Innovation Beyond Borders: The Case for Nasdaq International Patent Leaders™ (NQIPL™)

November 2026

Mark Marex, *CFA,* Global Head of Nasdaq Index Insights
Sal Bruno, *CETF®, Senior Director*, Head of Americas Nasdaq Index Insights
Sanjana Prabhakar, *Senior Specialist*, Nasdaq Index Insights

Key Takeaways from Our Analysis of NQIPL's Methodology & Investment Case

- **NQIPL's Patent Screen Likely Adds Performance Alpha:** Backtest attribution analysis suggests the patent-value selection methodology adds meaningful, differentiated performance improvement above and beyond what sector and country tilts alone would have produced. In the 10-year index backtest, the patent screen appears to have contributed approximately 50 percentage points of hypothetical incremental return that cannot be explained by tilts alone.
- **Live Track Record Strengthens the Investment Case:** The ~29 percentage point outperformance of NQIPL versus MSCI ACWI ex-U.S. from June 30, 2024 through September 30, 2026 indicates powerful out-of-sample evidence that the strategy's source of alpha continued beyond the backtested period. 90 of NQIPL's constituents produced positive performance during the live period, and within MSCI ACWI ex-U.S., NQIPL companies outperformed non-NQIPL companies by approximately 2x on average.
- **Breadth Beyond Semiconductors:** TSMC, Samsung Electronics, SK Hynix and ASML contributed materially to performance, while positive contributions across a broader set of constituents demonstrate that the strategy's innovation exposure extends beyond its largest semiconductor holdings.
- **Valuation Case Is Resilient but Earnings-Dependent:** At 11.22x forward P/E[1], NQIPL trades at a 24% discount to the MSCI EAFE Index at 14.9x – a meaningful valuation gap versus international peers. However, that discount is contingent on consensus expectations for 61% forward EPS growth, compared to 17% for the MSCI EAFE, with the bulk of NQIPL's earnings gap concentrated in memory semiconductor companies.
- **NQIPL Brings a Differentiated Lens to International Equities:** NQIPL complements traditional international equity allocations by introducing an innovation lens. Rather than relying solely on conventional market-cap-based exposure, the strategy systematically selects 100 companies using

[1] Note: P/E reflects the 12-month forward price-to-earnings ratio. Forward EPS represents consensus earnings estimates for the next 12 months on a rolling basis. Data as of November 9, 2026.

patent-based measures intended to identify businesses with durable technological and intellectual property strength.

Rethinking International Equity Allocations

Most international equity strategies offer undifferentiated, market-cap-weighted exposure — with no systematic mechanism to identify the companies driving the next wave of global innovation. The result is that allocators seeking international diversification often receive broad-market exposure with limited tilt toward the companies at the forefront of innovation – which has been a primary driver of performance dispersion across the US equity market for most of the 21st century. NQIPL is designed to address this problem. By applying a patent-value selection framework across 100 companies in developed and emerging markets outside the U.S., NQIPL seeks to provide a systematic, rules-based way to access the international innovation premium — without relying on subjective active management or conventional financial metrics alone.

Live Track Record: Outperformance That Matters

From June 30, 2024 through September 30, 2026, NQIPL gained 81.4% on a total return basis, outperforming the MSCI ACWI ex-U.S. Index's 52.5% total return by 28.9 percentage points[2]. This outperformance was not concentrated in one or two quarters, nor was it a four-stock story. 90 of NQIPL's 100 constituents produced positive contributions during the live period. NQIPL companies outperformed non-NQIPL MSCI ACWI ex-U.S. companies by approximately 2x on average.

Why NQIPL Over a Broad International Allocation?

The relevant comparison is not between NQIPL and a risk-free alternative — it is between broad market-cap-weighted international exposure and a targeted allocation to 100 companies selected on the strength of their patent portfolios.

