

# Winning on a Foundation of Capital Strength

## The Capital Strength Index (NQCAPST)

Nasdaq Index Research

### Executive Summary:

This research takes a deep dive into The Capital Strength Index (NQCAPST), examining how the combination of two robust yet straightforward screening methodologies succeeds at identifying well capitalized companies that also have low historical share price volatility. The high-quality and low-volatility screening process has achieved better risk-adjusted returns than the broader market, experienced less participation to the downside during significant market corrections, and ultimately served as a defensive-growth complement to more traditional equity strategies.

Investors can access the Capital Strength Index (NQCAPST) through the First Trust Capital Strength ETF (Nasdaq: FTCS).

In this research paper, our goal is to shed light on The Capital Strength Index by:

- Providing a general overview of the **quality** and low **volatility** factors
- Reviewing The Capital Strength **Index Methodology**
- Exploring the **historical performance** and risk profile of the Index
- Highlighting the Index's **performance during major market corrections** of at least 10%
- Discussing how the Index **correlates to other factors**, providing insight into how the Index complements, and can be combined with other factors
- Analyzing the **quality** and **low volatility** characteristics of the current Index relative to market benchmarks
- Reviewing the **industry composition** of the Index

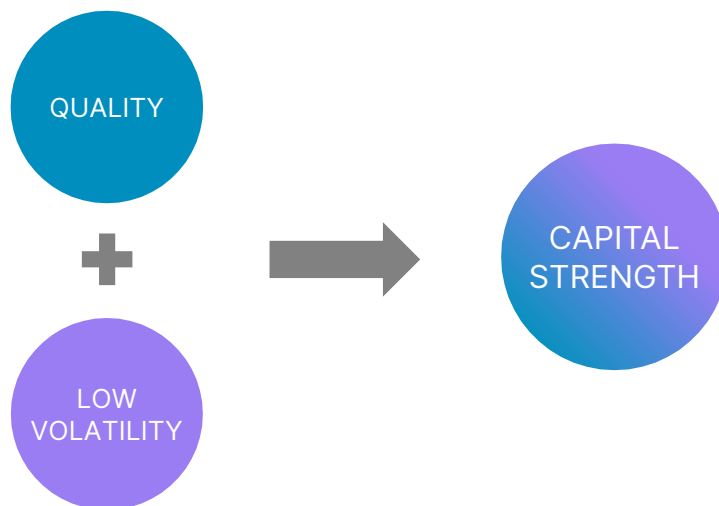
## Introduction

*“Offense sells tickets, defense wins games, rebounding wins championships.” – Pat Summitt*

What makes The Capital Strength Index (NQCAPST) unique to other indexes, particularly those that are multi-factor based, is that it sits in the middle of the offensive and defensive equity spectrum. In essence, it meets all three of the late Pat Summitt’s variables in her famous quote, “Offense sells tickets, defense wins games, rebounding wins championships.”

The index methodology that NQCAPST employs is not limited to any single style, such as value or growth, so it has the capacity to allocate to growth, a traditional *offensive* style, so long as the components meet the selection criteria, which is based on profitability, leverage, and cash reserves. Second, the index has many *defensive* qualities, namely, the fact that it incorporates a low volatility screen. The premise behind this feature is that the index has the potential to deliver less volatility and smaller drawdowns than the market and other traditional equity indexes.

Finally, as Pat Summitt stated, *“rebounding wins championships.”* Many defensive equity strategies may provide insulation from market turbulence, but can they *“rebound”* after market corrections? Can they keep up and outperform the market? Through the combination of quality and low volatility screens, NQCAPST has proven that it can rebound and participate to the upside. Before we delve deeper into the index, let’s review the foundations of the index, which start with two important investment factors - quality and low volatility. Ultimately, it is the combination of these two factors that gives the index the ability to be resilient during the ups and the downs of the market.



### What is quality?

While the definition for the quality factor varies from index provider to index provider, or asset manager to asset manager, it is generally accepted that quality encompasses companies that are profitable and have low debt. Plenty of research has been written on the quality factor, providing insights and templates for defining and utilizing the quality factor. For many, quality is broad in nature and can encompass any number of financial attributes, such as “earnings growth, earnings growth stability, low return volatility, high profitability, high return on assets (ROA), low debt ratio, and low accounting accruals.”<sup>1</sup> Or it can be quite simple and robust, such as Calvert’s definition in the 2012 piece, “Quality: The Third Dimension”, where quality is simply, “high and stable profitability and low debt.”<sup>2</sup> Much of the research on the quality factor has found that profitability is one of the keys to making the quality investment factor work. According to a GMO paper, “Profits for the Long Run: Affirming the Case for

<sup>1</sup> “What Is Quality?”, Financial Analysts Journal, Jason Hsu, PhD, Vitali Kalesnik, PhD, and Engin Kose, PhD, 2017

<sup>2</sup> “Quality: The Third Dimension”, Calvert Investments, 2012

Quality”, GMO found that “since 1965 the least levered firms (lowest 25%) have had average return on equity 5% higher than the most levered firms (highest 25%)” and that “profitability is the ultimate source of investment returns.”<sup>3</sup>

But quality’s importance is not just a recent phenomenon. If you go back even further, we find that the foundations of quality and fundamental investing, for that matter, are built on the work of Benjamin Graham, the father of value investing. In The Intelligent Investor, Graham stated, “The risk of paying too high a price for good quality stocks – while a real one – is not the chief hazard...the chief losses to investors come from the purchase of low quality stocks at times of favorable business conditions.”<sup>4</sup>

## What is low volatility?

It is a bit easier to define low volatility. For starters, low volatility is a factor that allocates to securities with low volatility and avoids securities with high volatility. Typically, a security’s or investment’s standard deviation of returns over a time period, or realized volatility, is used to measure whether a security has high or low volatility. The goal is to generate positive returns with lower downside participation. In numerous white papers, low volatility has proven to be a robust factor, as low volatility stocks have managed to deliver higher returns than high volatility stocks over time. For more information on the subject, please refer to the footnotes.<sup>5</sup>

## Index Methodology: The Capital Strength Index (NQCAPST)

The NQCAPST methodology combines quality with low volatility, providing an index solution that generates lower downside participation while still managing to offer upside potential when compared to market benchmarks. First, companies must exhibit “capital strength,” i.e., meet our quality criteria of having plenty of cash on hand, low leverage (low debt), and a proven ability to generate a high return on equity. Following the initial capital strength screen, a low volatility screen is utilized to eliminate any companies with high realized volatility. Below is a rundown of The Capital Strength Index methodology.

