The New Nasdaq-100®
Index Options (NDX) Marketplace

Access to options is more critical than when many of us started our careers. On an average day in 2024, the industry manages volumes that are roughly twentyfold a typical day at the turn of the century. Versus 2017, volumes have tripled. The catalysts are numerous. Fueled by technology, access and a broader understanding of this set of tools, the demand for optionality continues to grow.

However, these new volumes are not equally distributed. Despite some 5,700+ optionable symbols, end users increasingly gravitate toward index options. For example, in 2024 (YTD) roughly 3.7 million index options transact daily. That compares to an average of 2.2 million in 2018. In other words, index option volumes are ~65% higher than they were just six years ago.

During this new "golden era" for the derivatives industry, the re-emergence of Nasdaq-100 Index Options (NDX) stands out. For example, the average daily volume in NDX index options in 2024 (YTD) is 260% higher than it was for full year 2018. By comparison, SPX volumes have grown by ~112% over the same time frame.

The end user makeup is slightly skewed toward the institutional client, but individual/retail orders make up a very significant portion of the activity in NDX index options. Based on Nasdaq data on the current quarter, ~38.9% of orders are in a retail capacity. The other 60.2% are institutional. That mix has been very consistent for the past few years.

Much of the retail flow is spread based. Individual option traders can define risk and limit margin requirements by trading verticals. Based on outreach, this subset is drawn to a high-value index with elevated volatility relative to alternatives.

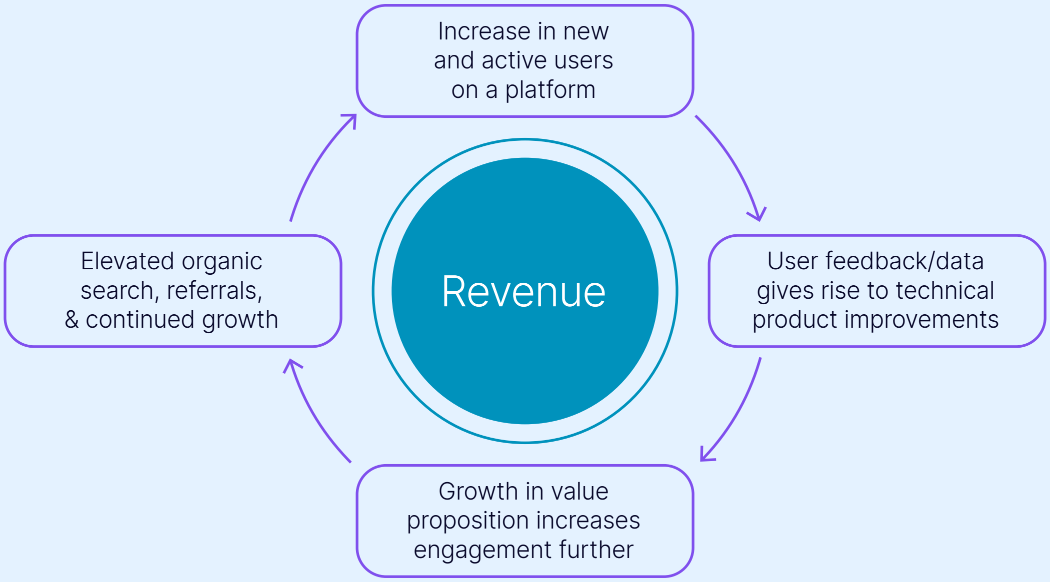
Retail traders have readily embraced leveraged exposure opportunities with short-dated index options. In general, they seek out structures with asymmetric risk-to-reward profiles. More specifically, out-of-the-money (OTM) outright exposure or relatively small dollar spreads. The liquidity-providing community looks for a theoretical edge.

The NDX index options marketplace has matured considerably over the past few years. Volumes beget competition, which pressures spreads and attracts more volume. It's an attractive growth market for institutions and individual end users to gain exposure and manage risk over discrete time frames.

Virtuous Cycles

The term "virtuous cycle" dates to the early 20th century. General Electric published a magazine that included news and product research. They recognized the interconnected nature of choices and the potential revenue implications. They recognized a virtuous cycle as an event or technique that leads to a reinforcing series of positive outcomes. These scenarios are desirable at the personal and professional level. At the corporate level, virtuous cycles are, in many ways, a "holy grail." All participants benefit when the cycle takes root.

Let's look at a fundamental 21st century example for a hypothetical tech/growth firm:



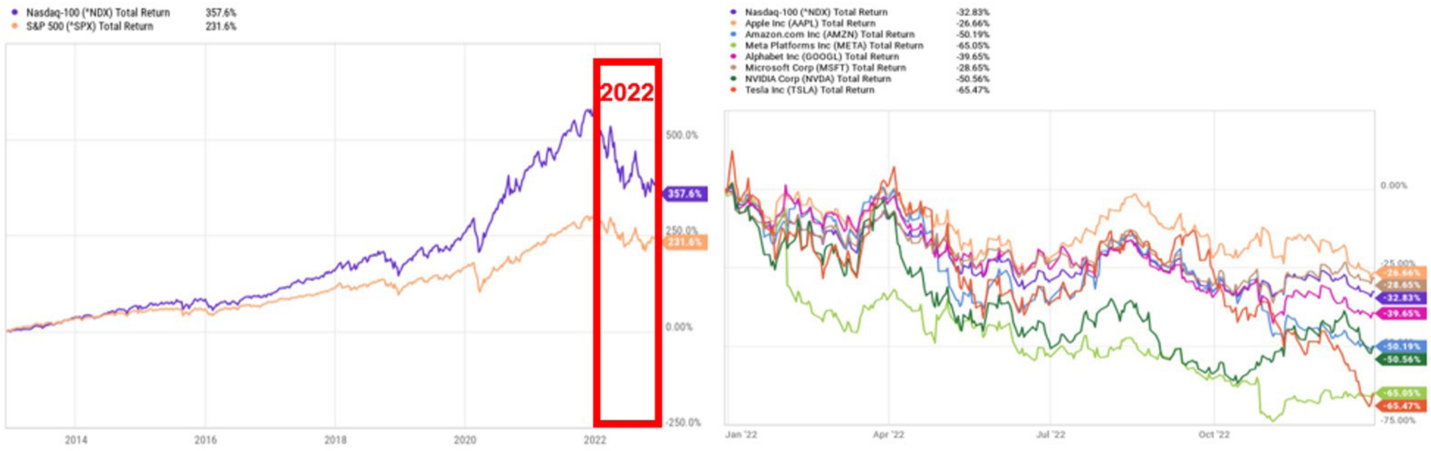
Source: Nasdaq

The “increase in new and active users” corollary in capital markets is improved liquidity. In cash equity and derivative markets, the ability to efficiently transact is the cornerstone for growth. The term “liquidity” is used frequently because it’s the lifeblood of a vibrant product set and fuels exchange volumes. The liquidity profile for NDX index options has transformed since 2022.

Efficient markets are driven by competition, and there’s no more competitive corner of the market than index products. End users can express their outlook and manage their exposure using ETFs or a basket of securities, index futures, index options and more. Beyond that, there are a variety of indexes to choose from. Nasdaq-100 Index (NDX) performance has undoubtedly attracted some end users, but the derivatives marketplace is driven by risk transfer.

2022: The Inflection Point

Many asset managers recall 2022 with meaningful frustration. Traditional hedging tools, like fixed income products, exacerbated institutional chagrin. Bonds and equities largely declined in tandem. The efficacy of 60/40 portfolio construction came under attack as interest rates moved off historically low levels. The information technology names that had powered many portfolios for the past decade swooned. By year’s end, the NDX index fell by 33%, and many of the high-growth names that make up a significant portion of the index declined between 25% - 65%.



Source: YCharts

During the 10-year period, starting with 2012 and ending December 31st, 2022, the NDX index had outperformed the S&P 500 Index by a wide margin. Over that decade, the NDX Index added ~587%. versus 307% from the S&P 500. Key catalysts revolved around index construction. The NDX index excludes financials and "old energy" companies, both of which underperformed in the zero-bound interest rate environment.

S&P 500	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Energy	3%	2%	4%	4%	5%	6%	6%	7%	6%	7%
Financials	11%	10%	13%	13%	15%	15%	14%	16%	11%	11%
Info Tech	25%	26%	23%	22%	19%	17%	16%	16%	11%	14%

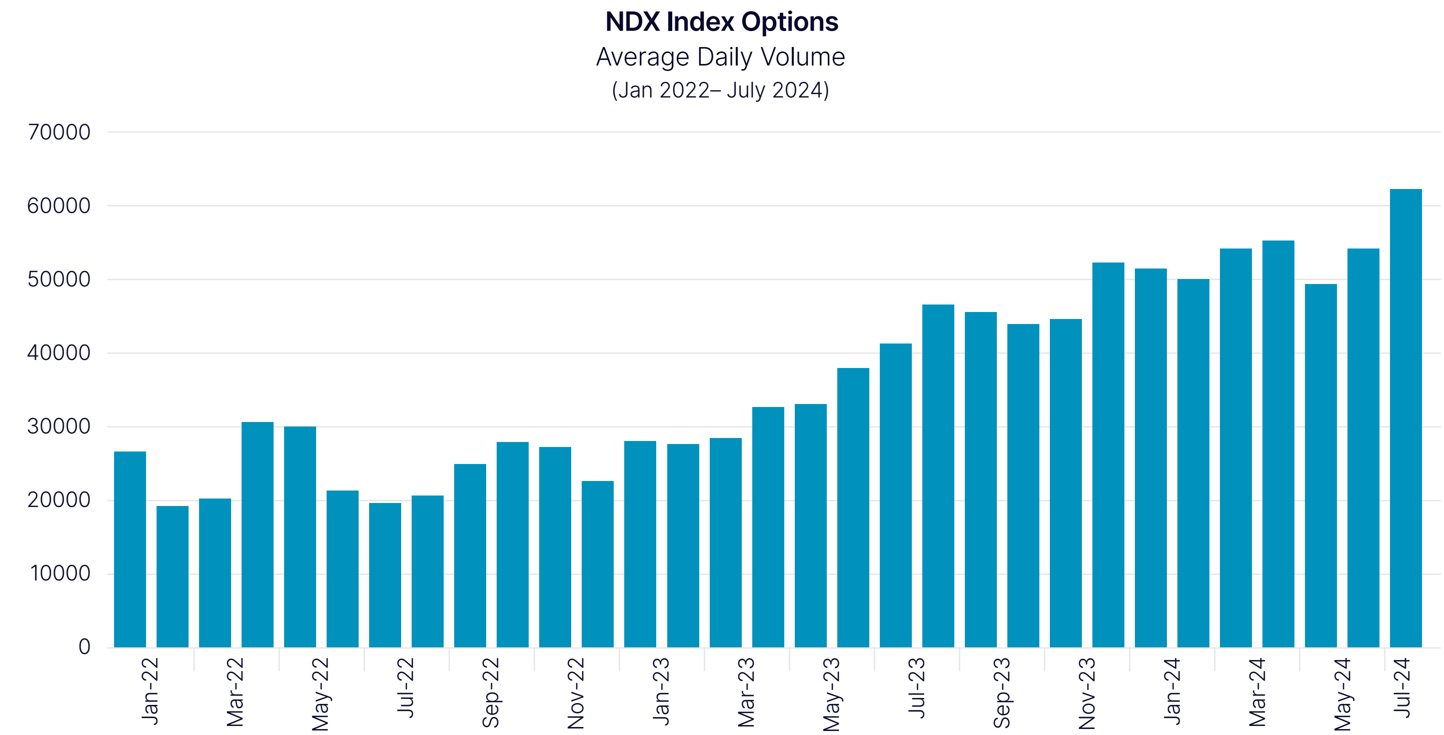
Source: Dow Jones S&P Indices

Nasdaq-100	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Technology	55%	54%	53%	53%	52%	49%	49%	51%	51%	50%

Source: Nasdaq

Performance tends to attract assets, and that's precisely what occurred. The NDX ecosystem flourished as Information Technology transformed the global economy. Using just the Nasdaq-100 tracking Invesco QQQ Trust as an example, assets in the fund grew from ~$26 billion at the beginning of 2012 to ~$217 billion by the end of 2021. Structured products, mutual funds, futures and other derivatives linked to the NDX index increased with a similar trajectory.

The significant performance gap, with the NDX index nearly doubling a strong S&P 500 performance, led to a surge in demand for risk management tools linked to the NDX index. Institutions, asset managers and individuals needed capital-efficient risk management tools, and many turned to the NDX index. The shift in monetary policy following a decade of accommodative rates further underscored the need for macro hedges.



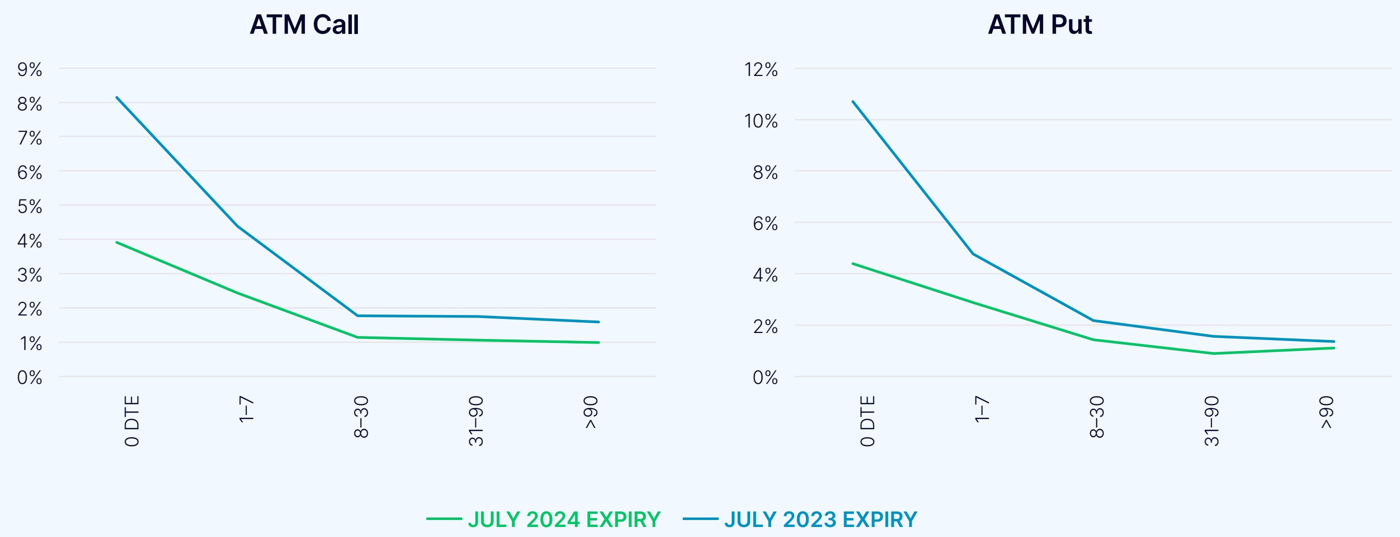
Source: Nasdaq

Narrowing Spreads

This confluence of events (assets flowing toward NDX index-linked product, rate hikes, dispersion trading, macro hedging and more granular expiry cycles) kicked off our own virtuous cycle of narrower bid/ask spreads in NDX index options. This dynamic continues to improve the market quality and experience for all NDX index options users. More recently, Nasdaq Economic Research group quantified the structural changes.

The Economic Research team has a history of analyzing spread width and market quality on listed equities. A similar approach was taken to evaluate effective (and nominal) NDX index options spreads through time. The team aggregated NDX index options data for entire (standard) expiry cycles. For example, they examined the bid/ask spread for the July 2023 cycle including a variety of tenors and moneyness. Those results were then compared to the same analysis performed using NDX index options data for the July 2024 cycle.

More specifically, they looked at everything (calls and puts) from 5% in-the-money (ITM) to 5% OTM and bucketed based on maturity. They evaluated spreads for the (daily) expiring series, 1-7 days until expiration (DTE), 8-30 DTE, 31-90 DTE, and greater than 90 DTE. Here's what they found for at-the-money (ATM) Calls and Puts comparing July 2023 to July 2024, shown as a percentage of option premium:



More Specifically

Given the high value of the index, depth of strike profile, and variety of tenors, roughly 2,000 strikes are traded daily in NDX index options.

- **NDX index options average closing value (2023):** 14,192.94 (average notional value of 1 NDX contract = $1.42 million)
- **NDX index options average closing value (2024 YTD):** 18,383.69 (average notional value of 1 NDX contract = $1.84 million)

For each day and each strike, Nasdaq Economic Research analyzed the time weighted average spread. In other words, they weighted every spread throughout the day relative to its duration at the National Best Bid and Offer (NBBO). They reported the results in two ways. The nominal spread in $ and the relative spread as a % of the option premium. The Economic

Research team went one step further and examined the spreads you can expect at various moneyness intervals by volume-weighting the data across the strikes. The most active strikes are therefore weighted more heavily than those that were more thinly traded. Volume, the lifeblood of an exchange, is a function of liquidity. The strikes with the most volume are most representative of what the effective spreads look like across an observation period.

Ultimately, there is an "average" relative and nominal spread for strikes within a range of moneyness and duration for both calls and puts. The time-weighted average spread is volume weighted across strikes for a full expiration cycle. It's a tremendous amount of data in an increasingly data driven world. It's a representative and accurate measure of what one could expect a spread to be in a given moneyness/maturity bucket.

More succinctly, it's a virtuous cycle at work. Assets increasing volumes, narrowing spreads, attracting more volumes, which further narrows spreads. And so on.

These are our expert Kevin Davitt's thoughts referencing a full market quality report; to access the report, reach out to Nicholas Smith.

Data Highlights

NDX index options have had the full suite of expiries, including every trading day of the week, since late 2022. Institutional and individual end users have seemingly found a variety of ways to monetize these tools. Short-dated NDX index options volumes continue to grow, which has been incentivized by significantly narrower spreads.

Examples:

July 2023 expiry cycle (6/19/23 – 7/21/23): The ATM expiring ("0DTE") options had an average spread of 9.42%.

July 2024 expiry cycle (6/17/24 – 7/19/24): The ATM expiring ("0DTE") options had an average spread of 4.22%.

Translation: Bid/Ask spreads for ATM 0DTE options were cut in half.

Let's consider a different use case for the data. Institutions and individuals are typically concerned about drawdowns. They might track 5% OTM put options with more than 3 months until expiration. How did bid/ask spreads behave over the analysis period?

July 2023 expiry cycle (6/19/23 – 7/21/23): The 5% OTM puts with 90DTE+ had an average spread of 1.72%.

July 2024 expiry cycle (6/17/24 – 7/19/24): The 5% OTM puts with more than 90 DTE had an average spread of 1.38%.

Translation: Longer dated 5% OTM put options saw spreads narrow by roughly 20%. Keep in mind these are high dollar options, so the spread improvement is meaningful.

Source: Nasdaq

Conclusion

There has been a demand-driving shift in the competitive landscape for NDX index options. 21st century portfolios more closely resemble the NDX index. The need for flexible derivative tools to potentially enhance yield and manage directional risk in a capital efficient manner continues to bolster volumes. The combination of Nasdaq's matching engine, shifting investor preferences and improved market structure kicked off an increase in volumes that brought about a virtuous cycle. It's a dynamic new marketplace. The significant improvement in NDX index options liquidity will continue to fuel growth into 2025.

There is an alternative in the index options corner whether you're looking to express a view, manage exposure, potentially outperform a benchmark or complement your current derivatives book – take a look at the new NDX.

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