



Examining Active Crowding as a Risk Factor

Key Takeaways

- ▶ We hypothesize that active crowded securities — those for which sentiment has been broadly bullish among active investors for an extended period — are more likely to become overvalued.
- ▶ Our backtests demonstrate that active uncrowded securities tend to outperform both active crowded securities and the broader universe over time. In addition, the return characteristics of active uncrowded portfolios suggest the existence of a meaningful universe of deeply undervalued securities. We believe the active crowding factor can play a useful role in the stock selection process.
- ▶ We recommend managing exposures to active crowded securities given their tendency to underperform and experience sharp drawdowns.

What is Active Crowding?

In our earlier paper on passive crowding, we found that companies that had experienced large accumulations of their shares by passive ETFs and mutual funds exhibited below-average forward returns. We hypothesize this occurs because trades by passive entities are motivated solely by flows into and out of these funds, which at most embed an opinion at a thematic level (asset class, sector, factor, etc.). As a result, their trading activity detracts from market efficiency at the individual stock level.

Meanwhile, investments by active managers typically embed an opinion at the stock level, and their trading activity should theoretically lead to informationally efficient pricing of individual securities. However, we recognize that this isn't always the case. Active investors are, after all, human, and are prone to cognitive and behavioral biases, including herd behavior, recency bias and loss aversion. We suspect that the market becomes most vulnerable to these behavioral errors when investor sentiment reaches extreme levels.

The active crowding factor serves as a barometer for active investor sentiment around a specific security that takes into consideration the level of cognitive diversity present in the market for that security. We define stocks for which the investor base is broadly bullish and has remained so for extended periods of time as active crowded. Conversely, we define stocks that suffer from both broad and prolonged bearish sentiment to be active uncrowded. We aggregate the following four sub-factors to gauge both the breadth and consistency of investor sentiment:

Exhibit 1: The Sub-Factors that Form the Active Crowding Factor

Sub-Factor
<p>Active Manager Overweights</p> <p>The number of actively managed mutual funds¹ holding the stock as a top 20 active weight relative to the average for stocks within the same size group. This metric serves as a gauge of sentiment and consensus across the buy side. More active manager overweights indicates active crowding.</p>
<p>Sell-Side Buy Ratings</p> <p>The percent of sell-side analysts covering the stock who have a buy rating. This metric serves as a gauge of sentiment and consensus across the sell side. We require a minimum of five analyst ratings to assign a stock a rank for this metric. A higher proportion of buy ratings indicate active crowding.</p>
<p>Long-Term Momentum</p> <p>The stock’s return over the trailing two years. Higher returns indicate active crowding.</p>
<p>Institutional Trade Persistence</p> <p>The number of consecutive quarters of net buying or selling by aggregated institutional investors. We calculate the quarter-over-quarter change in the total percent of shares outstanding owned by institutional investors (using 13-F filings). The top 40% are considered net institutional buys, while the bottom 40% are considered net institutional sells. This measures both the direction and consistency of sentiment over time. Net institutional buys for extended periods indicate active crowding.</p>

A crowded stock would be characterized by some combination of many active managers being overweight the stock, many sell-side analysts having a buy rating on the stock, high two-year momentum and consecutive quarters of buying by aggregated institutional investors. On the other hand, an uncrowded stock would be characterized by some combination of very few or no active managers being overweight the stock, few/no sell-side analysts having a buy rating on the stock, low two-year momentum and consecutive quarters of selling by aggregated institutional investors.

¹ Our sample covers roughly 50% of the actively managed equity mutual funds in the United States. We are limited by the fact that disclosure of fund level holdings data is not mandated by the SEC and is only done on a voluntary basis. We are also, to a lesser extent, limited by the availability of fund benchmark data.

Factor Construction

To test our hypothesis and better understand its drivers, we constructed and backtested portfolios partitioned by each of the four sub-factors listed above and by an overall active crowding factor.

