



Nasdaq-100 Index:

The Benchmark of the 21st Century

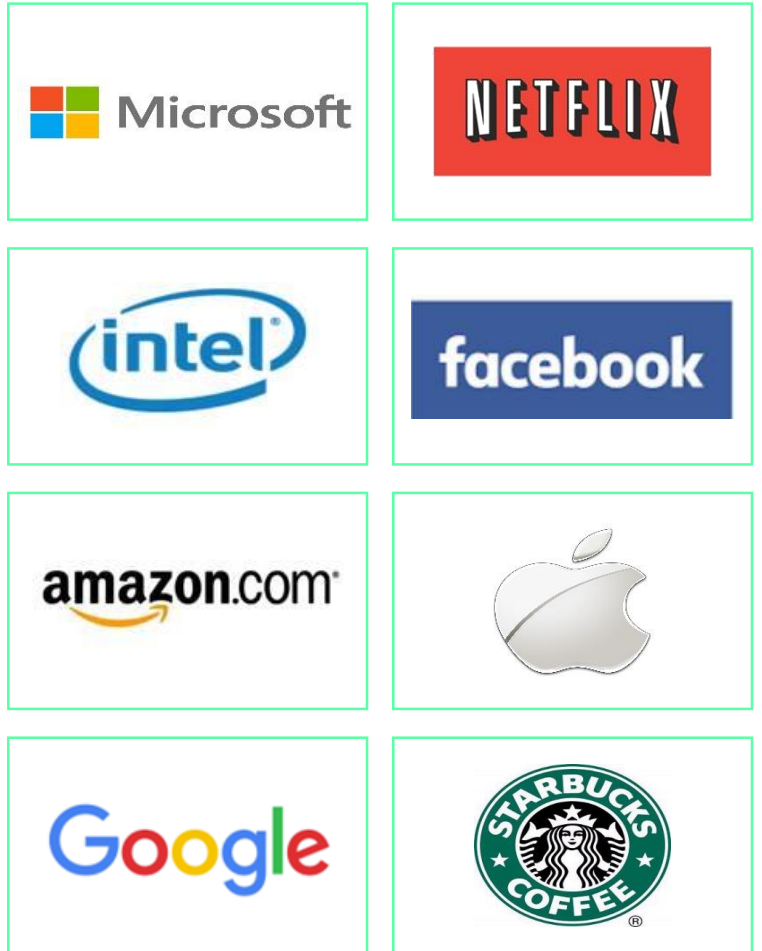
March 2022

Nasdaq-100 Index: Overview

The disruptors; the game-changers; the forward-thinkers.

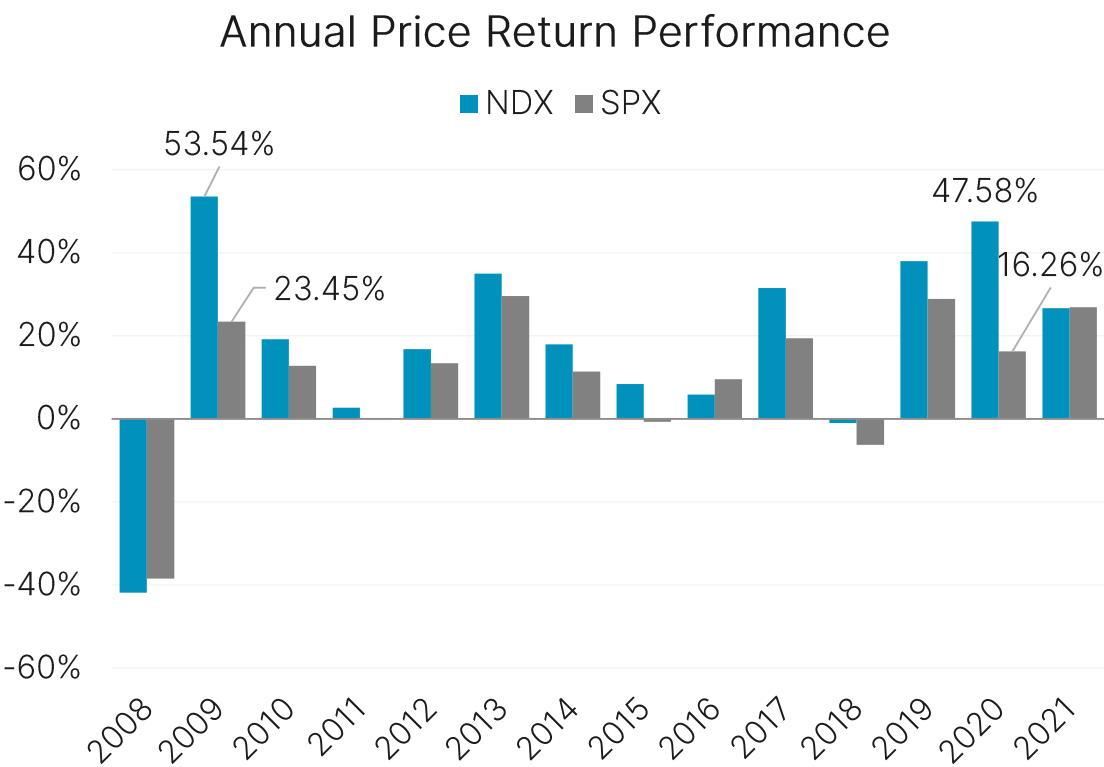
Companies that influence our lives daily, in multiple areas.

- GE, Chicago Gas Company, American Sugar Company, and the other original Dow Industrials accelerated the growth of the US economy at the turn of the 20th century, and helped spur its transformation from agricultural to industrial.
- By mid-century, GE was still one of the nation's 10 largest companies by market cap, joined by the automakers (GM/Ford/Chrysler), Big Oil (Exxon Mobil, Texaco, Gulf Oil), and other large, diversified industrial companies like DuPont.
- At the turn of the 21st century, the Internet/Tech Bubble heralded the transformation of the economy from industrial to technological; from analog to digital; from hardware to software.
- Today, Apple, Amazon, Google, Facebook and Microsoft have become global leaders in the technology sector by creating products and services that are essential to both individual consumers and enterprise customers. From software, computing, and communications, to entertainment, advertising, and e-commerce, their platforms represent the new “diversified industrials” of the 21st century.
- Beyond the biggest names, companies like Intel and Netflix specialize in narrower applications of technology, while the rest of the Nasdaq-100 encompasses innovation-driven companies in other sectors, like Starbucks.



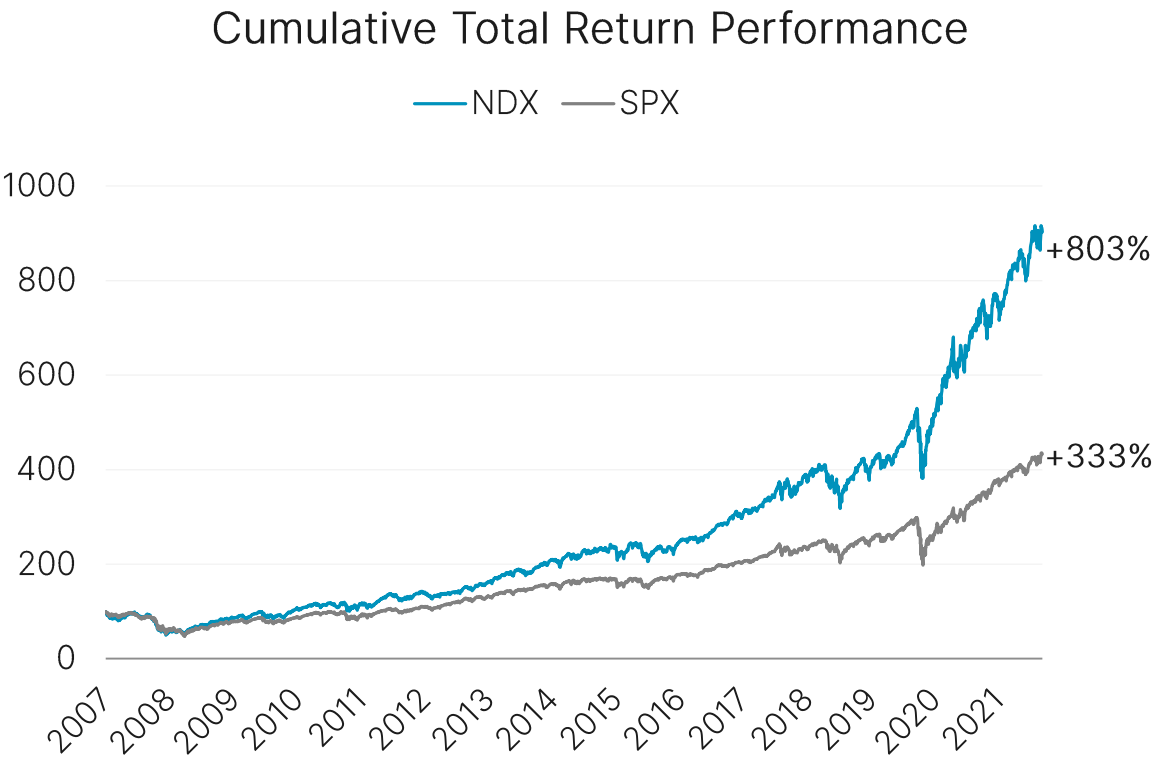
Nasdaq-100 Index: Performance vs. S&P 500

INDEX ANNUAL PRICE RETURNS



- NDX has outperformed SPX in 11 of the past 13 years, including by more than 30% in 2020; price underperformance in 2021 was 0.26%