NQIPL's differentiation rests on three dimensions:

- Selection signal: Patent value is a forward-looking, non-financial measure of innovation strength. Unlike quality or momentum factors, which are derived from reported financials or recent price behavior, patent data can identify companies developing differentiated technologies whose economic potential may not yet be reflected in current fundamentals.
- Concentration in IP leaders: The top 100 ex-U.S. companies by patent value represent approximately 88% of total patent value across 1,600 ex-U.S. companies in NQGXUSLM — and approximately 3x the patent value of the next 100 ranked companies. NQIPL concentrates exposure precisely where intellectual property value is most dense[3].
- Multiple sources of outperformance: Backtest attribution suggests that NQIPL's outperformance was supported by two complementary effects: favorable industry and country tilts that emerged from the

[2] Source: Bloomberg
[3] Source: Nasdaq, IPR Strategies. Patent data as of December 31, 2025. Index data as of December 31, 2025

patent-value selection process, and stock selection *within* those exposures associated with the patent screen.

Built on What was Known: Maintaining Backtest Integrity Through Point-in-Time Data

Nasdaq's external data contributor in the NQIPL index methodology – IPR Strategies – has developed a track record of expertise around patent valuation dating back multiple decades. IPR's systematic approach to patent valuation seeks to mitigate hindsight bias through a point-in-time data architecture, reconstructing historical datasets using only information that would have been available at each selection date. By contrast, applying a single snapshot of current data retrospectively can introduce look-ahead bias, potentially overstating historical backtest results. While IPR's patent valuation algorithm and dataset were launched in 2015, the valuation history extends back to January 2007 and is evaluated retrospectively using this framework.

Each underlying data point is timestamped according to its publication date, allowing historical measures to be reconstructed as they would have appeared at the time. For example, the historical size of a Cooperative Patent Classification (CPC[4]) class is calculated using only patents published as of the relevant date. Similarly, historical patent ownership is reconstructed using the contemporaneously available legal-status information associated with each individual patent. This data-intensive process is designed to provide a more reliable representation of the historical information set and reduce look-ahead bias, which can arise when a current snapshot of data is applied retrospectively.

Beyond Country and Sector Tilts: Isolating the Incremental Value of the Patent Screen

A key consideration for investors is whether NQIPL's historical performance has been driven primarily by the patent-value selection methodology, or perhaps by favorable exposure to certain outperforming countries and industries. To examine this, we took NQIPL's starting universe – the Nasdaq Global ex-US Large Mid Cap™ Index (NQGXUSLM™) – and designed backtests to segment the returns into individual industries and countries. We then re-constructed the Global ex-US starting universe using the same industry, then the country weights in NQIPL's published backtest history, and compared to the industry/country returns from the Global ex-US backtest (that have no patent screening). Over the backtest period from March 21, 2014 to June 21, 2024, NQIPL generated a cumulative price return of 102.2%, compared with 51.0% for the sector-matched portfolio, 53.0% for the country-matched portfolio, and 23.8% for NQGXUSLM.