Our Investable Universe

We began with a universe of all common stocks, REITs and MLPs listed on U.S. exchanges while excluding ADRs. We then filtered out stocks whose trailing three-month average daily volume (ADV) was below the 25th percentile, and whose market cap was below the 20th percentile of the Russell 3000 Index. This translated to a minimum tradeable ADV of about \$2.3 million and minimum market cap of about \$350 million as of December 2018. By doing so, we tested our factor using only stocks in which an institutional asset manager could realistically have taken meaningful positions.

Portfolio Performance

We generated scores for each of the sub-factors listed in Exhibit 1 by assigning stocks a decile rank based on the factor’s underlying sub-factor score. For example, a stock whose trailing two-year return was within the top (bottom) 10% of the investable universe would receive a score of 1 (10) for the long-term momentum sub-factor. We then assigned an overall active crowding score to each stock with at least two sub-factor rankings available; the overall score is simply the decile rank of the average sub-factor percentile score. The top two deciles were classified as active crowded, the bottom two deciles were classified as active uncrowded, while the middle 60% were classified as neutral.

We found that between December 1999 and December 2018, active uncrowded portfolios typically outperformed their active crowded counterparts — especially for longer holding periods. The average annualized differences in value-weighted² forward returns (calculated on a rolling basis with monthly rebalancing) between the active uncrowded and active crowded portfolios are shown in Exhibit 2. For example, the average annualized return over a 12-month holding period for being long the active uncrowded portfolio and being short the active crowded portfolio in the large cap space was 1.45% over the backtest period.

We observed that the performance of the overall active crowding factor was robust across the different size cohorts — particularly for holding periods longer than six months — while the performance of the individual sub-factors was far more mixed. For example, the average return for the active crowding factor over a 12-month holding

² We also tested the factor using equal-weighted returns, and the results are broadly consistent with the conclusions we draw from the value-weighted factor.

Exhibit 2: Annualized Overall Active Crowding Factor Returns

		Forward Return Period				
		1m	3m	6m	9m	12m
Size Group	All Cap	1.23	2.32	2.45	2.64	2.01
	Large Cap	0.33	1.63	1.76	2.03	1.45
	Mid Cap	0.62	1.50	2.43	2.95	2.39
	Small Cap	4.91	4.17	4.32	4.36	3.88

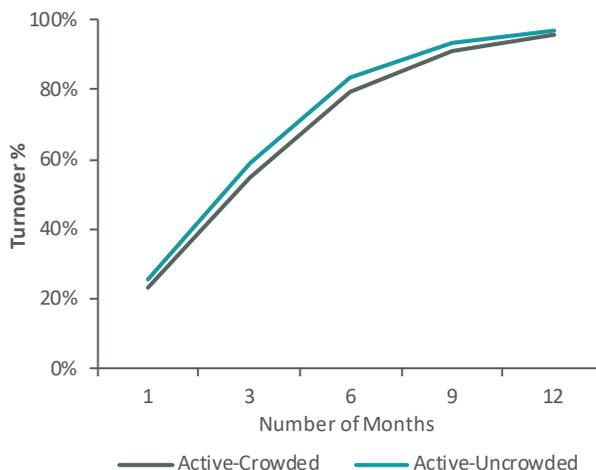
Source: ClearBridge Investments. Return measures the average annualized differences in value-weighted forward returns between the active uncrowded and active crowded portfolios, calculated on a rolling basis with monthly rebalancing. All periods December 1999 to December 2018.

period in the all cap universe was 2.01%, while the returns for the active manager overweights, sell-side buy ratings, long term momentum, and institutional trade persistence sub-factors were -0.12%, 0.83%, 3.82%, and 0.09% respectively.

The fact that the returns for two of the sub-factors were negligible was neither surprising nor an indication that these sub-factors add no value. In fact, much of the impetus behind multifactor models is the expectation that the concurrence between multiple factors should generate a more robust signal than any single factor alone. In the context of the active crowding factor, a stock was more likely to be overvalued — and thus underperform — if it exhibited strong trailing momentum, accumulation by active managers, and bullish sentiment on the buy and sell side versus exhibiting crowding characteristics in merely one of the sub-factors.

