

A SMARTER WAY TO APPROACH SMALL CAP INVESTING

A Deep Dive into the Nasdaq US Small Cap Select Leaders Index

By Gaurav Pendse and Efram Slen | Nasdaq Global Indexes

INTRODUCTION /

Selecting stocks based on factors, such as sustainable yield, earnings growth and value, and momentum can significantly enhance a portfolio's return over the long run. The following research will discuss the Nasdaq US Small Cap Select Leaders Index and provide a deep dive into its methodology and underlying factors on which the index is constructed. First, the piece will cover the case for small cap stocks. Then, it will provide the benefits of utilizing the aforementioned factors, and finally show the reasons as to why this index and the product tied to it, the Principal US Small Cap Index ETF (PSC), can potentially provide investors superior returns.

THE CASE FOR SMALL CAP STOCKS /

When investors decide to allocate funds to various investments, one area that's often overlooked is small cap stocks, as they are perceived to be too risky. While the risk level is there, small cap stocks, as the chart below highlights, have historically outperformed large cap and mid cap stocks.

SMALL CAP VS. LARGE CAP AND MID CAP

NASDAQ US SMALL CAP TR INDEX
 NASDAQ US MID CAP TR INDEX
 NASDAQ US LARGE CAP TR INDEX



From 3/30/2001 - 10/28/2016

As research conducted by Lazard Asset Management highlights, the reasons for small cap outperformance challenged the traditional Capital Asset Pricing Model (CAPM). The CAPM model valued a company only by its systematic risk. Valuing a company on additional factors, however, such as its market size and value, introduces a more robust technique for valuation.

According to the research, the outperformance of small cap stocks versus large caps was due to an element of risk unique to small cap stocks, as small cap stocks do not generally have the same funding options as larger companies do, and they are more dependent on bank and equity financing¹. Investors are, therefore, compensated for this additional level of risk.

PERFORMANCE STATISTICS	RETURN	ANNUALIZED RETURN	AVERAGE DAILY RETURN	ANNUALIZED VOLATILITY	SHARPE RATIO	MAX DRAWDOWN
Nasdaq US Large Cap TR Index	156.84%	6.25%	0.03%	19.40%	0.322	-53.33%
Nasdaq US Mid Cap TR Index	314.48%	9.57%	0.05%	21.44%	0.446	-58.22%
Nasdaq US Small Cap TR Index	361.56%	10.33%	0.05%	23.73%	0.435	-59.99%

From 3/30/2001 - 10/28/2016

The table above shows that while small cap stocks are riskier, due to their higher annualized volatility, the annualized returns are higher than those of large cap and mid cap stocks (although the Sharpe Ratio is slightly lower for small cap stocks than it is for mid cap stocks).

The chart and table above illustrate that the consistency of small cap outperformance over large cap and mid cap stocks reveals that investors should consider allocating more resources to these stocks.

SMART SELECTION /

One can improve the Sharpe Ratio in the table above for small cap stocks which may result in superior risk-adjusted returns by selecting companies based on certain strategies. The following will discuss the three key strategies, which are utilized to select the components for the Nasdaq US Small Cap Select Leaders Index: Shareholder Yield, Price Setters, and Momentum.

Shareholder Yield:

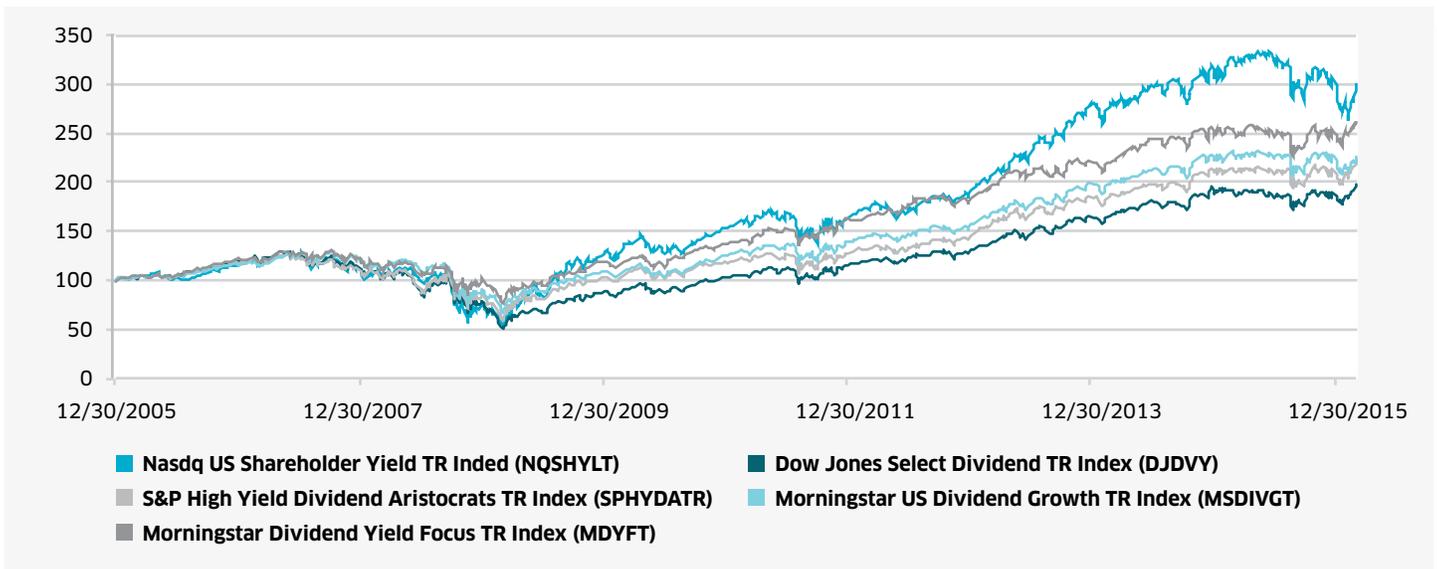
Shareholder Yield is a strategy that selects stocks based on a combination of companies that pay dividends, buy back stock, and generate positive cash flow. The importance of this is that companies that consistently provide shareholders with all three of these categories not only offer a great yield to investors but also show the ability to continue to have those yields going forward. The factors used in determining whether or not a company adheres to these three categories are as follows:

#	FACTOR
1	Buyback Yield
2	Dividend Yield
3	Dividend Payout Per Share
4	Dividend Yield Historical Valuation (3-Year & 5-Year)
5	Dividend Growth (1-Year, 3-Year, & 5-Year)
6	Free Cash Flow to Price
7	Free Cash Flow Growth 3-Year Sharpe Ratio
8	Free Cash Flow Growth (1-Year, 3-Year, & 5-Year)
9	EBITDA to Debt

These nine factors encompass this strategy, and are the basis of the Nasdaq US Shareholder Yield Index. Although this index consists of large and mid-cap stocks, it is also applied in the Nasdaq US Small Cap Select Leaders Index to determine the small cap stocks that are best positioned to maximize yield to investors. This is potentially a huge benefit in further improving the returns when investing in small cap stocks.

For further research on the Shareholder Yield strategy, please refer to the following: Business.Nasdaq.Com/ShareholderYieldResearch.

An excerpt from the aforementioned research, to show the strength of the shareholder yield factor from a performance perspective, here is the chart of the Nasdaq US Shareholder Yield TR Index vs competing dividend indexes:



Price Setters:

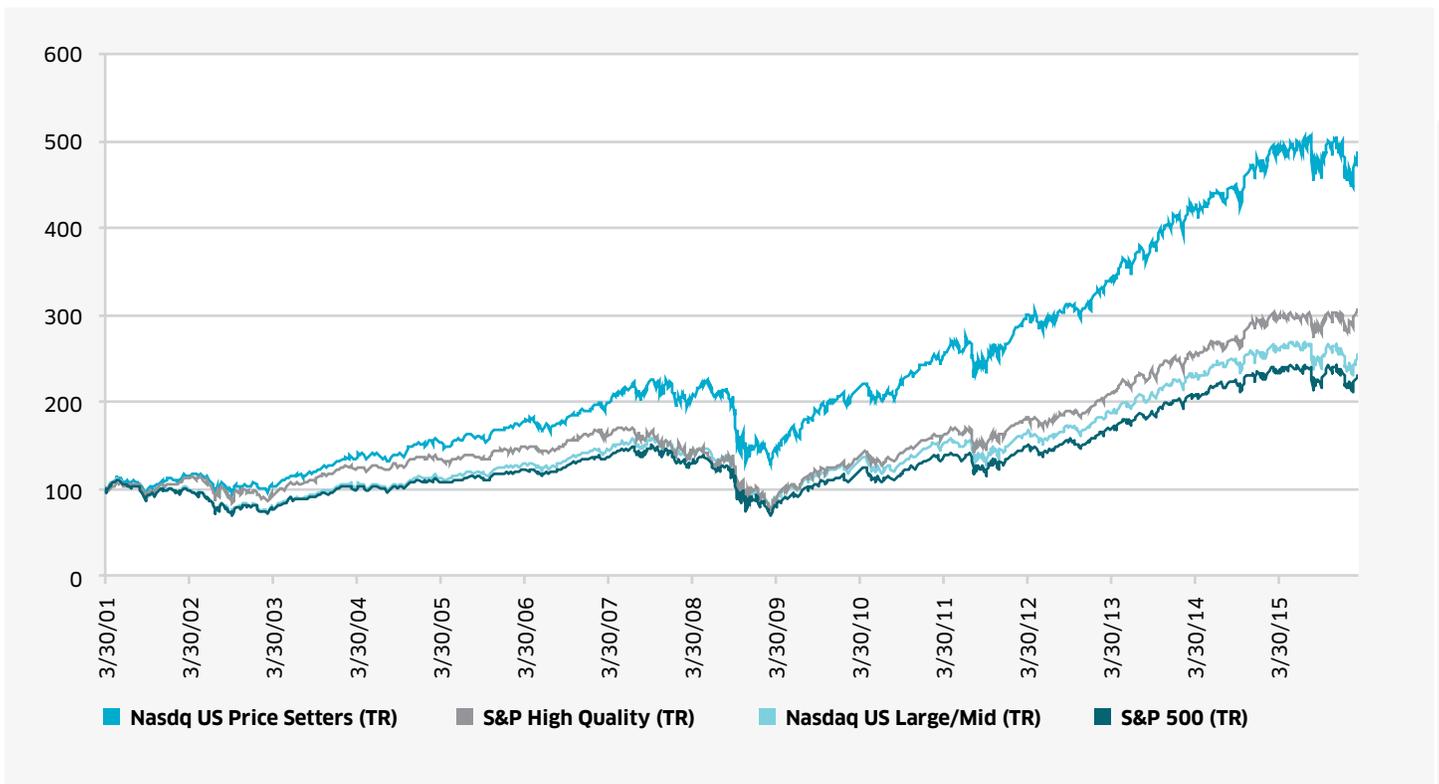
Price Setters is a strategy that selects companies that exhibit sustainable pricing power. Various factors are used to determine those companies that provide inflation protection as well as consistent sales growth and earnings quality. The following table summarizes these factors:

INFLATION FACTORS	
1	1-Year EPS Growth
2	3-Year EPS Growth
3	Operating Margin
4	1-Year Operating Margin Growth
5	3-Year Sales Growth
QUALITY FACTORS	
1	Return on Equity
2	Earnings Smoothness
3	Earnings Quality
4	Operating Margin Stability
5	Earnings Dispersion
6	12-Month Return Volatility

This strategy is currently utilized in the Nasdaq US Price Setters Index (which consists of large and mid-cap stocks). A similar strategy, utilizing the factors above, is used in the Nasdaq US Small Cap Select Leaders Index. As the research conducted on the Nasdaq US Price Setters Index highlights, companies that display high earnings quality can remain competitive in the market as inflation and interest rates move higher, thus revealing that they exhibit sustainable pricing power relative to their peers. As such, in addition to the Shareholder Yield strategy mentioned above, selecting small cap companies that have strong earnings and sales qualities as well as inflation protection may provide investors with not only yield growth moving forward but also strong capital appreciation.

For further research on the Price Setters strategy, please refer to the following: Business.Nasdaq.Com/PriceSettersResearch.

