

# New Highs Segmentation

QUANTITATIVE RESEARCH

O'NEIL GLOBAL ADVISORS INC.

## New Highs: Across the Board and Around the World

April 28, 2020

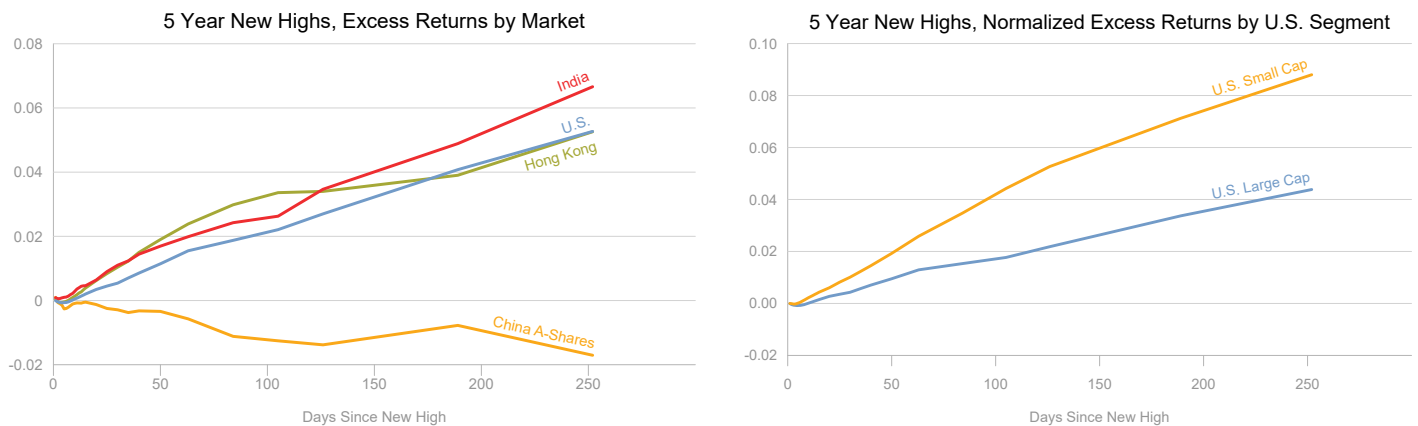


Figure 1: Cumulative excess returns by number of days since a new high event from 1995 to 2018. The left panel shows the results aggregated across U.S., China A-shares, Hong Kong, and India markets. The right panel shows results aggregated by U.S. market cap segment. Results for new high events occurring on the same day are aggregated and liquidity weighted then averaged over time.

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### KEY FINDINGS:

- New highs by growth stocks outperform those by value stocks, but the effect disappears when adjusting for volatility.
- New highs by small-cap stocks outperform those by large-cap stocks, even when controlling for volatility.
- The sector with the best performance following new highs is Technology. Consumer Staple had the worst performance.
- Internationally, India's market significantly outperforms that of the U.S. with respect to new highs.
- New highs have a mean-reversion effect in the China A-shares market.

### EXECUTIVE SUMMARY

We compared post-event performance for one year following five-year new highs, segmenting our results by style (growth/value), size (large cap/small cap), market (U.S., China A-shares, Hong Kong, and India), and industry sector. We found that the performance of **growth stocks sharply exceeds that of value stocks following new highs**, but the **effect disappears when controlling for differences in average volatility**. However, we also found that the **average alpha of small-cap stocks experiencing new highs is approximately double that of large-cap stocks** and the effect is **robust to adjustment for volatility**. Among international markets, India has the strongest performance with respect to new highs and **China A-shares has the weakest**. At the sector level, **Technology performs the best and Consumer Staple the worst**.

## INTRODUCTION

In this paper, we seek to further isolate the source of the momentum-like returns we uncovered in [our prior paper on new highs](#) (Marble & Ognar, 2020). We postulate that some stocks, due to certain characteristics, may be more prone to momentum-like returns following new highs. Additionally, areas of the market that are known to trade less efficiently, such as U.S. small caps and emerging economies, could yield superior results.

## METHODOLOGY

We empirically tested, over a broad cross section of market segments, the conditional, marginal expectations of cumulative excess returns<sup>1</sup> following new five-year highs from January 1995 to July 2018. We segmented new high events by size, style, market, and sector as follows: Each day we sorted all stocks in our U.S. equity universe by size characteristics in the first case and style characteristics in the second case to assign them a bucket for growth/value,<sup>2</sup> large cap/small cap,<sup>3</sup> and sector. We aggregated any new highs that had occurred according to their bucket. We then liquidity-weighted the results each day within each bucket and applied a non-linear adjustment to the resulting time series to apply relatively more weight to days in which a greater number of new highs occurred. This generates results that better reflect an investor's real-world experience and reduces the spurious noise associated with sparse sample sizes. We then extend our analysis internationally, calculating the investable universe in similar fashion<sup>4</sup> and performing aggregations at the international level with respect to stock markets in the U.S., Hong Kong, China A-shares, and India.

1 Each day, for each stock in our universe, we apply a forward-looking beta estimate using our proprietary model that weights the results of multiple OLS regressions over various timeframes with expectations of coefficient drift and mean reversion. Excess returns are equivalent to CAPM alphas under zero risk-free rate and zero dividend yield assumptions with the S&P 500 used as a proxy for market returns.

2 We assign stocks to growth or value buckets by calculating a growth rank as follows: We rank stocks from 1 to 99 using these components: average daily return (five-year trailing), volatility (five-year trailing), dividend yield, dividend payout ratio, sales yields, recent sales growth, and EPS Rank. Stocks with ranks 50 and above are considered growth stocks and stocks with ranks 1 to 49 are considered value stocks.

3 We assign stocks to large cap or small cap buckets based on their expected market cap ranking among all U.S. equities. Those in the 75th percentile or greater are considered large cap and those in percentiles 40–74 are considered small cap. Stocks in less than the 40th percentile are considered not investable.

4 For China A-shares, only data since January 1, 2005 is considered due to market quality and data limitations. Additionally, we address idiosyncratic issues such as data-quality limitations, trading suspensions, and locked-limit conditions.

## RESULTS

### 5-Year New Highs—Large Cap vs Small Cap

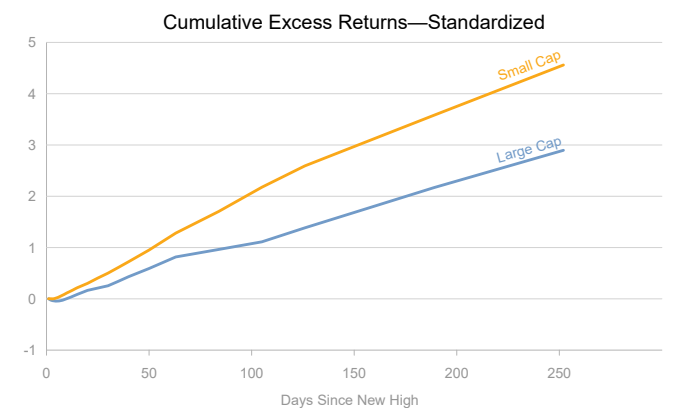
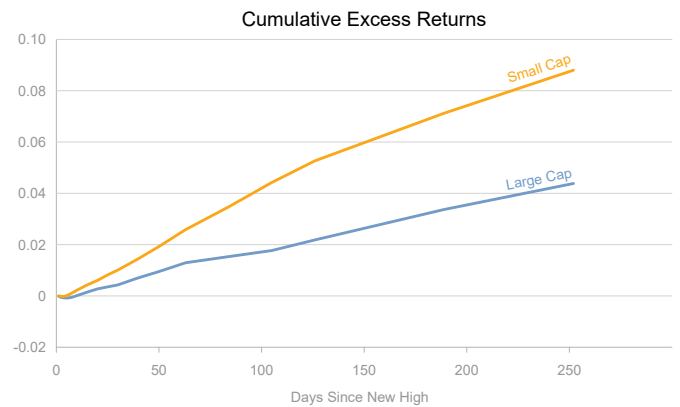


Figure 2: Cumulative excess returns by number of days since a new high event by U.S. size segment (large cap/small cap) from 1995 to 2018. Results for new high events occurring on the same day are aggregated and liquidity weighted then averaged over time. The upper panel shows the unadjusted results and the lower shows excess returns normalized by volatility.

We generally found **significant post-event outperformance by small-cap stocks compared with large-cap stocks.**

Figure 2 shows the average cumulative alpha normalized by volatility for up to one year following five-year new highs for small-cap and large-cap stocks, respectively. The differences in performance on the basis of size could be explained by the higher volatility of small-cap stocks and, when controlled for, may disappear. We compared the subsequent excess returns following new highs normalized by trailing individual stock-level volatility estimates. Figure 2 shows the raw differences in excess returns on the left and the volatility-normalized versions on the right. We can see that **the differences in performance on the basis of size are resilient to such controls.** The differences could be explained by variances in transaction costs and are hence unrealizable in practice, but this does leave open the desirable possibility that such superior performance is due to less market efficiency in the small-cap segment related to its greater breadth of securities.

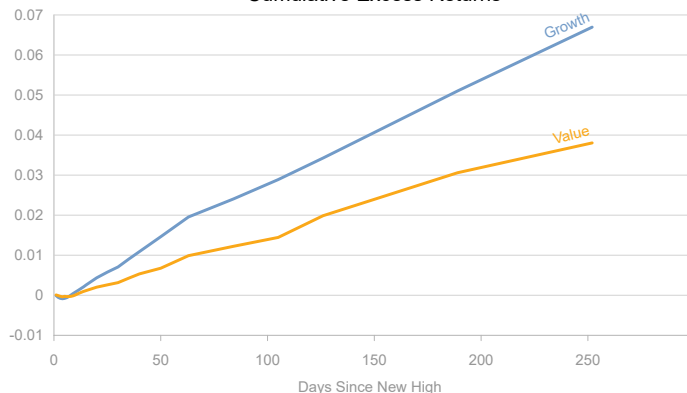
**Table 1: New Highs, One-Year Post Event Performance by U.S. Market Cap**

	US Large Cap	US Small Cap
Cumulative Return	5.89%	2.95%
Cumulative Alpha	4.48%	9.20%
Hit Rate	64.42%	59.35%
Average Gain	27.36%	31.95%
Average Loss	-24.20%	-28.33%
Average Maximum Favorable Excursion	28.42%	33.89%
Average Maximum Adverse Excursion	-19.15%	-23.97%
Average Daily Frequency	3.17%	1.49%

This table shows average post-event performance statistics one year following a new high by U.S. size segment (large cap/small cap) from 1995 to 2018. Return and excess returns are statistically significant at the 99% confidence level. 'Cumulative Alpha' is based on the CAPM, with the S&P 500 as a proxy for market returns. 'Hit Rate' refers to the percentage of events on average yielding positive returns. 'Average Daily Frequency' is the average proportion of our investable U.S. equity universe experiencing a new high with respect to the window length on a given day.

## STYLE

**5-Year New Highs—Growth vs Value**  
Cumulative Excess Returns



**Cumulative Excess Returns—Standardized**

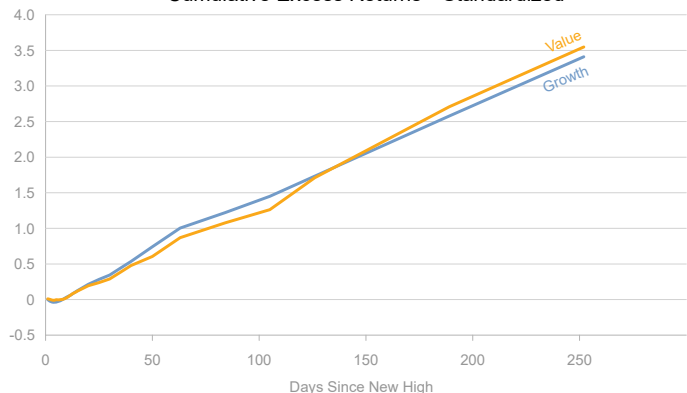


Figure 3: Cumulative excess returns by number of days since a new high event by U.S. style (growth/value) segments from 1995 to 2018. Results for new high events occurring on the same day are aggregated and liquidity weighted then averaged over time. The upper panel shows the unadjusted results and the lower shows excess returns normalized by volatility.

We found significant outperformance of new highs by growth stocks compared with value stocks. Figure 3 shows the average cumulative alpha normalized by market volatility for up to one year following five-year new highs for growth and value stocks, respectively. Growth stocks generate 6–7% in alpha over a year, whereas value stocks generate less than 4%. However, unlike with size, such differences appear to be explainable by higher stock-level volatility and tend to disappear when controlling for differences in volatility. Figure 3 shows the raw and standardized average post-event performance of growth and value segments. We can see that, over time, volatility-standardized excess returns are indistinguishable.

**Table 2: New Highs, One-Year Post Event Performance by U.S. Style Segment**

	US Growth	US Value
Cumulative Return	5.32%	6.13%
Cumulative Alpha	6.93%	3.88%
Hit Rate	63.47%	64.92%
Average Gain	31.12%	22.78%
Average Loss	-28.03%	-18.95%
Average Maximum Favorable Excursion	32.60%	23.47%
Average Maximum Adverse Excursion	-22.28%	-15.30%
Average Daily Frequency	2.59%	1.85%

This table shows average post-event performance statistics one year following a new high by U.S. style (growth/value) segment from 1995 to 2018. Return and excess returns are statistically significant at the 99% confidence level. 'Cumulative Alpha' is based on the CAPM, with the S&P 500 as a proxy for market returns. 'Hit Rate' refers to the percentage of events on average yielding positive returns. 'Average Daily Frequency' is the average proportion of our investable U.S. equity universe experiencing a new high with respect to window length on a given day.

INDUSTRY SECTOR

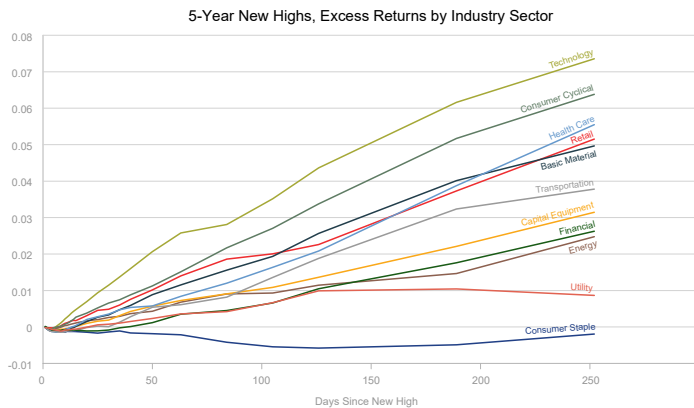


Figure 4: Cumulative excess returns by number of days since a new high event by industry sector from 1995 to 2018. Results for new high events occurring on the same day are aggregated and liquidity weighted then averaged over time.

Generally, in the U.S. equity universe, we found that stocks in the Technology sector perform the best following new highs, and those in Consumer Staple perform the worst. Figure 4 shows cumulative alpha by number of days since the event by industry sector.

About the O'Neil Capital Management Quantitative Services Group

Over the years we have described the investment process used by William J. O'Neil as 'Qualitative Quant.' This type of investor looks at quantitative measures to accurately evaluate and efficiently compare companies but ultimately invests based on their own qualitative analysis of the data.

The O'Neil Capital Management Quantitative Services Group grew out of a desire to create quantitative research based on the work pioneered by Mr. O'Neil. The Quant Group develops quantitative research and systematic investment strategies for the O'Neil family of companies. The program comprises a global team of data scientists, software engineers, and investment professionals. Our research is composed primarily of factor studies for discretionary and quantitative portfolio managers, and our current interests include factor investing, time series analysis, and machine learning techniques.

The Quant Group provides quantitative research and data science expertise for O'Neil Global Advisors. The two benefit from a common heritage and passion for finding what leads to outperformance in global equity markets.

Table 3: New Highs, One-Year Post Event Performance by U.S. Sector

	Basic Mat	Energy	Cap Equip	Tech	Cons Staple	Health Care	Cons Cyclical	Retail	Trans	Financial	Utility
Cumulative Return	0.5%	1.9%	6.1%	8.6%	5.5%	9.5%	5.3%	8.0%	6.1%	7.5%	2.1%
Cumulative Alpha	5.3%	2.5%	3.2%	7.6%	-0.2%	5.1%	6.6%	5.7%	3.9%	2.7%	0.9%
Hit Rate	57.1%	60.4%	65.9%	63.9%	66.2%	68.1%	60.8%	66.2%	63.6%	67.1%	62.5%
Average Gain	26.3%	28.2%	23.7%	38.3%	19.4%	30.3%	30.5%	27.2%	25.3%	22.9%	14.2%
Average Loss	-25.7%	-28.2%	-21.2%	-29.3%	-17.2%	-24.6%	-24.4%	-21.5%	-20.7%	-18.2%	-15.4%
Average Maximum Favorable Excursion	26.7%	28.9%	25.3%	39.4%	20.8%	31.7%	30.6%	28.6%	27.4%	23.8%	16.5%
Average Maximum Adverse Excursion	-23.4%	-22.5%	-17.4%	-22.3%	-14.3%	-18.6%	-20.9%	-18.5%	-19.1%	-15.3%	-13.2%
Average Daily Frequency	2.1%	2.0%	2.6%	1.6%	3.0%	2.0%	2.1%	2.1%	2.3%	2.6%	2.9%

This table shows average post-event performance statistics one year following a new high by industry sector from 1995 to 2018. Return and excess returns are statistically significant at the 99% confidence level. 'Cumulative Alpha' is based on the CAPM, with the S&P 500 as a proxy for market returns. 'Hit Rate' refers to the percentage of events on average yielding positive returns. 'Average Daily Frequency' is the average proportion of our investable U.S. equity universe experiencing a new high with respect to window length on a given day.

## MARKET



Figure 5: Cumulative excess returns by number of days since a new high event across U.S., China A-shares, Hong Kong, and India equity markets. Results for new high events occurring on the same day are aggregated and liquidity weighted then averaged over time.

We found significant outperformance following new highs in India’s market compared with in the U.S. and Hong Kong. Consistent with other studies, we found significant mean-reversion effects in the China A-shares market. Table 3 shows the average cumulative alpha normalized by market volatility for up to one year following new five-year new highs for the U.S., China A-shares, Hong Kong, and India, respectively. **We found India to be the best performing market for new highs at 6.89%, and China A-shares the worst at -1.69%.**

**Table 4: New Highs, One-Year Post Event Performance by Market**

	Market			
	US	China-A	HK	India
Cumulative Return	5.7%	-4.1%	5.7%	11.7%
Cumulative Alpha	5.4%	-1.7%	5.4%	6.9%
Hit Rate	62.8%	42.6%	54.5%	62.0%
Average Gain	27.7%	64.1%	35.5%	38.3%
Average Loss	-24.5%	-38.0%	-27.5%	-28.9%
Avg Maximum Favorable Excursion	28.8%	55.6%	37.5%	41.7%
Avg Maximum Adverse Excursion	-19.5%	-35.2%	-21.9%	-20.4%
Avg Daily Frequency	2.5%	1.6%	1.8%	2.6%

This table shows average post-event performance statistics one year following a new high by market from 1995 to 2018. Return and excess returns are statistically significant at the 99% confidence level. ‘Cumulative Alpha’ is based on the CAPM. ‘Hit Rate’ refers to the percentage of events on average yielding positive returns. ‘Pct Daily Frequency’ is the average proportion of our investable equity universe experiencing a new high with respect to window length on a given day.

## CONCLUSION

Our hopes of finding a pocket of strong relative performance on the **style spectrum were dashed when we adjusted for differences in volatility.** In contrast, on the size spectrum, new highs in small-cap stocks tend to have relatively higher post-event performance, even when controlling for differences in volatility. It is possible, in the pessimistic case, that this is due to the structural effects of relatively higher transaction costs. However, it is also plausible that the larger number of small-cap names and the resulting thin analyst coverage gives rise to market blind spots, driving inefficiency—and opportunity for investors. This may also explain the superior relative performance of new highs in India’s market. Perhaps most curious is the significant but opposite effect we see in the China A-shares market, where new highs are associated with negative, rather than positive, follow-on performance. While there are anecdotal explanations, solid empirical ones are scant. We have also seen somewhat intuitively that Technology stocks tend to have better post-event results than Consumer Staple stocks. Such stocks may possess comparative advantages associated with ownership of the intellectual property underpinning life-enhancing technological products. These advantages may drive secular growth that is more resilient to the shifts in cyclical preferences than more defensive Consumer Staple stocks. Our general conclusion therefore, with some noted exceptions such as China A-shares and the U.S. Consumer Staple sector, is that new highs are a broadly and generally effective bullish signal that has consistently produced excess returns across a broad spectrum of segments and geographies.

## BIBLIOGRAPHY

1. Marble, T. J., & Ognar, R. P. (2020). *New Highs: Performance Increases With Lookback Window*. Los Angeles: O'Neil Capital Management, Inc.

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The backtesting process assumes that the strategy would have been able to purchase the securities recommended by the model and the markets were sufficiently liquid to permit all trading. Changes in these assumptions may have a material impact on the backtested returns presented. Certain assumptions have been made for modeling purposes and are unlikely to be realized. No representations and warranties are made as to the reasonableness of the assumptions. This information is provided for illustrative purposes only.

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