Nasdaq

Nasdaq-100® Index:

The Benchmark of the 21st Century

July 2024

Nasdaq: A Leading US and Global Exchange Operator with World-Class Indexing Capabilities

1971
Nasdaq stock market began operations as the world's first electronic stock market

1971
Intel went public with an IPO on Nasdaq's exchange

1980
Apple went public on Nasdaq

1985
Nasdaq-100 Index was launched

1986
Microsoft went public on Nasdaq

1990
Cisco went public on Nasdaq

1997
Amazon went public on Nasdaq

1999
NVIDIA went public on Nasdaq

2004
Google went public on Nasdaq

2010
Tesla went public on Nasdaq

2012
Facebook went public on Nasdaq

2014
Nasdaq begins 42 consecutive quarters of IPO leadership in US

2024
Total value of ~3,300 securities listed on the Nasdaq Stock Market: ~$28.7T

Source: Nasdaq. Data as of 6/28/2024

What is the Nasdaq-100?

Nasdaq-Listed Only

100% weighting in Nasdaq-listed companies

86% weighting in companies that went public since 1980

Unique among US equity benchmarks, it is the only major exchange-driven index with substantial AUM in the US ETF industry (>$300B)

Technology Exposure +

61% weighting in Technology (ICB Industry)

52% weighting in Information Technology (GICS Sector)

Not a "pure Tech" index, other major sector exposures (per ICB) include Consumer Discretionary (18%) and Healthcare (6%)

Growth Exposure +

81% overlap by index weight with Russell 1000 Growth Index, spread across 59 constituents; 33% Russell 1000 Value overlap / 62 constituents

Not a "pure Growth" index, although it is disproportionately exposed to highly innovative, fast-growing large cap companies

US Exposure +

"100 of the largest domestic and international non-financial companies listed on Nasdaq"

Includes 10 internationally-domiciled constituents with US listings, such as Arm, AstraZeneca, ASML, Lululemon, & Atlassian

Source: Nasdaq, FactSet, Bloomberg. Data as of 6/28/2024

The Nasdaq-100® Ecosystem

150+

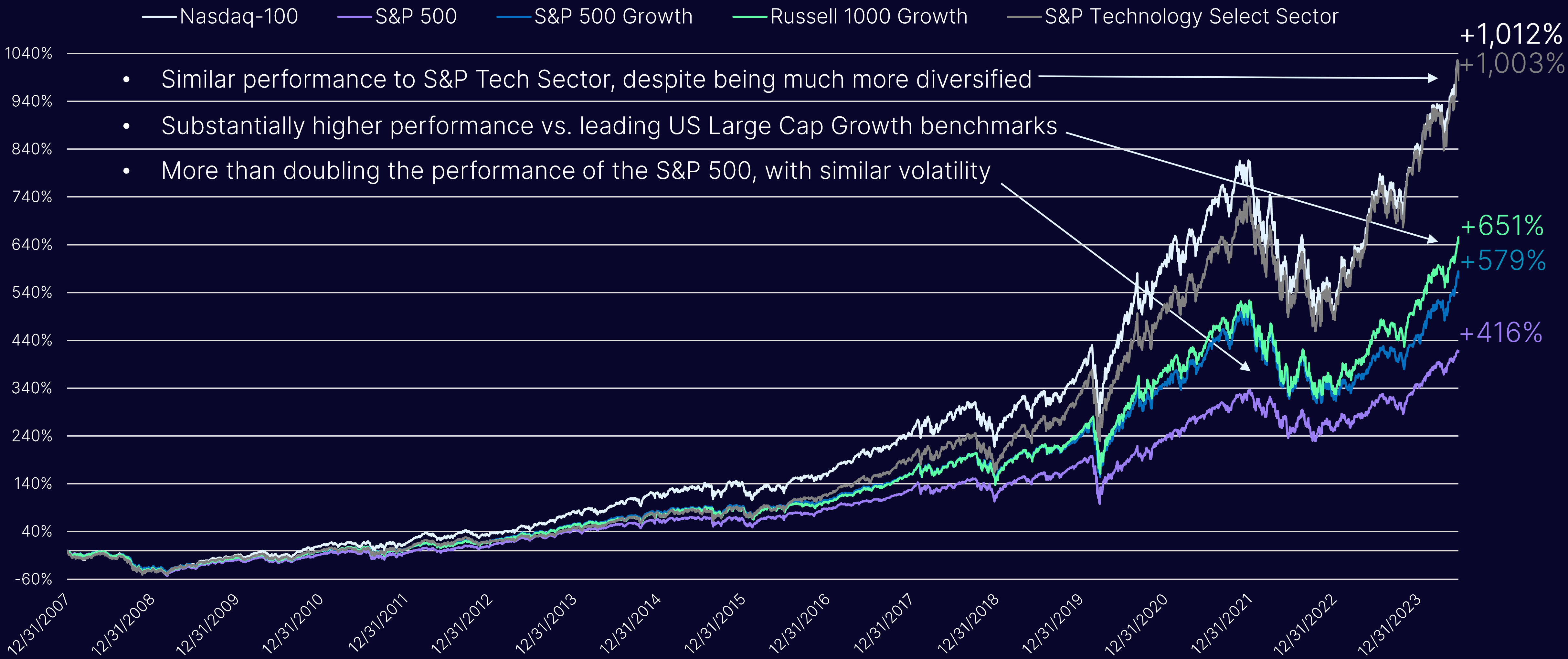
Linked Products Trading

18

Exchanges

The Nasdaq-100 Index has sparked the development of more than 150 linked products trading on 18 exchanges as well as mutual funds, CITs, SMAs, Insurance products, Options, Futures, and more.

Nasdaq-100's Long-Run Performance vs. Benchmarks



- Similar performance to S&P Tech Sector, despite being much more diversified
- Substantially higher performance vs. leading US Large Cap Growth benchmarks
- More than doubling the performance of the S&P 500, with similar volatility

Source: Nasdaq, Bloomberg. Total return versions of each index shown. Data as of 6/28/2024.

Nasdaq-100 Index: Overview

The disruptors; the game-changers; the forward-thinkers. Companies that influence our lives daily, in multiple areas.

- The original Dow Industrials, including GE and American Sugar Company, were pivotal in transitioning the US economy from agricultural to industrial in the early 20th century.
- By mid-century, GE remained a top 10 company, alongside automakers and Big Oil firms. The late 20th century saw a shift from industrial to technological sectors, marked by the Internet/Tech Bubble.
- Currently, tech giants like Apple, Google, and Microsoft dominate, offering diverse products & services from software to e-commerce, computers, smartphones, gaming systems, and other IoT devices.
- Other companies like Intel and Netflix focus on specific tech niches, while the Nasdaq-100 features innovative firms across various sectors.

The Nasdaq-100: Index Methodology

Summary

- 100 of the largest non-financial companies listed on the Nasdaq Stock Exchange
- Global companies including ADRs; excludes Financials/REITS (per ICB Industry Classification)
- Modified market-cap weighting process with quarterly and annual weight adjustments
- Rebalanced quarterly (March, June, September, December)
- Reconstituted annually (December)

Quarterly Adjustments

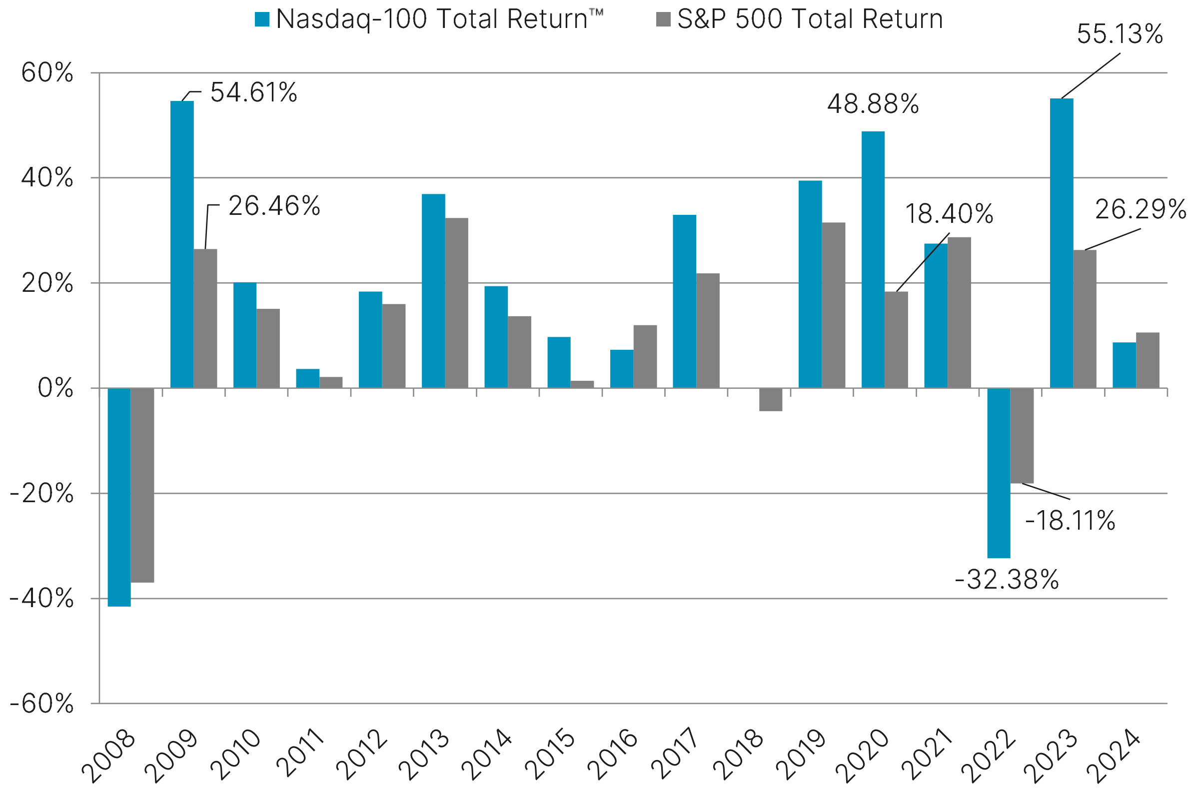
- If any issuer >24% of index weight, capped at 20%
- If aggregate weight of any individual issuer with >4.5% of index weight exceeds 48%, that group is capped at 40%