An excerpt from the aforementioned research, to show the strength of the price setters factor from a performance perspective, here is the chart of the Nasdaq US Price Setters TR Index vs competing indexes.



Momentum:

Momentum refers to the tendency of a certain asset which has outperformed in the recent past, to continue to outperform in the future. While some people view momentum as an “alpha” strategy, research conducted by Salient Partners demonstrates that the Arbitrage Pricing Theory (APT), a variation of the CAPM model, utilizes momentum as an “alternative beta” factor rather than an “alpha” factor². In other words, the returns generated from a momentum strategy are only generated from systematic exposure to a particular risk factor rather than any excess returns from beating the market (“alpha”). So, similar to the market size of a company (as mentioned above) or value, momentum is an alternative risk factor that can be utilized to select small cap companies that display high degrees of price momentum relative to their own risk factor. As a result, layering the Momentum strategy along with the Shareholder Yield and Price Setters strategies for small cap companies has the potential to provide investors with superior risk-adjusted returns.

CONSTRUCTING THE NASDAQ US SMALL CAP SELECT LEADERS INDEX /

The Nasdaq US Small Cap Select Leaders Index combines the Shareholder Yield, Price Setters, and Momentum strategies described above on the small cap universe (Nasdaq US Small Cap Index). In order to be eligible in this index, a company must be part of the Nasdaq US Small Cap Index (NQUSS), be in the top 90th percentile of the Nasdaq US Benchmark Index (NQUSB) in terms of three-month average daily dollar volume, and have a minimum three-month trading history. In addition, a company has to be in the top 20th percentile of the Final Rank (process explained below) or be in the top

50th percentile of the Final Rank, if and only if the company was in the index in the prior period.

In order to combine the three aforementioned strategies into this index, all the companies in NQUSS are ranked according to their individual Shareholder Yield, Price Setters, and Momentum ranks. These three ranks determine the degree in which a security in NQUSS exhibits high degrees of sustainable shareholder yield (value factor), pricing power (quality growth factor), and momentum, respectively. After the individual ranks are calculated for each security in NQUSS, the ranks are normalized by the ICB industry classification of each security, which enables the three

individual ranks to be sector-neutral. These three normalized ranks are then averaged to determine a preliminary Score for each security. A Final Rank is calculated by ranking the preliminary Score for each security within each industry, where the higher average daily dollar volume breaks any ties in the preliminary Score. The Final Rank is used in the eligibility screen, as described above, to determine the final basket of securities in the index.

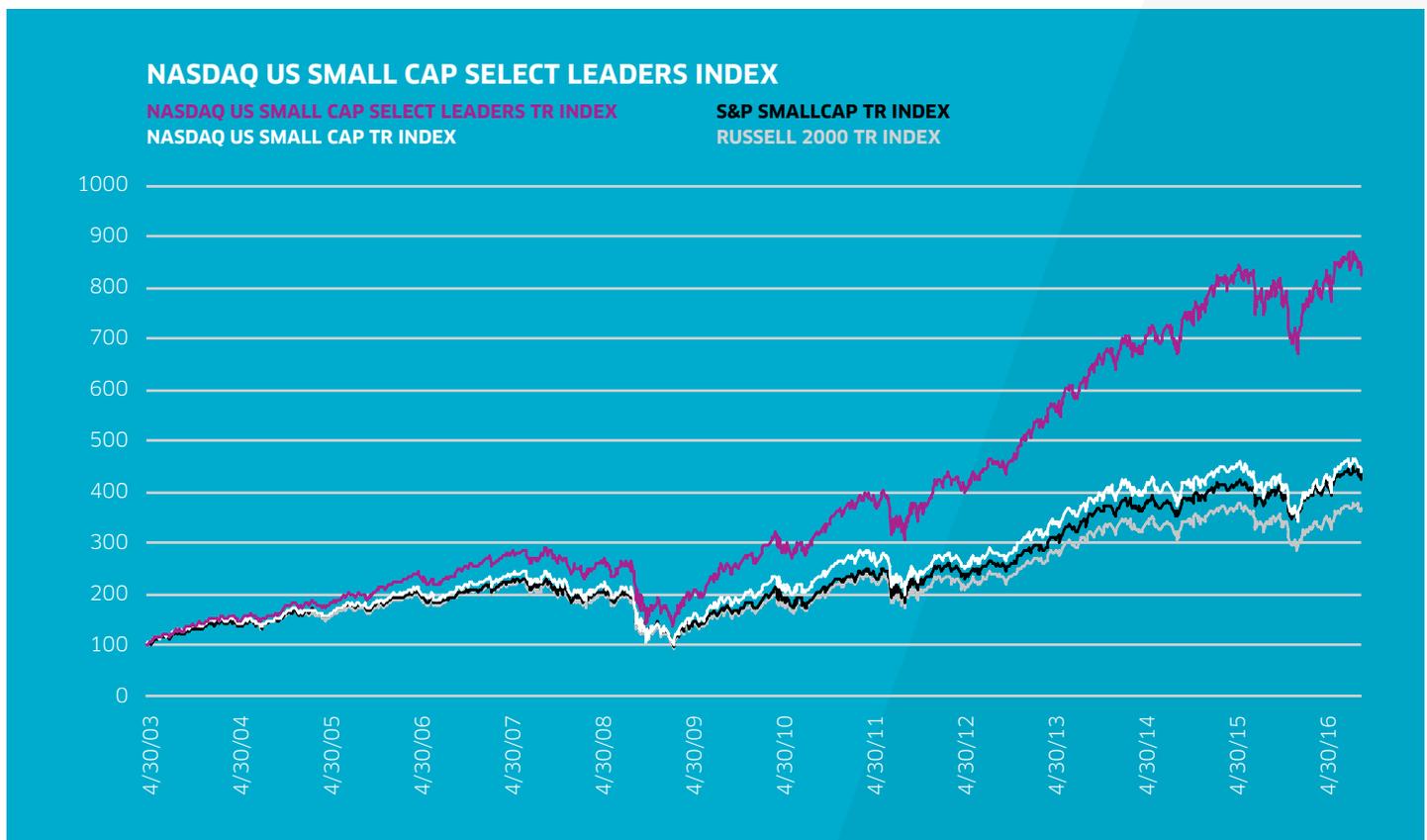
After the basket is selected, the index then employs a modified liquidity weighting methodology. This is derived by first calculating a liquidity-volatility score: multiplying the three-month average daily dollar volume of each security by the average three-month volatility of the Nasdaq US Small Cap universe and dividing that by the three-month annualized volatility of the corresponding security. Next, the liquidity-volatility score is then used to determine the

preliminary weight of each security. The final weight modifies the preliminary weight so that the industry weights match the NQUSS Benchmark Industry Weights and the weight of each security is capped at 0.7%, with redistribution of excess weight evenly across all securities within the same industry.

The above shows that the Nasdaq US Small Cap Select Leaders Index employs a very robust methodology for selecting companies from the small cap universe. It adequately utilizes the individual Shareholder Yield, Price Setters, and Momentum strategies described above to determine securities that have strong momentum and have the highest chances of providing investors with sustainable yield and strong growth. Once this basket of securities is determined, the most liquid and least volatile components are then given the highest weight, providing investors with a tradable basket that reduces the overall volatility.

INDEX PERFORMANCE /

The outperformance of the Nasdaq US Small Cap Select Leaders Index is significant, as shown in the chart below compared to the S&P Small Cap 600 Index, Russell 2000 Index, and the benchmark, the Nasdaq US Small Cap Index, back to inception in 2003.



From 4/30/2003 - 10/28/2016

PERFORMANCE STATISTICS	RETURN	ANNUALIZED RETURN	AVERAGE DAILY RETURN	ANNUALIZED VOLATILITY	SHARPE RATIO	MAX DRAWDOWN	INFORMATION RATIO	ALPHA
Nasdaq US Small Cap Select Leaders TR Index	722.87%	16.90%	0.07%	22.15%	0.763	-53.53%	1.737	46.02%
S&P Small Cap 600 TR Index	320.53%	11.23%	0.05%	23.19%	0.484	-58.30%	-0.117	-2.98%
Russell 2000 TR Index	256.10%	9.87%	0.05%	24.45%	0.404	-58.89%	-0.743	-14.75%
Nasdaq US Small Cap TR Index	338.49%	11.58%	0.06%	23.65%	0.49	-59.99%	--	--