INDEX PERFORMANCE SINCE DECEMBER 31, 2007



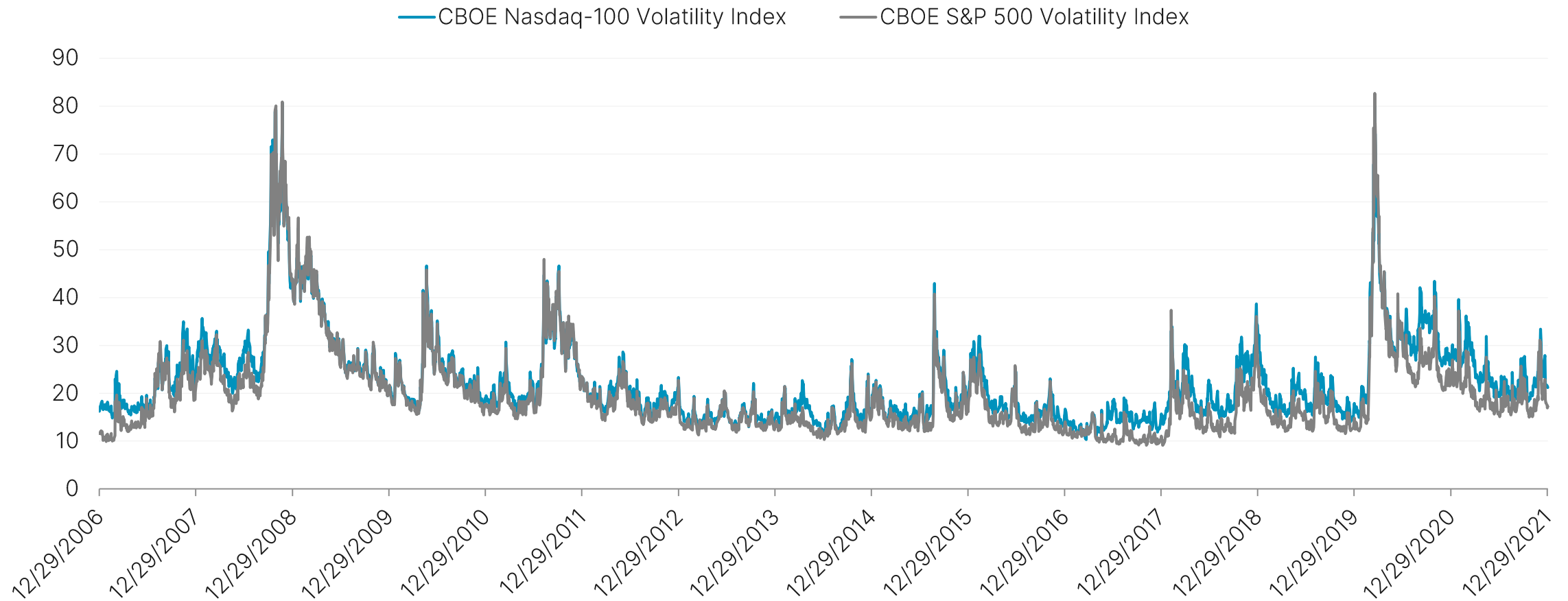
- Cumulative total returns through December 31, 2021 were 803% for NDX – more than doubling the returns of 333% for SPX.

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%

Historical Volatility

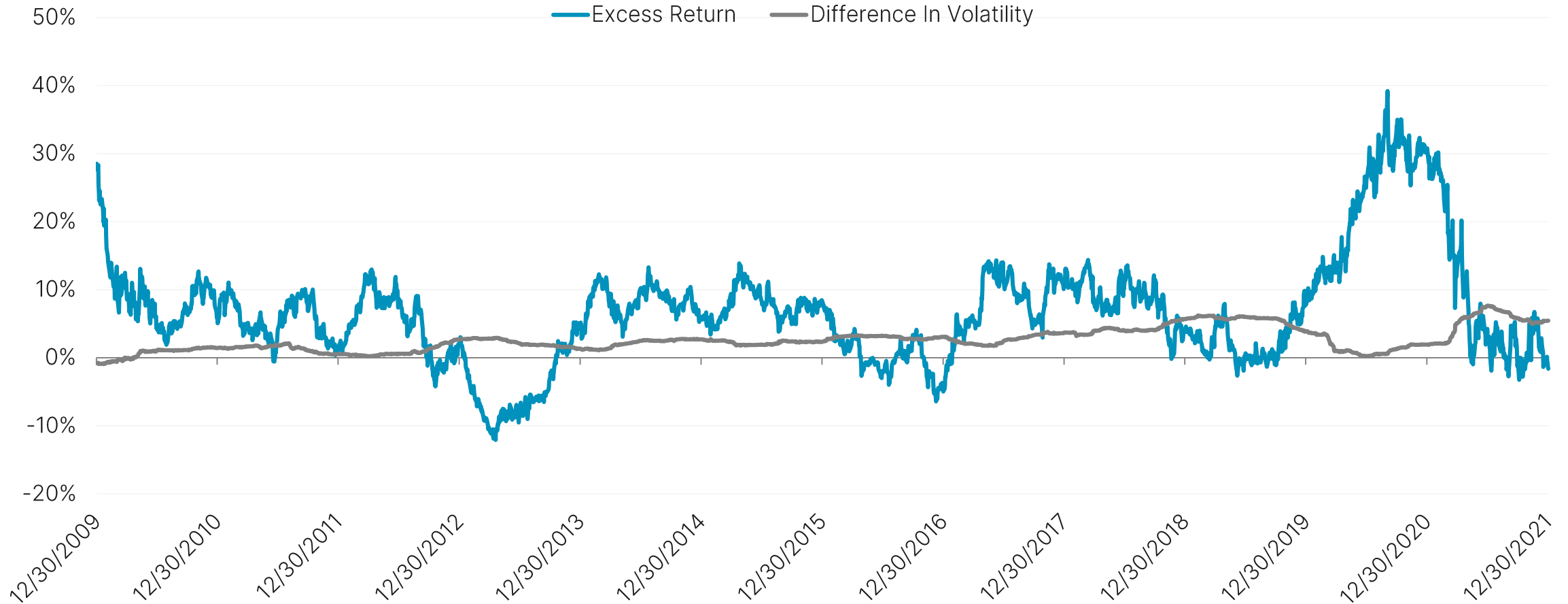
- Both the Nasdaq-100 and the S&P 500 have had very similar volatility over last 15+ years



Source: Nasdaq, Bloomberg. Data as of 12/31/2021.

1-Year Excess Return vs. Volatility

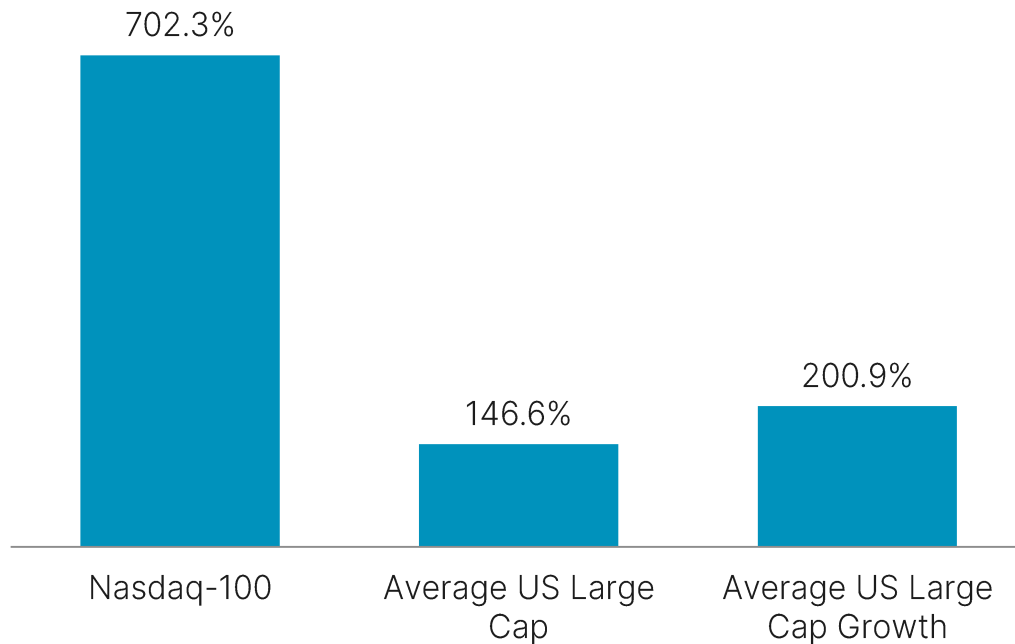
Nasdaq-100 vs S&P 500



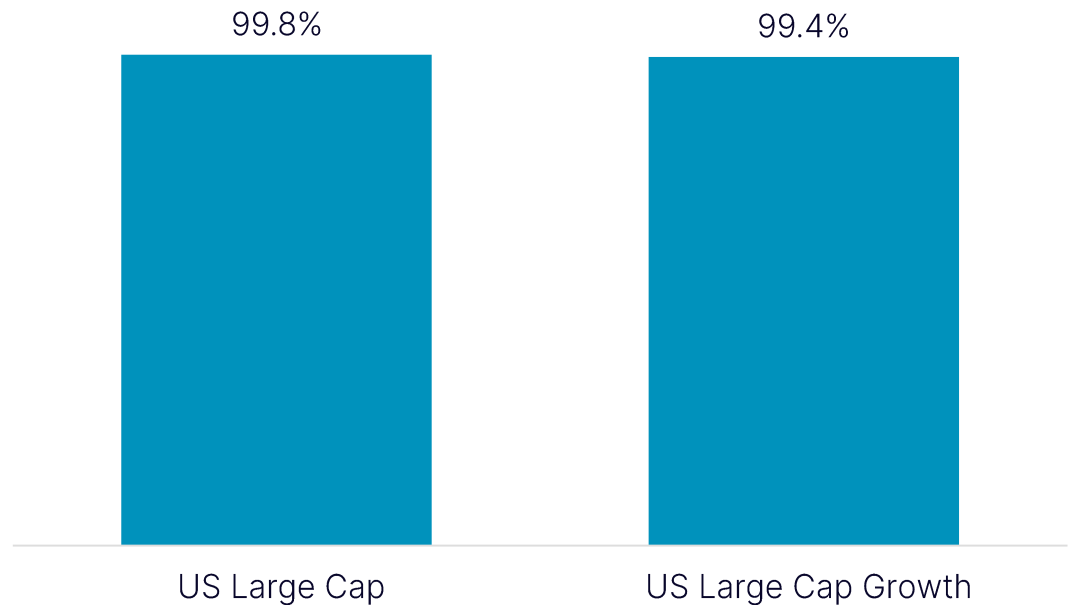
Source: Nasdaq, Bloomberg. Data as of 12/31/2021.