Regarding the optimal holding period, we found the factor to have comparatively strong performance when held for longer than six months. This is likely due to the relatively high persistence of crowding characteristics over time, such that, to actually profit from the factor, stocks need to see their sentiment normalize, moving them out of their crowded or uncrowded portfolios. To see how quickly this tends to happen, we measured turnover in the crowded and uncrowded portfolios (Exhibit 3). After three months, only around 50% of the stocks that were in the active crowded (active uncrowded) bucket had moved to the neutral or active uncrowded (active crowded) buckets. After six months, this figure increased to about 85%, indicating much more substantial normalization of sentiment and effectiveness of the factor.

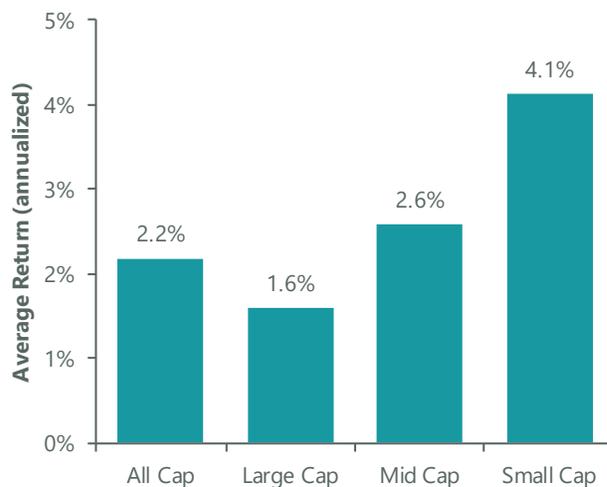
Exhibit 3: Turnover of Active Crowded and Active Uncrowded Portfolios



Source: ClearBridge Investments. December 1999 to December 2018.

In addition to the active crowding factor generating positive gross returns across all market cap groups (Exhibit 4), the all cap active crowding factor retained its positive alpha even when regressed against the Fama-French factors³ (Exhibits 5 & 6). This demonstrates that it is a robust factor in and of itself and not merely a proxy for other known risk factors. While it did indeed exhibit statistically significant betas to all the Fama-French factors, much of this can be explained by economic intuition.

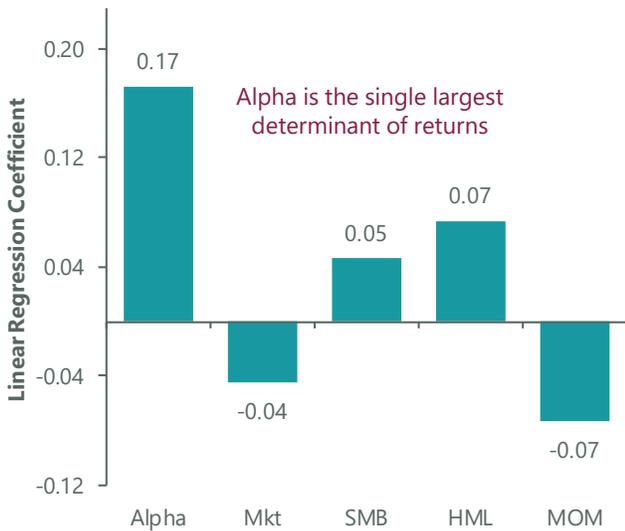
Exhibit 4: Average Annualized Return for the Active Crowding Factor by Market Cap



Source: ClearBridge Investments. December 1999 to December 2018. Returns measured using a 12-month holding period.

³ The Fama French factors are market excess returns (MKT), size (SMB), and value (HML). We also incorporate the momentum (MOM) factor into this test.

Exhibit 5: Regression Coefficients Against Fama-French Factors



Source: ClearBridge Investments. December 1999 to December 2018.

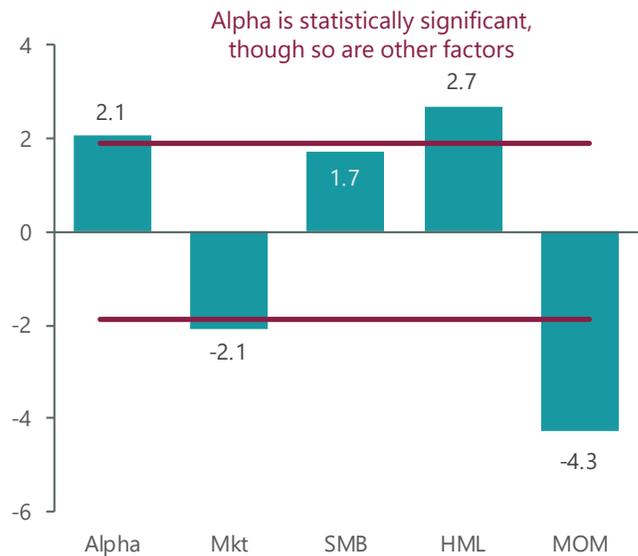
The negative coefficient on momentum (-0.07) is a function of the crowding factor being a bet against stocks with positive two-year momentum. The positive coefficient on the value factor (0.07) is likely a result of extremely bullish sentiment (i.e., crowding behavior) driving valuations up for crowded stocks, while extremely bearish sentiment (i.e., anti-crowding behavior) suppressed valuations for uncrowded stocks. The same phenomenon is likely what drove the positive correlation to the size factor (0.05) as well⁴ — i.e., bullish sentiment pushed stocks to higher market cap groups. Finally, the crowding factor’s negative coefficient/beta to the market is interesting but the effect is small and not especially meaningful.

Factor Implementation

Given our backtest of this factor strongly supports its robustness, we are comfortable recommending its use in stock selection and portfolio construction processes. We found that across market cap groups, active crowded stocks tend to generate lower returns than both neutral and active uncrowded stocks (Exhibit 7), while having relatively similar standard deviations (crowded 19%; neutral 16%; and uncrowded 22%). We also note that the returns of active crowded portfolios tend to exhibit negative skew over time (Exhibit 8), meaning negative outcomes are more frequent or of a higher magnitude than positive ones. This indicates that drawdowns tend to be particularly painful for active crowded securities when they occur.

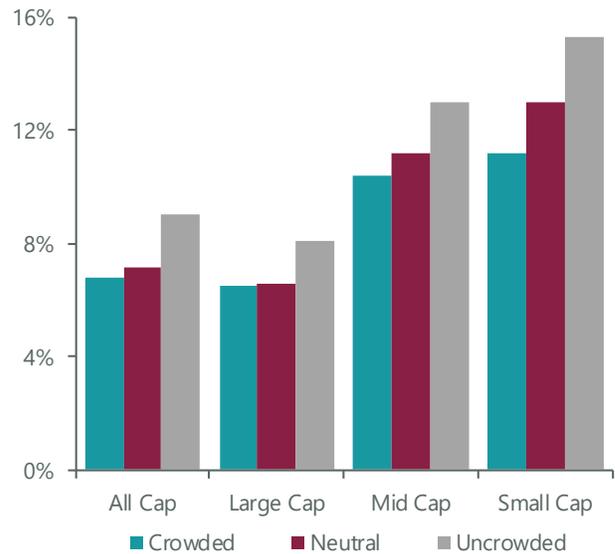
⁴ The size factor is constructed as long small cap and short large cap stocks.

Exhibit 6: T-Stats of Regression Coefficients



Source: ClearBridge Investments. December 1999 to December 2018.

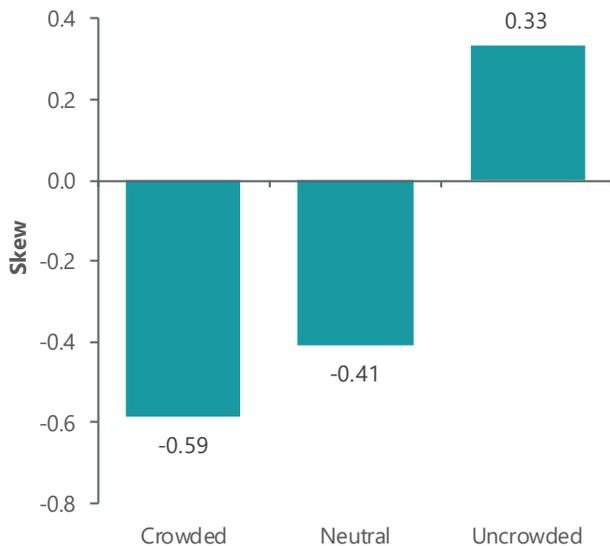
Exhibit 7: Annualized Returns of Portfolios



Source: ClearBridge Investments. December 1999 to December 2018. Sorted by size and crowding, with a 12-month holding period.

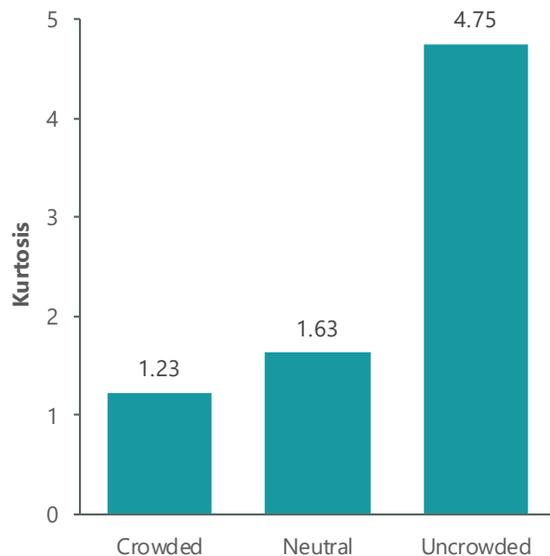
The active crowding factor can also be supportive in the idea generation process. We note that the returns of active uncrowded portfolios tend to exhibit positive skew (Exhibit 8) and high kurtosis, or fat tails (Exhibit 9), on a cross-sectional basis (at a single given point in time), meaning that extreme outcomes are common. From a screening perspective, this indicates that at any given point in time a meaningfully larger number of deeply undervalued securities tend to exist in the uncrowded portfolio than in the overall universe.

Exhibit 8: Average Cross-Sectional Skew of Portfolios



Source: ClearBridge Investments. December 1999 to December 2018. Sorted by active crowding.

Exhibit 9: Cross Sectional Kurtosis of Portfolios⁵



Source: ClearBridge Investments. December 1999 to December 2018. Sorted by active crowding.

⁵ Kurtosis is a measure of the fatness of tails in probability/frequency distributions. High kurtosis indicates that extreme outcomes are more common than they would be in normal or low kurtosis distributions.

Conclusion

Ultimately, we believe the active crowding factor can be a useful addition to both the stock selection and risk management processes. Our backtests not only provide compelling evidence that active uncrowded portfolios outperformed active crowded portfolios in aggregate, but also indicate that they typically contain a large number of deeply undervalued securities, making the factor a useful screening tool for fundamental stock pickers. Finally, we note that active crowded portfolios tend to exhibit sharper drawdowns than their neutral or active uncrowded counterparts. Consequently, we believe managing a portfolio's exposure to active crowded securities can help protect against downside risk in market downturns.

About the Authors

Farhan Mustafa, CFA

Managing Director, Head of Investment Risk Management, Head of Quantitative Research

- Member of the CFA Institute
- MBA from the Robert H. Smith School of Business, University of Maryland, College Park
- BA in Economics and Computer Science from Washington and Lee University

Barath Balu, CFA

Assistant Vice President, Quantitative Research Associate

- Member of the CFA Institute
- Masters in Finance from the University of Maryland
- BA in Economics from the University of Maryland

ClearBridge Investments

620 Eighth Avenue, New York, NY 10018

800 691 6960

ClearBridge.com

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