Annual Adjustments

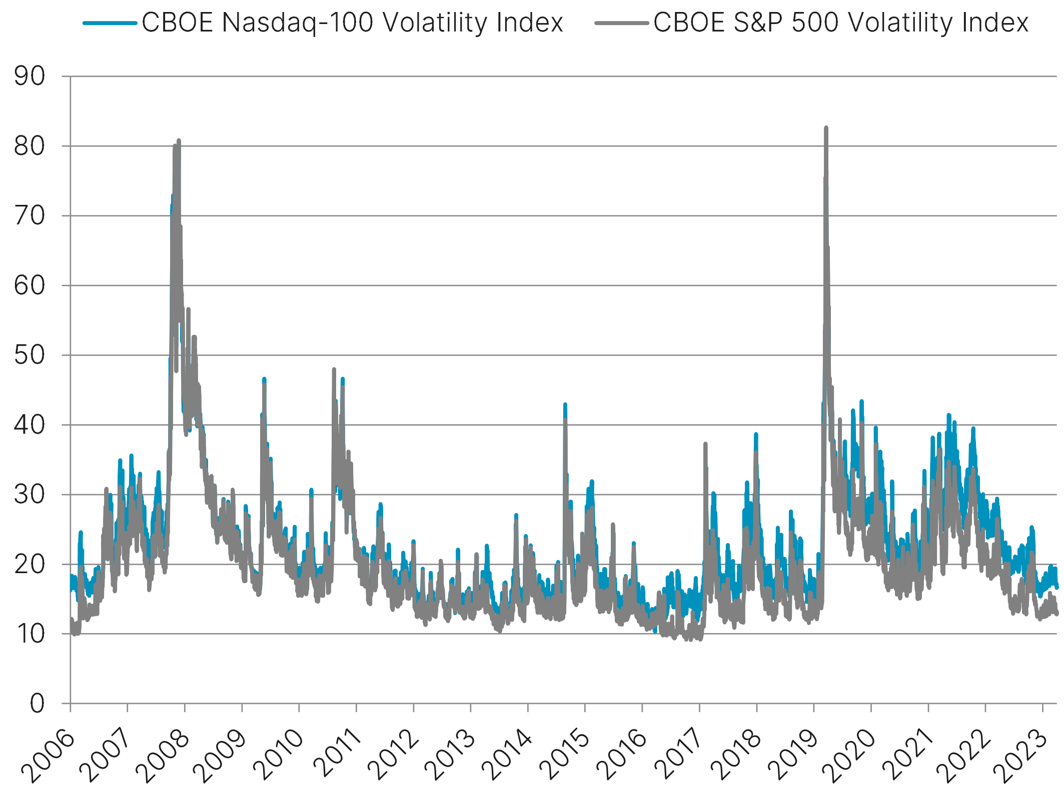
- If any security >15% of index weight, capped at 14%
- If aggregate weight of Top 5 securities exceeds 40%, that group is capped at 38.5%
- All other securities capped at 4.4% or, if #5 security is <4.4%, that becomes the effective cap for all others outside Top 5

Nasdaq-100 Index: Performance vs. S&P 500

INDEX ANNUAL TOTAL RETURNS



INDEX VOLATILITY SINCE DECEMBER 31, 2006



- NDX® has outperformed SPX in 12 of the past 16 calendar years, including by nearly 30% each in 2023 / 2020 / 2009. 2023 was the index's best year overall since 1999, more than offsetting a disappointing 2022

- Cumulative total returns through June 28, 2024 were 1,012% for NDX (15.7% annualized) – more than doubling the returns of 416% for SPX (10.5% annualized). Cumulative annualized volatility was 22.9% for NDX vs. 20.3% for SPX, only ~260 bps higher per year.

Source: Nasdaq, Bloomberg. Data as of 6/28/2024

Performance Data (Total Return)

	Calendar Year Return		Correlation	Calendar Year Volatility	
Year	Nasdaq-100	S&P 500	NDX + SPX	Nasdaq-100	S&P 500
2007	19.24%	5.49%	0.890	18.68%	15.99%
2008	-41.57%	-37.00%	0.945	42.22%	40.89%
2009	54.61%	26.46%	0.935	26.47%	27.25%
2010	20.14%	15.06%	0.949	19.48%	18.06%
2011	3.66%	2.11%	0.948	23.75%	23.24%
2012	18.35%	16.00%	0.920	15.44%	12.74%
2013	36.92%	32.39%	0.901	12.49%	11.16%
2014	19.40%	13.69%	0.924	14.06%	11.36%
2015	9.75%	1.38%	0.947	17.85%	15.50%
2016	7.27%	11.96%	0.916	16.17%	13.11%
2017	32.99%	21.83%	0.801	10.32%	6.69%
2018	0.04%	-4.38%	0.949	22.70%	17.04%
2019	39.46%	31.49%	0.950	16.31%	12.46%
2020	48.88%	18.40%	0.937	36.29%	34.37%
2021	27.51%	28.71%	0.877	18.52%	13.08%
2022	-32.38%	-18.11%	0.967	32.43%	24.13%
2023	55.13%	26.29%	0.920	18.08%	13.08%

Source: Nasdaq, Bloomberg. Data as of 12/31/2023.

NDX outperformed SPX

Morningstar Rankings

QQQ, largest fund tracking NDX, ranked in the top (99th) percentile across all funds in its category (10 & 15-year basis)

Invesco QQQ Trust QQQ ★★★★★ Morningstar Medalist Rating

Performance | Medalist Rating as of May 11, 2023 | See Invesco Investment Hub >

Quote Chart Fund Analysis Performance Sustainability Risk Price Portfolio People Parent

Performance Returns Distributions

Trailing Returns Day End Month End Quarter End

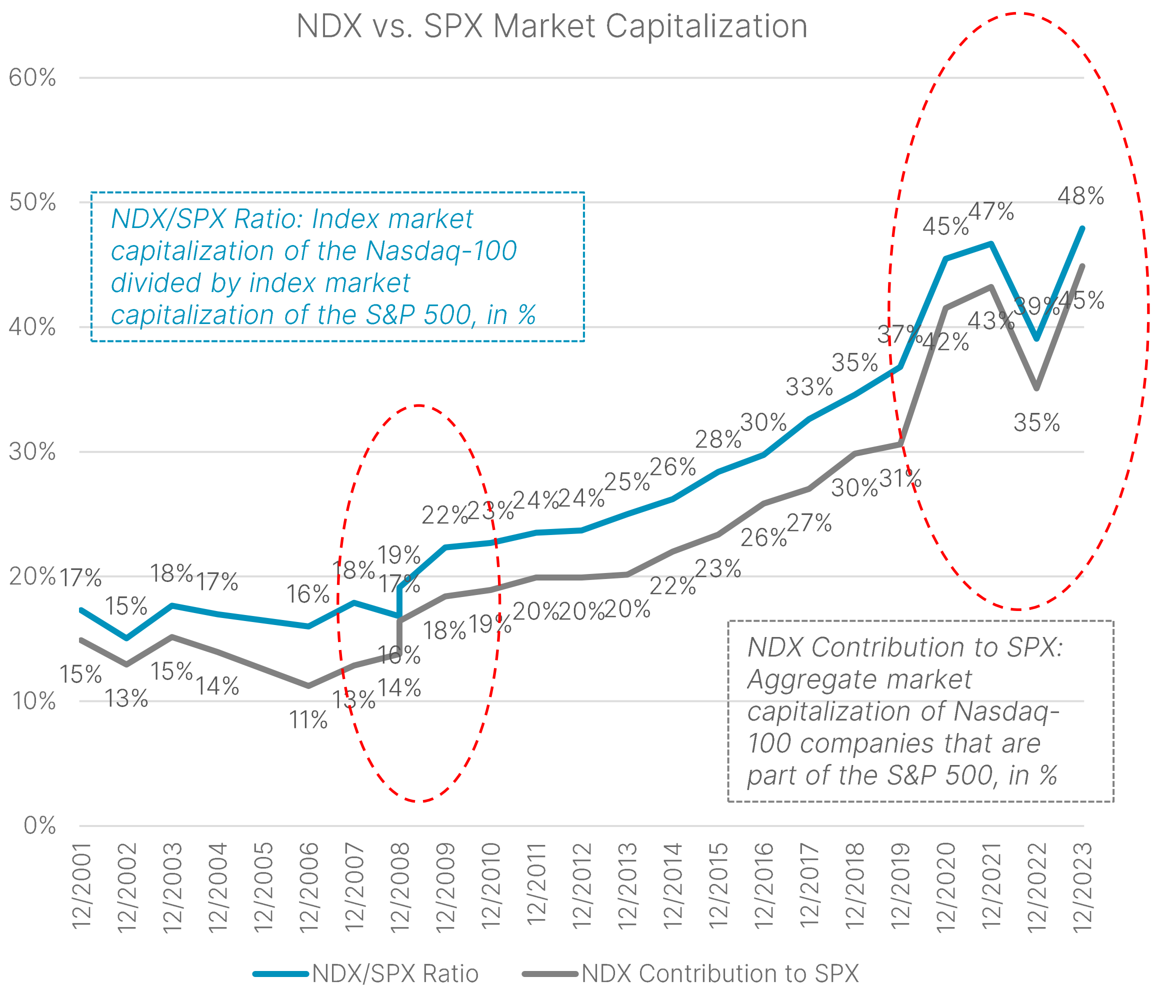
Total Return %	1-Month	3-Month	YTD	1-Year	3-Year	5-Year	10-Year	15-Year	Earliest Available
Total Return % (Price)	5.59	14.59	54.85	54.85	9.98	22.40	17.66	20.17	9.44
Total Return % (NAV)	5.53	14.52	54.76	54.76	9.95	22.41	17.66	20.16	9.45
Category (NAV)	4.98	13.83	36.74	36.74	4.68	15.74	12.03	14.50	—
Index (NAV)	4.19	13.88	40.25	40.25	6.57	17.53	13.44	15.69	—
Quartile Rank									—
Percentile Rank	26	32	4	4	6	2	1	1	—
Tax Adj. Returns %*	5.42	14.41	54.33	54.33	9.67	22.07	17.29	19.77	9.20
Percentile Rank (tax)	21	26	5	5	3	1	1	1	—
Tax Cost Ratio	—	—	—	0.28	0.26	0.28	0.31	0.32	0.23
# of Invest. in Cat.	1,222	1,216	1,200	1,200	1,118	1,031	810	599	—