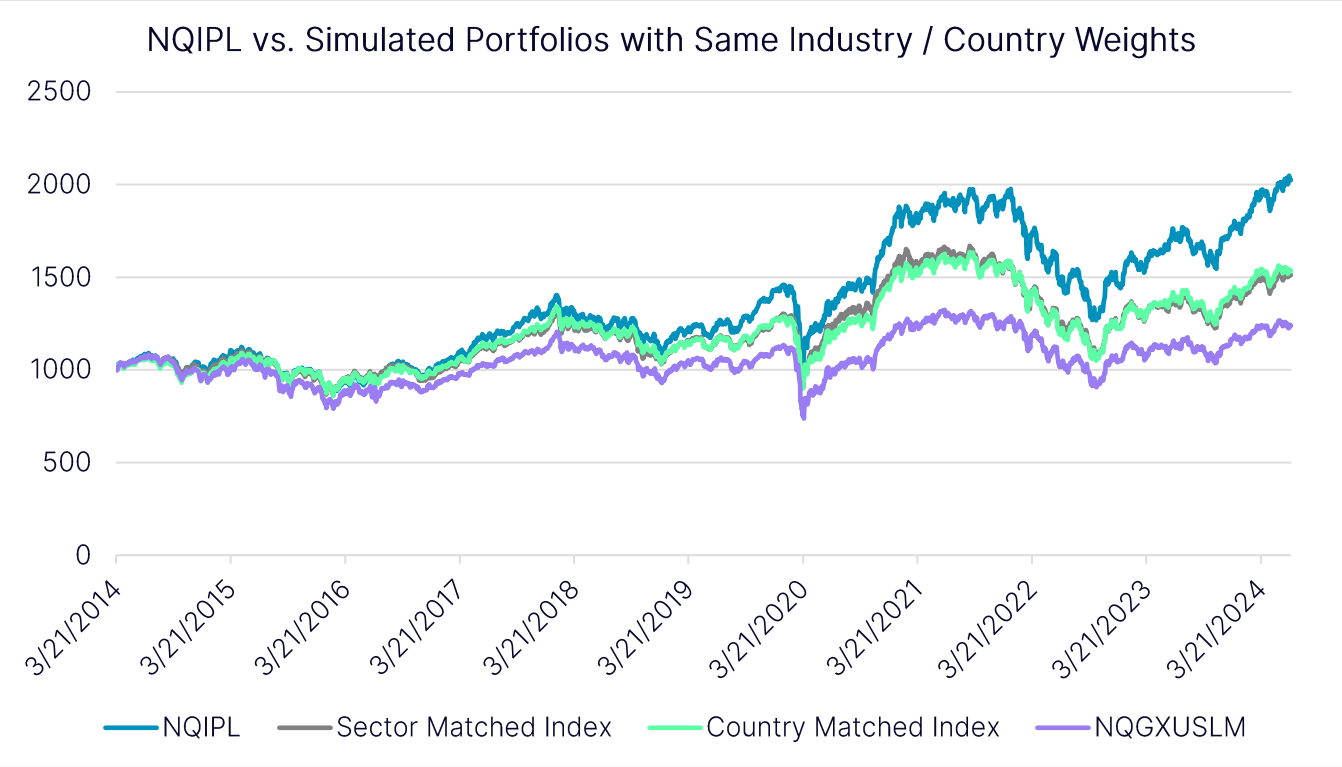
Summary of Portfolio Performance (Price Return Basis)	
Index	Price Return (3/21/2014-6/21/2024)
NQIPL	102.21%
Sector Matched Index	50.96%
Country Matched Index	53.02%
NQGXUSLM	23.75%

[4] CPC is a comprehensive, hierarchical patent classification system jointly managed by the European Patent Office (EPO) and the United States Patent and Trademark Office (USPTO). It groups patents by technological subject matter and is calculated using only patents published as of the relevant date.

The results support two independent conclusions:

- Tilt alpha: NQIPL's industry and country tilts — the natural output of selecting on patent value — produced outperformance over the unscreened NQGXUSLM universe, even before stock selection is considered.
- Selection alpha: NQIPL outperformed the synthetic tilt-only portfolio by approximately 50 percentage points, suggesting that selecting the highest patent-value companies within each industry and country generated returns above and beyond what the tilts alone would have produced.

The backtest spans March 2014 through June 2024 — a full decade including multiple semiconductor cycles: the 2015–2016 downturn, the 2018–2019 trade war correction, the 2020 COVID disruption, the 2021–2022 inventory correction, and the 2023–2024 AI-driven recovery. Both tilt alpha and selection alpha are present across this full period, suggesting the results were not confined to a single market regime.



More than Four Stocks: Concentration, Contribution and Downside Risks

Over NQIPL's live index history from June 30, 2024 through September 30, 2026, TSMC, Samsung Electronics, SK Hynix, and ASML contributed a combined 38.7 percentage points to NQIPL's return, representing an average weight of 23.2%. The same four companies contributed only 9.9 percentage points to MSCI ACWI ex-U.S., where they represented an average weight of 6.8%. Their larger representation in NQIPL explains a substantial portion of relative performance.
However, the strategy is not a four-stock story.

