

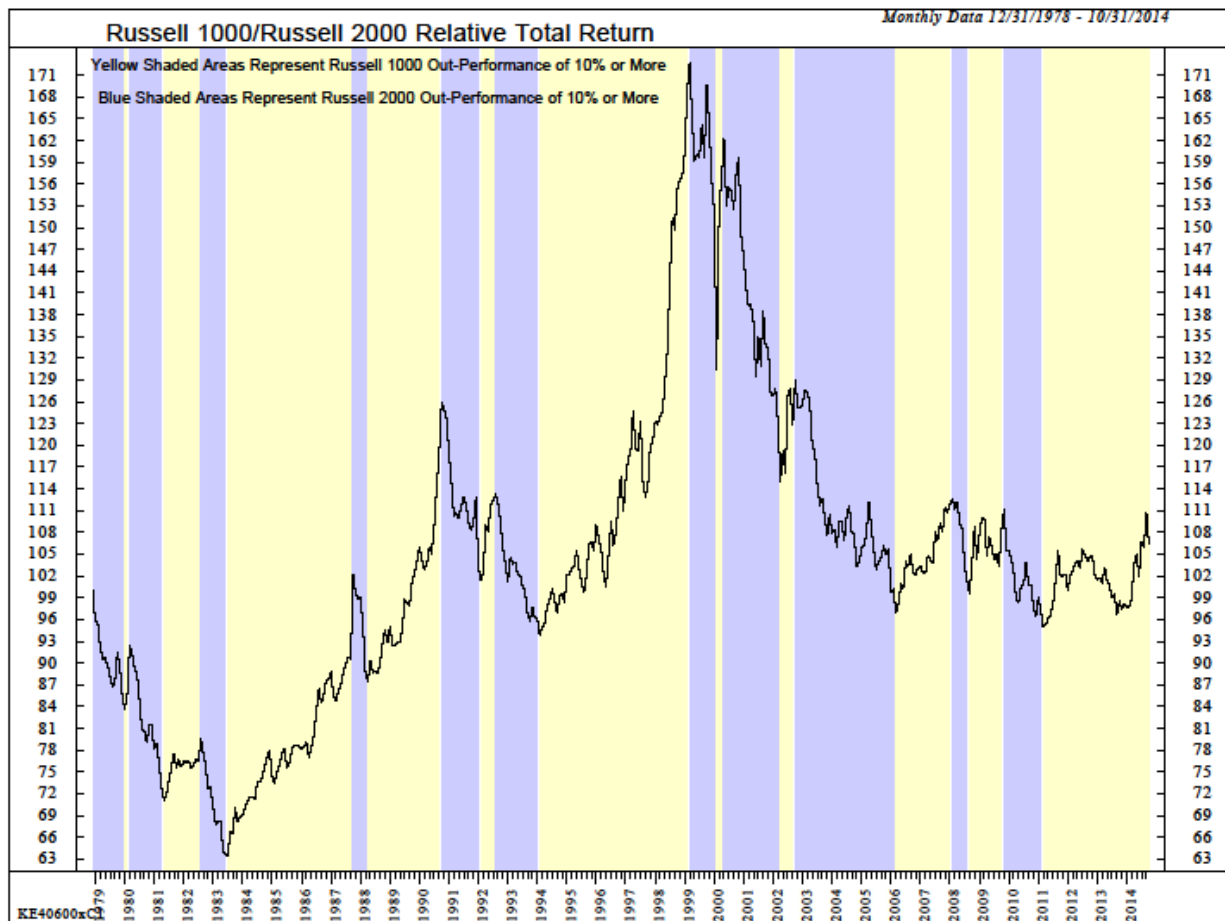
## Outperform with ETFs: Upgrades to the Market Cap and Style Models