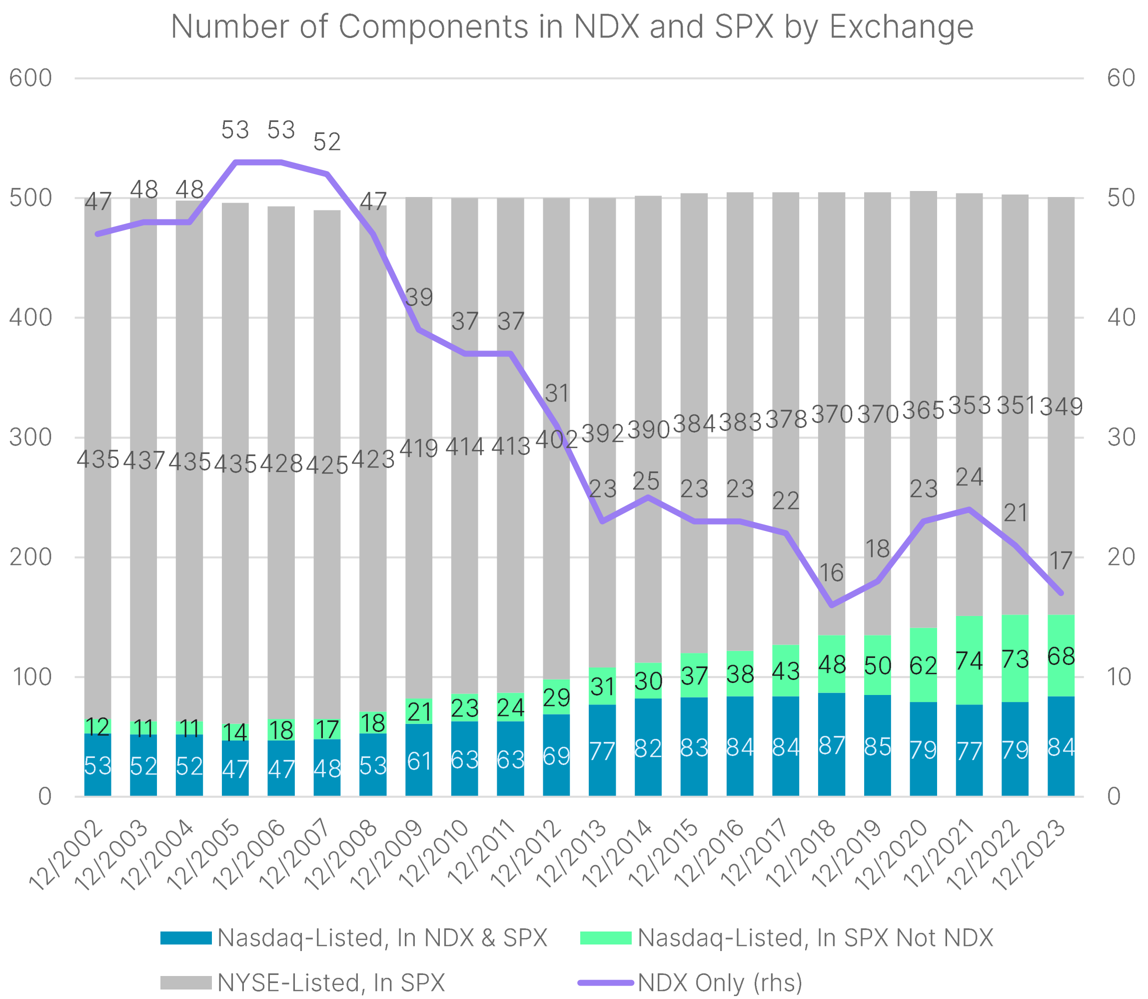
USD | All data based off of NAV except where noted | ETF return as of Dec 31, 2023 | Category: Large Growth as of Dec 31, 2023 | Index: Morningstar US LM Brd Growth TR USD as of Dec 31, 2023 | Earliest Available Mar 10, 1999 | Time periods greater than 1 year are annualized | Tax-adjusted returns are calculated using load.

Coveted Placement

The 100 that Make the Index

Nasdaq-100 vs. S&P 500: Composition Over Time





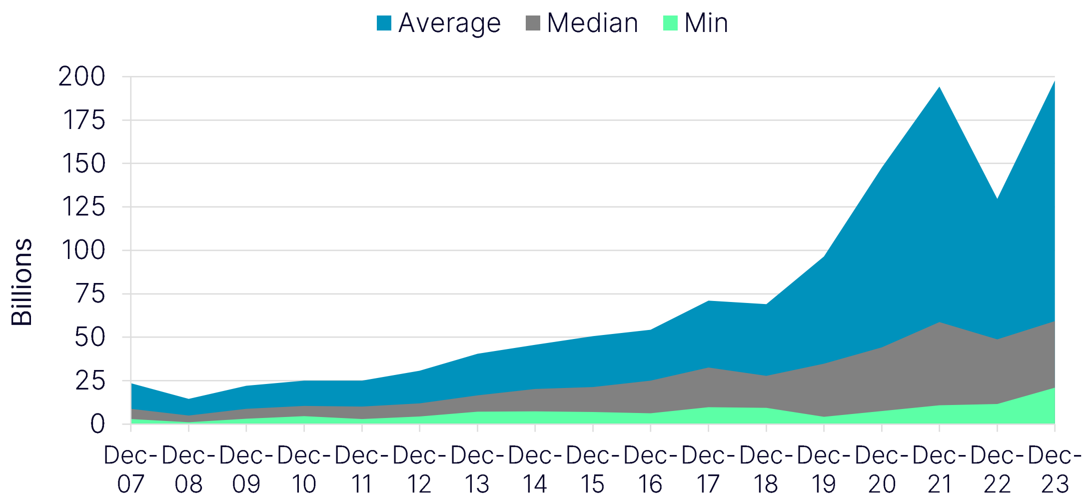
Source: Nasdaq Global Indexes, Bloomberg. Data as of 12/31/2023.

Nasdaq-100 Index: Constituent Size vs. S&P 500

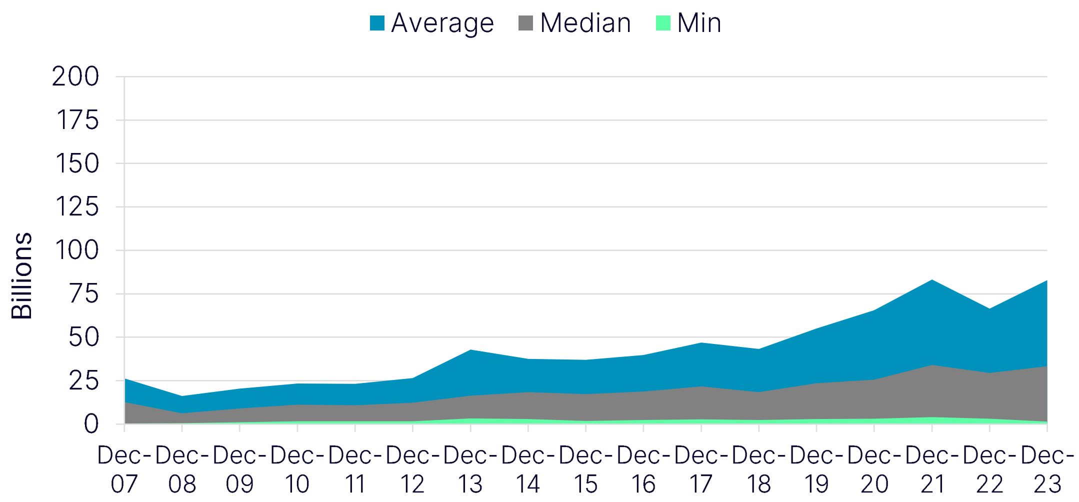
Average, median and minimum market caps of the NASDAQ-100 and the S&P 500

- All figures dropped during the financial crisis and had been steadily rebounding until year-end 2021. In 2022, a highly unfavorable macroeconomic environment of elevated inflation, rising interest rates, and geopolitical uncertainty led to the first broad-based annual losses in markets since 2008.
- 14 of the last 15 years the average market cap has been higher in NDX than SPX. As of year-end 2023, NDX: $198B, SPX: $83B.
- The median market cap has been higher for NDX than SPX in each of the last eleven years — as of year-end 2023 the medians were $59.2B for NDX and $33.4B for SPX. Despite any large companies, the market cap of NDX tends to be truer to large cap than SPX.
- The smallest company in NDX ($21.1B) has been larger than the smallest company in SPX ($1.4B) for the last fifteen years.

NASDAQ-100: MARKET CAP



S&P 500: MARKET CAP



Source: Nasdaq, Bloomberg, FactSet; Data as of 12/29/2023

New Additions: FY 2023 / 2024 YTD

Effective Date	SEDOL	Ticker	Company Name	ICB Industry	ICB sector	Market Cap, $Bn	FY'23 Return	YTD '24 Return
6/7/2023	BL6JPG8	GEHC	GE HealthCare Technologies Inc.	Health Care	Medical Equipment and Services	35.6	32.4	0.8
6/20/2023	2583576	ON	ON Semiconductor Corporation	Technology	Technology Hardware and Equipment	29.5	33.9	-17.9
7/17/2023	BD8FDD1	TTD	The Trade Desk, Inc.	Consumer Discretionary	Media	43.5	60.5	35.7
12/18/2023	BYQQ3P5	CCEP	Coca-Cola European Partners plc	Consumer Staples	Beverages	33.4	20.6	9.2
12/18/2023	BBM5MD6	CDW	CDW Corporation	Technology	Technology Hardware and Equipment	30.1	27.3	-1.5
12/18/2023	BN13P03	DASH	DoorDash, Inc.	Technology	Software and Computer Services	41.5	102.6	10.0
12/18/2023	BF2FJ99	MDB	MongoDB, Inc.	Technology	Software and Computer Services	18.3	107.7	-38.9
12/18/2023	2749602	ROP	Roper Technologies, Inc.	Technology	Software and Computer Services	60.3	26.2	3.4
12/18/2023	B424494	SPLK	Splunk Inc.	Technology	Software and Computer Services	N/A	77.0	N/A
12/18/2023	2122117	TTWO	Take-Two Interactive Software, Inc.	Consumer Discretionary	Leisure Goods	27.2	54.6	-3.4
3/18/2024	BNZHB81	LIN	Linde, Plc.	Basic Materials	Chemicals	210.9	25.9	6.8
6/24/2024	BNSP5P7	ARM	Arm Holdings, Plc.	Technology	Technology Hardware and Equipment	171.4	N/A	117.7

