

# SUMO as in Sustainable Momentum

What is the Nasdaq US Sustainable Momentum Index and how does it fare against the pack?

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## Introduction

By definition, momentum investing is generally thought of as an investment strategy which aims to capitalize on the continuance of existing price trends in the market. There are various ways to calculate momentum, one of the most basic being ranking securities based on a 12 month trailing return.

Given their historical low correlation to other smart-beta strategies (i.e. value, dividend yield), momentum tends to outperform and underperform a value/yield tilted portfolio at different times of the market cycle. For example, momentum strategies tend to struggle off of bear market bottoms, as well as when there is not sustained leadership. Due to the nature of the strategy, they may also tend to have slightly higher annualized volatility. Thus far into 2018, the Nasdaq US Sustainable Momentum index (NQSUMOT) has been performing very strongly. Sustained leadership by sectors such as Technology, as well as dispersion amongst US equity sectors have helped create a favorable environment for momentum indexes, in particular NQSUMOT. The NQSUMOT index has stayed allocated toward the stronger performing sectors while keeping a lower allocation towards those which have struggled.

## Index Methodology

- Be a component of the NASDAQ US Large Mid Cap Index (NQUSBLM)
- Index is evaluated annually in March. In all other months, the Index is evaluated to check if it is in a high volatility regime
  - The ratio of the 1 month to 12 month standard deviation of the daily returns of NQUSBLM is calculated. If this ratio is greater than 2 standard deviations of the trailing 7 year average of this ratio, then the Index is in a high volatility regime
  - If the Index is in a high volatility regime, then it is rebalanced that month
- If the Index is in a high volatility regime, then the top 15% of securities by Sustainable Momentum (SUMO) Scores are selected and weights are set to target weight
  - Top 10% of securities get 75% of the weight (equally weighted)
  - Securities between 10-15% get 25% of the weight (equally weighted)

- If the Index is not in a high volatility regime, then a buffering process is applied to determine the weights such that a security can be in the top 35% of SUMO Scores if and only if the security is already in the Index
  - Weight of securities outside of top 35% and those securities whose weights exceed 5% is aggregated (“excess weight”)
  - Excess weight is distributed such that if a security’s existing weight is less than the target weight, then its weight is set to the target weight; otherwise the security remains at its current weight
  - If a security’s weight is greater than 5%, its weight is set to 3%

#### Sustainable Momentum (SUMO) Scores

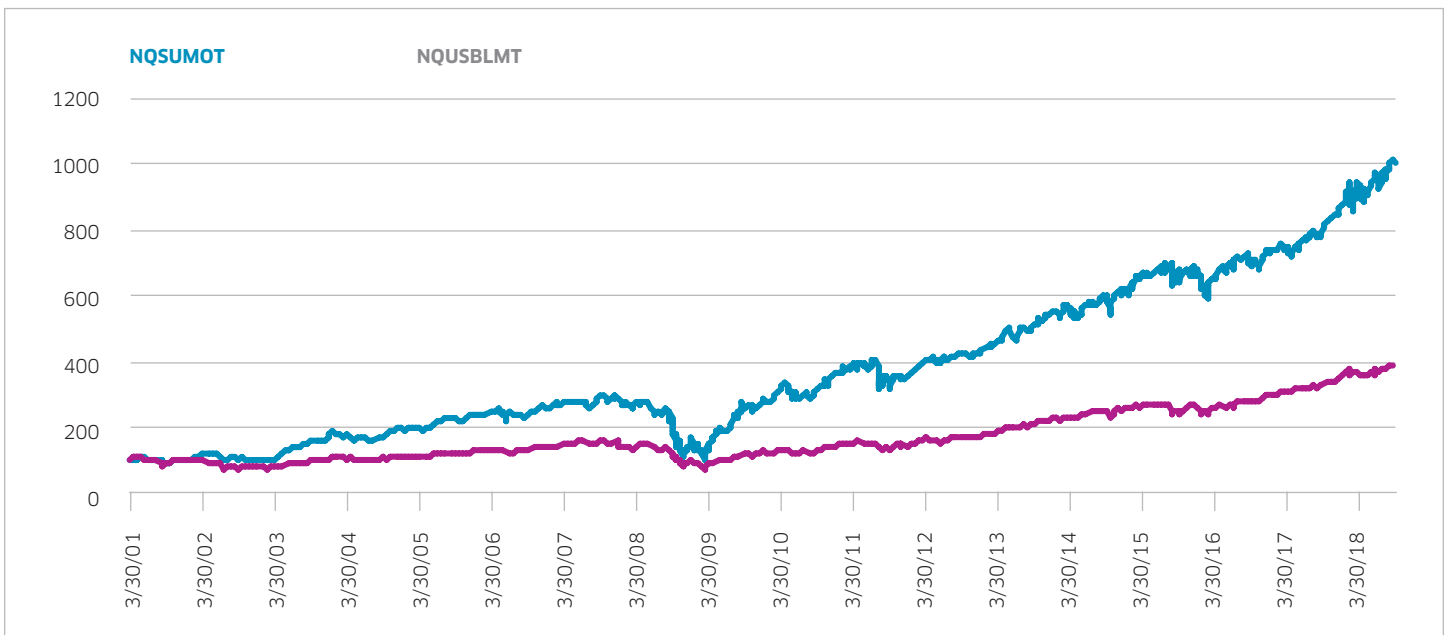
- All securities in NQUSBLM are ranked by the SUMO Score
- The SUMO Score is a momentum score given to each security that is based on a series of intermediate factors and long term factors. The intermediate factors are the 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 month risk-adjusted returns. The long term factors are the 36, 48, and 60 month risk-adjusted returns.
- The 12 month factor is adjusted for any security with high returns but abnormal volatility measures
- The rolling 6 month volatility relative to the universe (NQUSBLM) for the top securities in each of the factors are calculated (by highest return for the intermediate factors and lowest return for the long term factors) in order to determine a composite score. In other words, this allows for the process to calculate a composite score that takes into account intermediate term momentum as well as long term mean reversion
- The process systematically adjusts for bear market reversals
- Each factor gets an individual SUMO score and the SUMO scores for all the factors are summed to create a composite SUMO Score (which is used in the weighting of the Index)

For further details about NQSUMO, please refer to the methodology document (NQSUMO Methodology)

## NQSUMO Historical Performance March 30, 2001 – September 28, 2018

Below is a long term historical performance comparison between the Nasdaq US Sustainable Momentum Total Return Index (NQSUMOT) and the Nasdaq US Large Mid Cap Index (NQUSBLMT) from March 30, 2001, to September 28, 2018. During the first few years of our study both indexes were fairly tightly correlated, however, the Nasdaq US Sustainable Momentum Total Return Index has outperformed by a wide margin over the long term. Next, we will take a look at calendar year performance to get an idea of which years NQSUMOT had its widest outperformance.

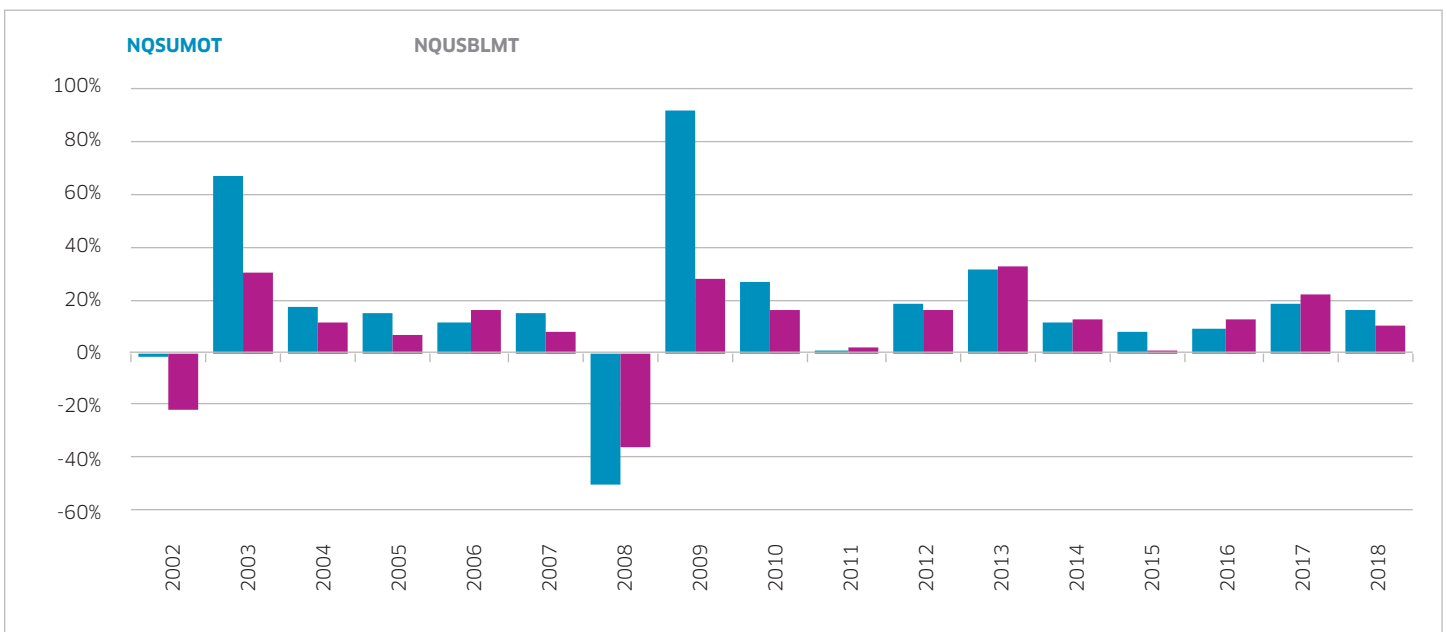
	NQSUMOT	NQUSBLMT
Cumulative Return	914%	291%
Annualized Return	14%	8%
Annualized Vol	23%	19%



### Annual Performance Returns December 31, 2001 - September 28, 2018

Annual returns below show the benefits of the NQSUMO methodology. The largest difference in which NQSUMO outperformed NQUSBLMT was in 2009 (64%), while the largest difference when it underperformed was 2008 (-15%). Thus far into 2018, NQUSMOT is outperforming by 6%

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NQSUMOT	-1%	67%	17%	15%	12%	15%	-51%	92%	27%	0%	19%	31%	11%	8%	9%	19%	17%
NQUSBLMT	-22%	30%	12%	7%	16%	7%	-36%	27%	16%	2%	16%	33%	13%	1%	12%	22%	10%
DIFFERENCE	21%	37%	5%	8%	-4%	8%	-15%	64%	10%	-2%	2%	-1%	-2%	7%	-3%	-3%	6%

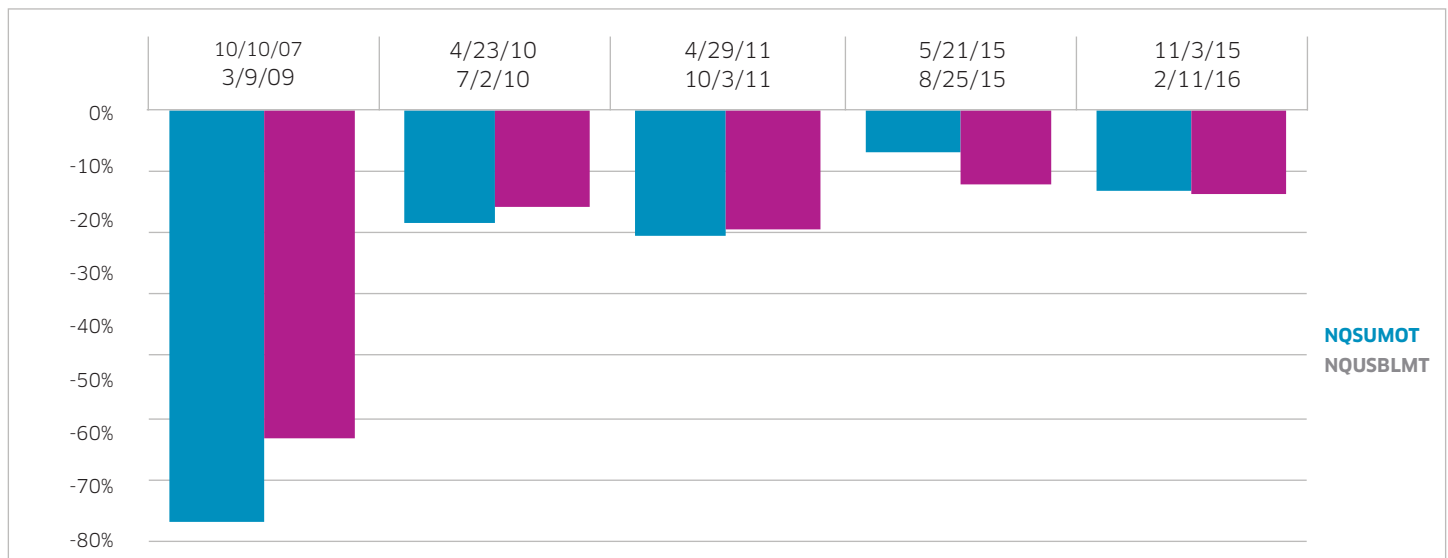


## Bull vs. Bear Markets Performance

Additional analysis below compares NQSUMOT and NQUSBLMT during time periods are what widely considered Bull and Bear markets. Not surprisingly, NQSUMOT underperformed during the major bear market experienced during the Financial Crisis between 10/10/2007 - 3/9/2009.

### Bear Markets

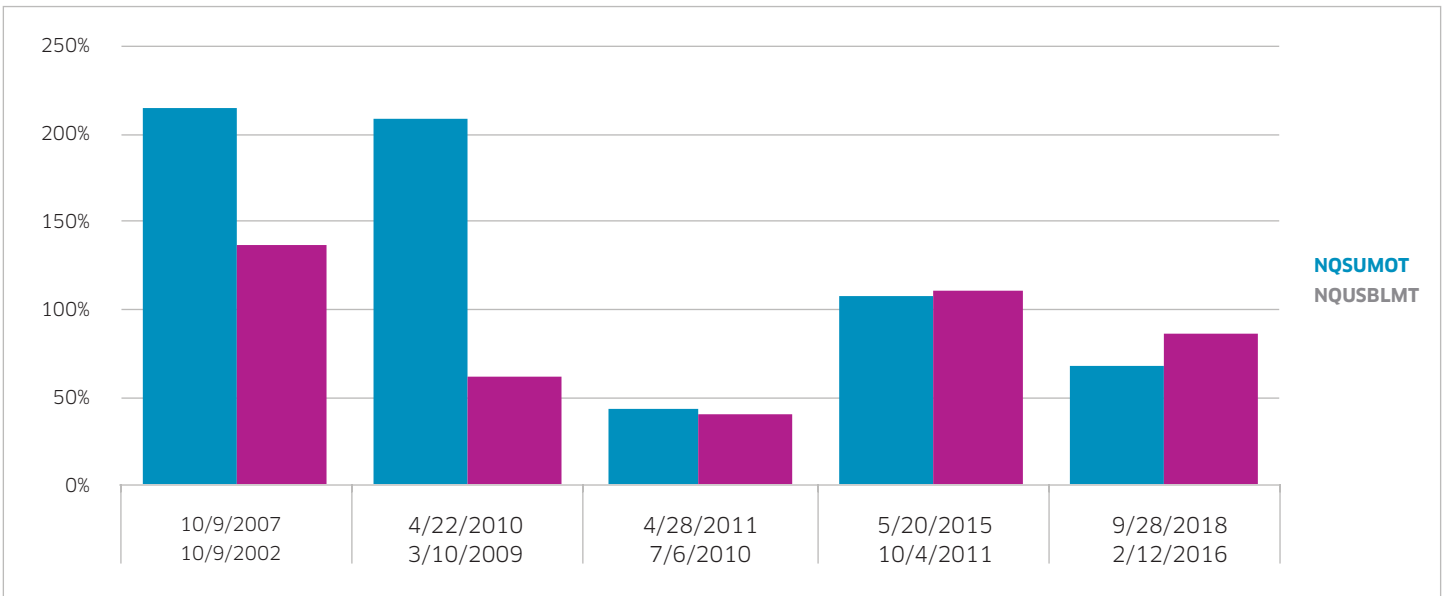
START DATE	END DATE	NQSUMOT	NQUSBLMT
10/10/2007	3/9/2009	-67%	-54%
4/23/2010	7/2/2010	-19%	-16%
4/29/2011	10/3/2011	-20%	-19%
5/21/2015	8/25/2015	-7%	-12%
11/3/2015	2/11/2016	-13%	-13%



On the bull market side, NQSUMOT displayed its largest outperformance between 10/9/2002 - 10/9/2007 and 3/10/2009 - 4/22/2010. During the most recent bull markets, both indexes have been more tightly correlated.

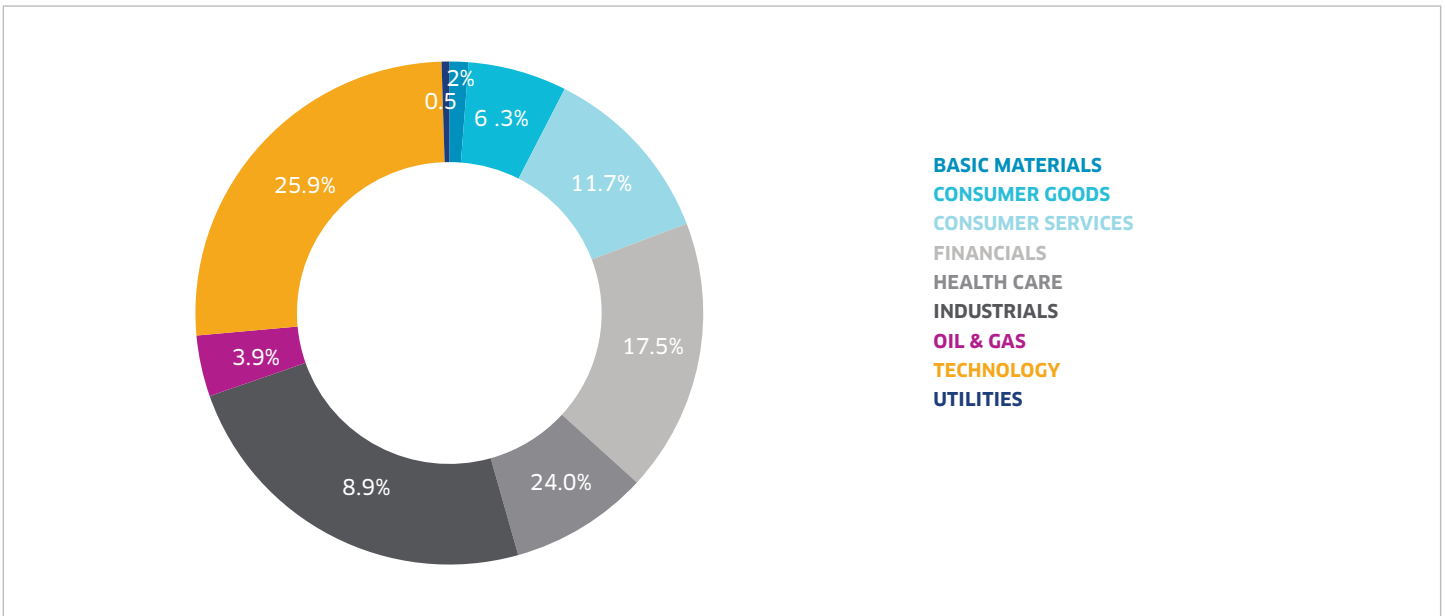
### Bull Markets

START DATE	END DATE	NQSUMOT	NQUSBLMT
10/9/2002	10/9/2007	214%	131%
3/10/2009	4/22/2010	208%	72%
7/6/2010	4/28/2011	44%	36%
10/4/2011	5/20/2015	108%	105%
2/12/2016	9/28/2018	68%	66%



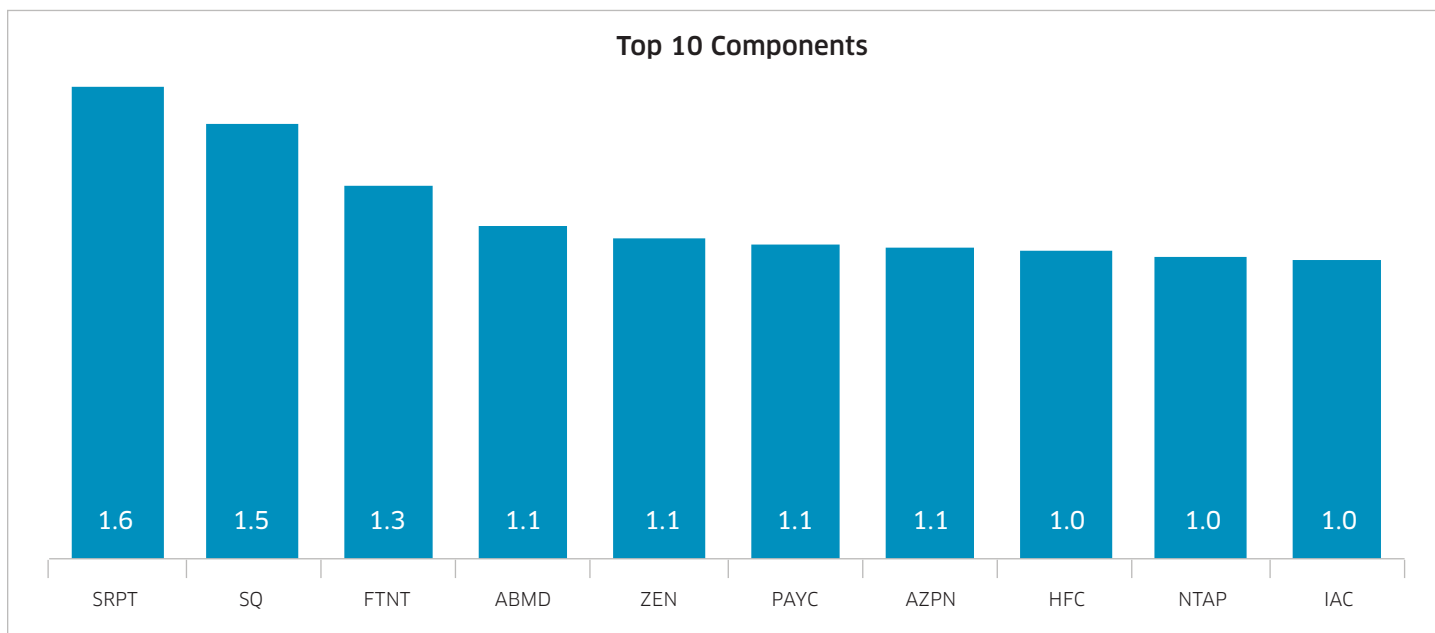
### NQSUMOT (September 28, 2018) ICB Weights

The largest ICB allocations are geared towards both Industrials (24.0%) and Technology (25.9%). The smallest allocations remain in Basic Materials and Utilities.



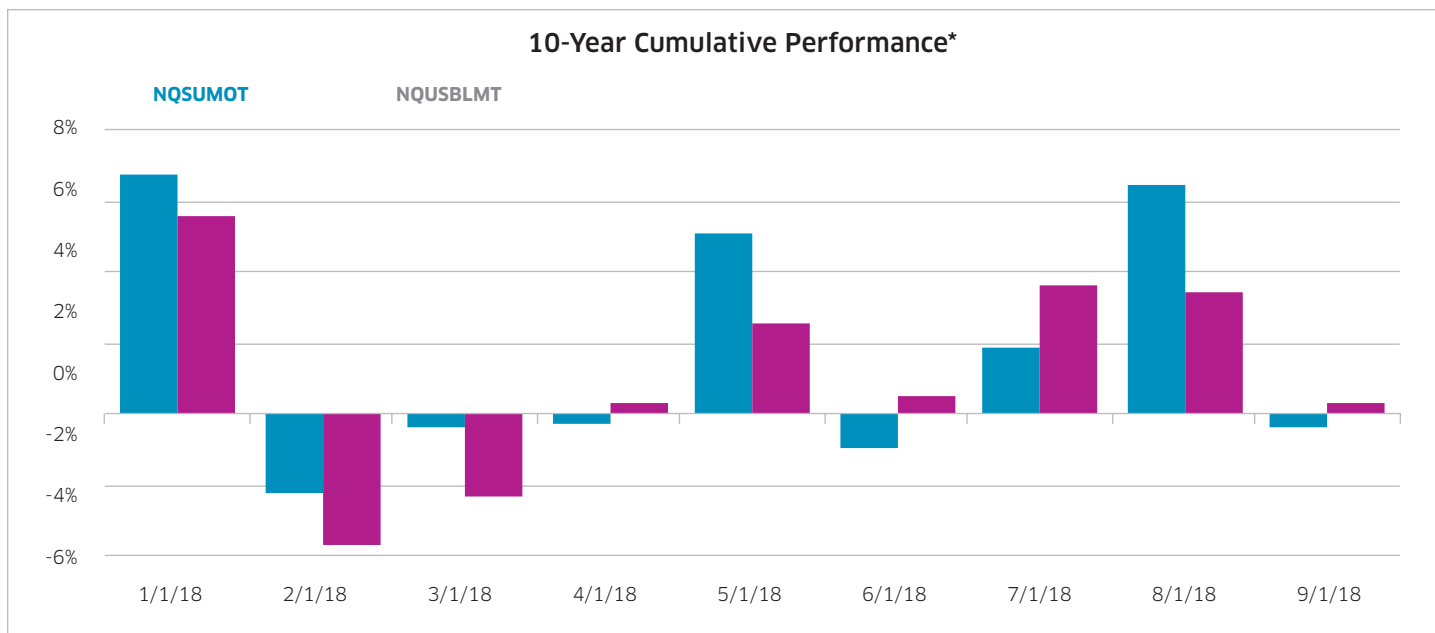
## NQSUMOT (September 28, 2018) Top Weighted Position & YTD performance

The top 10 weighted positions in NQSUMOT are shown in the chart. Year-to-date performances through September 28, 2018, for the three largest allocated components are SRPT (+190%), SQ (+186%), and FTNT (+111%).



## Month over Month Comparison 2018

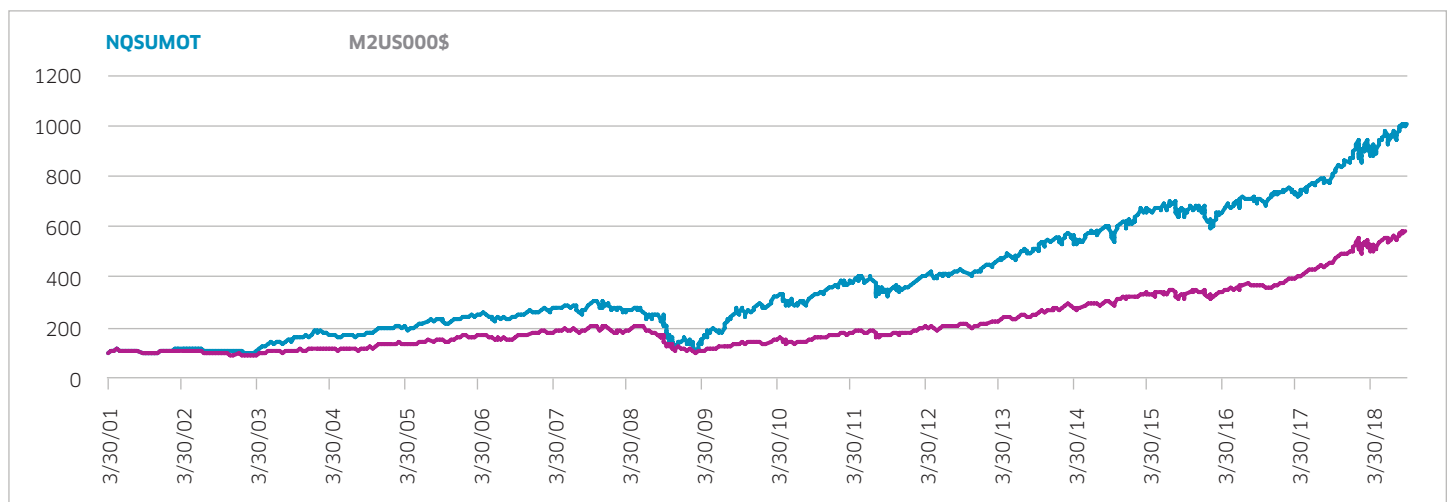
As mentioned previously, NQSUMOT has been performing very strongly thus far into 2018. Here is a look on a month over month comparison thus far into the year through September. The top performing months thus far have been January (+6.78%) and August (+6.43%).



## NQSUMOT vs. MSCI USA Momentum Total Return Index (MU2000\$)

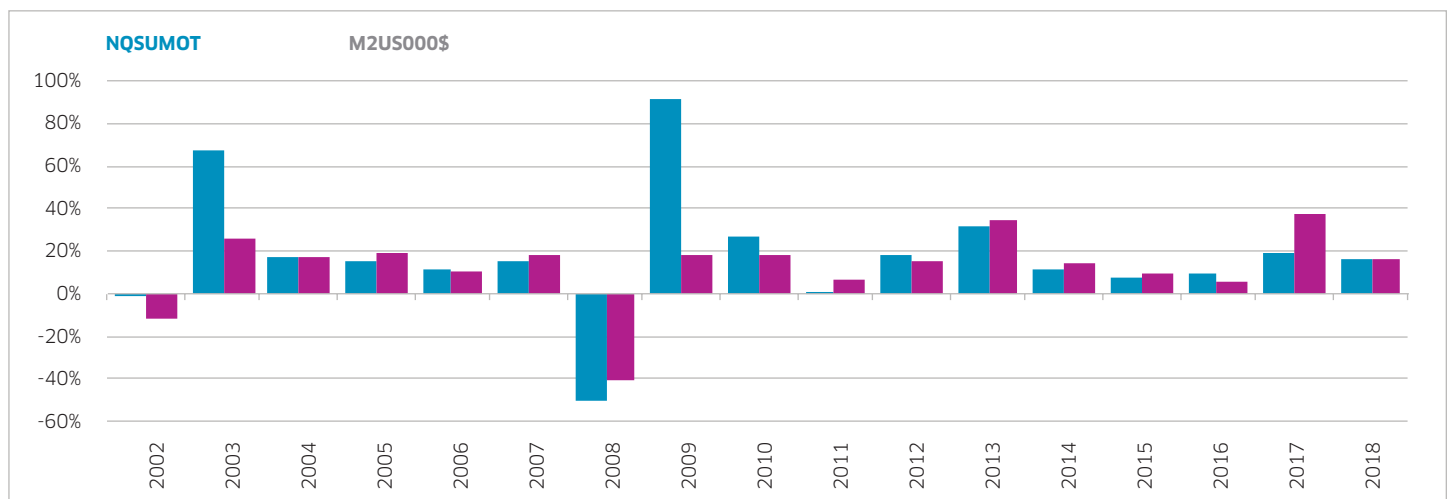
To get an idea for how it performs against one of its peers, we've compared it to the MSCI USA Momentum Total Return Index. We've used the same time frame as previous (March 30, 2001 – September 28, 2018). NQSUMOT demonstrated significant outperformance over MU2000\$ and did so on just slightly higher volatility.

	NQSUMOT	M2US000\$
Cumulative Returns	914.41%	487.07%
Annualized Returns	14.15%	10.64%
Annualized Volatility	22.61%	18.79%



### Annual Comparison 2002 - 2018

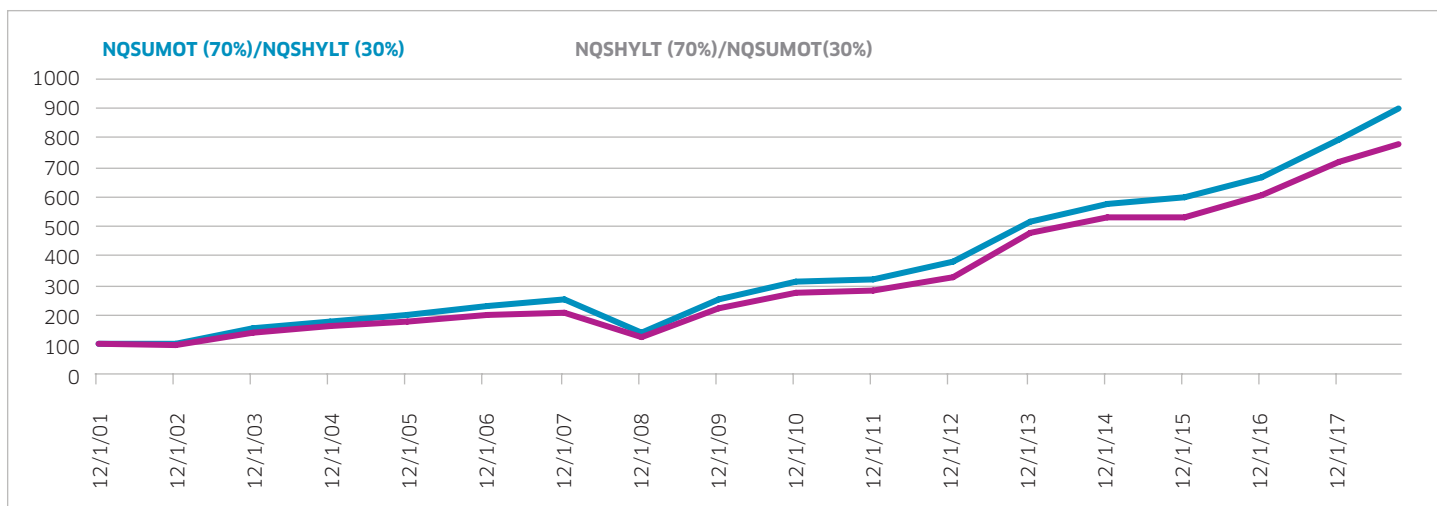
Perhaps the most interesting statistic when comparing the two on an annual basis is looking at the performance in 2009. Keep in mind, momentum strategies are generally known to underperform when coming off of “bear market” bottoms given the change in leadership. However, this was actually the top performing year (+91.65%) for NQSUMOT and it outperformed M2US000\$ by an astounding 74%. Another year to take note of is 2003, in which NQSUMOT gained 66.94%, while M2US000\$ was up 26.17%



## Blending Momentum & Dividend Yield Strategies NQSUMOT & NQSHYLT

Combining a momentum strategy with a total shareholder yield seeking strategy can help reduce drawdowns and lower volatility due to their low correlation over the long term. In order to display this, we've developed a basic model which allocations towards both momentum (NQSUMOT) and yield (NQSHYLT) and rebalances on an annual basis. The portfolio uses a standard 70/30 and 30/70 allocation. The time frame studied is between December 31, 2001, and September 28, 2018. Being overweight the momentum sleeve (allocation towards NQSUMOT) outperforms the model which is overweight a total shareholder yield sleeve (NQSHYLT). Furthermore, the volatility was just slightly higher even given the large outperformance.

	NQSUMOT (70%)/NQSHYLT (30%)	NQSHYLT (70%)/NQSUMOT (30%)
Cumulative Returns	799.80%	682.64%
Annualized Returns	14.97%	13.95%
Annualized Volatility	26.04%	23.41%



## Conclusion

By definition, momentum investing is generally thought of as an investment strategy which aims to capitalize on the continuance of existing price trends in the market. The impressive performance of NQSUMOT over the longer term time frame we studied confirms the benefit of the underlying robust methodology. We gave a basic breakdown of the current ICB allocations, top weighted positions, and also an example of how combining momentum and dividend yield can help diversify a portfolio by reducing volatility and draw downs.

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