Nasdaq-100 vs. US Large Cap Fund Universe

10-Year Total Returns



% of Funds Outperforming



of Funds:

643

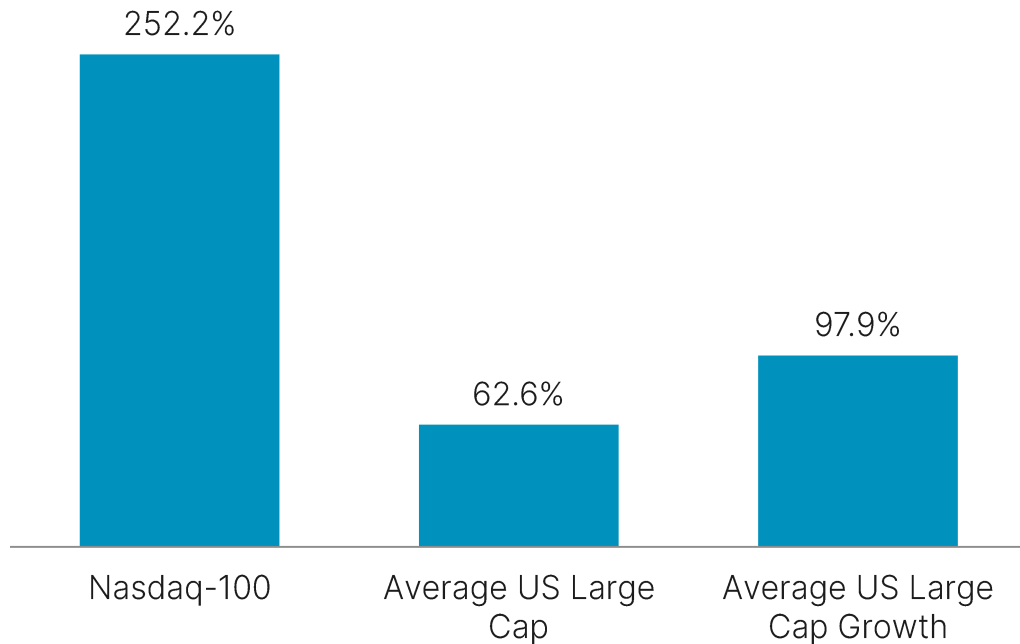
169

Source: Nasdaq Global Indexes, Bloomberg, Morningstar. Data as of 12/31/2021.
Includes all US ETFs and Mutual Funds that were active for the entire period.

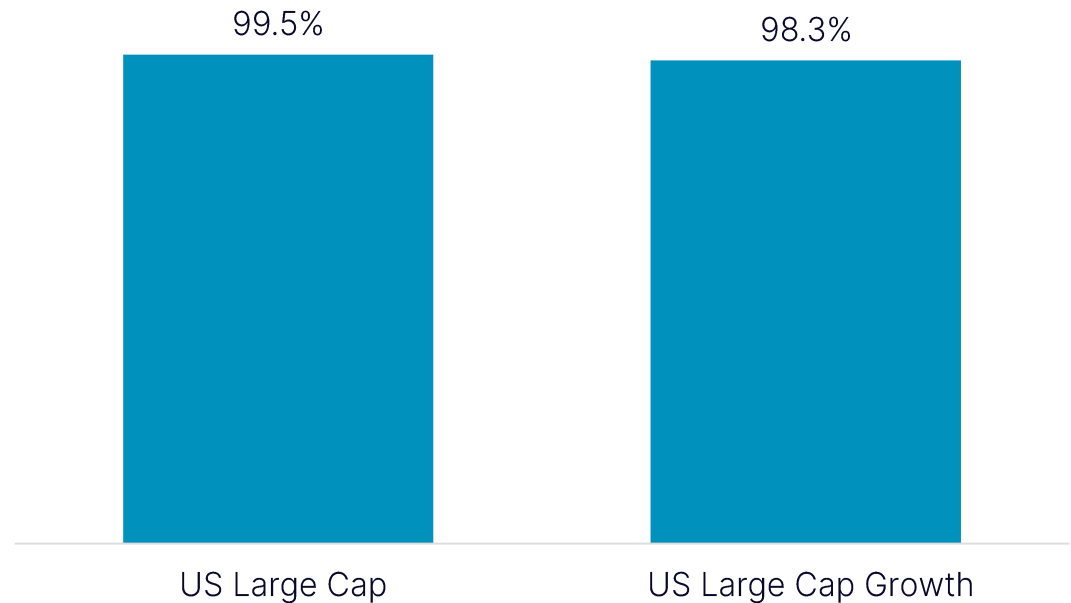


Nasdaq-100 vs. US Large Cap Fund Universe

5-Year Total Returns



% of Funds Outperforming



of Funds:

1,006

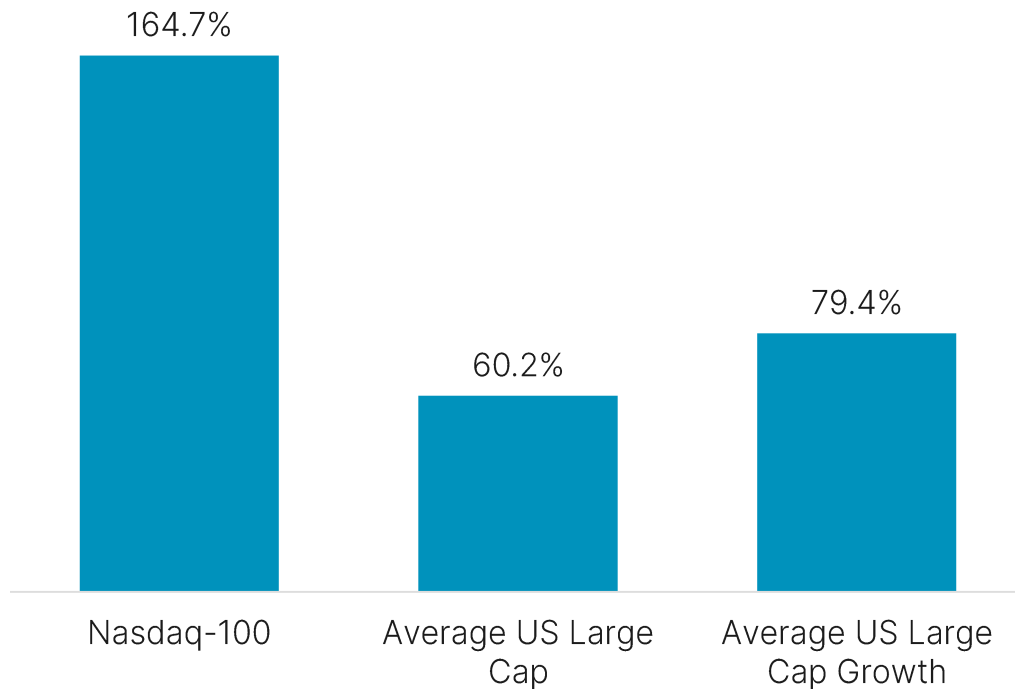
295

Source: Nasdaq Global Indexes, Bloomberg, Morningstar. Data as of 12/31/2021.
Includes all US ETFs and Mutual Funds that were active for the entire period.

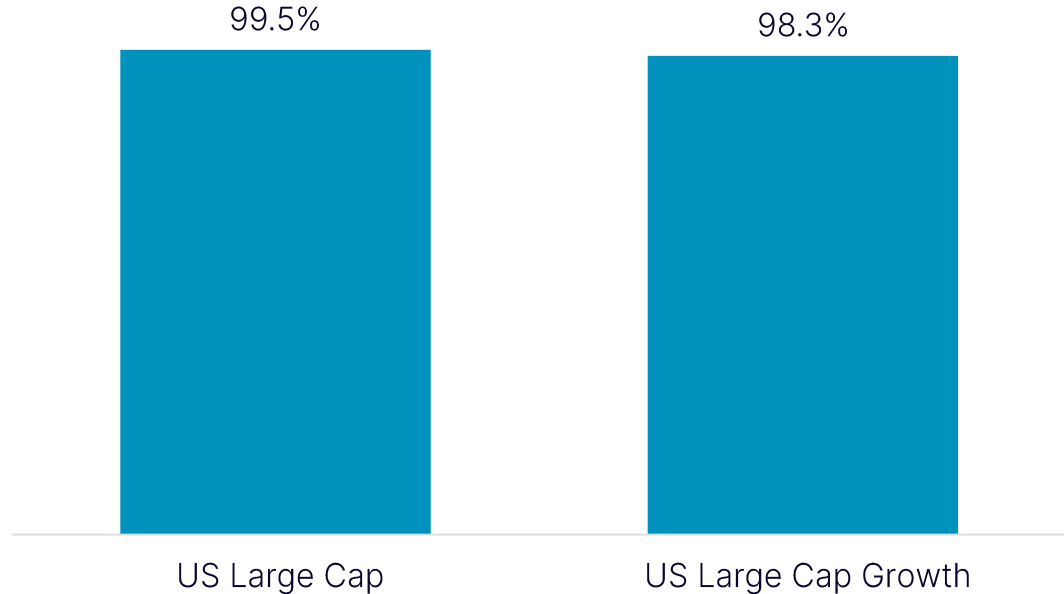


Nasdaq-100 vs. US Large Cap Fund Universe

3-Year Total Returns



% of Funds Outperforming



of Funds:

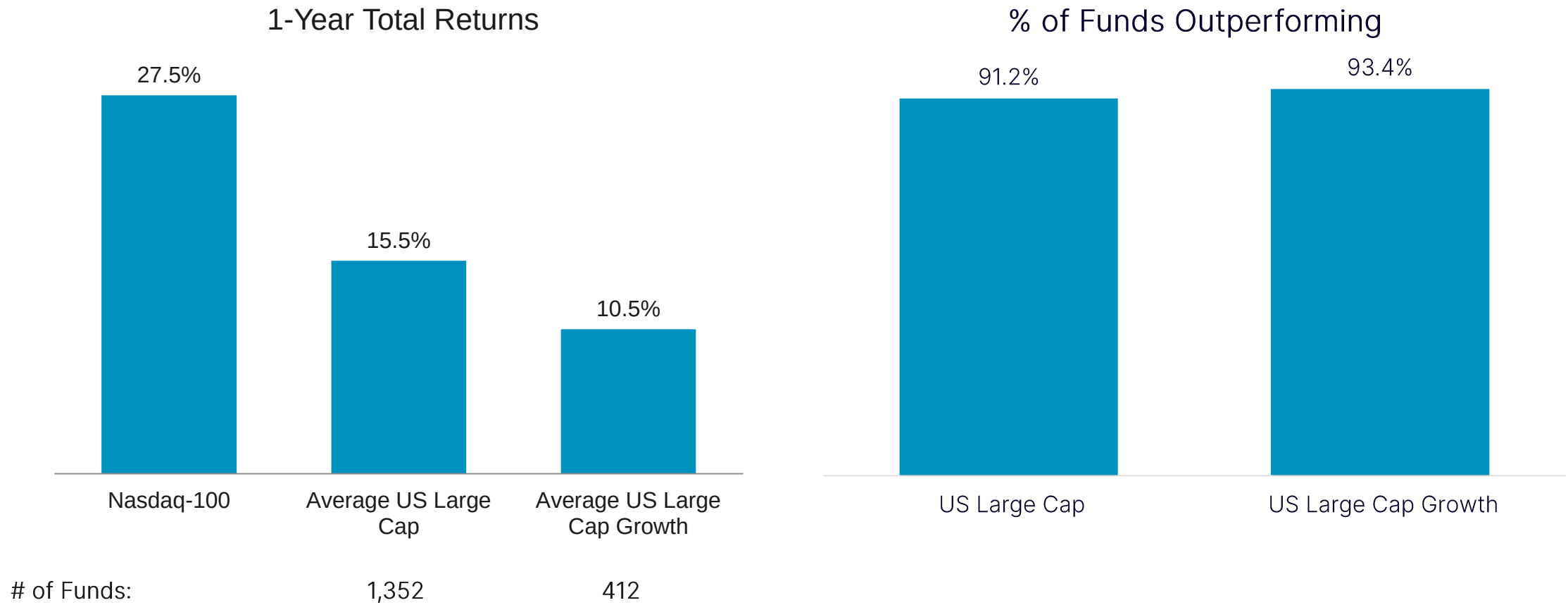
1,163

344

Source: Nasdaq Global Indexes, Bloomberg, Morningstar. Data as of 12/31/2021.
Includes all US ETFs and Mutual Funds that were active for the entire period.



Nasdaq-100 vs. US Large Cap Fund Universe



Source: Nasdaq Global Indexes, Bloomberg, Morningstar. Data as of 12/31/2021.
Includes all US ETFs and Mutual Funds that were active for the entire period.

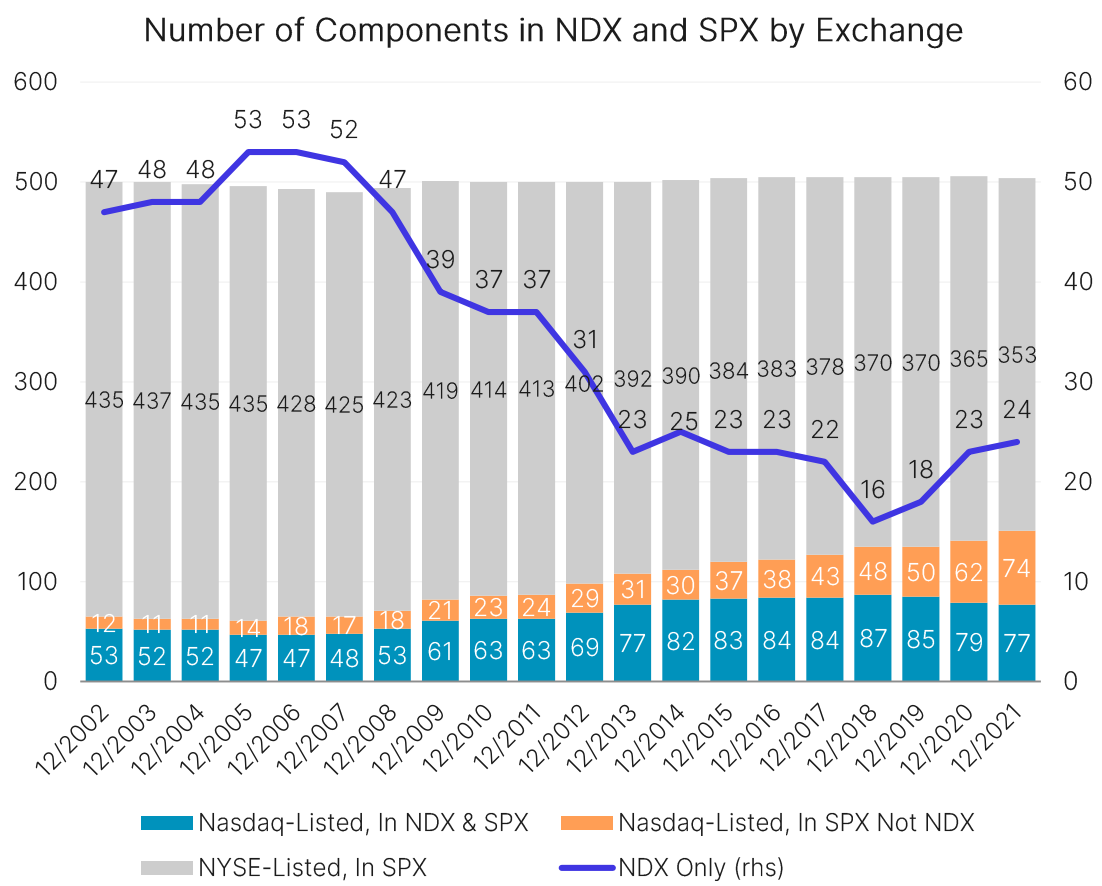
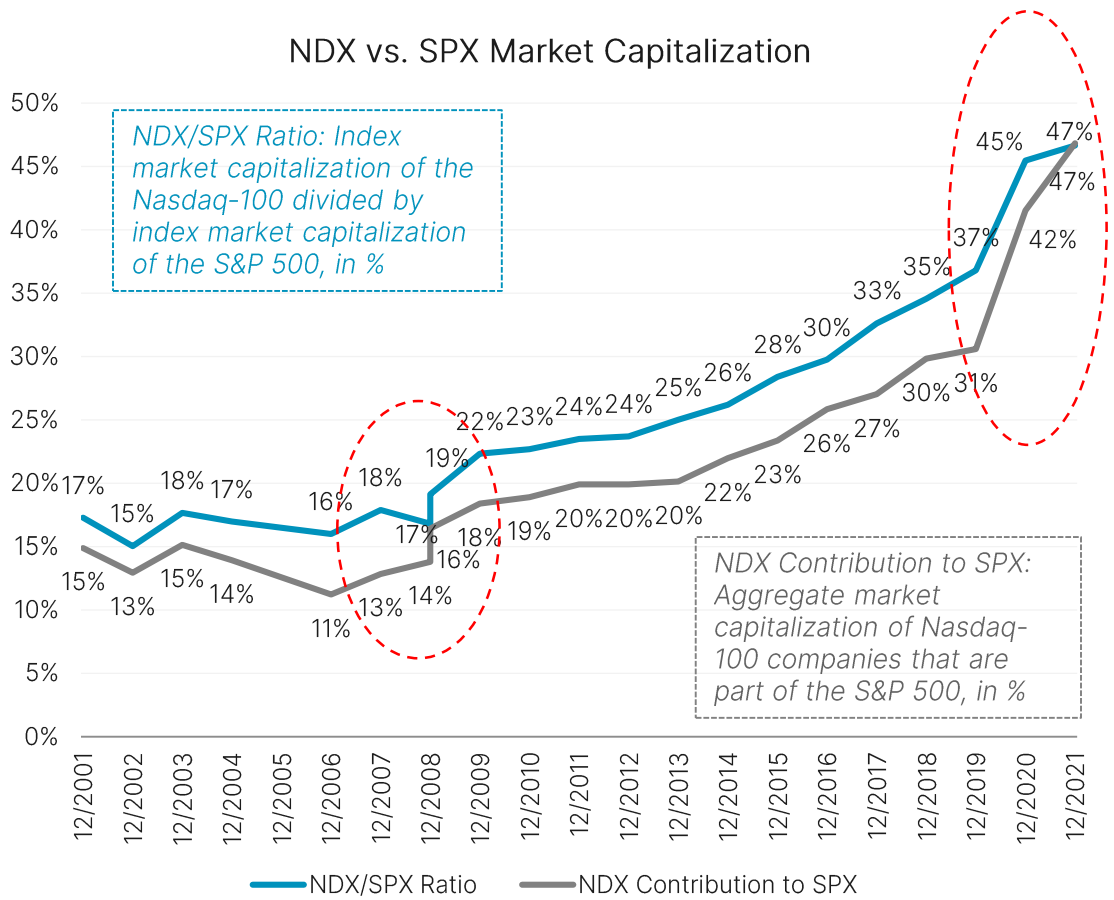


Coveted Placement

The 100 that Make the Index



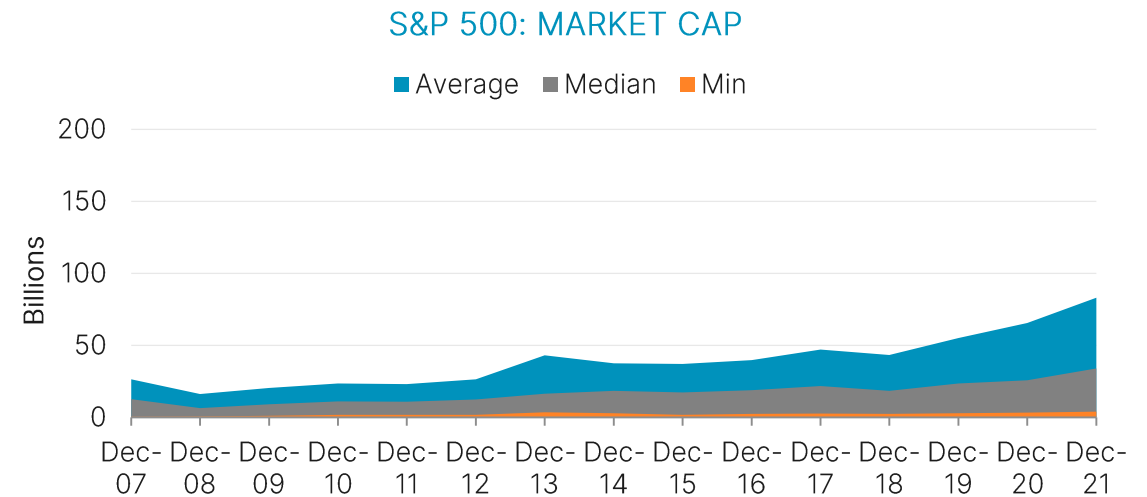
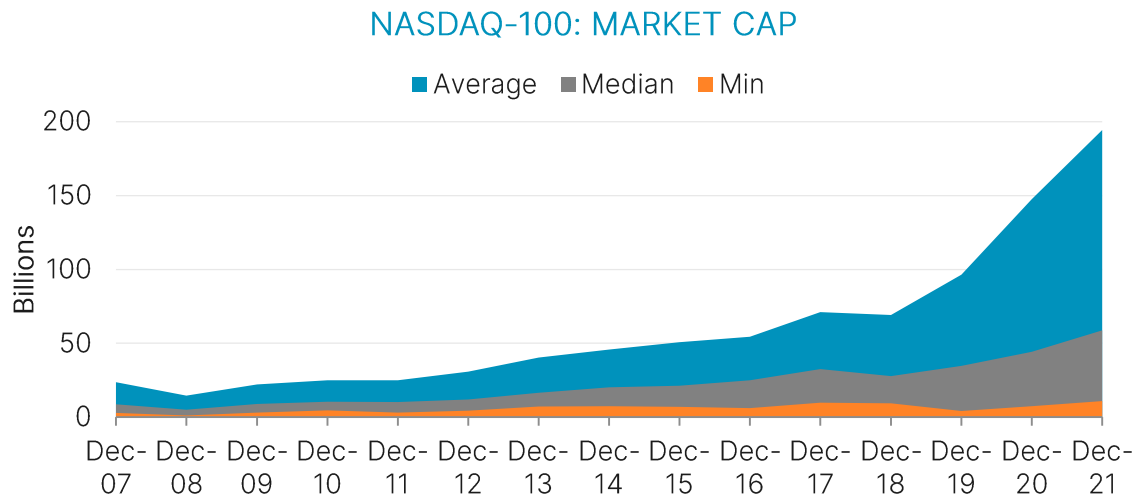
Nasdaq-100 vs. S&P 500: Composition Over Time



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

Average, median and minimum market caps of the NASDAQ-100 and the S&P 500 at year-end, 2007-2021

- All figures dropped during the 2008 Financial Crisis and have been steadily rebounding in spite of the Covid-19 pandemic and a brief dip during the Q4'18 bear market
- Twelve of the last thirteen years the average market cap has been higher in NDX than SPX. As of year-end 2021, NDX: \$194B, SPX: \$83B.
- The median market cap has been higher for NDX than SPX in each of the last nine years. As of year-end 2021, the medians were \$58.8B for NDX and \$34B for SPX. Despite the presence of very large outlier companies such as Apple, Amazon, Microsoft, Google and Facebook, the market cap of NDX tends to be truer to large cap than SPX.
- The smallest company in NDX (\$10.8B) has been larger than the smallest company in SPX (\$5.2B) for the last thirteen years.



Nasdaq-100: New Additions in 2021

No.	Effective Date	Ticker	Company Name	ICB Industry	ICB Sector	Market Cap, \$Bn	FY'21 Return
1	7/21/2021	HON	Honeywell International Inc.	Industrials	General Industrials	143.5	(2.0)
2	8/26/2021	CRWD	CrowdStrike Holdings, Inc.	Technology	Software and Computer Services	42.6	(3.3)
3	12/20/2021	ABNB	Airbnb, Inc.	Consumer Discretionary	Travel and Leisure	57.7	13.4
4	12/20/2021	DDOG	Datadog, Inc.	Technology	Software and Computer Services	45.8	80.9
5	12/20/2021	FTNT	Fortinet, Inc.	Technology	Software and Computer Services	58.8	142.0
6	12/20/2021	LCID	Lucid Group, Inc.	Consumer Discretionary	Automobiles and Parts	62.6	280.1
7	12/20/2021	PANW	Palo Alto Networks, Inc.	Technology	Software and Computer Services	54.9	56.7
8	12/20/2021	ZS	Zscaler, Inc.	Technology	Software and Computer Services	45.0	60.9



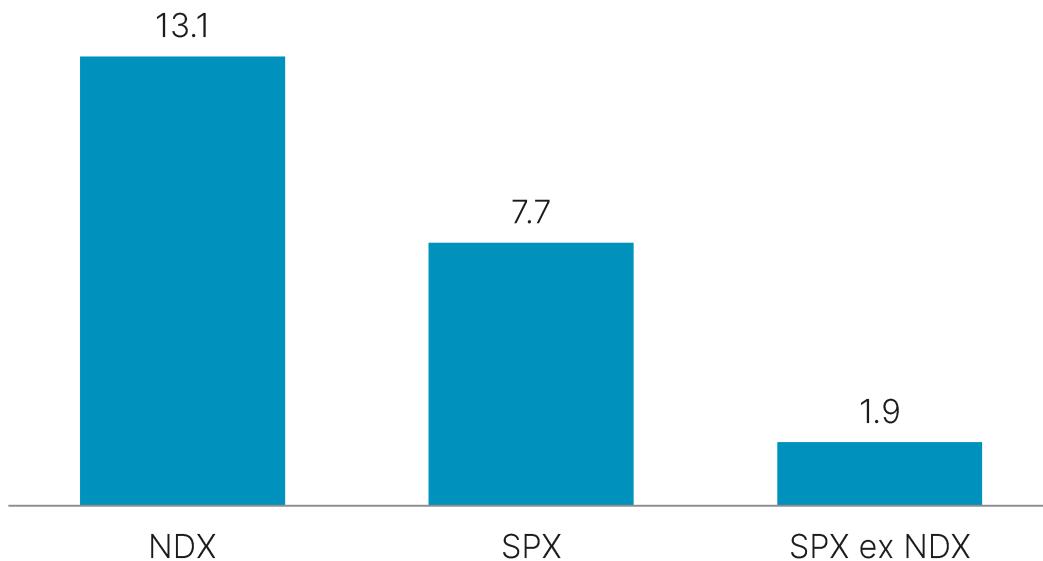
Source: Nasdaq Global Indexes, Factset. Data as of 12/31/2021.

Quantifying Innovation

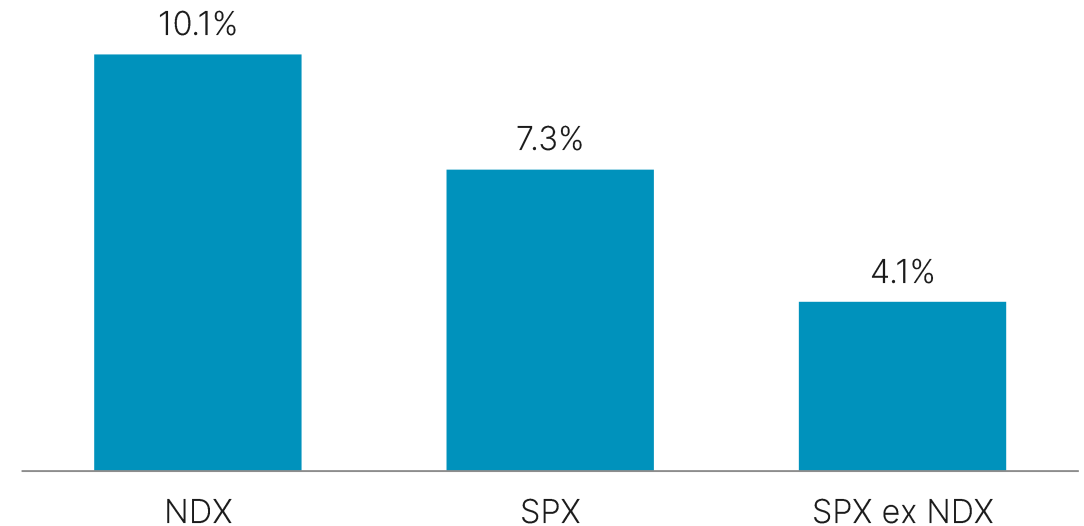
Research and Development Powerhouse

- R&D is a key driver of innovation and economic growth
- Companies in the Nasdaq-100 spend nearly twice as much in R&D, on average, compared to those in the S&P 500; 77 of the Nasdaq-100 are currently part of the S&P 500
- Calculating R&D as a percent of sales in the last 12 months, Nasdaq-100 companies averaged 38% higher than S&P 500