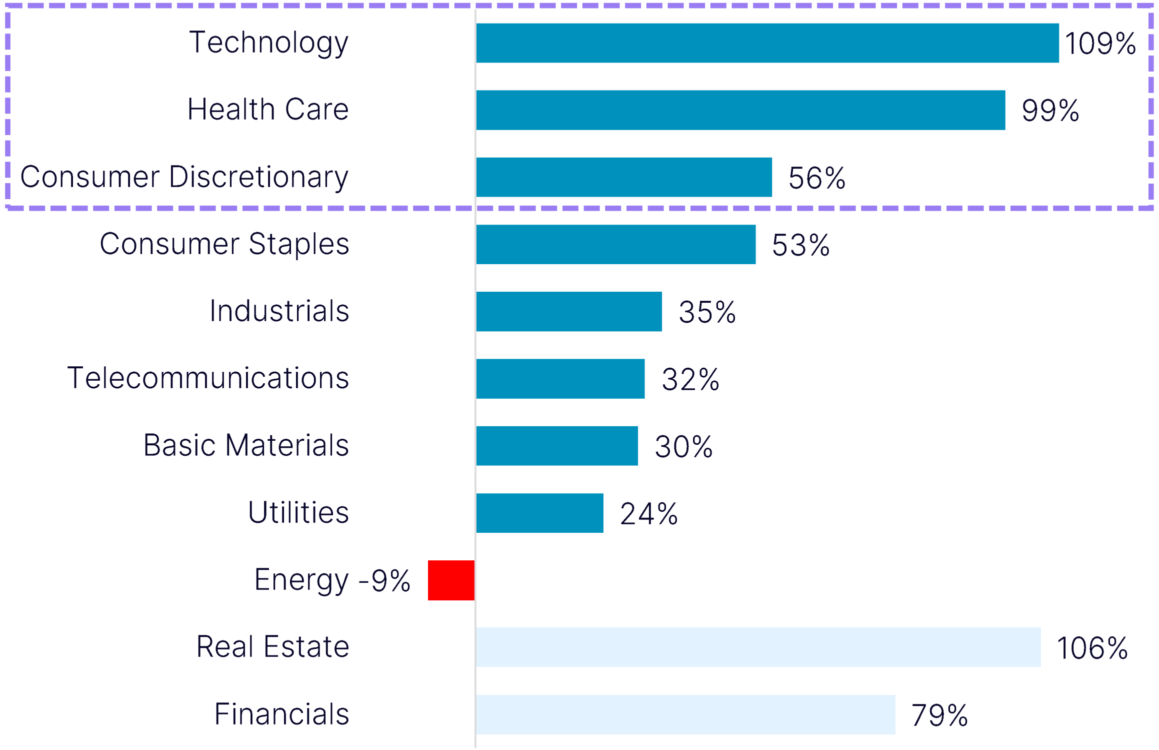
Source: Nasdaq Global Indexes, Factset. Data as of 06/30/2024.

Fundamentals Drive Performance

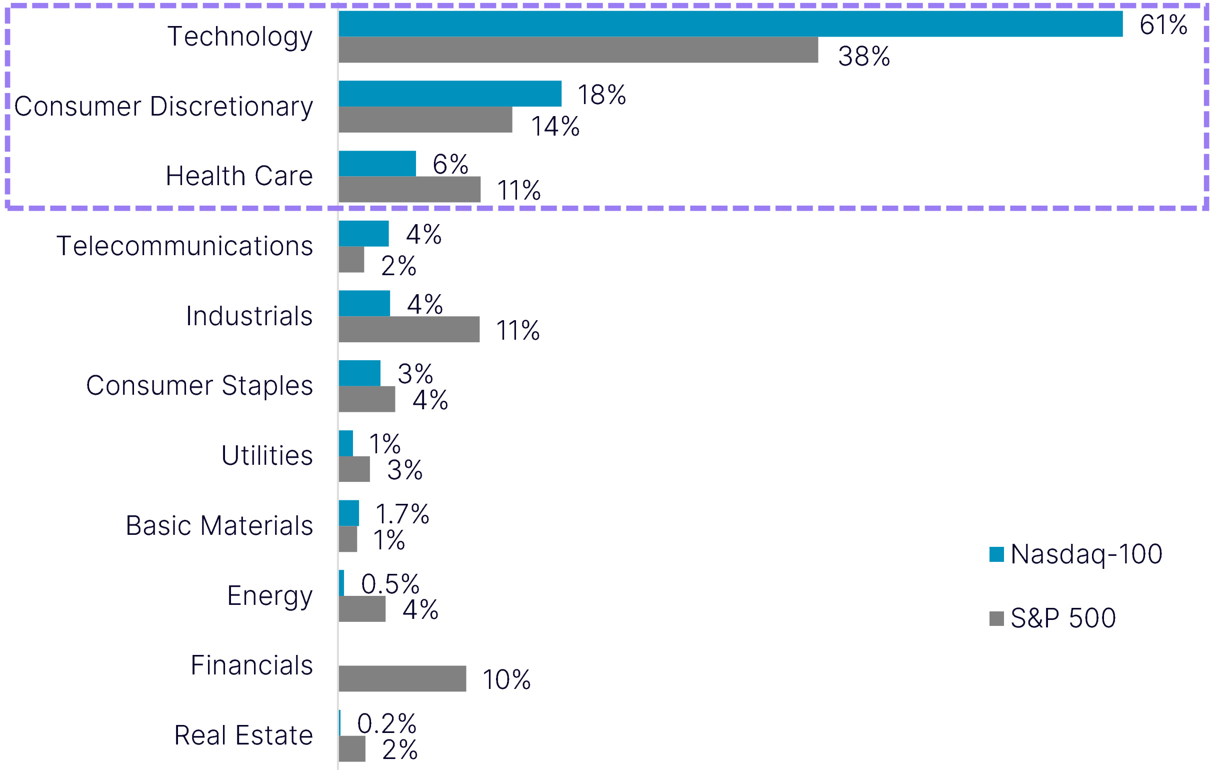
The Decade of the Nasdaq-100

The underlying story for the rise in the Nasdaq-100 is that the U.S.'s economic growth is shifting from capital-intensive, traditional industries (Industrials, Materials & Energy) to the "new-economy" sectors such as Health Care, Technology & Consumer.
(Note: Real Estate was by far the smallest sector, representing ~1% of aggregate revenue.)

10-Year Sales Growth Across Industries in US Large & Midcaps

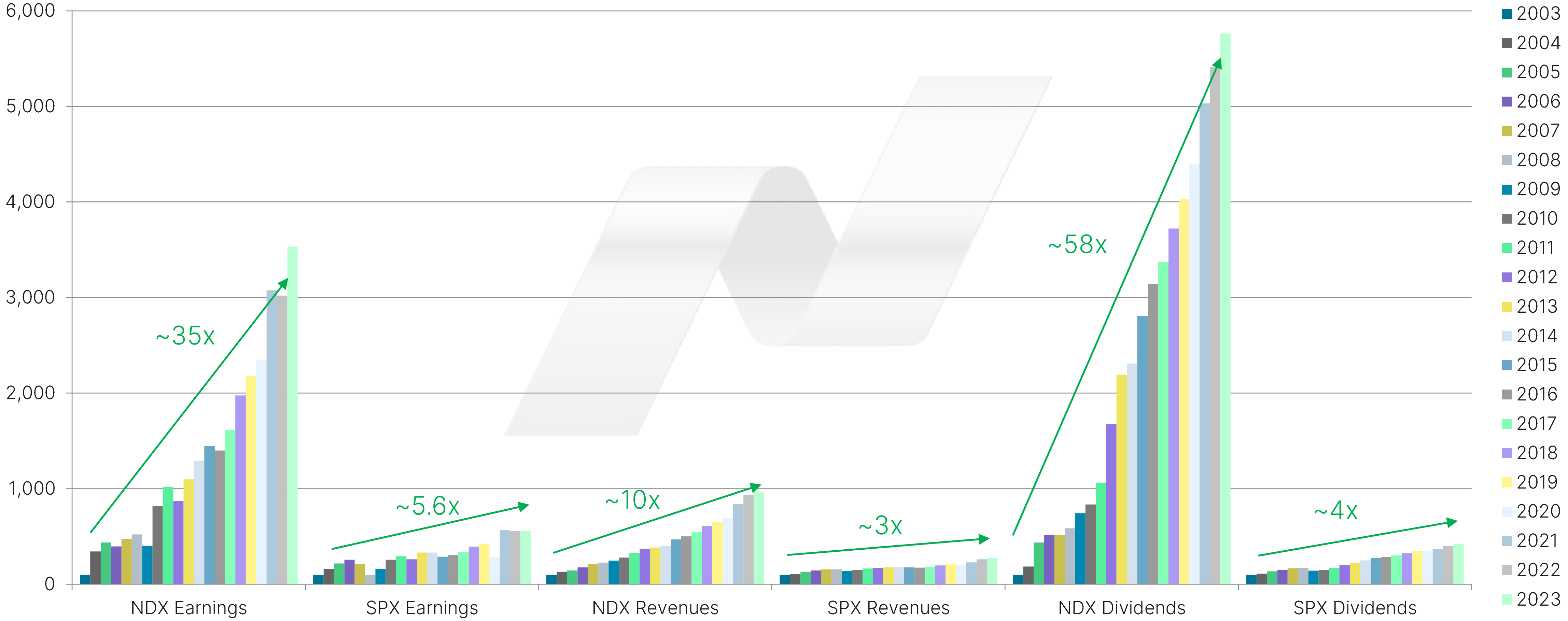


Industry (ICB) Weights (%) of Nasdaq-100 vs. S&P 500



Source: Nasdaq, Factset, Bloomberg. Industry index weights as of June 28, 2024.
Sales Growth data as of December 31, 2023. Nasdaq US Large Mid Cap Index (NQUSBLM) used as the benchmark for industry sales growth.

Nasdaq-100 vs. S&P 500: Fundamentals Over Time

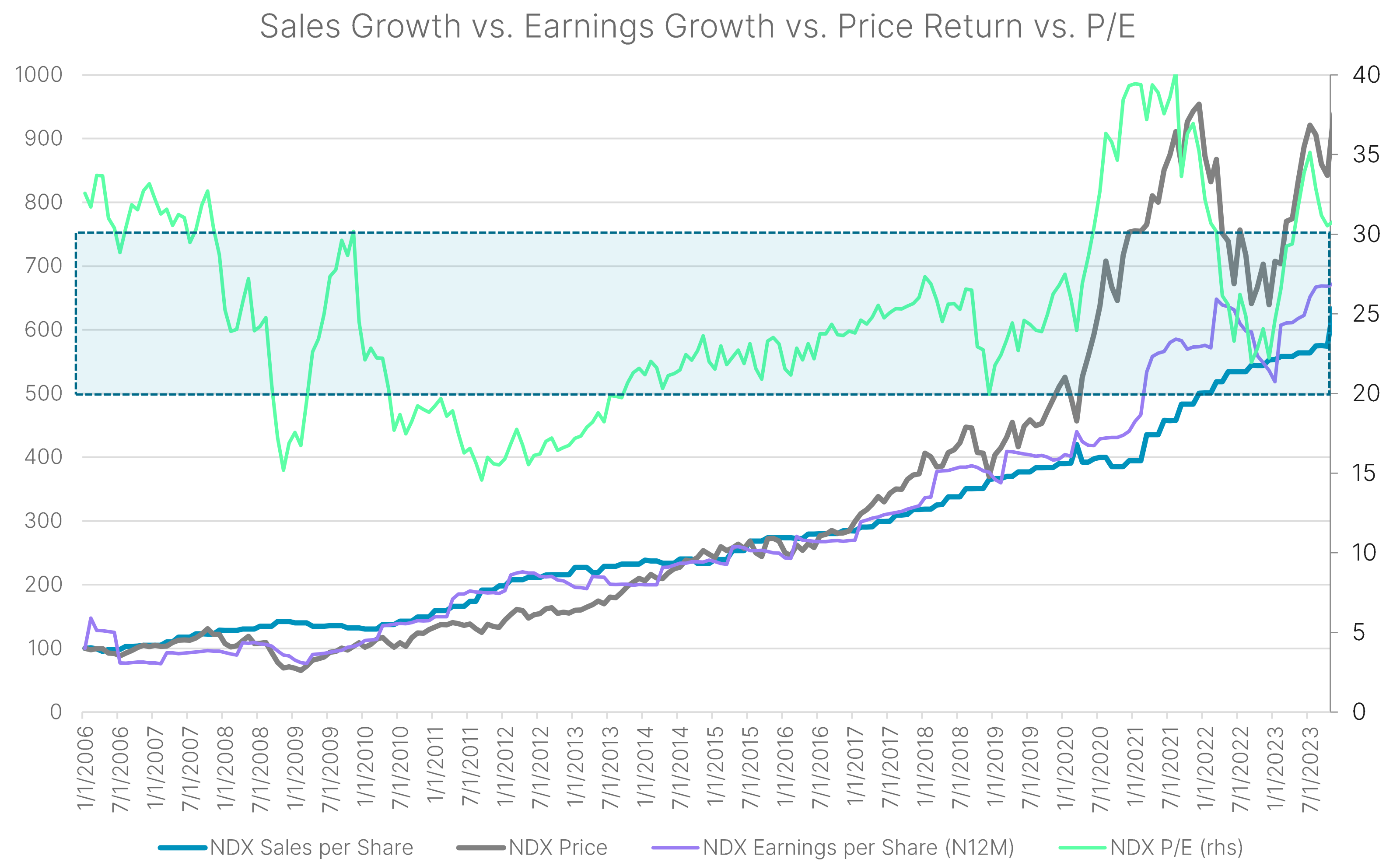


Current TTM Dividend Yield: 0.83% (NDX) vs. 1.36% (SPX)

Source: Nasdaq, Factset, Bloomberg. Data as of 12/31/2023. Current TTM Dividend Yields as of 3/28/2024.

Nasdaq-100 Index: Valuation vs. Sales Growth

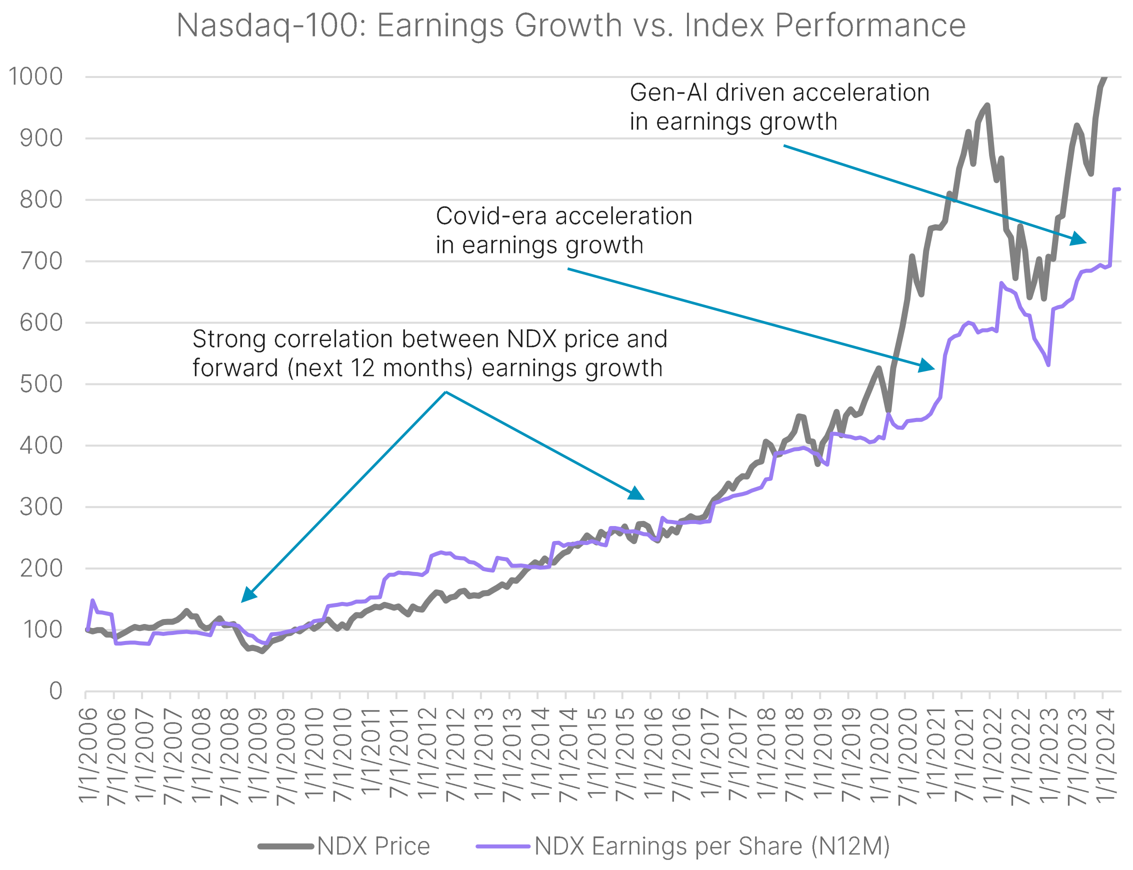
- From 2014-2019, NDX P/E ratio (TTM basis) had stabilized in the low-to-mid 20s, below where it was in the mid-2000s
- The trend briefly diverged during 2020-2021, with P/E climbing to a range in the mid-to-upper 30s
- The trend has now diverged again, with P/Es reaching above 30 to reflect the upwardly revised expectations for earnings growth
- Fundamental story has been the main driver of long-run recovery, rewarding the growth of NDX companies
- Sales: +561%
  Price: +1,051%
  Valuation: 7%

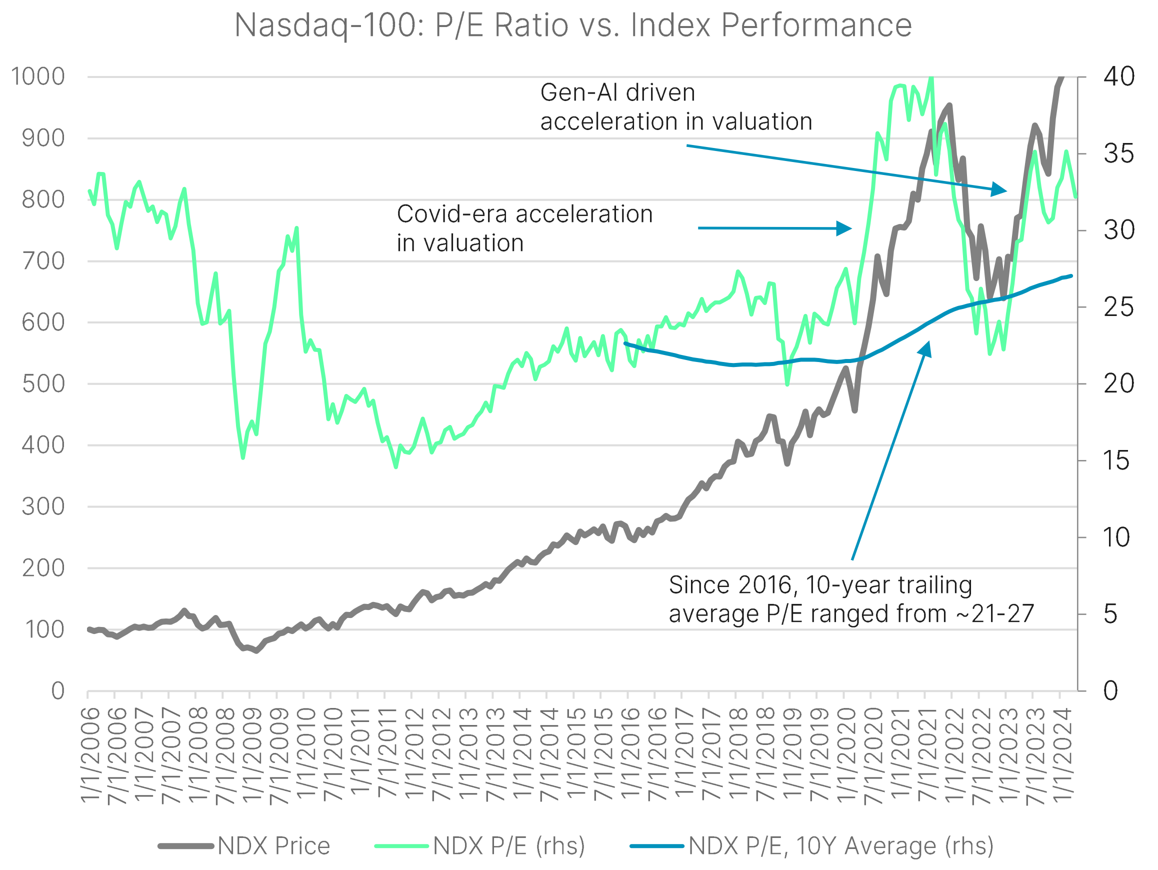


Source: Nasdaq, FactSet, Bloomberg. Data as of 6/30/2024.

Nasdaq-100 Index: Valuation vs. Earnings Growth

Nasdaq-100 price performance has been very strongly correlated with forward earnings growth, with a correlation coefficient of 0.97 since January 2006. Correlation with valuation ratios like P/E has been much lower (0.60), suggesting less predictive power. While current index P/E levels are elevated, so are earnings growth rates. Next 12-months consensus calls for 25% growth in index EPS.