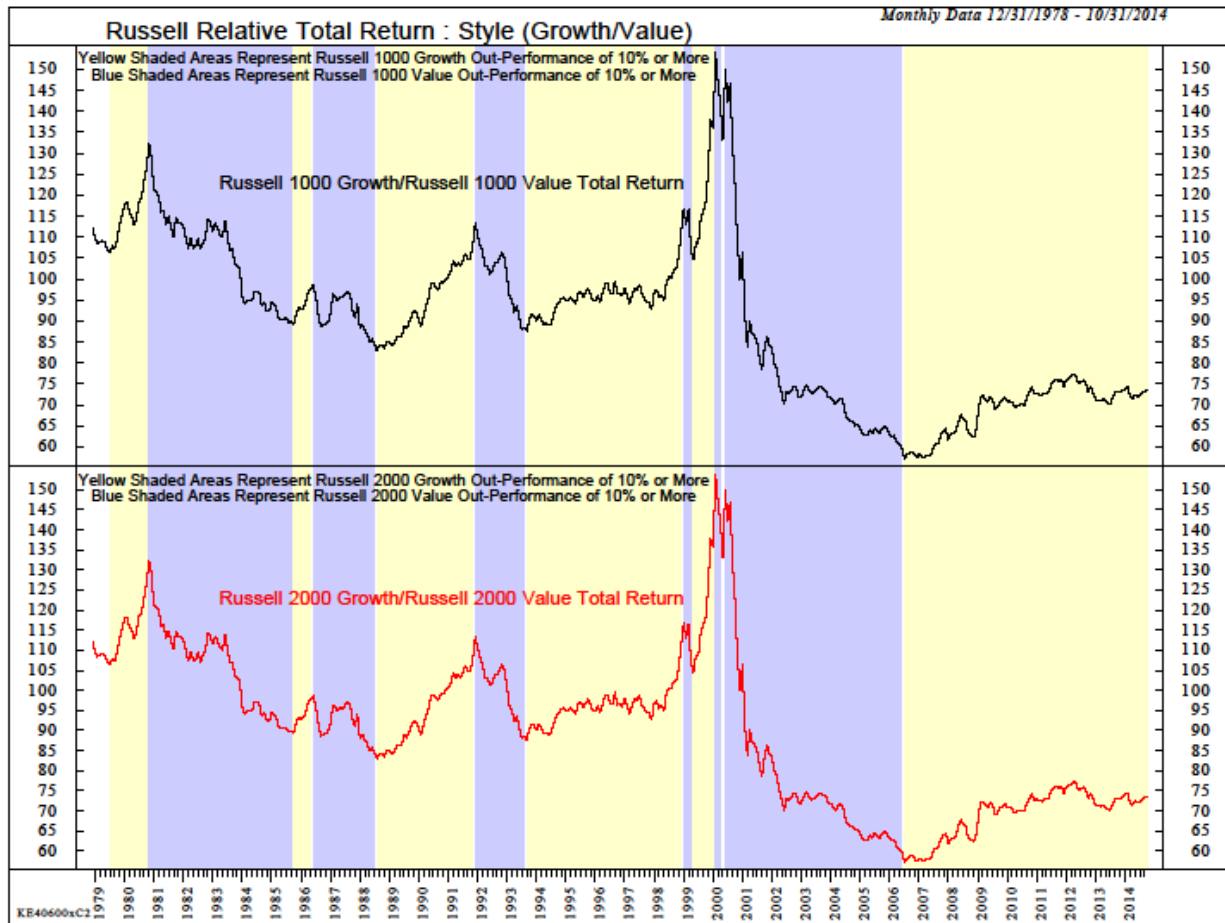
At Northlake Capital Management, actively managed exchange-traded funds (ETFs) comprise a large portion of our clients’ portfolios. Together with Ned Davis Research (NDR), we found long periods where some investment themes outperformed others. To capture that outperformance, we use two customized and back-tested NDR models to select the best ETFs within Market Cap and Style themes. This paper explains those models in more detail and describes the recent upgrades to each model.

### The Evidence

We originally chose to develop and use these models because we believed we could add value by choosing the correct investment themes at the right times. We found evidence that there were extended periods of significant and persistent outperformance within Market Cap and Style themes. The models were designed to capture the disparity created by those periods of outperformance.

The two charts below illustrate the evidence. The first chart shows periods where large or small caps outperformed the other by 10% or more. The second chart shows periods where growth or value outperformed the other by 10% or more.





On the Market Cap model, large cap (represented by the Russell 1000) outperformed small cap (represented by the Russell 2000) by 83.9% from 1994 through 1999. In other words, large cap outperformed small cap by an average of 12.9% each year during that period. This is just one example of the many extended periods where large or small outperformed the other.