Weighted Average Annual R&D Expense, \$Bn

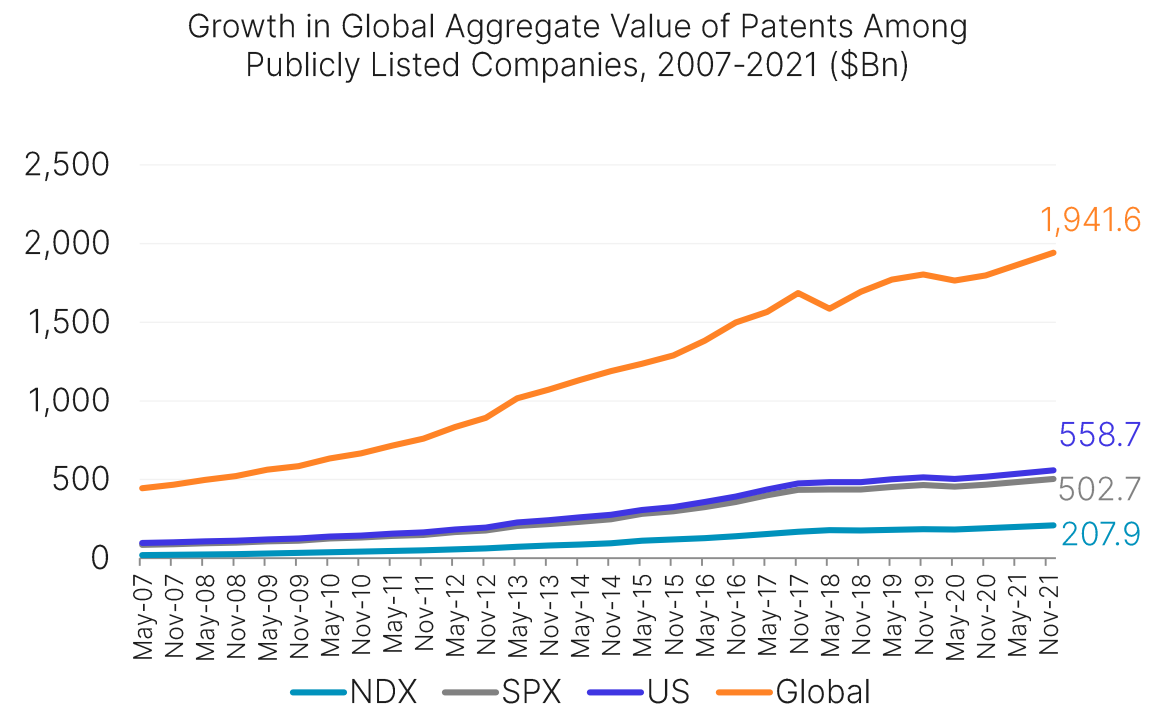
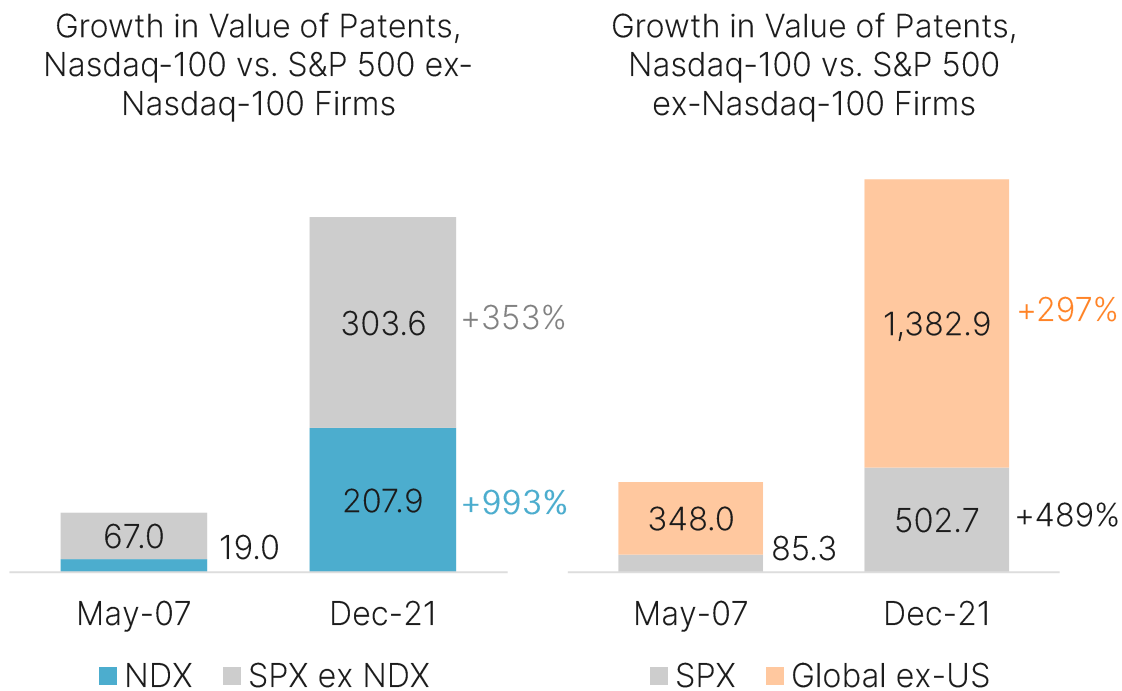


Weighted Average R&D as % Sales



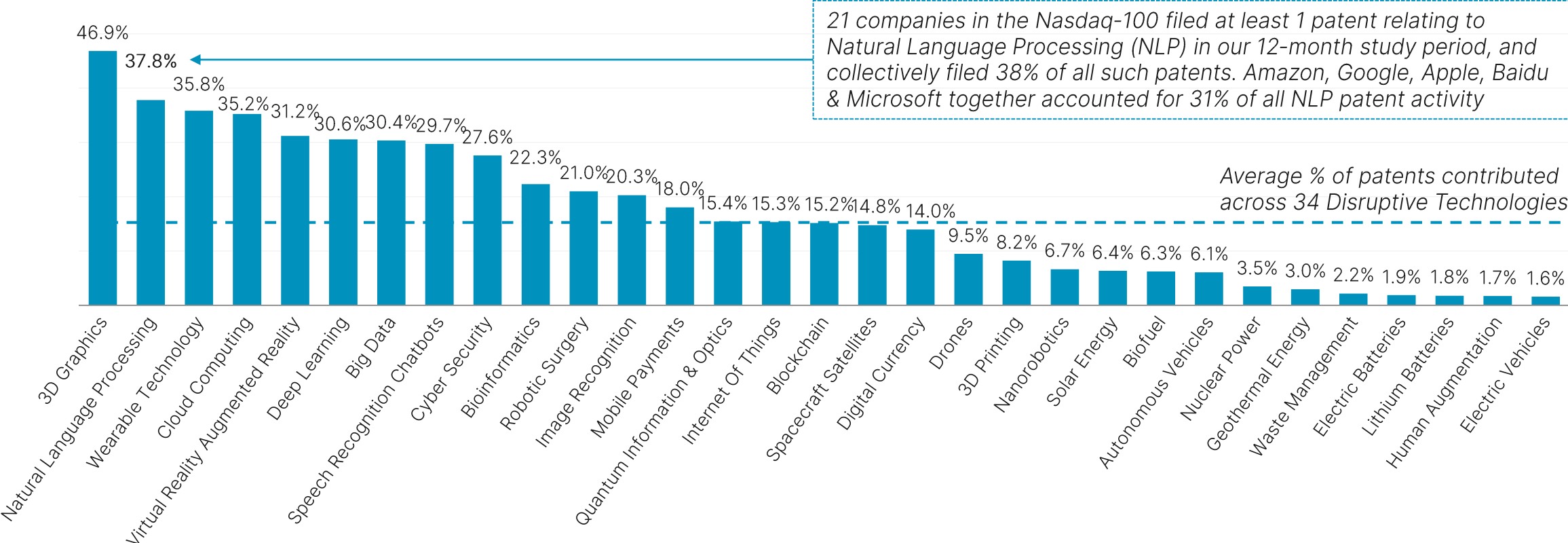
Accelerating Growth of Intangible Assets

The current crop of Nasdaq-100 constituents has grown the value of their patents by ~10x since May 2007, vs. ~3.4x across all publicly-listed, tracked companies globally. Growth for the S&P 500 overall was ~5x, but only ~3.5x excluding the contribution of overlapping Nasdaq-100 firms. Global growth ex-US was only ~3x



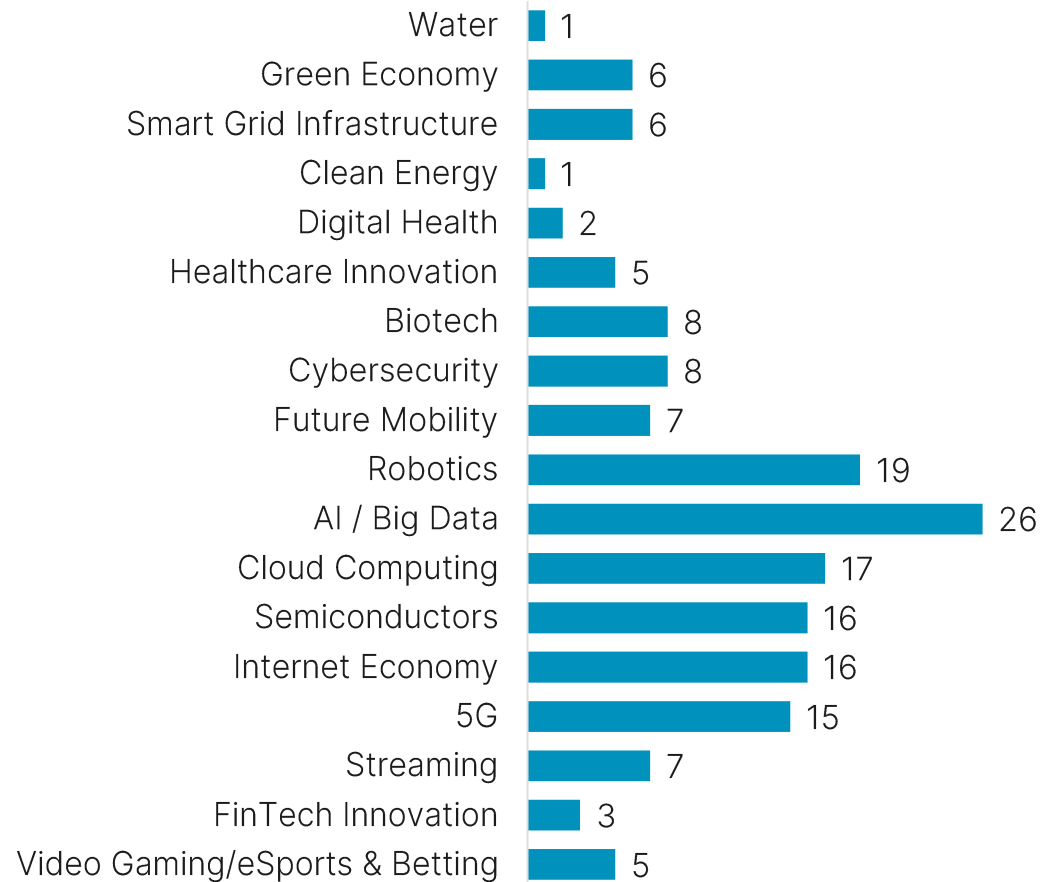
Disruptive Technology and R&D

- 62 companies in the Nasdaq-100 (representing 85.6% of index weight) recently filed patents across one or more of 34 key areas of Disruptive Technology such as Artificial Intelligence, Clean Energy, or Blockchain

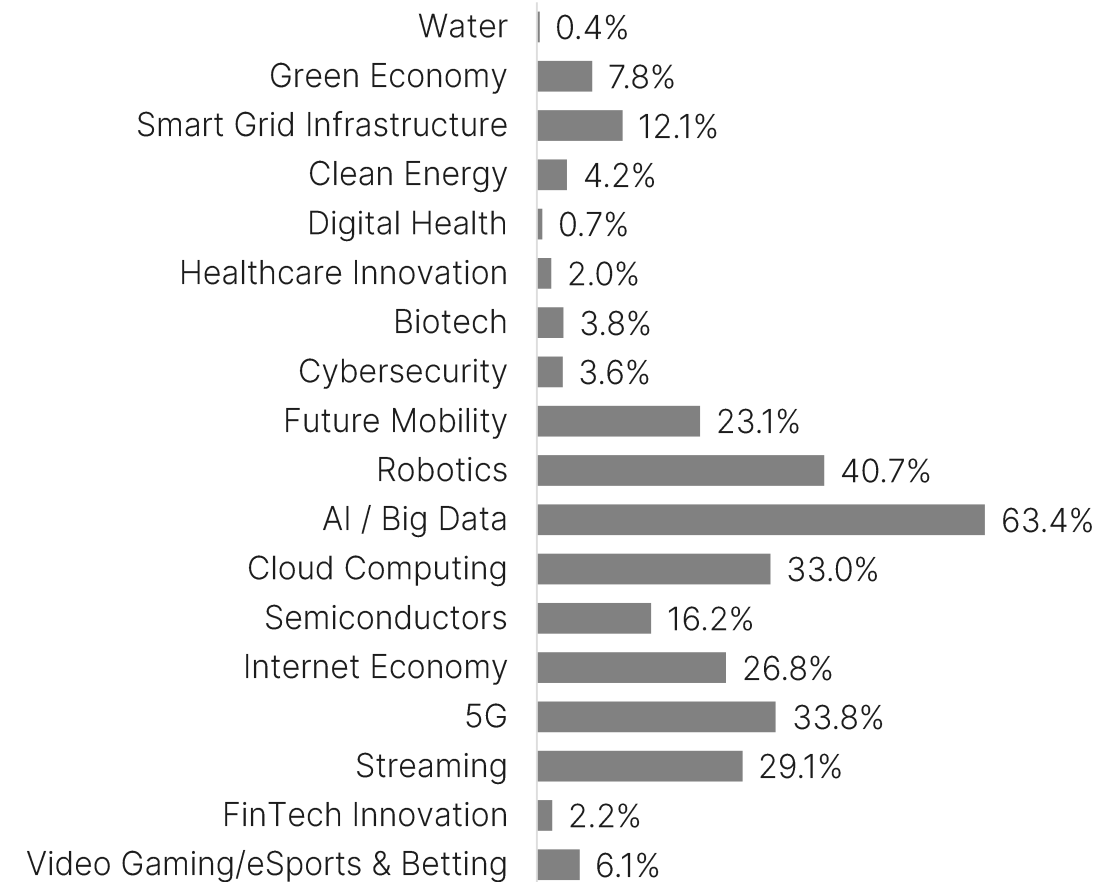


Nasdaq-100 by Thematic Exposures

of Constituents per Theme



Index Weight per Theme

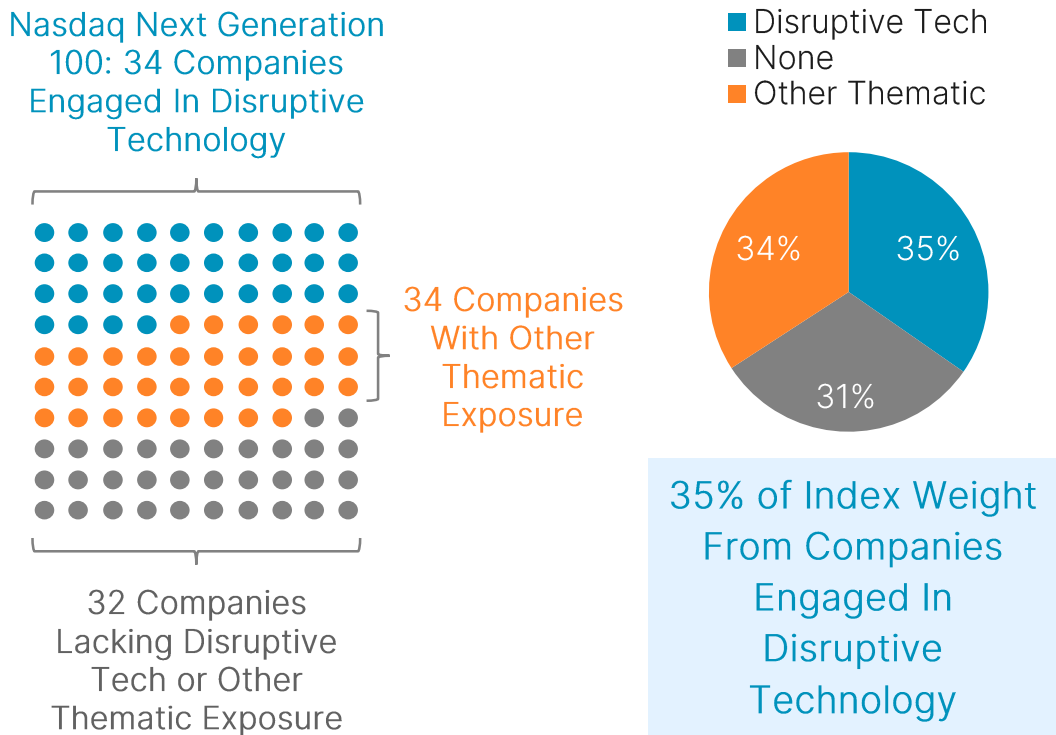
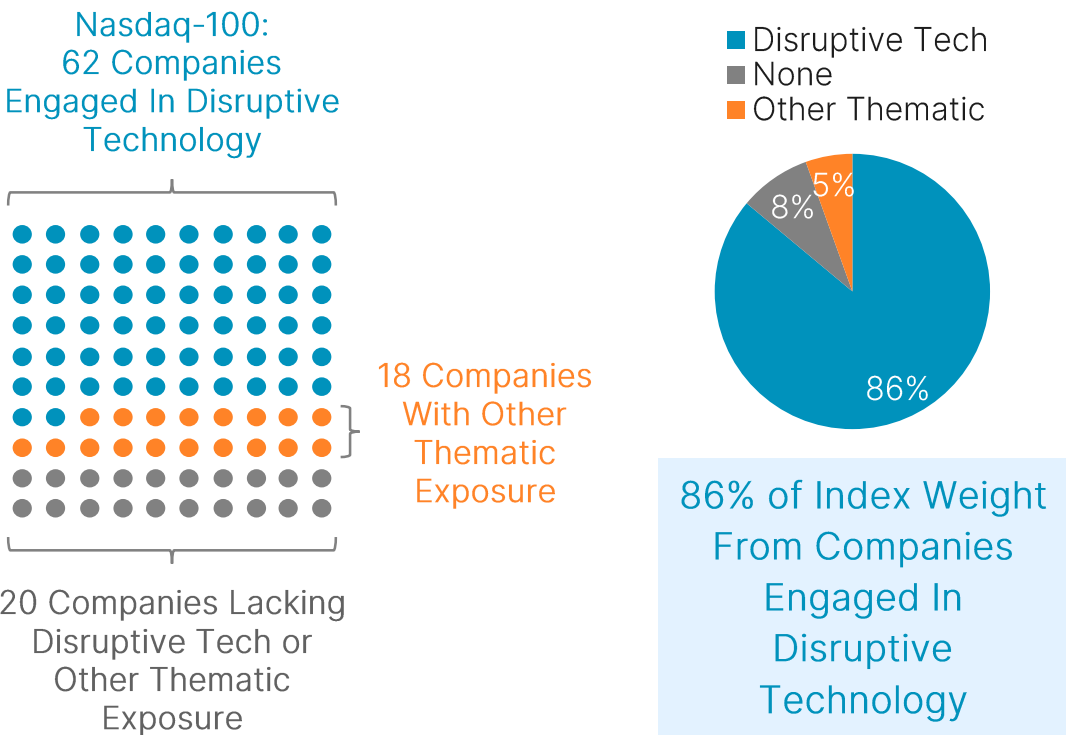


Source: Nasdaq, Bloomberg, FactSet. Data as of 12/31/2021.

Based on overlap with existing Nasdaq Thematic Indexes, except for Digital Health, Healthcare Innovation, 5G, Streaming, and Video Gaming/eSports & Betting where competitor products were analyzed.

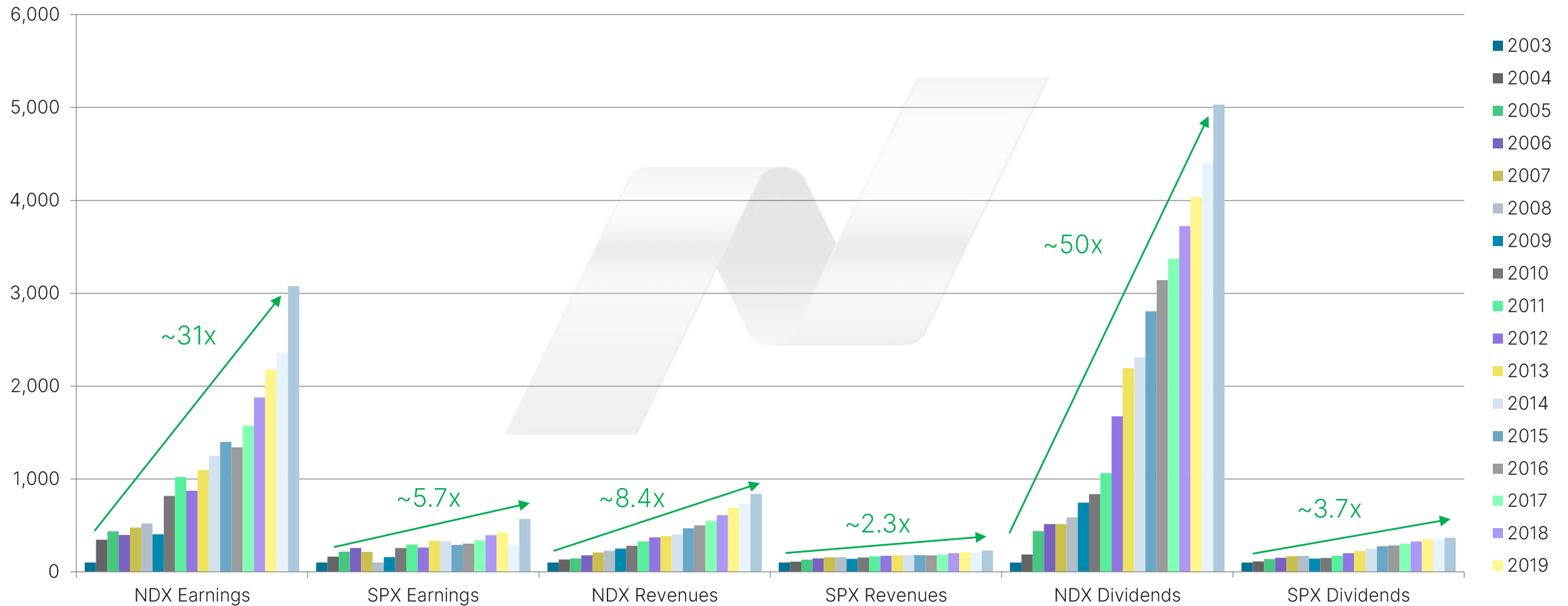
Nasdaq Innovation Suite & Disruptive Tech