To be eligible for inclusion in the Index, a security must meet the following criteria:

Initial Eligibility	Fundamental Quality Screen	Market Quality Screen	Volatility Score	Weight	Rebalance
Member of the Nasdaq US Benchmark Index (NQUSB)	<ul style="list-style-type: none"> <li>Have at least \$1 billion in cash or short term investments</li> <li>Long-term debt to market cap ratio less than 30%</li> <li>Return on equity higher than 15%</li> <li>Issuer not currently in bankruptcy proceedings</li> </ul>	<ul style="list-style-type: none"> <li>Top 500 securities by float-adjusted market capitalization</li> <li>Minimum three-month average daily dollar trading volume of \$5 million</li> <li>May not have entered into a definitive agreement or other arrangements which would likely result in the security no longer being Index eligible</li> </ul>	<ul style="list-style-type: none"> <li>Three-month annualized realized volatility score</li> <li>Twelve-month realized volatility score</li> </ul>	<ul style="list-style-type: none"> <li>The 50 eligible securities with the lowest combined volatility score are selected,</li> <li>If an industry has a weight higher than 30%, exclude its most volatile selection(s)</li> <li>Equal weight securities</li> </ul>	The Index securities are evaluated quarterly in January, April, July, and October

\*one security per issuer is permitted.

<sup>3</sup> “Profits for the Long Run: Affirming the Case for Quality”, GMO, Joyce and Mayer, 2012

<sup>4</sup> The Intelligent Investor, Benjamin Graham, 1949

<sup>5</sup> Low Volatility Research: “The Value of Low Volatility”, Journal of Portfolio Management, D. Blitz, 2016; “Factor Investing: The Paradox of low volatility”, IPE.com, J. Mariathasan, 2019; High returns from low risk: a remarkable stock market paradox, Van Vliet, Pim; de Koning, 2017; and “On the Evidence Supporting the Existence of Risk Premiums in the Capital Market”, R. Haugen, 1972

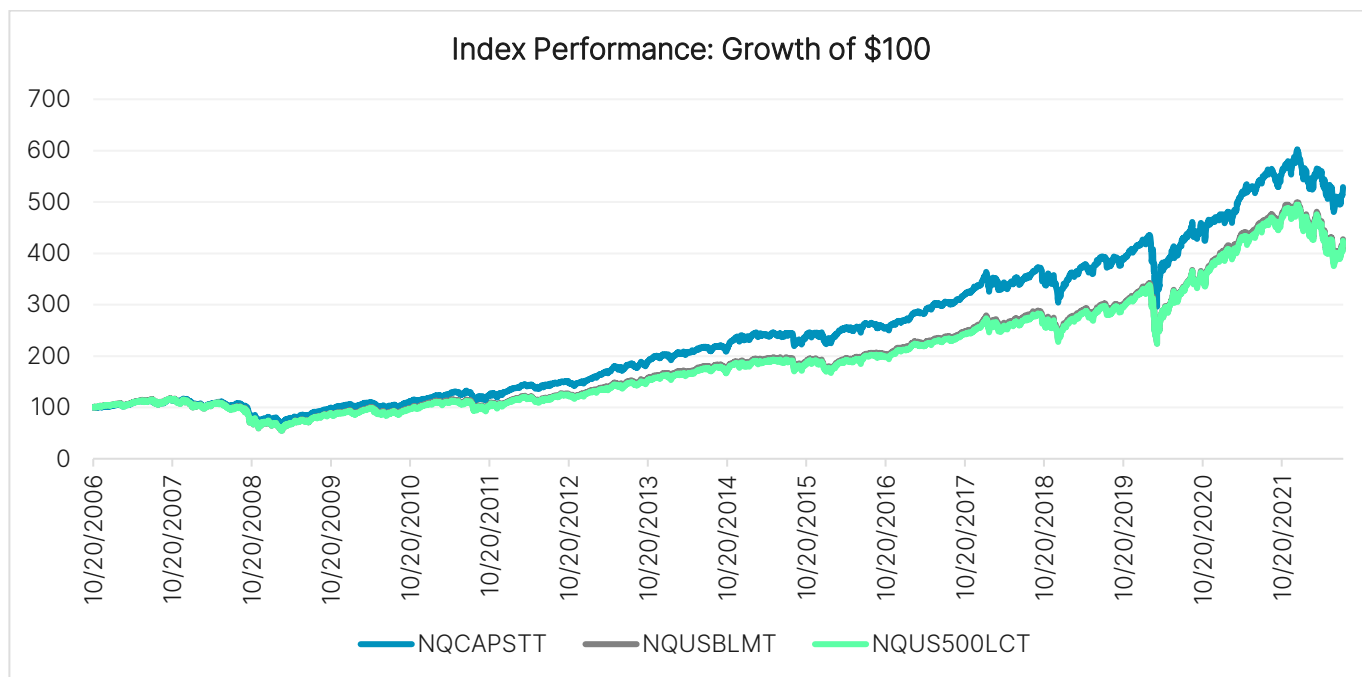
The Index securities are evaluated quarterly in January, April, July, and October. The above eligibility criteria are applied using market data through the end of December, March, June, and September. Eligible securities are ranked by a combined metric of short-term (three-month annualized realized volatility) and long-term (twelve-month realized volatility) realized volatility. The 50 eligible securities with the lowest combined volatility score are selected, followed by a review of whether any industry, as determined by the Industry Classification Benchmark, has a cumulative weight higher than 30%. If an industry has a weight higher than 30%, then its most volatile selection(s) will be removed and replaced with the next eligible security from a different industry, repeated until the industry threshold is satisfied.

The Index is equal weighted. Index shares are calculated by dividing the equal-dollar value for each Index security by the corresponding last sale price of the security at the close of trading on the third Friday in January, April, July, and October. The changes are made effective after the close of trading on the same date.

## Historical Performance

The growth of The Capital Strength Index from a total return standpoint (NQCAPSTT) is worth noting as it has outperformed both the Nasdaq US Large Mid Cap Index – Total Return (NQUSBLMT) and the Nasdaq US 500 LargeCap Index – Total Return (NQUS500LCT). Though the live Index officially launched on March 20, 2013, NQCAPSTT has gained 429.4%, compared to 327.9% by the NQUS500LCT and 324.3% by the NQUSBLMT Index since its first day of back-tested history on October 20, 2006, through the end of July 2022.

Figure 1: Index Performance (October 20, 2006 – July 29, 2022)



(Data through 7/29/2022)

In addition, NQCAPSTT outperformed its market benchmarks in 11 out of the past 16 years, including data for 2022 as of end of July (down 12.0% YTD, outperforming by nearly 2%). The best year for NQCAPSTT relative to its benchmarks occurred in 2011, a period marked by heightened volatility across the market as well as a +10% correction for most major equity benchmarks, as it outperformed NQUSBLMT and NQUS500LCT by 9.50% and 9.14%, respectively. NQCAPSTT also outperformed in 2008, which saw both market benchmarks fall over -35%;

meanwhile, NQCAPSTT was down -30.75%. From a relative performance perspective, 2020 saw the index trail the index benchmarks by a large margin, trailing by over 7% in both cases.

The other two years where NQCAPSTT underperformed significantly occurred in 2010 and 2019, when NQCAPSTT trailed its benchmarks by roughly 4% to 5%. Finally, during years when the market experienced +20% returns, NQCAPSTT has outperformed in four out of the six, indicating that the index can often compete in healthy, positive markets as well.

**Figure 2: Annual Performance Returns: December 31, 2006 – July 29, 2022**

Year	NQCAPSTT	NQUSBLMT	NQUS500LCT
12/31/2007	12.46%	7.22%	7.37%
12/31/2008	-30.75%	-35.99%	-35.82%
12/31/2009	31.77%	27.40%	25.81%
12/31/2010	11.51%	16.41%	15.33%
12/30/2011	11.20%	1.70%	2.06%
12/31/2012	14.57%	16.23%	15.92%
12/31/2013	37.43%	32.97%	32.17%
12/31/2014	16.25%	12.97%	13.53%
12/31/2015	2.31%	0.88%	1.09%
12/30/2016	9.31%	12.21%	11.80%
12/29/2017	27.28%	21.83%	21.99%
12/31/2018	-3.53%	-5.10%	-4.75%
12/31/2019	27.60%	31.62%	32.04%
12/31/2020	13.77%	21.08%	21.42%
12/31/2021	27.37%	26.26%	26.48%
7/29/2022	-11.98%	-13.81%	-13.73%

While understanding the long-term performance picture helps evaluate an index, it is also essential to have a perspective on the overall risk of an index. A useful way for assessing the risk of an index is by comparing its overall standard deviation, or volatility, against a benchmark.

Figures 3 and 4 show important return and risk data of NQCAPSTT versus the benchmarks over multiple time horizons. Based on the data, the index has outperformed the broader market over an extended period, specifically over the 10-year period, and although it is trailing over three and five year periods, the index has exhibited lower overall volatility since its inception in November 2006.

**Figure 3: Return and Volatility Data**

Statistic	NQCAPSTT	NQUS500LCT	NQUSBLMT
YTD	-11.98%	-13.73%	-13.81%
1 Year Return	-3.86%	-6.69%	-7.26%
3 Year Return (Annualized)	10.89%	13.10%	12.78%
5 Year Return (Annualized)	11.76%	12.74%	12.48%
10 Year Return (Annualized)	13.78%	13.66%	13.60%
Standard Deviation	13.94%	15.52%	15.74%

Monthly Total Return Data through July 29, 2022.

Figure 4: Risk and Return Metrics (November 2006 – July 2022)

NQCAPSTT vs.	NQUS500LCT	NQUSBLMT
Alpha	2.64%	2.71%
Beta	0.86	0.85
R2	0.92	0.92
Up Market Capture	94.18%	93.15%
Down Market Capture	82.92%	81.87%

Monthly Total Return Data through July 29, 2022.

## Performance during Major Market Corrections

NQCAPSTT has outperformed the market over the long term, but how has it performed during heightened states of market volatility, i.e., during major market corrections? One way to measure this is through a modified downside capture, a ratio that shows how the index performed during periods when the market, or benchmark, was negative. Instead of looking at all periods when the market was negative, which is what the traditional downside capture ratio measures, the table below only examines periods in which the primary market benchmark index, NQUS500LCT, fell more than -10%, which is typically viewed as a “correction.” We isolated each individual -10% move, as it provides insight into how NQCAPST behaves in volatile markets. This modified downside capture shows how the Index performed when the market experienced a -10% correction.

In nearly all the -10% corrections since October 2006, NQCAPST experienced a lower modified downside capture than the market when looking at peak to trough benchmark index data. This lower downside capture means that NQCAPST did not fall as far as the benchmark, providing downside protection during periods of weakness in the equity market. For this reason, it is possible to categorize NQCAPST as a defensive form of equity exposure.

“Offense sells tickets, defense wins games, rebounding wins championships.”

– Pat Summitt

Figure 5: 10% Correction Downside Capture: October 20, 2006 – July 29, 2022

High Date	Low Date	Pullback Date	US Large Cap 500 TR	NQCAPSTT	10% Correction Downside Capture
10/9/2007	1/22/2008	1/15/2008	-14.94%	-10.63%	71%
5/19/2008	7/2/2008	7/2/2008	-10.75%	-7.44%	69%
8/11/2008	9/17/2008	9/17/2008	-10.93%	-8.95%	82%
9/19/2008	9/29/2008	9/29/2008	-11.76%	-8.74%	74%
9/30/2008	10/10/2008	10/7/2008	-22.76%	-21.94%	96%
10/13/2008	10/22/2008	10/22/2008	-10.28%	-9.71%	94%
11/4/2008	11/12/2008	11/11/2008	-14.79%	-12.40%	84%
11/13/2008	11/20/2008	11/19/2008	-17.15%	-14.91%	87%
1/6/2009	1/20/2009	1/20/2009	-13.29%	-8.63%	65%
1/28/2009	2/23/2009	2/19/2009	-14.26%	-10.12%	71%
2/24/2009	3/5/2009	3/5/2009	-11.36%	-10.06%	89%
4/23/2010	5/20/2010	5/20/2010	-11.82%	-8.62%	73%
4/29/2011	8/8/2011	8/4/2011	-17.45%	-13.41%	77%
7/20/2015	8/25/2015	8/24/2015	-12.09%	-10.42%	86%
11/3/2015	1/13/2016	1/13/2016	-10.12%	-7.97%	79%
9/20/2018	11/23/2018	11/23/2018	-10.11%	-8.53%	84%
12/3/2018	12/24/2018	12/19/2018	-15.76%	-15.03%	95%
2/19/2020	2/28/2020	2/27/2020	-12.81%	-11.89%	93%
3/4/2020	3/9/2020	3/9/2020	-12.19%	-10.78%	88%
3/10/2020	3/12/2020	3/12/2020	-13.97%	-13.11%	94%
3/13/2020	3/16/2020	3/16/2020	-12.10%	-10.47%	87%
3/17/2020	3/23/2020	3/23/2020	-11.34%	-13.35%	118%
1/3/2022	3/14/2022	3/14/2022	-13.80%	-11.28%	82%
3/30/2022	5/16/2022	5/16/2022	-13.43%	-7.59%	57%
6/2/2022	6/16/2022	6/16/2022	-12.30%	-8.93%	73%
<b>Average Downside Capture during 10% Corrections:</b>					<b>83%</b>

(Source: Nasdaq) (Data through 7/29/2022)

## Correlation to Factors

Since NQCAPST incorporates both quality and low volatility metrics into its methodology, it can be considered a multifactor index. In addition, because of its unique composition, the Index also offers diversification benefits to other well known and well used factors. To get a better picture of this in action, we looked at the correlation of excess returns (relative to the market benchmark - NQUS500LCT) of NQCAPST and the Nasdaq Factor Family of indexes, with factor representatives from value, momentum, high yield, low volatility, growth, and quality.

In the NQCAPSTT column, one can see the correlation of excess returns for the Index relative to the other factors. We find that NQCAPSTT does not have particularly strong positive or negative correlations to most of the factors, with the exception of quality which comes in highest at 0.72. However, NQCAPSTT is modestly correlated to low volatility and high yield, while exhibiting negative excess return correlations to momentum and growth. These negative correlations support the notion that NQCAPST works as a possible diversifier for traditional momentum and growth factor exposure.

### Correlation of Excess Returns: The Capital Strength Index (NQCAPST) & Nasdaq Factor Family

Figure 6: Five Year Daily Correlation of Excess Returns

	Capital Strength	Value	Momentum	High Yield	Low Volatility	Growth	Quality
Capital Strength	1.00						
Value	0.02	1.00					
Momentum	-0.22	-0.47	1.00				
High Yield	0.34	0.68	-0.55	1.00			
Low Volatility	0.72	0.02	-0.14	0.44	1.00		
Growth	-0.45	-0.38	0.71	-0.56	-0.41	1.00	
Quality	0.45	0.33	-0.34	0.51	0.41	-0.33	1.00

The table shows the 5-year correlation of daily excess returns (relative to the market index, Nasdaq US Large Cap 500 Index Total Return (NQUS500LCT)) among the Nasdaq Factor Family Indexes and The Capital Strength Index. (Data through 7/29/2022) (Source: Nasdaq)

#### Legend:

**Capital Strength** – The Capital Strength TR Index (NQCAPSTT)

**Value** – Nasdaq Factor Family US Value TR Index (NQFFUSVT)

**Momentum** – Nasdaq Factor Family US Momentum TR Index (NQFFUSMT)

**High Yield** – Nasdaq Factor Family US High Yield TR Index (NQFFUSHYT)

**Low Volatility** – Nasdaq Factor Family US Low Volatility TR Index (NQFFUSLVT)

**Growth** – Nasdaq Factor Family US Growth TR Index (NQFFUSGT)

**Quality** – Nasdaq Factor Family US Quality TR Index (NQFFUSQT)



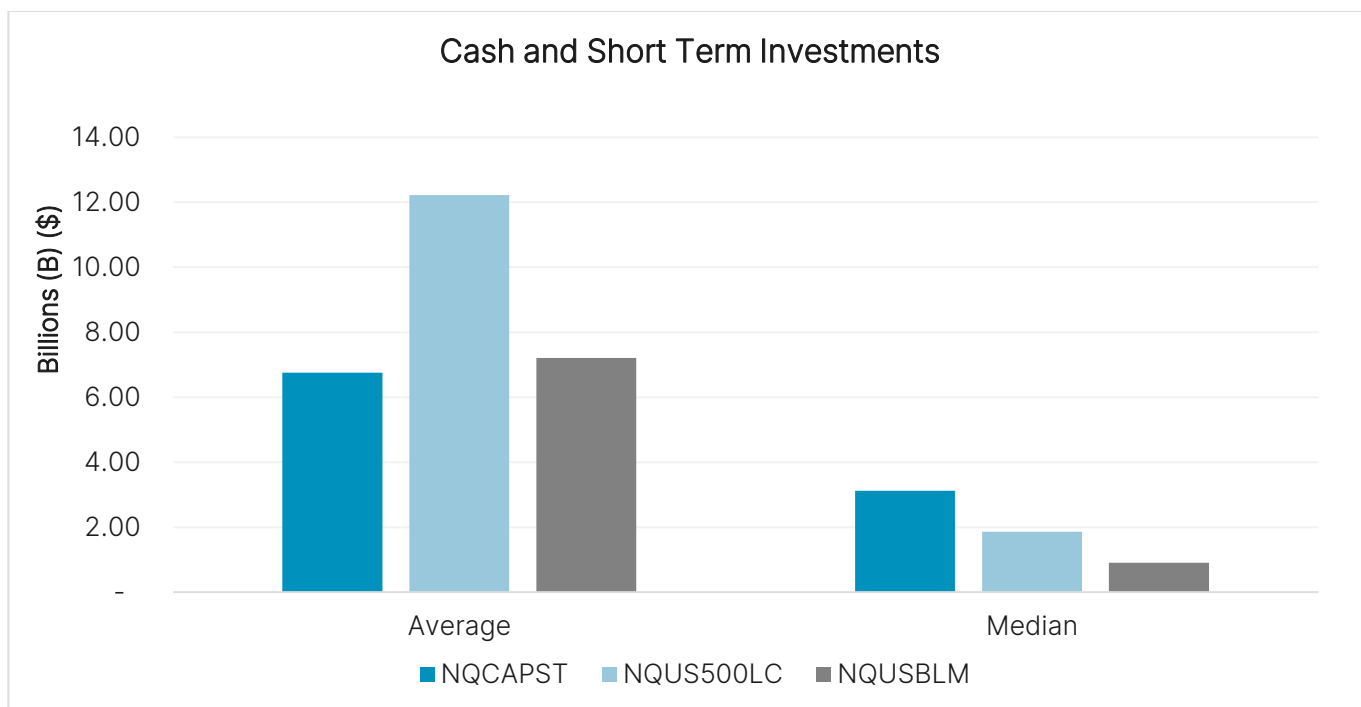
## Capital Strength Data Review:

### Cash and Short-Term Investments:

One requirement in The Capital Strength Index is for companies to have at least \$1 billion (B) in cash or short term investments, which is calculated by summing the total of cash, cash equivalents, and short term investments. A company with ample liquidity is much better prepared to handle downturns in their business, and it will have the flexibility to take advantage of opportunities to grow, strengthen, or otherwise improve their position.

When examining the current components of the NQCAPST Index, we find that the average cash / short term investments totalled \$6.8B as of June 30, 2022. The average for NQUSS500LC and NQUSBLM was \$12.2B and \$7.2B, respectively. When looking at the median cash and short-term investments, the story changes in favor of NQCAPST, as the level for the Index was \$3.1B, compared to only \$1.9B and \$0.9B for NQUS500LC and NQUSBLM, respectively.

Figure 7: Capital Strength Companies Tend to Have More Cash



(Source: Nasdaq and FactSet) (Data as of 6/30/2022)

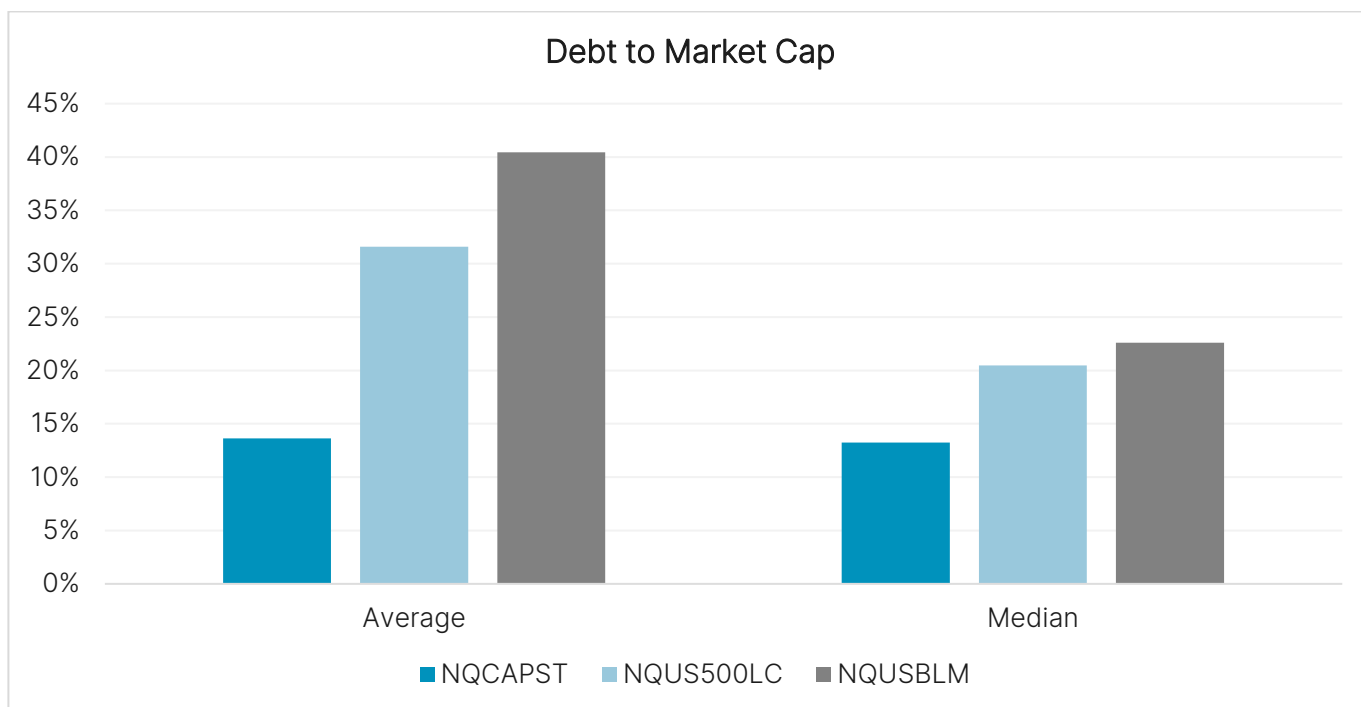
### Long-Term Debt-to-Market Cap Ratio %:

Another capital structure measurement evaluated by the Index methodology is the ratio of long-term debt-to-market capitalization, providing a means to determine the overall financial leverage of a company. The higher the ratio, the more leveraged the company. A lower ratio indicates that the company relies less on debt to fuel growth and operations, and also suggests that shareholders have a higher stake in the equity.

The current components of the NQCAPST have a much lower long-term debt to market cap ratios than the members of NQUS500LC and NQUSBLM. We find that the components of NQCAPST have much less leverage on average, with an average ratio of only 14%. Meanwhile, the average company's ratio in NQUS500LC was 32% and

40% for NQUSBLM. When looking at the median ratios, NQCAPST measured only 13%, versus 20% and 23% for both NQUS500LC and NQUSBLM, respectively.

**Figure 8: Capital Strength Companies Tend to Have Moderate to Low Leverage**



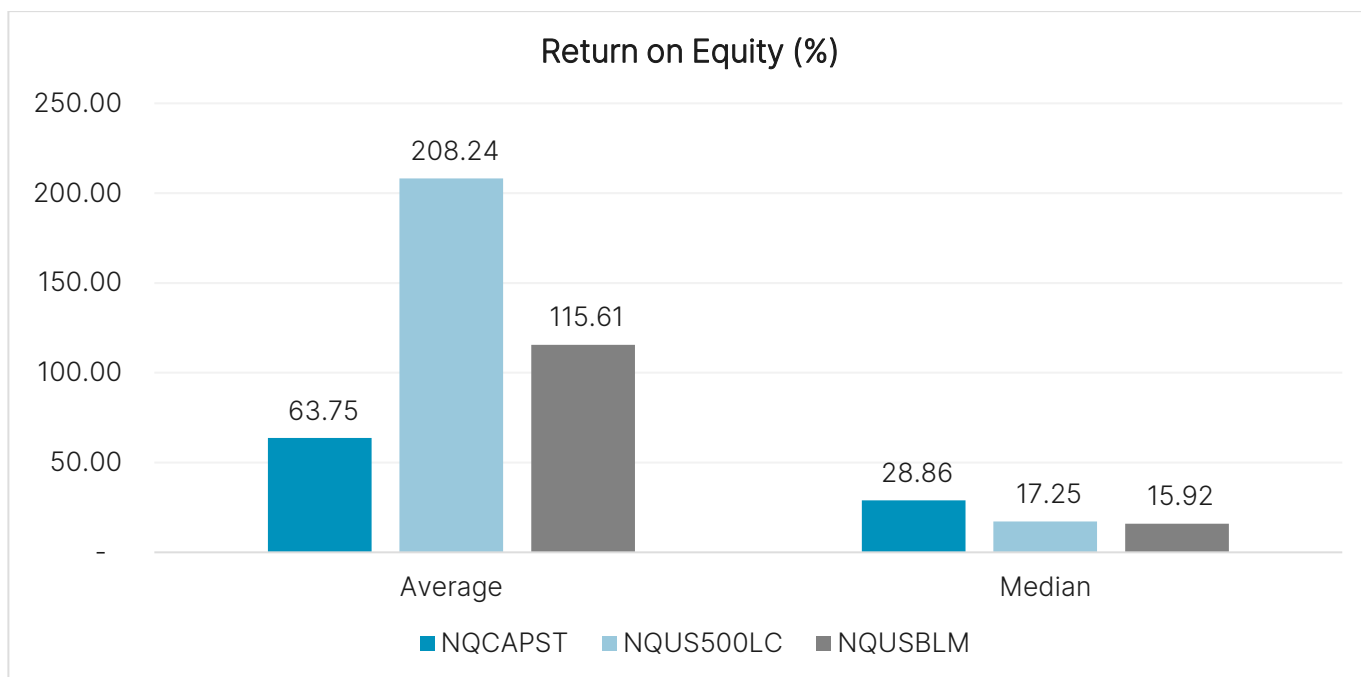
(Source: Nasdaq and FactSet) (Data through 6/30/2022)

### Return on Equity (ROE):

The third fundamental metric evaluated is the return on equity (ROE). While the other two metrics consider the liquidity and leverage of a company, ROE measures the profitability of the company concerning the owners of its stock, by comparing the net income relative to the amount of shareholder equity.

NQCAPST's screening process requires a return on equity greater than 15%. We find that the average ROE for the components of the Index was 63.75% as of June 30, 2022, while NQUS500LC and NQUSBLM measured at 208.24% and 115.61%, respectively, the higher average ROE for the benchmark indexes is mainly due to few extreme outliers. However, the median ROE for NQCAPST at 28.86% was more than 11% higher over NQUS500LC and NQUSBLM in absolute terms. When looking at the median ROE, the readings normalize, yet NQCAPST continues to exhibit a higher median ROE than both the benchmarks.

Figure 9: Capital Strength Companies are built on Strong Economic Moats

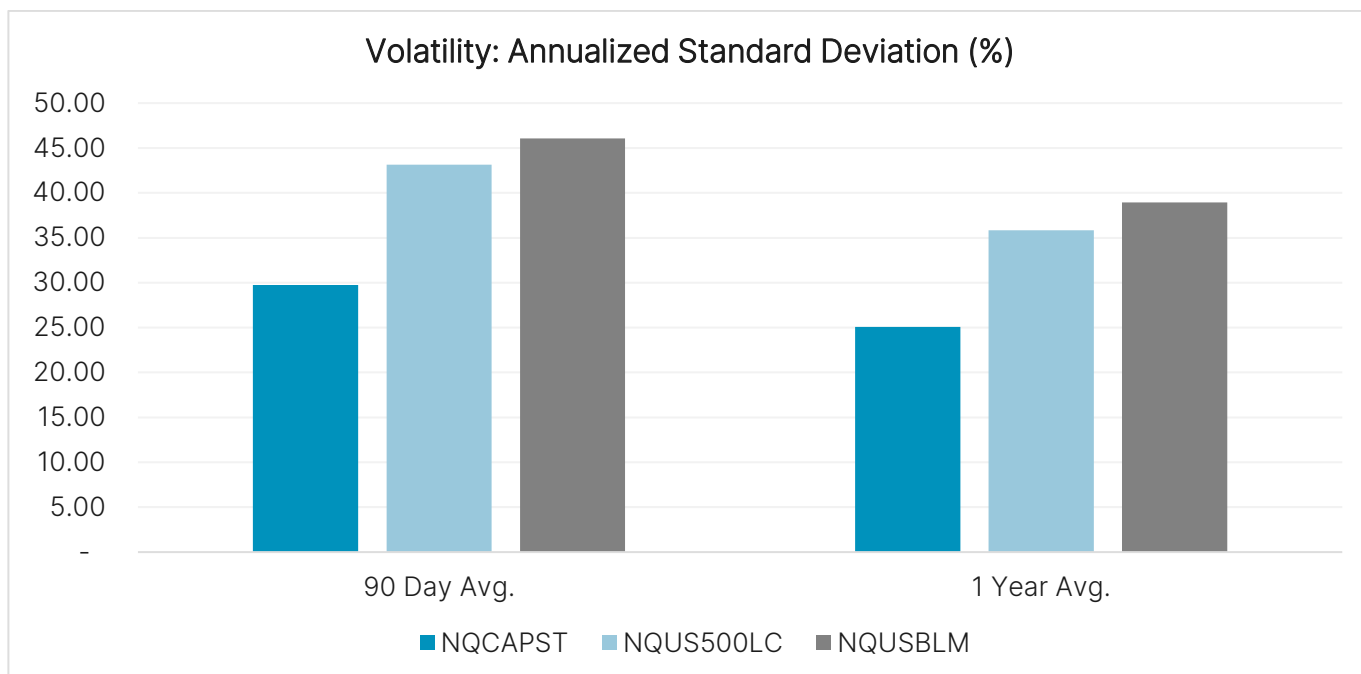


(Source: Nasdaq and FactSet) (Data through 6/30/2022)

**Low Volatility:**

The Capital Strength Index incorporates a low volatility screen after screening for the capital strength metrics discussed above. In aggregate, the components of the index have lower average 90 day and 1-year standard deviations, i.e.: volatility, than the average volatility for constituents in NQUS500LC and NQUSBLMT.

Figure 10: Capital Strength Companies are Less Volatile

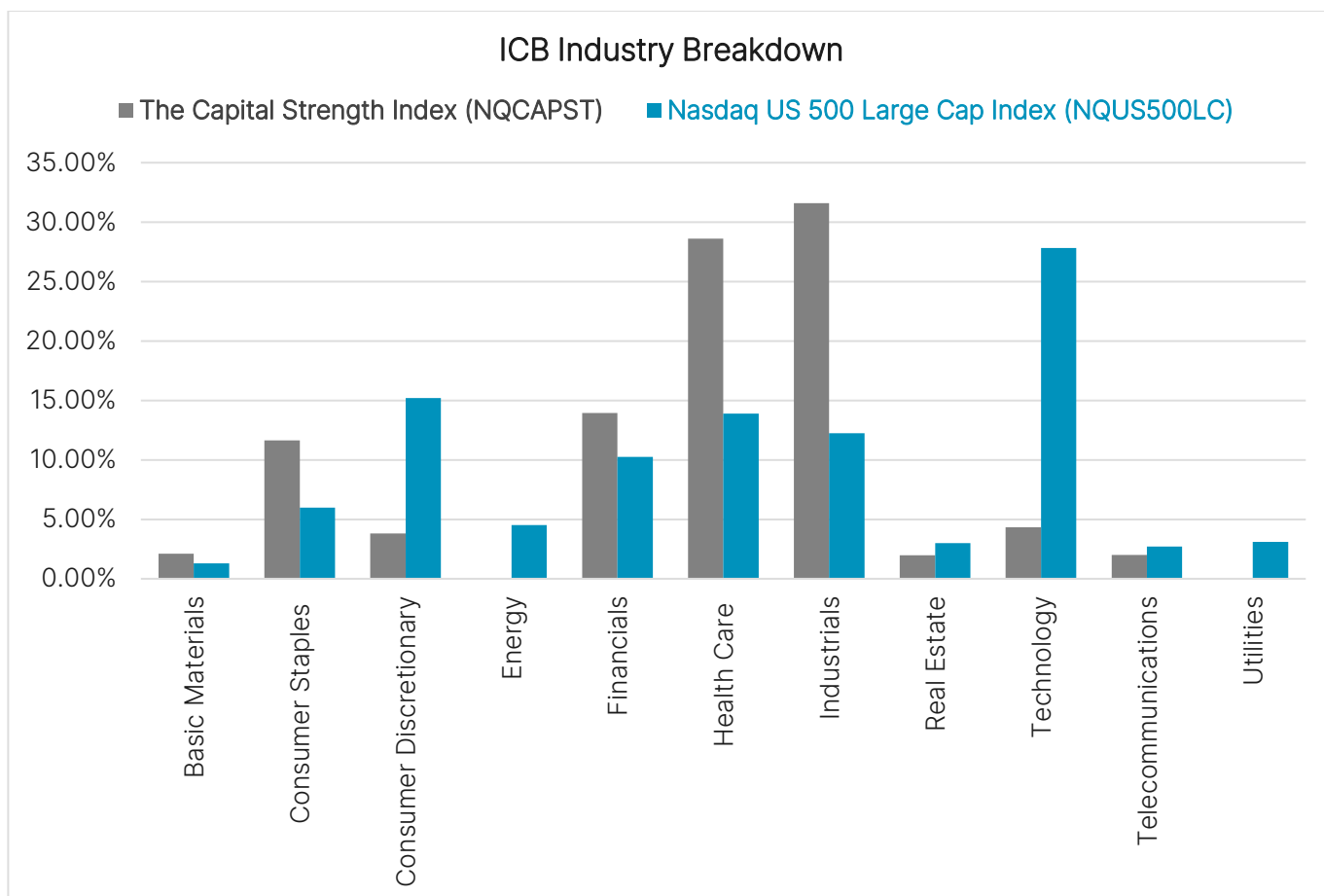


(Source: Nasdaq and FactSet) (Data through 7/29/2022)

## Industry Comparison

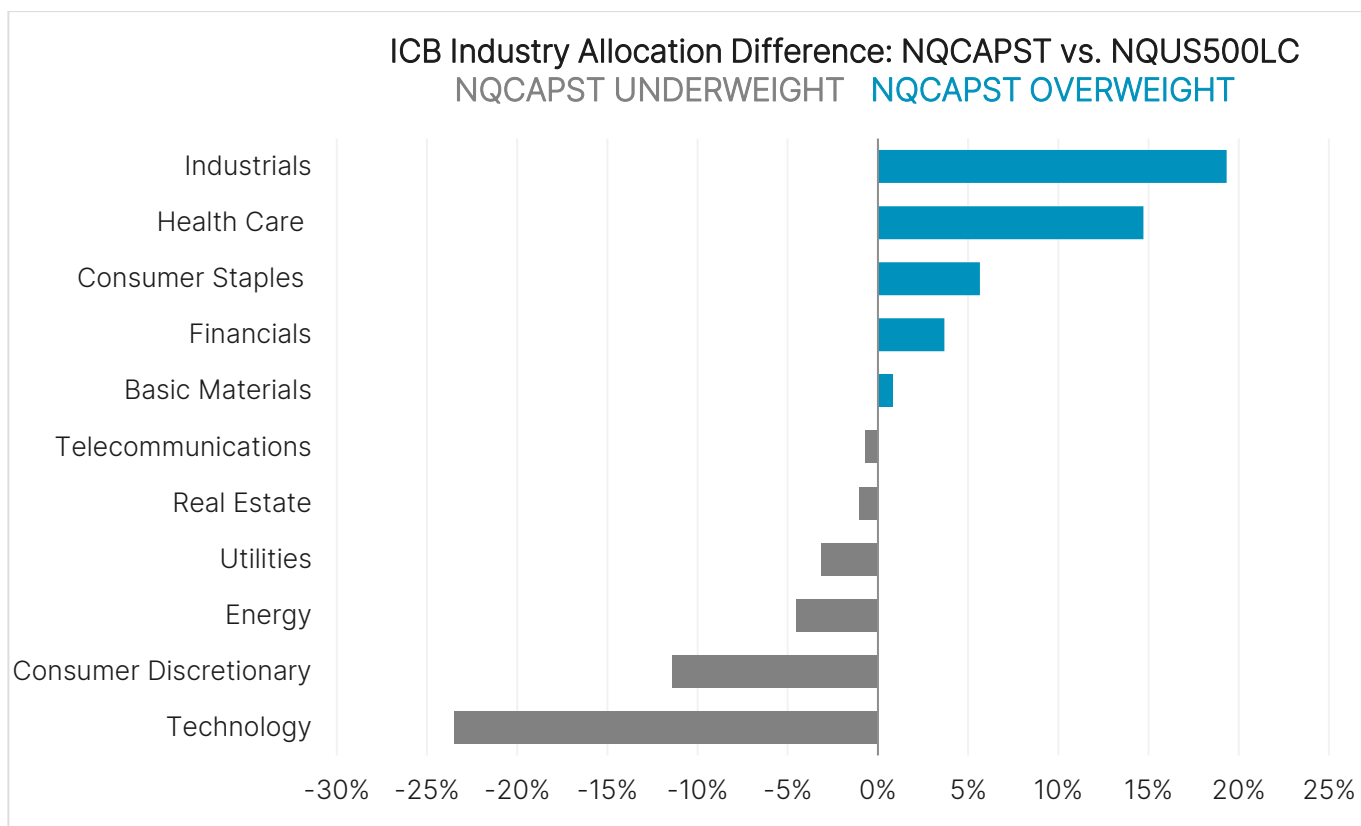
The Capital Strength Index methodology, i.e., a quality and low volatility screen, along with its equal-weighting scheme, produces portfolios that can be substantially different from the overall market. As can be seen in Figure 11, compared to NQUS500LC, a traditional cap-weighted index, NQCAPST has an overweight allocation to industrials, healthcare, financials and consumer staples. The Index is also significantly underweighted across technology and consumer discretionary (as of July 29, 2022). The lower allocation to consumer discretionary is driven by its relatively high average ratio of debt to market cap within the large cap segment (as measured by NQUS500LC), as well as its relatively high average 90-day volatility. For technology, the lower allocation is driven by its relatively high average 90-day volatility readings, but also by the disproportionately large weights that several of the biggest technology companies contribute to the market cap-weighted large cap benchmark.

Figure 11: ICB Industry Breakdown



(Source: Nasdaq and FactSet) (Data through 7/29/2022)

Figure 12: ICB Industry Comparison



(Source: Nasdaq and FactSet) (Data through 7/29/2022)

**Conclusion:**

The Capital Strength Index (NQCAPST) offers a unique way of accessing profitable, well-capitalized companies. Also, by incorporating a low volatility screen, NQCAPST has proven its ability to provide lower downside participation while not giving up performance on the upside. Finally, the impressive performance of NQCAPST over the long run, as well as during market corrections, highlights the many benefits of its underlying, robust methodology.

Products tracking The Capital Strength Index include the First Trust Capital Strength ETF (Nasdaq: FTCS).

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