Breadth of Contribution

Analysis	Key Finding
Breadth of Contribution	**90 of 100** NQIPL constituents contributed positively during the live period
NQIPL vs. benchmark constituents	**125 overlapping constituents** with MSCI ACWI ex-U.S. contributed **18.5 percentage points** to the benchmark's total return
Average constituent return	NQIPL overlap: **58.5%** vs. **29.5%** for the remaining **2,256** non-NQIPL constituents in MSCI ACWI ex-U.S.
Innovation Leadership Extends Across Sectors	**Siemens, ABB, Hitachi, Schneider Electric, and Airbus** were strong contributors demonstrating that the patent-value selection methodology captures innovation leaders across sectors.
Detractors	**Nestlé and L'Oréal** were among the limited detractors

Semiconductor Cycle Risk – Key Considerations

- **Structural mitigants**: HBM requires 3–4x more wafers per unit than traditional DRAM, creating a durable demand floor that prior cycles lacked. While the shift from training toward inference and agentic AI reduces memory per processing unit at the margin, GPU memory intensity remains substantially above CPU levels — keeping aggregate memory content per server well above historical norms and moderating the pace of any cyclical correction.
- **Principal downside risk**: A cyclical reversal in semiconductor capital spending after the AI-driven surge, potentially compounded by weaker AI-monetization sentiment or political headwinds, could lead hyperscalers to defer capex.
- Second-Order Risk: Data-center delays would push out AI-chip demand, potentially creating an air pocket in the semiconductor supply chain and delaying capacity investments and equipment orders.

Core, Satellite or Something in Between: NQIPL and the Innovation Sleeve

Innovation Tilt: Geographic and Value-Chain Diversification, Not Thematic

NQIPL can serve as a targeted innovation allocation within an investor's international equity sleeve, providing a systematic way to overweight companies with stronger patent-based innovation characteristics than their peers. In this respect, its potential role is analogous to how the Nasdaq-100® is often used to introduce a growth and innovation tilt within U.S. equity exposure. Importantly, pairing NQIPL with a U.S. growth allocation does not necessarily provide thematic diversification. Several of NQIPL's largest technology and semiconductor exposures, including TSMC, Samsung Electronics, and SK Hynix, participate in the same AI investment cycle benefiting U.S. companies such as NVIDIA, AMD, and Microsoft. The diversification is therefore more geographic and value-chain oriented than thematic, with international companies providing exposure to semiconductor manufacturing, memory, equipment, and other physical infrastructure that complements the applications, platforms, and compute exposure prevalent in U.S. growth portfolios.

International Equity, Reimagined: How a Patent-Driven Framework Produces a Fundamentally Different Portfolio

NQIPL's sector composition reinforces this innovation orientation. As of October 30, 2026, Technology represents 39.0% of the portfolio, more than two times the weight of the next-largest sector. Industrials (17.3%) and Consumer Discretionary (14.8%) broaden the opportunity set beyond Technology, while Health Care (9.3%) introduces exposure to patent-intensive pharmaceutical companies. Financials account for just 0.6%[5]. The near-absence of Financials and the overweight to Technology, Industrials, and Consumer Discretionary illustrate how a patent-value selection framework produces a materially different sector profile from a traditional international allocation. Compared to the Nasdaq-100, NQIPL's lower Technology concentration (39% vs. 65.5%) and broader sector exposure can complement portfolios already tilted toward U.S. growth and mega-cap Technology. This broader sector mix may provide diversification for investors whose existing allocations already carry substantial implicit Technology exposure, while reducing sensitivity to Technology-specific risks, including regulatory headwinds and valuation compression among mega-cap companies.

Why Absolute Patent Value is Central to NQIPL's Selection Process

The methodology uses absolute patent value rather than relative measures such as patent value as a percentage of enterprise value, patent-value growth, or R&D as a percentage of sales. This choice reflects the underlying investment thesis: identifying the companies that represent the largest concentrations of valuable intellectual property, rather than those with the highest patent intensity or fastest growth in patent value.

The distribution of patent value provides support for this approach. The Top 100 ex-US companies (ranked by patent value) represented ~10x the patent value of the next 100 ranked companies and represented ~80% of the total patent value across 1,600 ex-US companies in NQGXUSLM. This is a classic power law distribution — value is heavily concentrated at the top, and the drop-off beyond rank 100 is steep and non-linear. Going beyond the Top 100 captured companies with marginal incremental patent value and generally weaker performance. During the index development process, backtesting across broader selections showed that the Top 100 outperformed the Top 200, Top 300, and remaining NQGXUSLM universe. Taken together, these results support concentrating the strategy among the companies with the largest absolute patent-value footprints.

