Nasdaq-100 Mega™ Index: Strategic Approach to Megacap Tech

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The Nasdaq-100 Mega Index (NDXMEGA™) was launched on July 29, 2024 to offer investors a strategic method of tracking the largest innovation-driven companies that comprise the Nasdaq-100® (NDX®), with deliberately higher levels of concentration. The index can serve as a complement to the Nasdaq-100, dynamically selecting the companies that have been increasingly driving overall index performance in recent years.

Reasons to consider NDXMEGA:

- The index provides concentrated exposure that automatically adapts to the expected turnover of Nasdaq-100 companies in their rankings of market capitalization
- Utilizes a dynamic weighting scheme that allows index composition to fluctuate, by targeting the largest constituents in the Nasdaq-100 contributing approximately 45% of index weightings
- More accurately captures market leadership over extended time horizons vs. static strategies with a fixed number or list of constituents, such as the 'Magnificent 7' or 'FAANG'
- Historical returns highlight the index's resilience relative to competitors during market drawdowns and periods of macroeconomic uncertainty, including the Covid-19 Pandemic and Global Financial Crisis
- NDXMEGA companies exhibit robust fundamentals that account for a growing proportion of the entire Nasdaq-100's revenues, earnings, free cash flow, and R&D

Methodology Overview

Securities must meet existing Nasdaq-100 eligibility criteria to be considered for inclusion in the index. The selection process begins with the base universe of all companies, both foreign and domestic, that are listed on the Nasdaq Stock Market® (issuer of the security's primary U.S. listing must exclusively be listed on the Nasdaq Global Select Market® or Nasdaq Global Market® exchanges). The index subsequently removes all companies classified as Financials according to the Industry Classification Benchmark (ICB). The Nasdaq-100 Mega Index adheres to the same annual reconstitution and quarterly rebalancing schedule as the Nasdaq-100 Index®.

A reconstitution is conducted on an annual basis in December, at which time all eligible companies, ranked by base universe weight, are considered for index inclusion based on the following criteria: The top-ranked companies that cumulatively allocate up to 47% of the base universe, the Nasdaq-100, will be selected for inclusion in the index. It is worth noting that the index can allocate less than or equal to 47% of the base universe but cannot exceed this threshold.

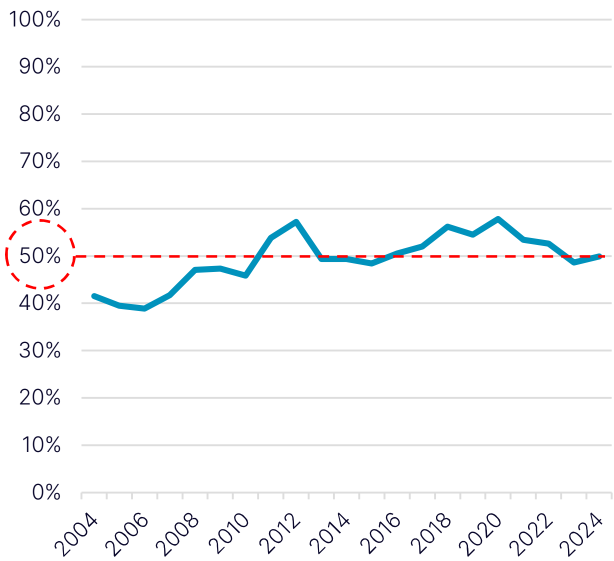
The index is a modified market capitalization-weighted index. Initial weights are determined by dividing each Index Security's market capitalization by the aggregate market capitalization of all Index Securities selected. Initial weights are adjusted to meet the following constraints: No company weight may exceed 35%.

Nasdaq-100: A Winner Take All Representation of the Market

Since its inception, the Nasdaq-100 has been prone to swings in performance and valuations often stemming from its largest constituents. The collective weight of the top 10 has been at or above 50% for the past decade-plus while the same figure remained below 50% for much of the period predating 2010. The top 10 holdings of NDX comprised approximately 49.8% of the index as of August 30, 2024 compared to 41.4% twenty years prior. A clear trend is emerging that suggests index performance is becoming increasingly consolidated among a handful of players.

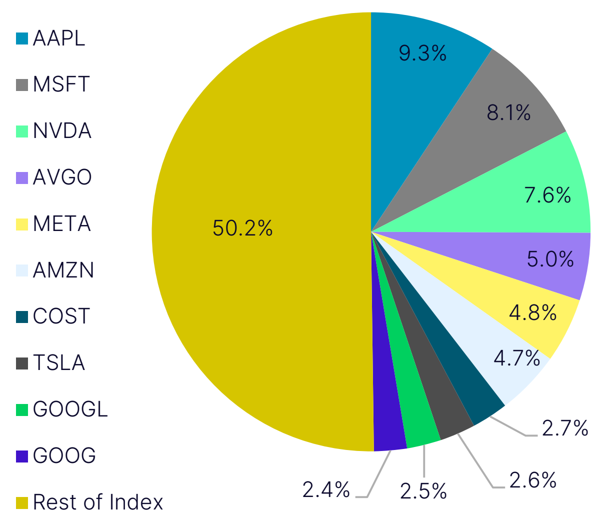
Aggregate Weight of Top 10 NDX® Securities by Year

Note: The blue line reflects the cumulative weight of the top 10 holdings of NDX as of the end of August for each year between 8/30/2004 – 8/30/2024



Top 10 Holdings of NDX vs. Remainder of Index

Note: Holdings data as of 8/30/2024



Source: Nasdaq Global Indexes. Both share classes of Google stock are included in the top 10 holdings pie chart above: Alphabet A (GOOGL) and Alphabet C (GOOG)

The concentration of performance among relatively few securities has become an accepted feature of market cap-weighted indexes in recent years. However, determining which companies will occupy and retain these positions remains unclear. The historical evolution of the index offers a possible explanation that is not unique to the Nasdaq-100 or any broad-based market index: it is not easy to stay on top. The table below provides a snapshot of the top 10 holdings of the Nasdaq-100 as of August 30, 2004, and the same date 10 and 20 years later. The compositon of the grouping today bears little resemblence to the same segment from two decades prior.

August 30, 2004			August 30, 2014			August 30, 2024		
Company Name	Market Cap ($Bn)	Weight (%)	Company Name	Market Cap ($Bn)	Weight (%)	Company Name	Market Cap ($Bn)	Weight (%)
Microsoft Corporation	294.7	9.0%	Apple Inc.	613.8	13.6%	Apple Inc.	3,481.7	9.3%
QUALCOMM Incorporated	61.4	6.7%	Microsoft Corporation	374.3	8.2%	Microsoft Corporation	3,100.6	8.1%
Intel Corporation	138.6	4.4%	Alphabet Class A (GOOG)	193.3	4.2%	NVIDIA Corporation	2,928.1	7.6%
Cisco Systems, Inc.	128.7	4.2%	Intel Corporation	172.9	3.8%	Broadcom Inc.	760.5	5.0%
eBay Inc.	56.5	3.7%	Gilead Sciences, Inc.	162.6	3.6%	Meta Platforms Inc.	1,138.9	4.8%
Amgen Inc.	74.7	3.1%	Alphabet Class C (GOOGL)	165.0	3.6%	Amazon.com, Inc.	1,873.5	4.7%
***Dell Inc.	***79.9	2.9%	Amazon.com, Inc.	156.6	3.4%	C ostco Wholesale Corporation	395.6	2.7%
Nextel Communications Inc.	24.8	2.9%	Meta Platforms Inc.	150.8	3.2%	Tesla, Inc.	684.0	2.6%
Comcast Corporation	37.9	2.4%	QUALCOMM Incorporated	127.5	2.8%	Alphabet Class A (GOOGL)	957.2	2.5%
Starbucks Corporation	17.0	2.1%	Cisco Systems, Inc.	128.0	2.8%	Alphabet Class C (GOOG)	922.1	2.4%

Source: Weight reflects Nasdaq Global Indexes data as of August 30 for the years 2004, 2014, and 2024. Market Cap data is derived from FactSet for the same dates.
Note: Dell Market Cap Data reflects the company's annual 10-K filing and market capitalization as of 7/30/2004.
Note: Both share classes of Google stock are included in the top 10 holdings table for 2014 and 2024: Alphabet A (GOOGL) and Alphabet C (GOOG)

Microsoft, labeled in green above, is the only company from the sample to retain their top 10 status in the Nasdaq-100 twenty years apart. Only half of the top 10 in 2014 retained their positions a decade later: Microsoft, Apple, Alphabet (Google), Amazon, and Meta Platforms (Facebook). The shuffling of the Nasdaq-100 over the past two decades illustrates the inevitability of change at the very top of broad-based market cap-weighted indexes.

The Shuffling of Semiconductors: A Case Study in Chip Makers

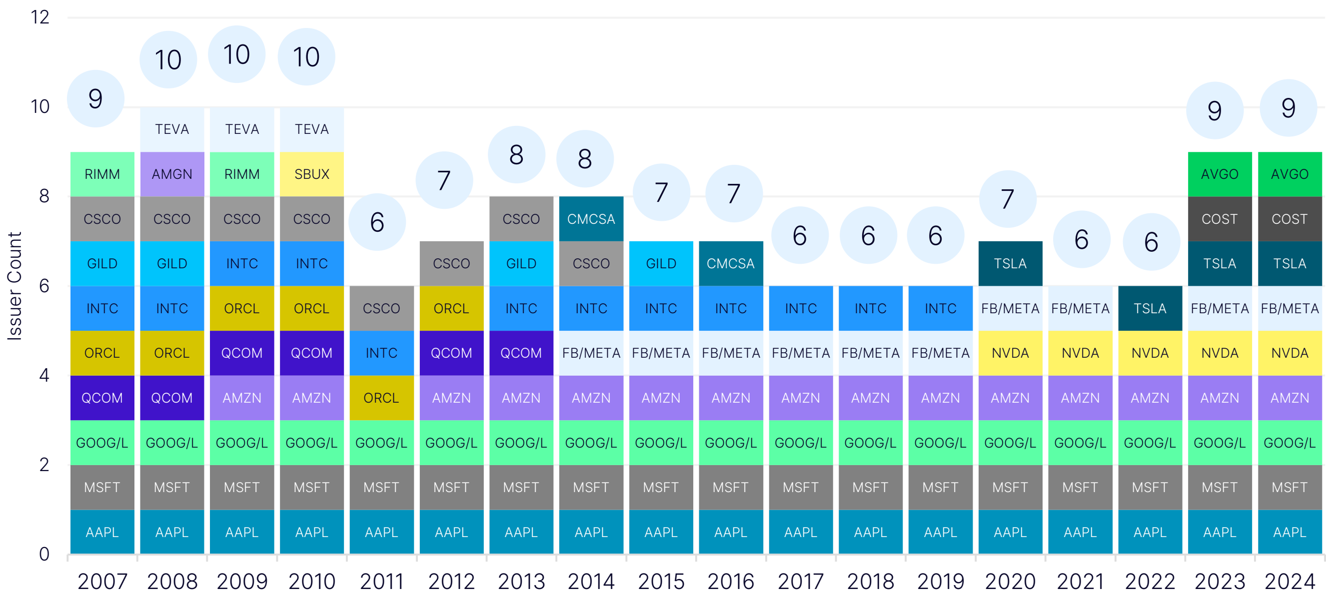
Most companies that make it to the top of the Nasdaq-100 find it challenging to retain their status, unlike Microsoft, which has consistently featured in the top 10. Many logos that have fallen from the top 10 have maintained their membership within the top 100. To illustrate the dynamics of NDXMEGA in action, consider the rise and fall of semiconductor companies in recent years.

In 2004, Qualcomm and Intel boasted the second and third-largest weights in the Nasdaq-100. By 2014, both Qualcomm and Intel retained their top 10 status, but were quickly falling behind other leading Tech companies like Apple, Alphabet, Amazon and Meta Platforms in terms of growth and market cap. In the meantime, semiconductor names Broadcom and AVAGO Technologies climbed to 45th and 50th, respectively, before their

2016 merger. Nvidia landed at 83rd on the list.

Top 45% NDX Issuers by Year

Note: The chart reflects the number of issuers as of the evaluation date (Monday following the 3rd Friday in December) for each year between 2007 and 2023. 2024 column displays issuer data as of 8/30/2024.



Source: Nasdaq Global Indexes. *Note: Alphabet has just one security listing in the top 45% of NDX between 2007-2014 and two securities between 2014-2024. Regardless of the number of Google securities included in NDXMEGA, the GOOG/L nomenclature reflects a singular parent entity, Alphabet, for the purposes of quantifying the number of issuers within NDXMEGA over the years.

As of August 30, 2024, Nvidia (NVDA) and Broadcom (AVGO) ranked 3rd and 4th, respectively, in the Nasdaq-100, while Intel (INTC) placed 39th. Intel is a prime example of how no firm is immune to the winner-take-all nature of the economy and technology sector. The Santa Clara, California-based company, for decades the envy of the chipmaking industry, has been replaced by two competitors from its home state seemingly overnight. Broadcom and Nvidia have come to embody the same innovative spirit that once characterized Intel just a short time ago. Semiconductor leadership within the Nasdaq-100 illustrate just how dramatically today's leading companies risk being upstaged by newer, more agile competitors in their respective fields if they fail to consistently innovate and adapt to the rapidly evolving marketplace.

Arrival at the Dynamic 45% Weighting Threshold: A Brief History of NDXMEGA

The NDXMEGA Index is the culmination of numerous adaptations of a concentrated Nasdaq-100 portfolio evaluated by the Nasdaq Index Product Development team. The original objective was to track a fixed number of holdings at the top of NDX, distinct from existing strategies referencing the 'Magnificent 7' or 'FAANG.'

Initial versions of the index reflected a fixed number of constituents ranging from 5 to 25 holdings, yet performance offered minimal differentiation from the Nasdaq-100. This led to experimentation with various weighting thresholds to isolate securities comprising the top 40%, 45%, and 50% of the underlying parent index. Performance changed minimally between each weighting scheme, while volatility shifted more noticeably, in line with higher or lower concentration levels A soft weighting target of 45% with a 2% buffer (a hard cutoff that cannot exceed 47%) addressed the concerns of excess concentration and volatility, while not diluting the holdings too much either.

To further compensate for any risks stemming from an overly concentrated portfolio, the weight of each constituent was capped at 35% of the entire NDXMEGA portfolio. This constraint yielded the best performance of all the various security weights applied to the index while simultaneously providing a sufficient distribution of security weights within the new portfolio.

A Reflection of Change Over Time

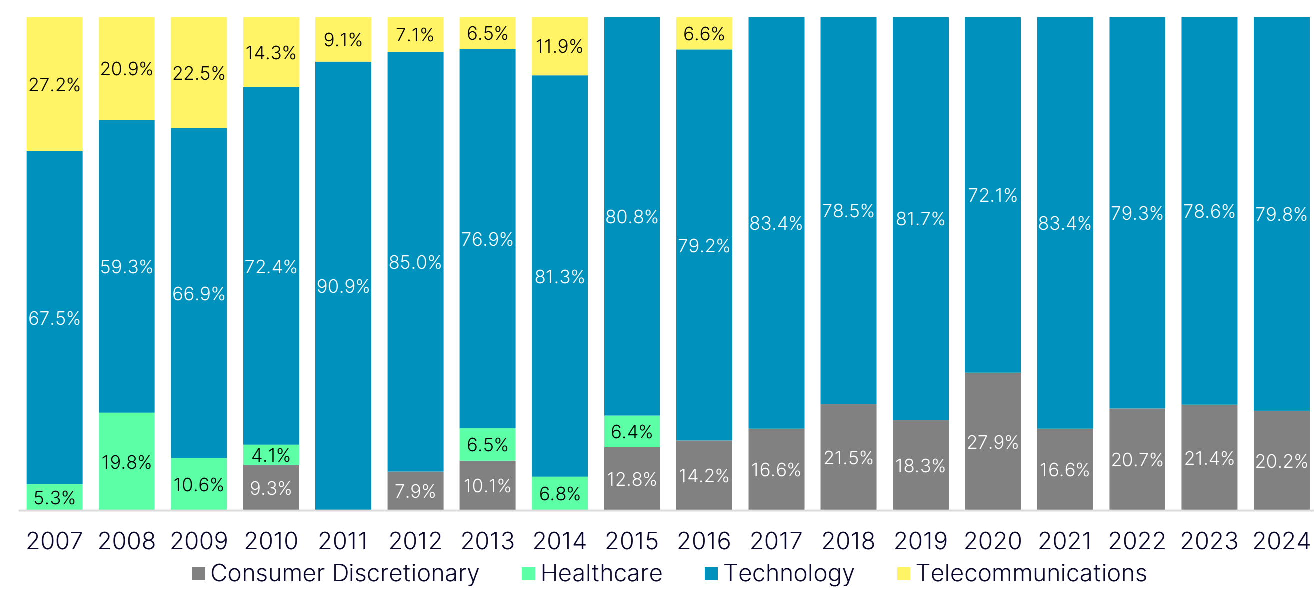
The index officially launched in July 2024 as an alternative mega-cap investing strategy. Rather than hitching one's wagon solely to today's trends, the dynamic selection and weighting scheme allows for its constituents' names, overall count, and industry exposures to change naturally. NDXMEGA is poised to capture value from any grouping of securities that ascend to the top of the Nasdaq-100 regardless of what names may come and go from the index.

Historical backtesting data since 2007 suggests that the number of issuers eligible for inclusion in NDXMEGA will range from 6 to 10, as illustrated in the chart to the right.

Similar variation can be observed at the sector level. Consider the index as it would have appeared back in 2007,when nine companies would have been eligible for NDXMEGA inclusion. The portfolio would have allocated roughly 67%, 27%, and 5% to the Technology, Telecommunications, and Health Care sectors. Today's live index is instead more concentrated in Technology names, with Consumer Discretionary comprising the rest. The influence of Health Care and Telecommunications over the Nasdaq-100 has waned, especially over the past decade, as Consumer Discretionary has surged in importance given the success of names like Amazon, Tesla, and even Costco. As a result, one can expect to see turnover in sector exposure, as well as individual companies, over time.

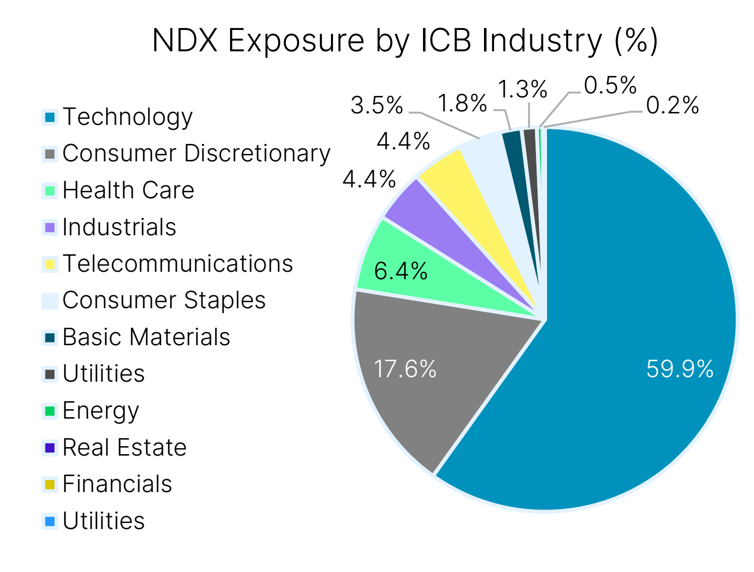
NDXMEGA Sector Exposure by Year (per ICB Industry Classifications)

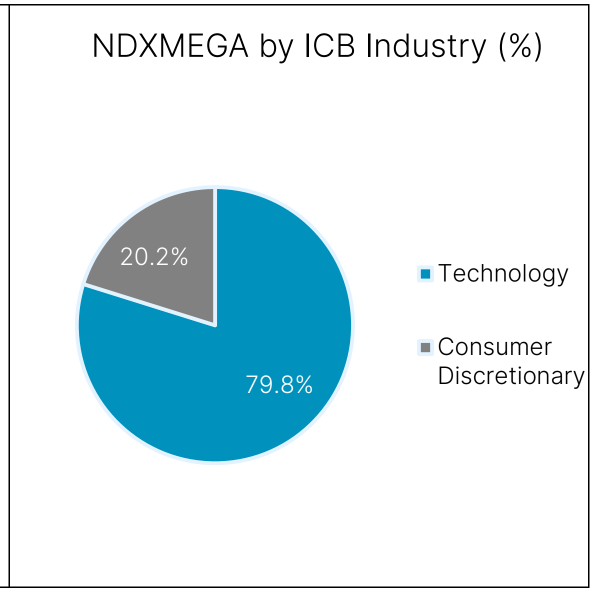
Note: The chart reflects sector data for holdings as of the evaluation date (Monday following the 3rd Friday in December) for each year between 2007 and 2023; 2024 data as of 8/30/2024.



Source: Nasdaq Global Indexes, FactSet

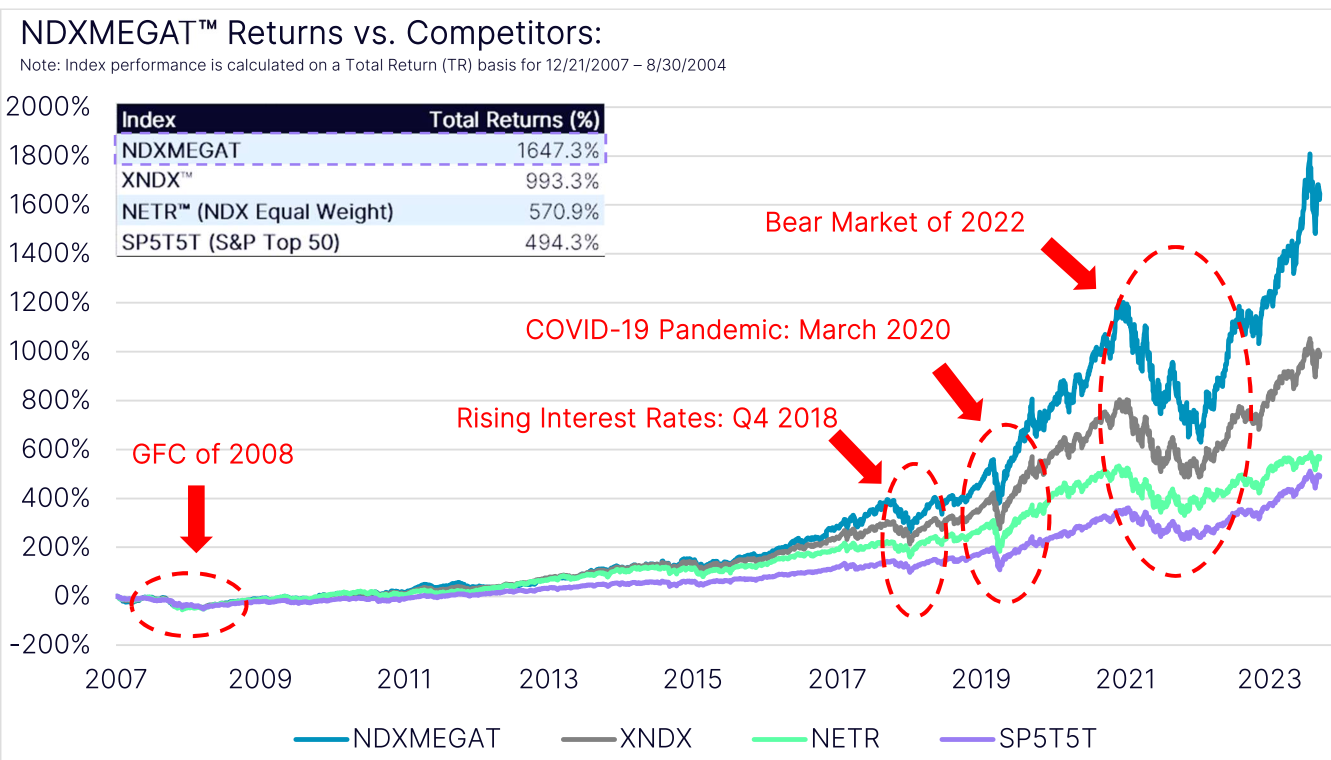
With 80% of the index comprised of Technology names, it is clear that NDXMEGA provides a much stronger tilt towards this sector of the economy than the 60% offered by NDX. Both indexes have direct exposure to the trailblazers and disruptors that underscore the "new economy" of the 21st century. Still, NDXMEGA provides a more focused approach to investing in sectors at the forefront of innovation.





Source: Nasdaq Global Indexes data as of 8/30/2024

Performance and Drawdown Analysis

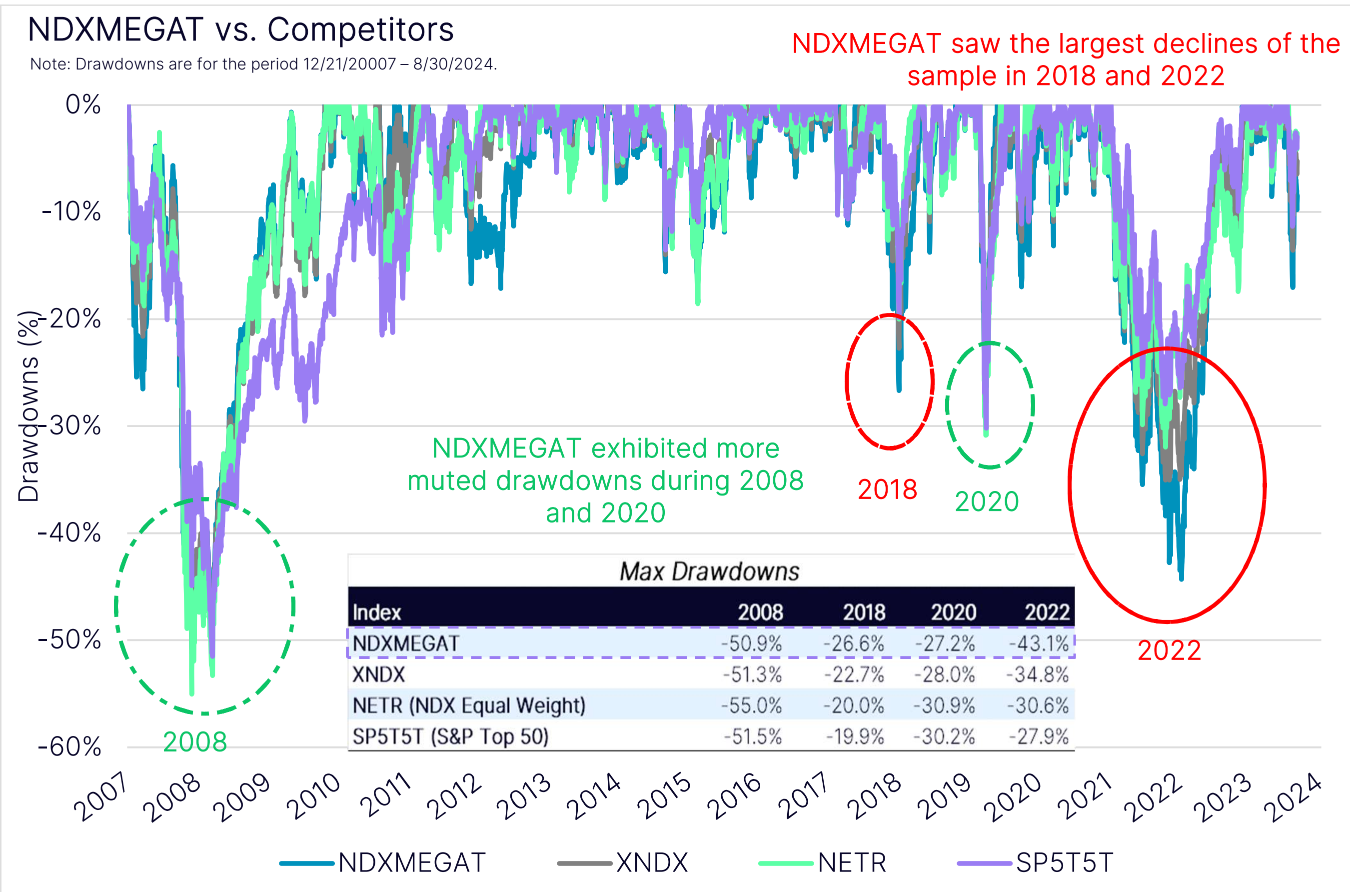


Index	Total Returns (%)
NDXMEGAT	1647.3%
XNDX™	993.3%
NETR™ (NDX Equal Weight)	570.9%
SP5T5T (S&P Top 50)	494.3%

Source: Nasdaq Global Indexes, Bloomberg, FactSet.
Performance data from 12/21/2007 – 8/30/2024.

Concentrating any portfolio at the company and industry levels can produce outsized effects on performance over expanded time horizons. Returns data suggests that concentration amplifies the total returns of the NDXMEGA Index relative to its peers.

This is not to say that concentration is for a one-way street in terms of driving performance. Drawdown data predating the Global Financial Crisis (GFC) through the end of August 2024 suggests it can cut both ways. In two of the four technical bear markets that have materialized since 2007, NDXMEGAT recorded the greatest drawdowns of the sample. The fourth quarter of 2018 and most of 2022each marked abysmal periods for Technology more broadly, leading the index lower. However, declines precipitated by the GFC of 2008 and the onset of the COVID-19 Pandemic in March 2020 tell a different story. The Nasdaq-100 Mega Total Return™ Index (NDXMEGAT) recorded the smallest declines of the sample despite unprecedented spikes in risk-off sentiment in both events. The biggest names in the Nasdaq-100 functioned, to some extent, as safe havens for certain equity market investors, limiting the intensity of their drawdowns and staging faster recoveries. Irrespective of the scope of the drawdown, NDXMEGAT managed to recover and ultimately continue to outperform the Nasdaq-100, and the broader equity markets, in each instance.



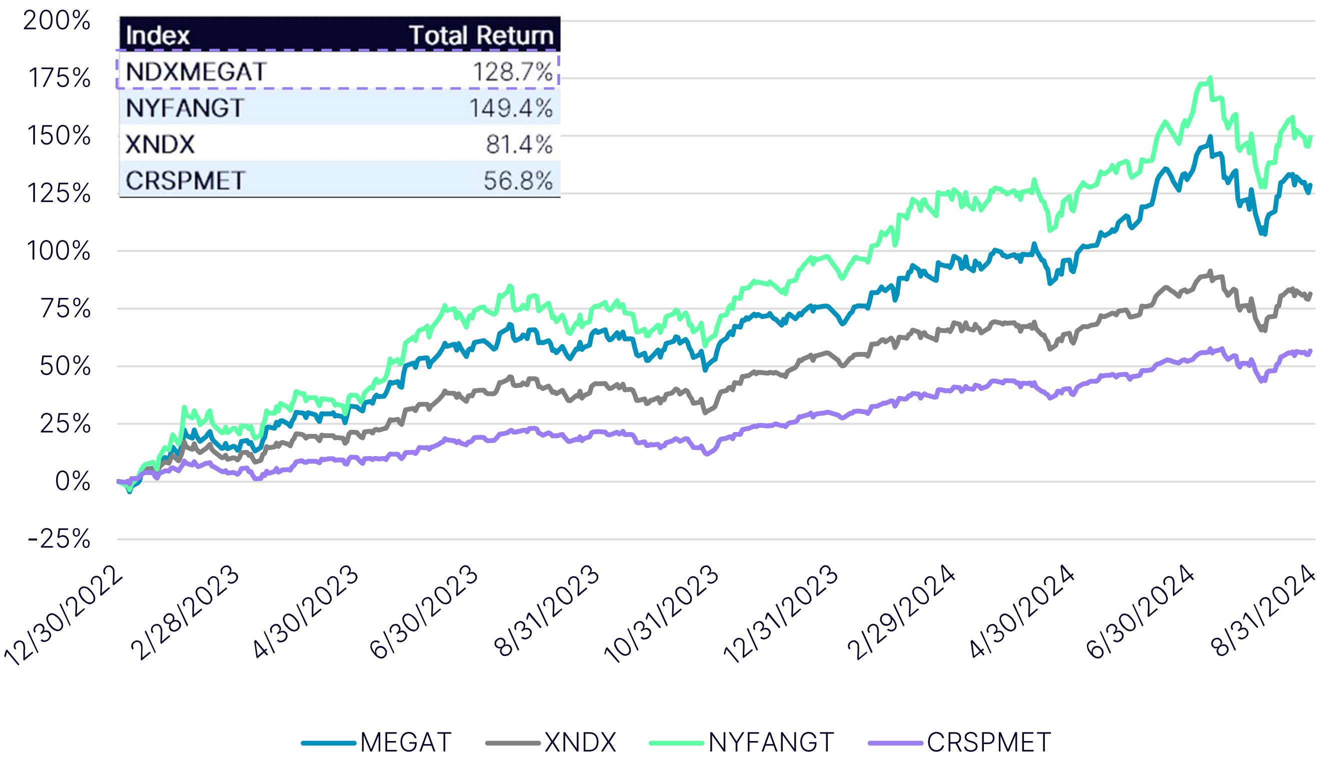
Index	2008	2018	2020	2022
NDXMEGAT	-50.9%	-26.6%	-27.2%	-43.1%
XNDX	-51.3%	-22.7%	-28.0%	-34.8%
NETR (NDX Equal Weight)	-55.0%	-20.0%	-30.9%	-30.6%
SP5T5T (S&P Top 50)	-51.5%	-19.9%	-30.2%	-27.9%

Source: Nasdaq Global Indexes, Bloomberg, FactSet

NDXMEGA has remained competitive in the mega capitalization ecosystem over the past several years despite the onset of a global pandemic, geopolitical escalation, decades of high inflation, and rising interest rates. The index has remained resilient through it all. NDXMEGA has outperformed the CRSP US Mega Cap Index, which is tracked by the Vanguard Mega Cap ETF, while yielding slightly lower returns than the the NYSE FANG+ Index, which underlies the Global X FANG+ ETF. Since the end of 2022, megacaps have continued to be an area of growing interest to investors. NDXMEGA is strategically positioned to meet the growing demand for such product offerings in the foreseeable future.

NDXMEGAT vs. The Field

Note: Index performance is calculated on a Total Return (TR) basis. Returns reflect performance for the period 12/30/2022 – 8/30/2024

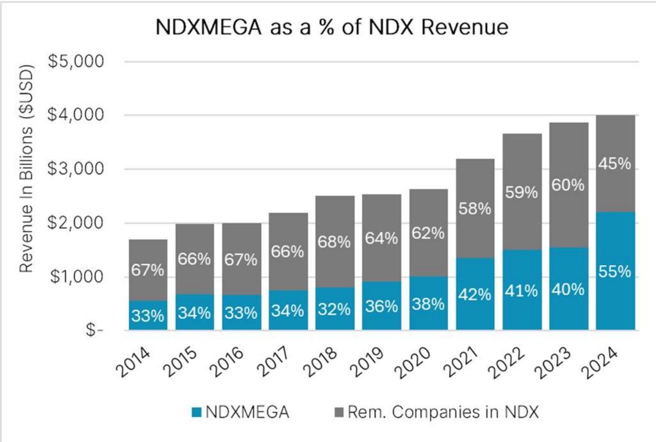


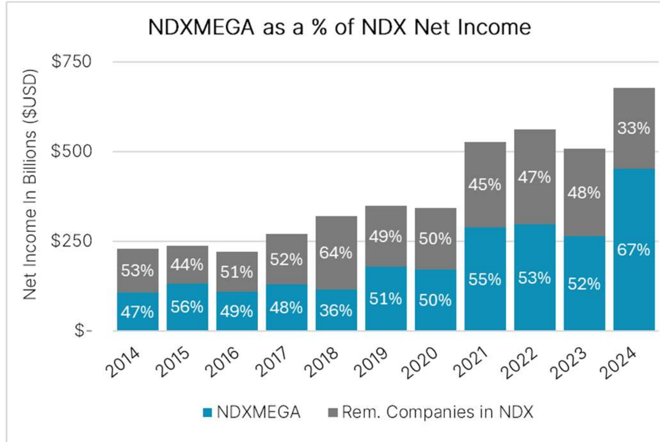
Index	Total Return
NDXMEGAT	128.7%
NYFANGT	149.4%
XNDX	81.4%
CRSPMET	56.8%

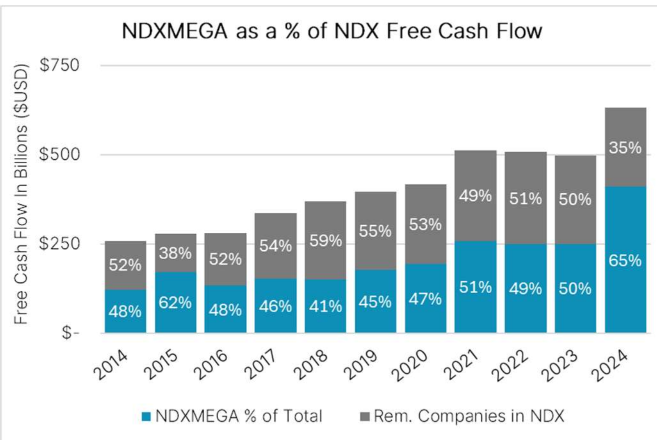
Source: Nasdaq Global Indexes, Bloomberg. *Note: NYFANGT refers to the total return of the NYSE FANG+ Index that is tracked by the Global X FANG+ ETF (Ticker: FANG).
CRSPMET refers to the total return of the CRSP Mega Cap Index that is tracked by the Vanguard Mega Cap ETF (Ticker: MGC)

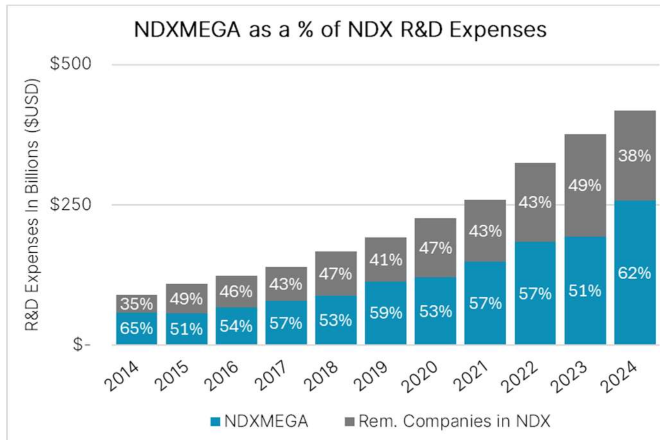
Index Concentration vs. Fundamental Concentration

It is no secret that strong fundamentals are common across much of the Nasdaq-100. Companies at the top of the index tend to exhibit some of the strongest trends in revenue growth, profitability, free cash flow generation, and research and development expenditures each year. The proportion of NDX fundamentals contributed by companies that comprise the top 45% of the index has steadily increased over the past decade, in some cases approaching two-thirds of the total amounts. The outperformance of NDXMEGA is likely the byproduct of numerous factors, but strong fundamentals offer a compelling explanation for the resilience of the index in recent years.









Source: Nasdaq Global Indexes, FactSet.
The above charts reflect NDXMEGA fundamental data on a trailing 4 quarter basis for the end of August each year between 2014 and 2024. The percentages denote the proportion of NDX revenue, net income, free cash flow, and research & development expenses that originate from the top 45% of NDX (NDXMEGA holdings) versus the remainder of the Nasdaq-100

Dynamic Market Leadership: A Concentrated Approach to NDX

The inevitability of turnover in market leadership makes it extremely difficult to predict which securities will dominate broad-based market indexes in the future. Strategies that exclusively follow the Magnificent 7 today are created at the expense of exposure to their successors tomorrow. NDXMEGA's dynamic index methodology addresses this reality by allowing securities with weights comprising the top 45% of the Nasdaq-100 to cycle in and out of the portfolio easily. The index is designed to track companies that dominate the present, as well as the future, rather than remaining solely fixed on the individual names that have garnered the most attention in the past few years. Regardless of which companies are ultimately included in the index or how many securities comprise the 45% weighting threshold, NDXMEGA consistently identifies the companies most responsible for the success of the Nasdaq-100. Investors tracking NDXMEGA will likely be encouraged by the outsized exposure to some of the most fundamentally sound securities at the forefront of innovation. The only constant in the capital markets is change, and the Nasdaq-100 Mega Index embraces this reality to offer a strategic approach for megacap equity investors.

Sources: Nasdaq Global Indexes, FactSet, Bloomberg.