In the Style model, growth has outperformed value by 29.7% since mid-2006, equal to an average annual outperformance of over 3%. Given these large and persistent disparities in performance within Market Cap and Style themes, a model designed to rotate into the right themes at the right times can add significant value to client portfolios.

In order to create signals to trigger the switch within themes, we adapted models developed by NDR that combine economic, interest rate, and stock market technical indicators into monthly predictive

multifactor models. We have recently been working with NDR on upgrading the Market Cap and Style model inputs and outcomes.

Each model contains a series of factors that individually have predictive power in choosing within each theme. These factors are combined into a multifactor model with the recommendation based on the weight of the evidence. In other words, if most of the individual indicators favor one output, then the model will recommend that output. In the upgraded models, some new indicators have been added and some original indicators have been removed. The individual factors have also been reorganized into internal and external groupings.

The external group is focused on macroeconomic data. These indicators are designed to provide a big picture view of the investment landscape and overall economic health. Examples of external indicators include investor sentiment, interest rate expectations, bond yield curves, auto sales, and coincident and lagging GDP measures.

The internal factors consist entirely of price-based indicators, sometimes referred to as technical analysis on Wall Street. These indicators are designed to improve the timeliness of the model scores by catching a shifting trend that has not shown up on the external indicators. Examples of internal indicators include stock price moving averages and market breadth.

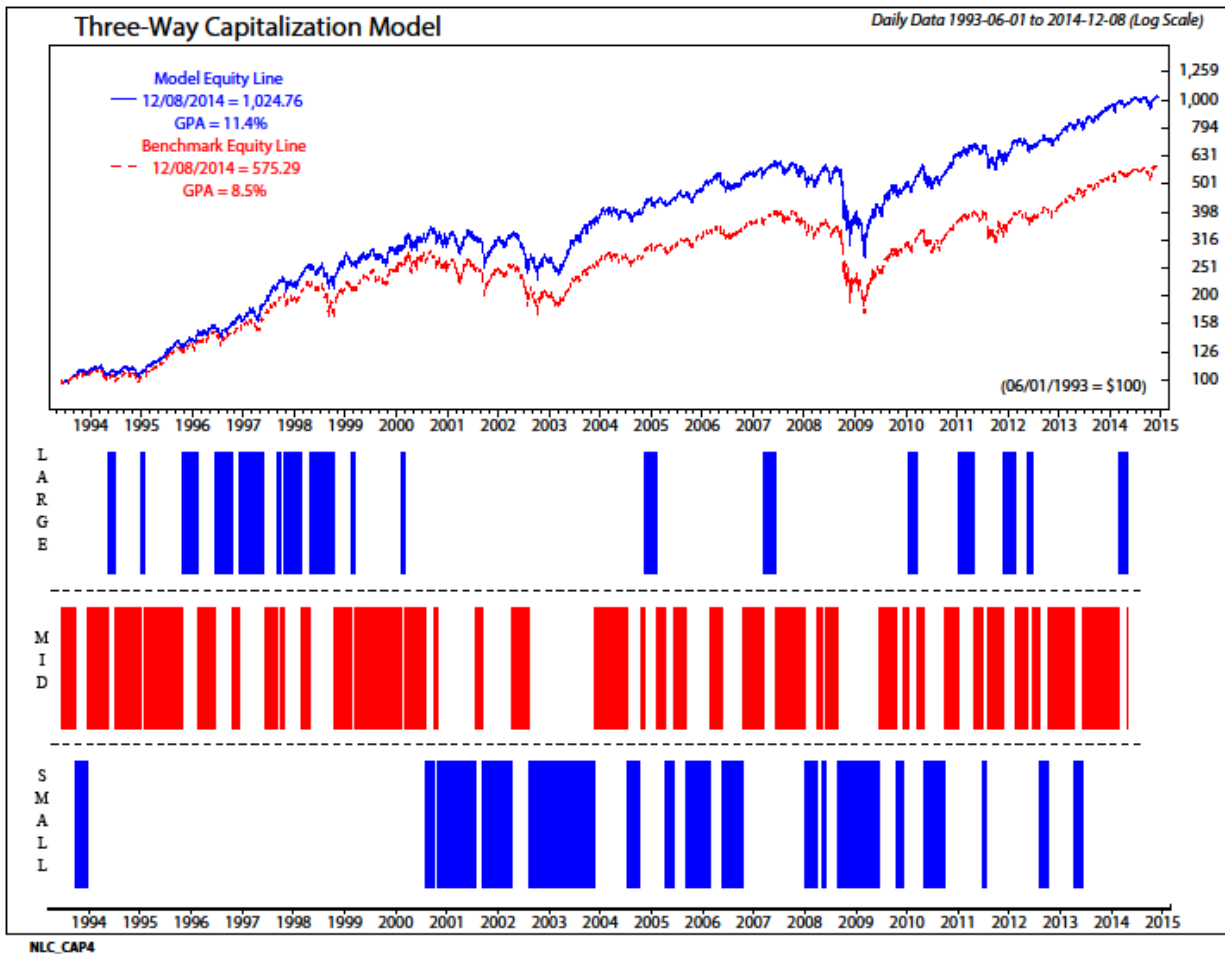
The internal and external indicators are weighted and combined to create composite scores for each factor group. Those composite scores are then weighted and combined again to create overall composite scores for the Market Cap and Style models. Each model has predefined thresholds within a range of 0 to 100 where certain scores trigger a switch in investment themes, for example from small cap to mid cap or growth to value.