Why Market Capitalization Is the Preferred Weighting Approach

The strategy's development also evaluated market-cap weighting alongside equal-weighting, and patent-value weighting. The performance advantage of market-cap weighting is consistent with the same power law logic that drives selection: the largest companies by market cap tend to also be the largest by absolute patent value, so market-cap weighting naturally concentrates exposure in the highest-value IP holders. Within the Top 100, the market-cap-weighted portfolio outperformed the Top 100 equal-weighted, Top 100 patent-value-weighted, and Top 100 patent-value % of market-cap alternatives.

[5] Source: Nasdaq Global Indexes. Industry weights as of October 30, 2026. Sector classifications based on the Industry Classification Benchmark (ICB).

Conclusion: Investing in International Patent Leaders

Across successive technological eras, intellectual property has been an important source of competitive advantage and value creation, arguably never more so than during the 21st century. Companies with valuable patents, proprietary processes, and differentiated technologies are better positioned to strengthen market positions and translate intellectual capital into economic value.

This paper supports two conclusions that are likely interesting for investors. First, the index's patent screen appears to add an independent source of potential alpha in the published backtest. The backtest attribution covering March 2014 through June 2024 demonstrates that NQIPL's outperformance reflects multiple sources of alpha: favorable industry and country tilts that are the natural output of selecting on patent value, and superior stock selection within those tilts that is attributable to the patent screen itself.

Second, the live track record to date is consistent with the thesis. The 28.9 percentage point outperformance versus MSCI ACWI ex-U.S. from June 30, 2024 through September 30, 2026 was generated under real-world conditions. Within MSCI ACWI ex-U.S., NQIPL companies outperformed non-NQIPL companies by approximately 2x on average. The strategy cannot be reduced to a four-stock story: during the live period, positive contributions came from companies across full portfolio.

For investors building international equity allocations, the relevant comparison is not between NQIPL and a risk-free alternative, but between broad market-cap-weighted exposure to the international equity universe and a more targeted allocation to 100 companies selected on the strength of their patent portfolios. The result is a deliberate tilt toward companies demonstrating measurable innovation through their intellectual property.

Disclaimer:

Nasdaq®, Nasdaq International Patent Leaders™, NQIPL™ and NQGXUSLM™ are registered trademarks of Nasdaq, Inc. The information contained above is provided for informational and educational purposes only, and nothing contained herein should be construed as investment advice, either on behalf of a particular security or an overall investment strategy. Neither Nasdaq, Inc. nor any of its affiliates makes any recommendation to buy or sell any security or any representation about the financial condition of any company. Statements regarding Nasdaq-listed companies or Nasdaq proprietary indexes are not guarantees of future performance. Actual results may differ materially from those expressed or implied. Past performance is not indicative of future results. Investors should undertake their own due diligence and carefully evaluate companies before investing. ADVICE FROM A SECURITIES PROFESSIONAL IS STRONGLY ADVISED.

© 2026. Nasdaq, Inc. All Rights Reserved.

Information set forth contains forward-looking statements that involve a number of risks and uncertainties. Nasdaq cautions readers that any forward-looking information is not a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking information. Forward-looking statements can be identified by words such as "expected," "likely", and other words and terms of similar meaning. Such forward-looking statements include, but are not limited to, statements related to the expected performance and potential portfolio role of the Nasdaq International Patent Leaders™ Index, forward earnings and valuation expectations, and semiconductor and AI demand cycles. Forward-looking statements involve a number of risks, uncertainties or other factors beyond Nasdaq's control. These risks and uncertainties are detailed in Nasdaq's filings with the U.S. Securities and Exchange Commission, including its annual reports on Form 10-K and quarterly reports on Form 10-Q which are available on Nasdaq's investor relations website at http://ir.nasdaq.com/ and the SEC's website at http://www.sec.gov. Nasdaq

undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise.