfolio that is not equal weighted will move the combined portfolio closer to the equal weighted portfolio thereby making it less concentrated at the security level.