From 4/30/2003 - 10/28/2016 (Benchmark for Alpha and Information Ratio comparison is Nasdaq US Small Cap Index)

Specifically, as shown in the table above, the risk-adjusted return for the Nasdaq US Small Cap Select Leaders Index is approximately 58% higher than the next best Sharpe ratio and the max drawdown is lower than the other indexes by 5% or more. Relative to the Nasdaq US Small Cap Index benchmark, the Nasdaq US Small Cap Select Leaders Index has a significantly better Information ratio and Alpha, whereas the other two benchmark indexes have negative Information Ratio and Alpha values. This shows that the Nasdaq US Small Cap Select Leaders Index has historically outperformed and generated significant positive excess returns over the Nasdaq US Small Cap Index and the S&P and Russell small cap benchmarks.

ANNUALIZED RETURNS	NASDAQ US SMALL CAP SELECT LEADERS TR INDEX	S&P SMALL CAP 600 TR INDEX	RUSSELL 2000 TR INDEX	NASDAQ US SMALL CAP TR INDEX
1Y	2.47%	4.35%	2.29%	4.08%
3Y	8.33%	5.50%	3.45%	4.16%
5Y	16.83%	12.89%	10.86%	11.79%
10Y	12.80%	7.62%	5.94%	7.52%
Since 2003	16.90%	11.23%	9.87%	11.58%

From 4/30/2003 - 10/28/2016

FINANCIAL METRICS	NASDAQ US SMALL CAP SELECT LEADERS TR INDEX	NASDAQ US SMALL CAP TR INDEX
Price/Book Ratio	2.23	1.98
Price/Earnings Ratio	21.25	44.39
Return on Equity	14.07%	1.53%
Return on Assets	5.38%	-0.53%
Debt/Equity	1.01	1.28
Free Cash Flow/Debt	1.92	1.73

As of 10/31/2016 (Negative component level values are included in calculations for all ratios unless otherwise stated)

The various financial metrics in the following table show that the Nasdaq US Small Cap Select Leaders Index has better financials than the overall small cap universe. The components in the index have generated higher return on equity and return on assets, while being less leveraged and having more free cash flow relative to debt.

CONCLUSION /

The analysis in this piece reveals that even though small cap stocks have generated higher returns than large or mid-cap stocks, utilizing a smart selection methodology based on certain strategies generates significantly higher returns while reducing the volatility. The Nasdaq US Small Cap Select Leaders Index employs three such strategies: Shareholder Yield, Price Setters, and Momentum. Together, these three strategies select components from the Nasdaq US Small Cap Index that have the most sustainable yield, strong earnings quality and inflation protection, and trending price momentum. Once the combination of these strategies is used to select the basket in each period, a liquidity-volatility metric is used to weight the components so that the least volatile and most liquid components have the highest weight. As is evident from the performance analysis, with this methodology, the Nasdaq US Small Cap Select Leaders Index has historically had far superior returns with lower max drawdown and volatility relative to the other small cap indexes. As a result, this analysis reveals that the strategies utilized in this index not only select components that have performed well historically but ones that may also provide strong yield, earnings growth, and momentum moving forward. Investors looking to track the Nasdaq US Small Cap Select Leaders Index can invest in the product tied to this index, the Principal US Small Cap Index ETF (PSC).

For more information about Nasdaq's Smart Beta offering, please visit our website business.nasdaq.com/smartbeta or contact us at n.nasdaq.com/GIG_ContactUs.

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Footnotes:

1. http://www.lazardnet.com/us/docs/sp0/14693/SmallCapsLargeOpportunity_LazardInvestmentFocus.pdf?pagename=Investment+Focus
2. <http://www.salientpartners.com/wp-content/uploads/whitepaper-momentum-primer.pdf>
3. All data from charts/tables is from Nasdaq, FactSet, or Bloomberg, unless otherwise stated.
4. The Nasdaq US Small Cap Select Leaders Index launched on September 19, 2016. All index data prior is back-tested.