### **The Market Cap Model**

The Market Cap model rotates between large cap, midcap, and small cap themes. In the updated Market Cap model these three potential outcomes remain the same. However, several of the individual factors changed as did their weightings in the overall model. Based on back-tests of the models, we expect the outcomes from the upgraded inputs to be more accurate in choosing the correct theme each month, leading to improved performance for Northlake clients.

The chart below illustrates the performance of the upgraded Market Cap model versus the benchmark since 6/1/1993. The blue line shows the performance of the Market Cap model. The red line shows the performance of the benchmark, which is evenly split between buying and holding ETFs that represent large cap (SPY-S&P 500), midcap (MDY-S&P 400 Mid Cap), and small cap (IWM-Russell 2000) stocks. The bars on the bottom of the chart show which Market Cap theme the model signaled to choose. In the top left corner of the chart, you can see that a \$100 investment in the Market Cap model on 6/1/1993 would have grown to \$1,024.76 by 12/8/2014 versus only \$575.29 in the benchmark. In other words, the

Market Cap model created an average annual return of 11.4% versus a return of only 8.5% per year for the benchmark.



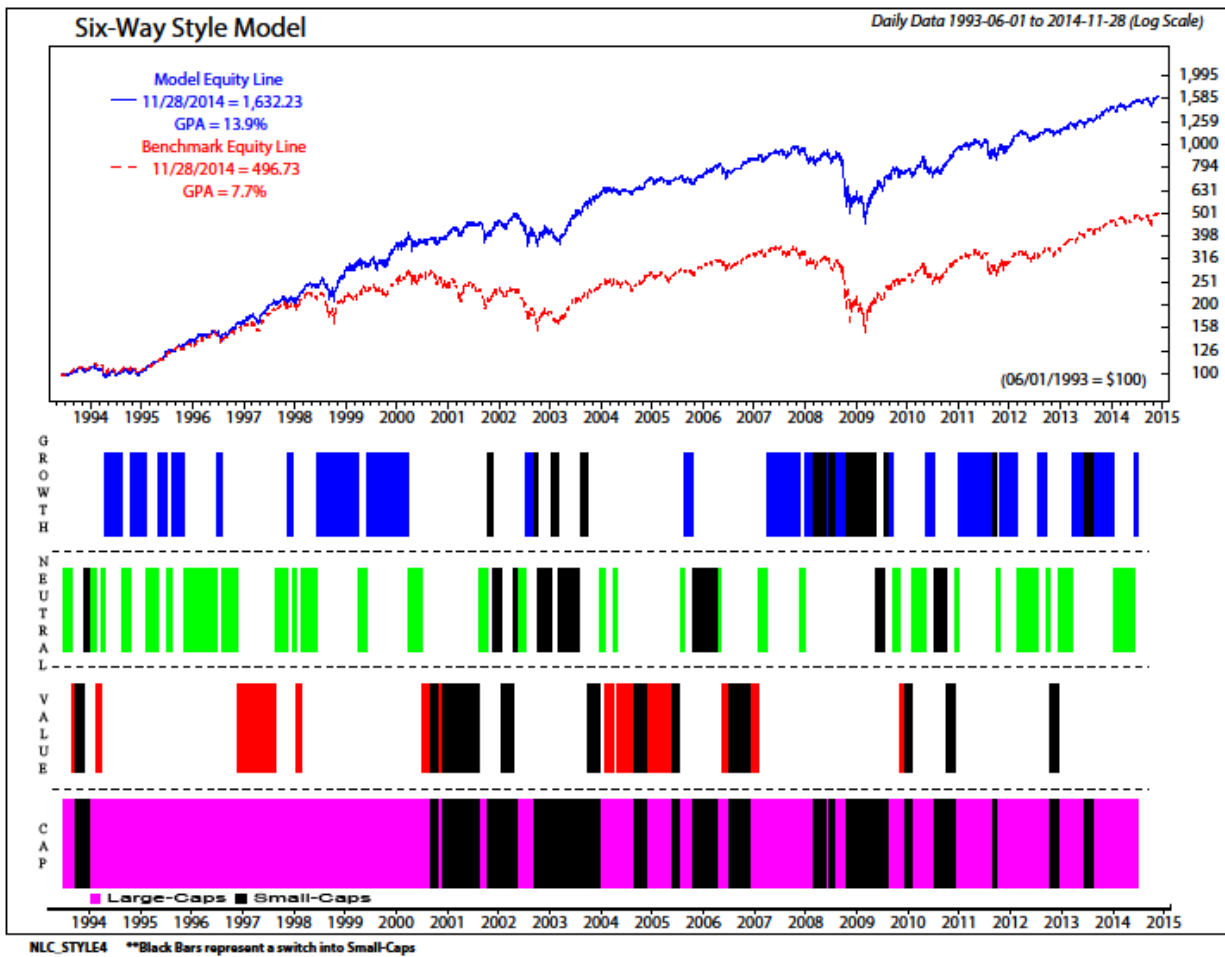
## The Style Model

The Style model previously rotated between large cap growth and large cap value themes. The updated Style model has expanded to six potential outcomes: large cap growth, large cap value, small cap growth, small cap value, large cap neutral, and small cap neutral.

New research determined that the addition of Market Cap model influence on the Style model enhanced the risk/return profile of the Style model. When the Market Cap model signals for a switch to small caps, the Style model now changes to small cap growth or small cap value as well.