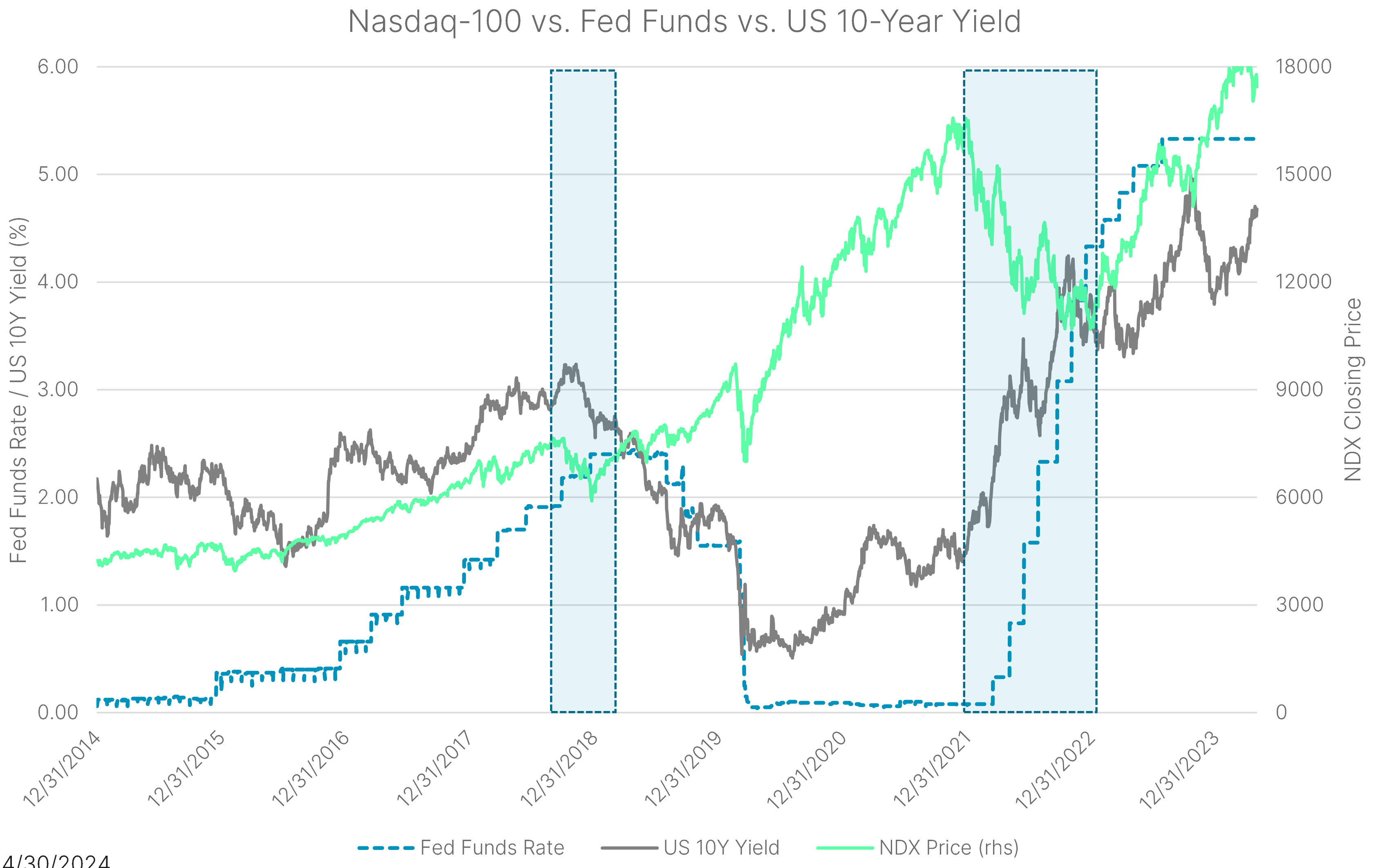




Source: Nasdaq, FactSet, Bloomberg. Data as of 5/14/2024.

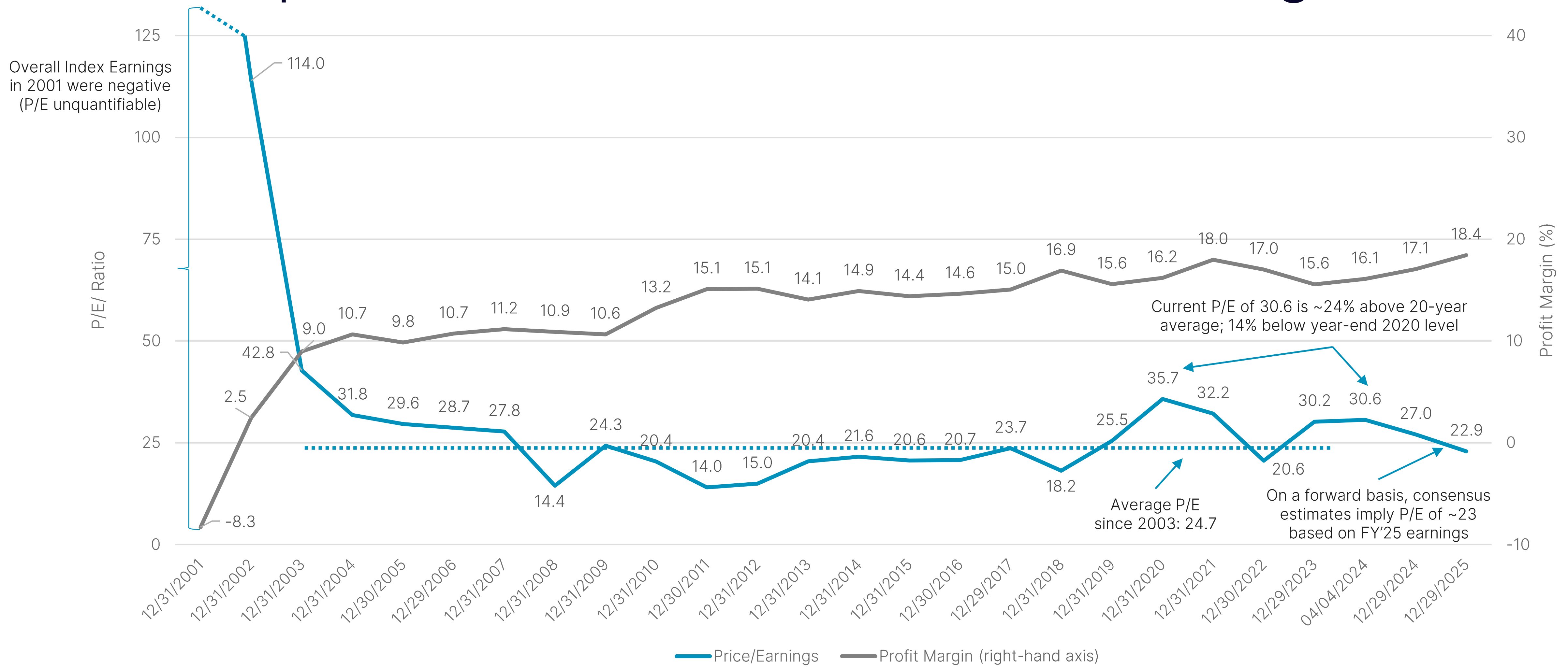
Nasdaq-100 Index: Performance vs. Interest Rates

- The last Fed rate hiking cycle began in December 2015, and consisted of 9 hikes of 25 bps each (total = 225 bps)
- The Nasdaq-100 dropped 23% during Q4 of 2018, until the Fed began telegraphing a pause in hikes
- In 2022/3, the Fed raised rates by 525 bps, but has now mostly paused its hikes, with inflation cooling from a peak of ~9% to ~3% annualized
- Fed Funds futures suggest rate cuts beginning in 2H 2024



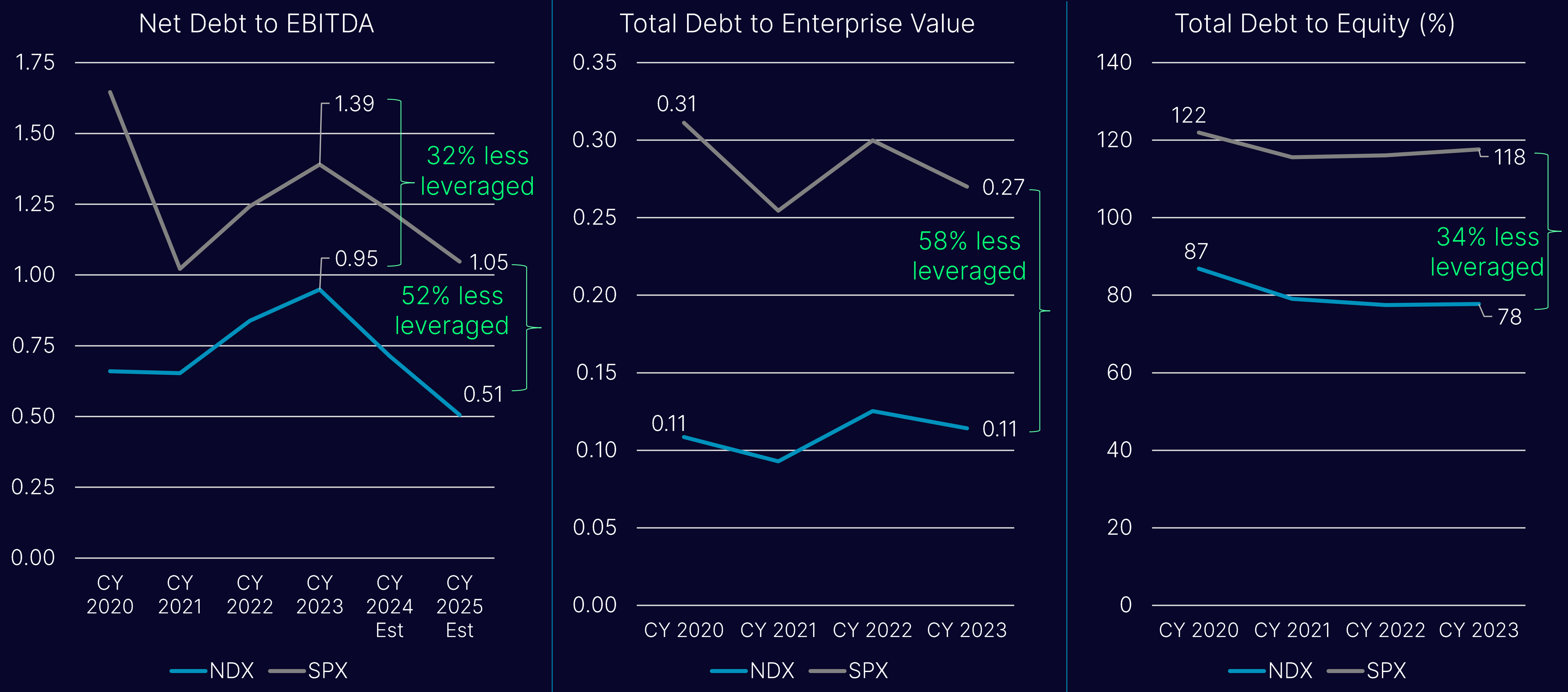
Source: Nasdaq, FactSet, Bloomberg. Data as of 4/30/2024.

Nasdaq-100® Historical P/E vs. Profit Margin



Source: Nasdaq, Bloomberg. Data as of 4/4/2024.

Nasdaq-100 vs. S&P 500: Significantly Less Leveraged



Source: Nasdaq, Bloomberg. Data as of 4/24/2024.