The Nasdaq-100 Index and the Nasdaq Next Generation 100 Index (collectively, the “Innovation Suite”) both contain substantial exposures to multiple relevant investment themes, particularly within Disruptive Technology as defined by the patent-driven methodology of the Nasdaq Yewno Global Disruptive Tech Benchmark Index



The Fundamentals

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

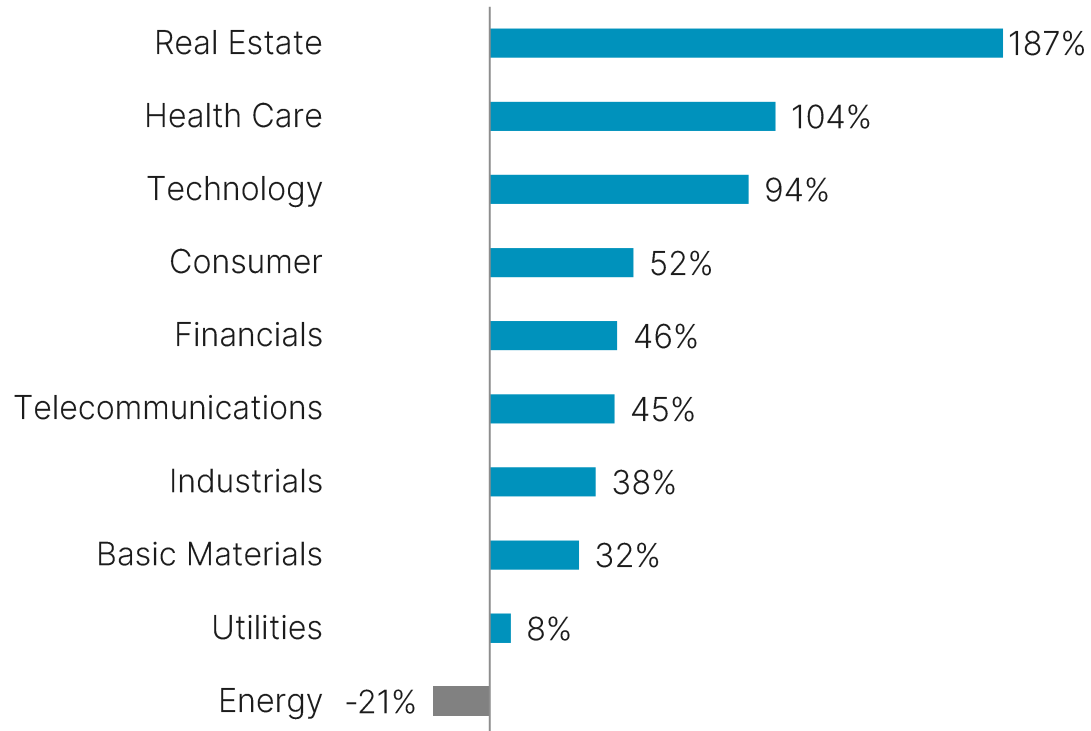


Current TTM Dividend Yield: 0.70% (NDX) vs. 1.35% (SPX)

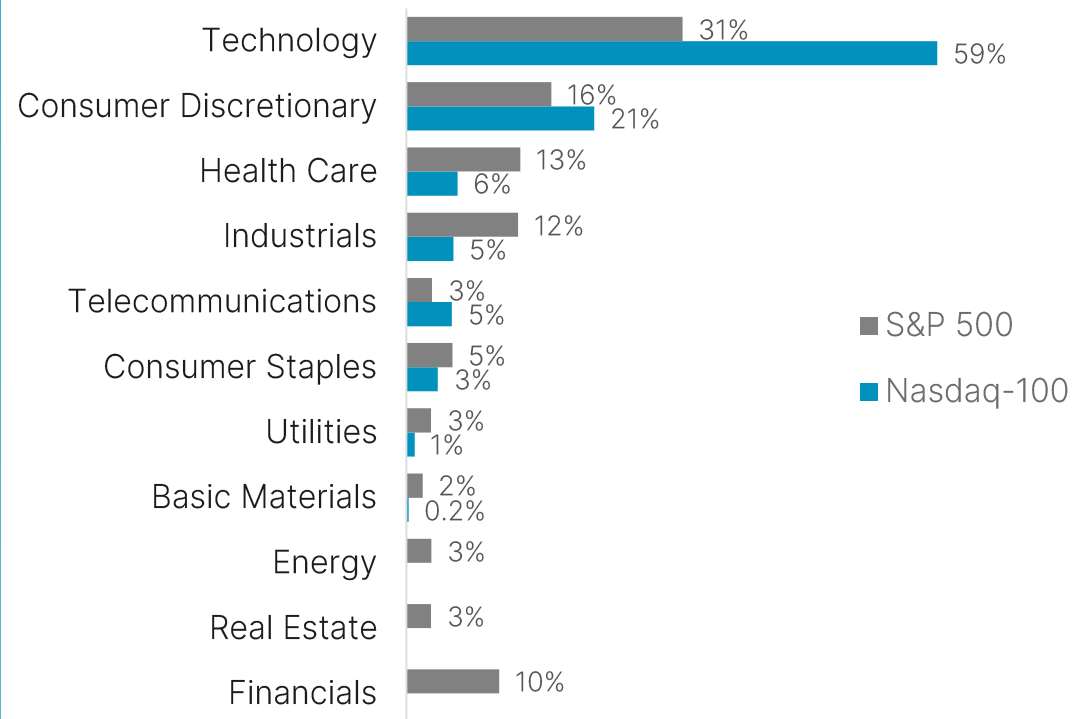
The Decade of the Nasdaq-100

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



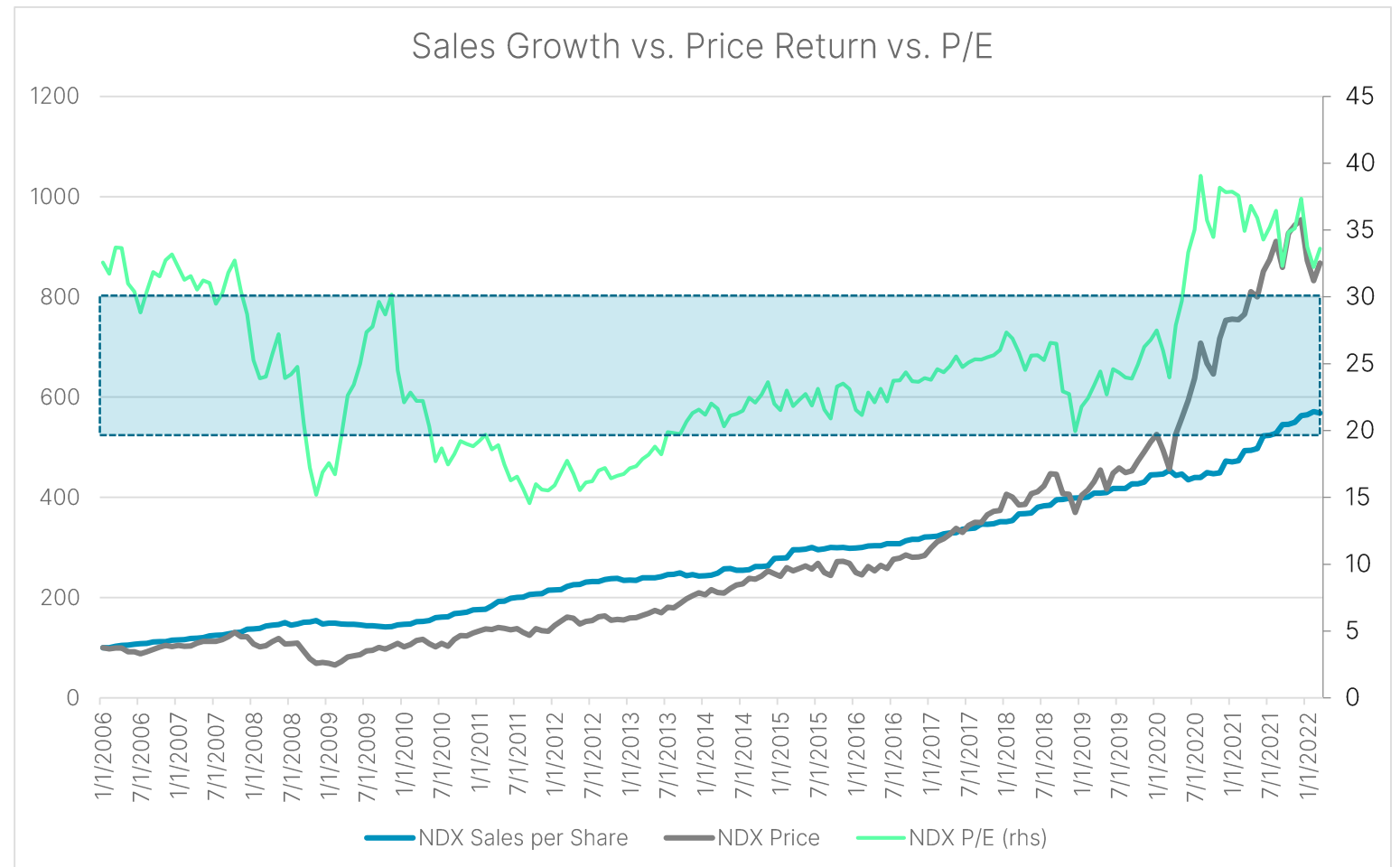
Nasdaq-100 Index: Fundamentals

- The fundamental data behind the NASDAQ-100 has drastically improved over the past decade despite a volatile economy and the greatest financial market collapse since the Great Depression.
- Earnings, the most basic number to value a company, have skyrocketed, showing maturation of the companies as they increase revenues but reduce costs. Costs have been controlled, shares were bought back, dividends have increased and P/E has contracted.
- Since 2003, NDX has had a Compound Annual Growth Rate (CAGR) of:
 - + 21% in earnings
 - + 13% in revenues
 - + 24% in dividend value
 - - 7% in P/E
- The shift in NDX fundamentals has resulted in significant outperformance over other US large cap indexes.



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 broke during 2020, with P/E climbing to a range in the mid-to-upper 30s
- Fundamental story has been the main driver of long-run recovery, rewarding the growth of NDX companies
- Sales: +468%
Price: +767%
Valuation: +3%



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