Furthermore, we learned that there were extended periods where growth and value performance did not diverge materially. As a result, we added neutral options to the outcomes of the Style model. When the model outcome is neutral, client portfolios are equally weighted in growth and value. Combining these two new insights, the Style model can now change to any of the six outcomes listed above.

The chart below illustrates the performance of the upgraded Style model versus the benchmark since 6/1/1993. The blue line shows the performance of the Style model. The red line shows the performance of the benchmark, which is evenly split between buying and holding ETFs that represent large cap growth (IWF-Russell 1000 Growth), large cap value (IWD-Russell 1000 Value), small cap growth (IWO-Russell 2000 Growth), and small cap value (IWN-Russell 2000 Value) stocks. The bars on the bottom of the chart show which Style theme the model signaled to choose. In the top left corner of the chart, you can see that a \$100 investment in the Style model on 6/1/1993 would have grown to \$1,632.23 by 11/28/2014 versus only \$496.73 in the benchmark. In other words, the Style model created an average annual return of 13.9% versus a return of only 7.7% per year for the benchmark.



## Conclusion

In summary, both the Market Cap and Style models were upgraded in a few small but significant ways. The inputs for both models were reassessed for predictive power and reorganized into internal and external groups. The upgraded inputs should lead to better model performance and increased returns for Northlake Clients. Also, the Style model changed from having two potential outcomes to having six

potential outcomes. The additional outcomes were added to represent the influence of the Market Cap model and the possibility of selecting neutral style in periods where neither growth nor value are predicted to outperform. We are very pleased with these upgrades, and we believe the results will speak for themselves over time.