Quantifying Innovation

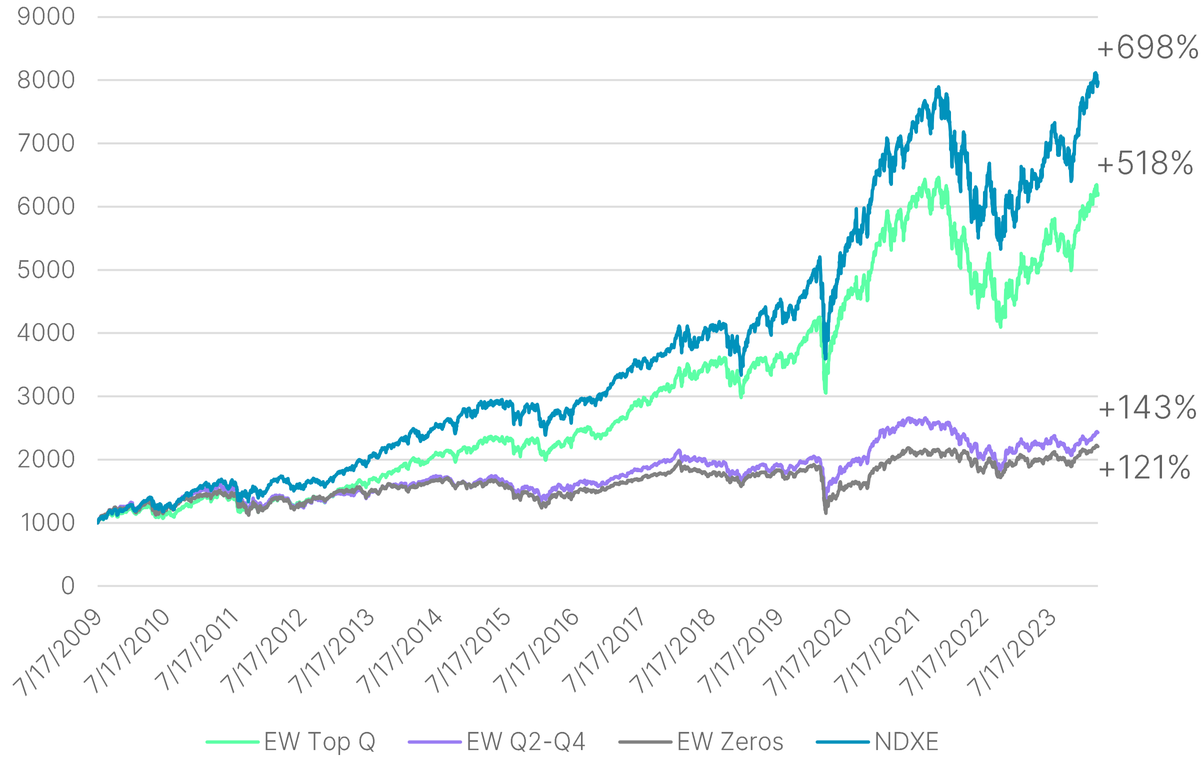
The Growing Importance of R&D

The underlying story for the rise in the Nasdaq-100 is that economic growth is shifting from capital-intensive, traditional industries to the "new-economy" sectors that are increasingly driven by innovation, which can be measured by patents and R&D spending.
Top Quartile of R&D spenders reinvest ~5-6x more as % of Sales vs. Quartiles 2/3/4, & have superior sales growth / price performance

Qualcomm's "Patent Wall" at Global Headquarters

- 2nd Most Valuable Patent Portfolio (>18,000 public companies)
- Patent filings in 20 of 35 Disruptive Tech sub-themes
- Patent contribution ratios of ~16% each in Spacecraft/Satellites + IoT

Nasdaq Global Large Caps: Top Quartile R&D % Sales vs. Q2-Q4 vs. Zeros, Equal-Weighted (PR)

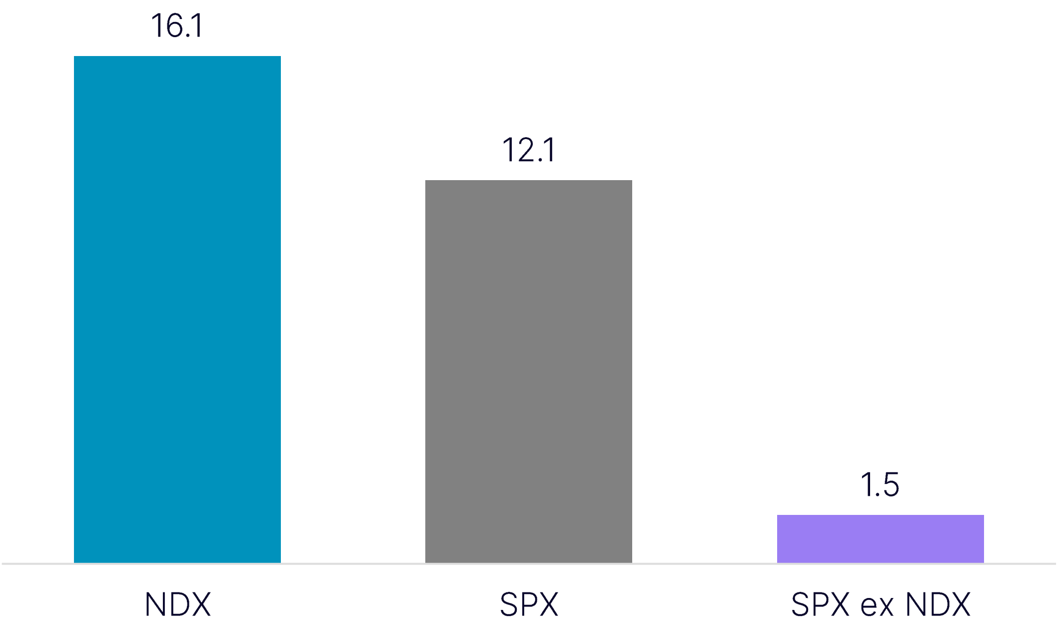


Source: Nasdaq, Factset, Nasdaq AI Team, IPR Strategies, FierceWireless.com as of 3/19/2024. Index data as of each year-end from 12/31/2008 to 12/30/2022.
Companies are ranked on prior full-year R&D expense as % of Sales on a 6-month lag (June 30) to allow for disclosure of reported financials. Baskets rebalanced annually 3rd Friday of July.

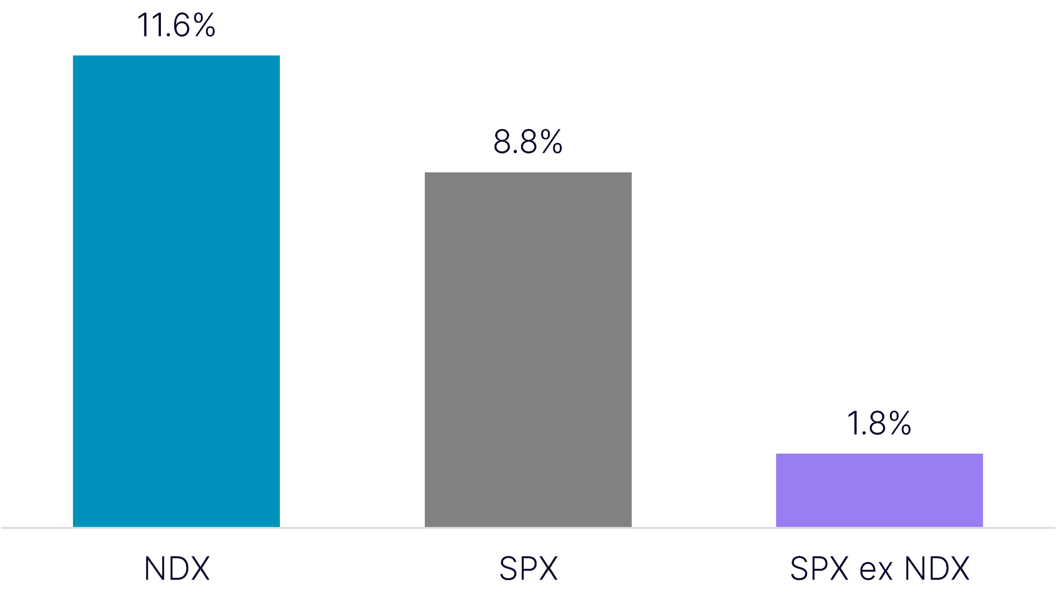
Research and Development Powerhouse

- R&D is a key driver of innovation and growth in the modern, 21st century economy
- Companies in the Nasdaq-100 spend about 1.3x in R&D, on average, compared to those in the S&P 500; 84 of the Nasdaq-100 are currently part of the S&P 500; excluding overlapping companies, Nasdaq-100 spent ~10x as much in R&D as S&P 500 companies
- Calculating R&D as a percent of sales in the last 12 months, Nasdaq-100 companies averaged 32% higher than S&P 500; excluding overlapping names, they spent more than 6x as much on average

Weighted Average Annual R&D Expense, $Bn



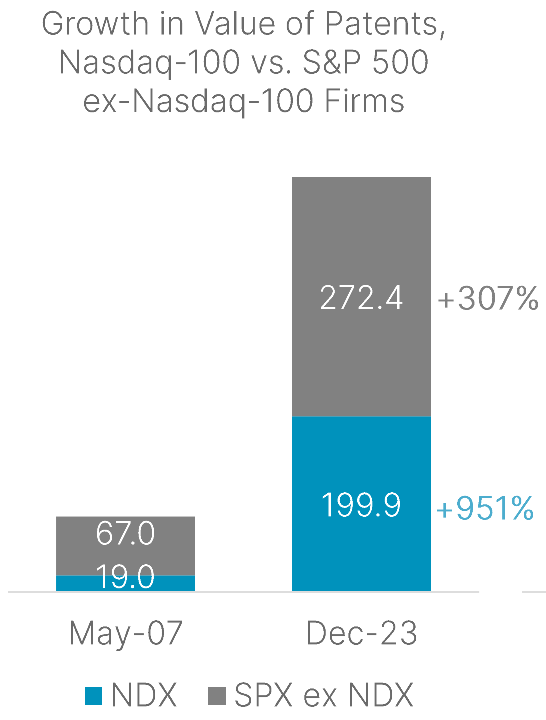
Weighted Average R&D as % Sales

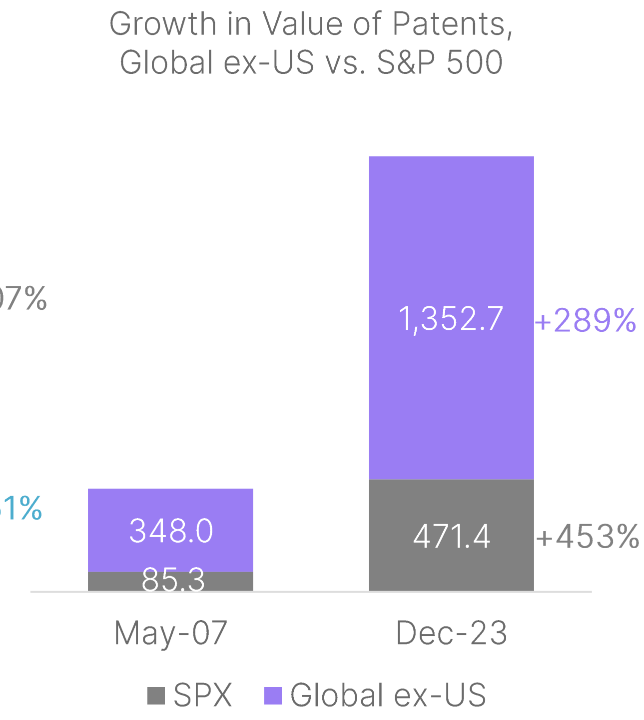


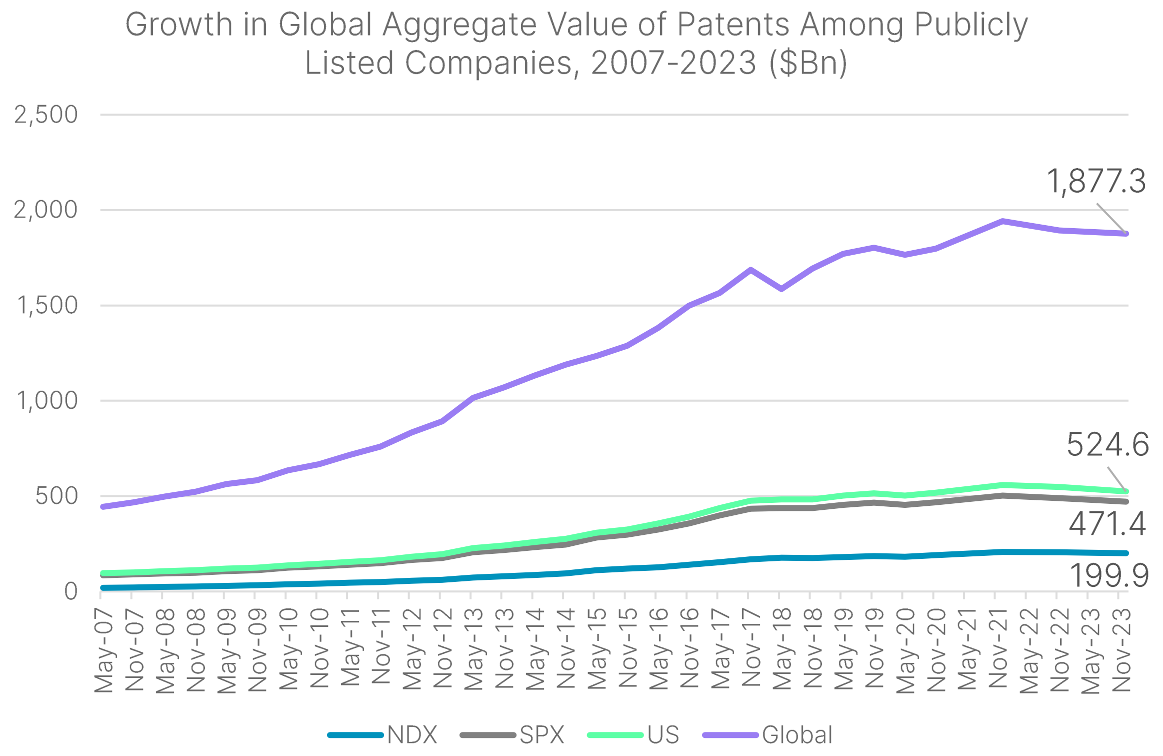
Source: Nasdaq Global Indexes, Factset. Data as of 6/30/2024.

Accelerating Growth of Intangible Assets

The current crop of Nasdaq-100 constituents has grown the value of their patents by ~10.5x since May 2007, vs. ~4x across all publicly-listed, tracked companies globally. Growth for the S&P 500 overall was ~5.5x, but only ~4x excluding the contribution of overlapping Nasdaq-100 firms. Global growth ex-US was also ~4x



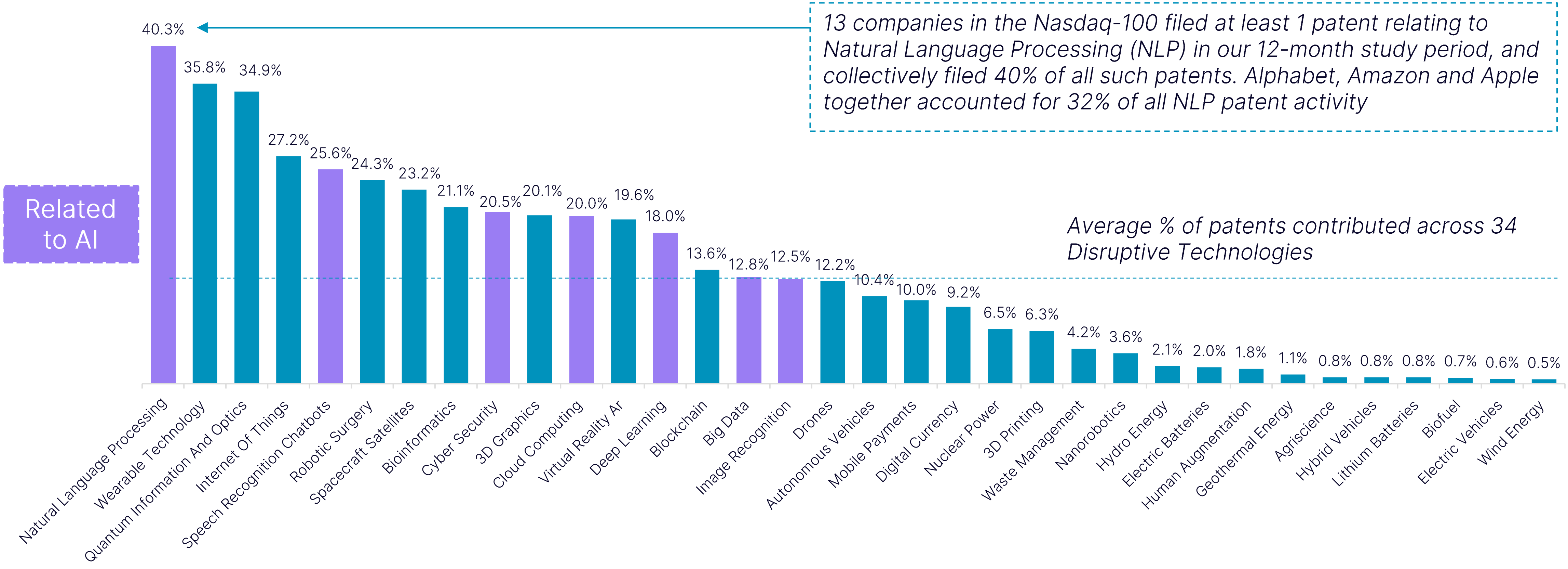




Source: Nasdaq, IPR Strategies via Nasdaq Data Link. Based on index constituents as of 12/31/2023. IPR Data as of 12/31/2023.

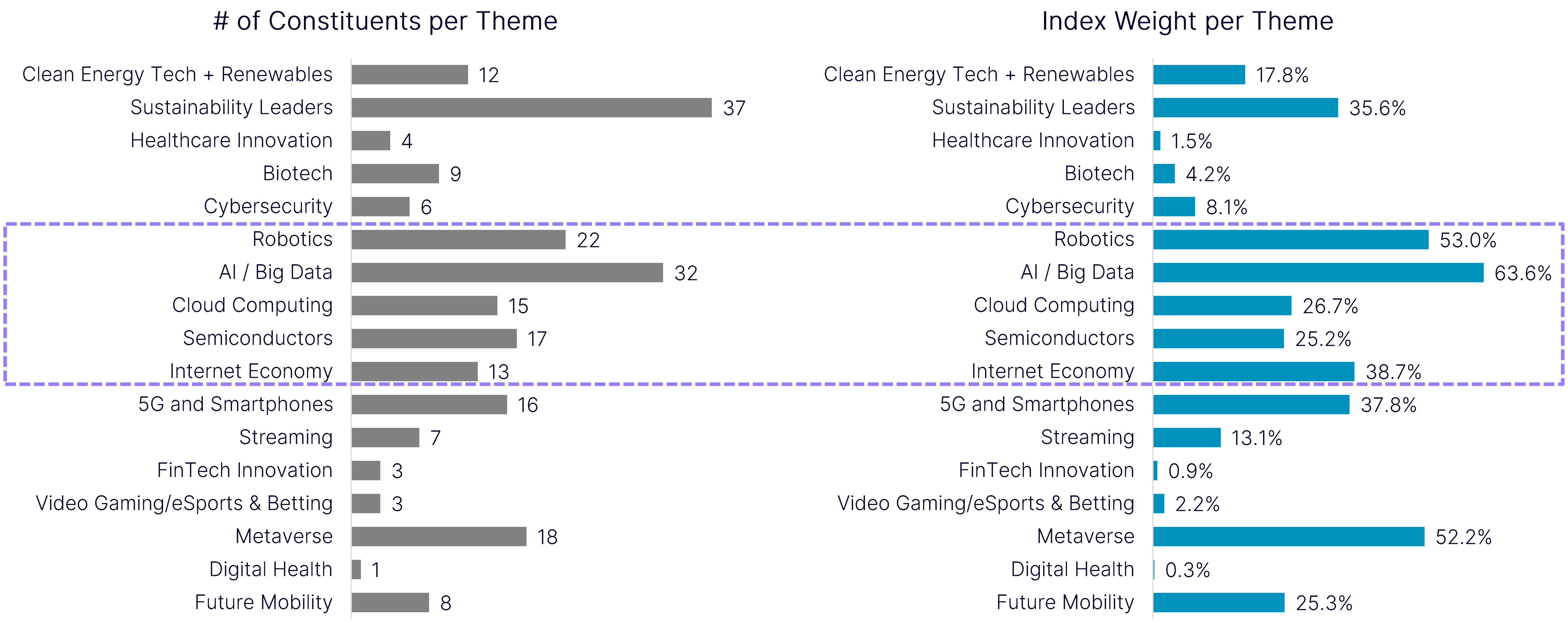
Disruptive Technology and R&D: Nasdaq-100

- 64 companies in the Nasdaq-100 (representing 84% of index weight) recently filed patents across one or more of 35 key areas of Disruptive Technology relating to Artificial Intelligence, Energy Transition, Healthcare, etc.



Source: Nasdaq, Patent data as of 11/30/2023. Index data as of 6/30/2024.

Nasdaq-100 by Thematic Exposures



Source: Nasdaq, FactSet. Data as of 6/30/2024.
Based on overlap with existing Nasdaq Thematic Indexes, except for 5G and Smartphones, Streaming, and Video Gaming/eSports & Betting where competitor products were analyzed.

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