# Overcrowding and capacity in factor-based investing: Should we be worried?

Many investors combine concerns over overcrowding in factors with capacity fears. We want to help separate these terms and provide some clarity over the current state of factors.

David Barron is Head of Index Equity and Factor Based Investing. He focuses on research and strategy in addition to overseeing the team responsible for index equity implementation.

- **Overcrowding:** The presence of more people or things in a space than is comfortable, safe or permissible

- **Capacity:** The maximum amount that something can contain

The difference between the following definitions is nuanced but critical. Capacity tends to be more rooted in fact, whereas overcrowding is subjective. As such, the general trend is to talk of overcrowding of a market, or factors on the whole, and capacity of a fund or specific strategy.

If you've ever turned away from a café thinking "I can't believe people are standing in that queue" and then gasped as six more people jump to the back, you can now consider yourself a witness to the results of inconsistent expectations. No one would argue that the rationale for you turning away, or that of the six additional queuers, is wrong. They are simply different results driven by individual preferences or feelings of hunger, patience, or perhaps the draw of this particular establishment.

An example of this overcrowding/capacity dichotomy was in 2016, when many claimed that the low volatility factor was overcrowded and due for a crash. Some took to heart the many articles on this subject and others dismissed them as an attempt to derail the progress of the rules-based factor index products. Table 1 below shows statistics of a few low volatility strategies relative to a market cap-weighted parent. The factor, and strategies attempting to gain exposure to it, has performed as intended.

However, this does not mean that those warning of low volatility overcrowding were incorrect; rather their personal preference, based on risk tolerance, was such that they would not recommend further investment for like-minded individuals.

**Table 1: Weekly Returns – January 2015 through February 2018**

| Period | Index | Annualised Return* | Annualised Volatility | Return/Risk Ratio | Average P/E |
|---|---|---|---|---|---|
| Full | MSCI USA | 11.0% | 11.9% | 0.9 | 20.4 |
| | MSCI USA Min Vol. | 10.5% | 9.7% | 1.1 | 22.4 |
| Aug. 2015 +/- 2 Weeks | MSCI USA | -7.3% | 23.4% | - | 18.6 |
| | MSCI USA Min Vol. | -6.5% | 16.9% | - | 20.7 |
| Brexit +/- 2 Weeks | MSCI USA | 1.8% | 16.3% | 0.1 | 20.3 |
| | MSCI USA Min Vol. | 4.5% | 14.9% | 0.3 | 23.8 |
| Feb. +/- 2 Weeks | MSCI USA | -2.5% | 33.1% | - | 22.7 |
| | MSCI USA Min Vol. | -2.1% | 29.3% | - | 24.5 |

Source: LGIM, MSCI, Bloomberg

## EVALUATING OVERCROWDING

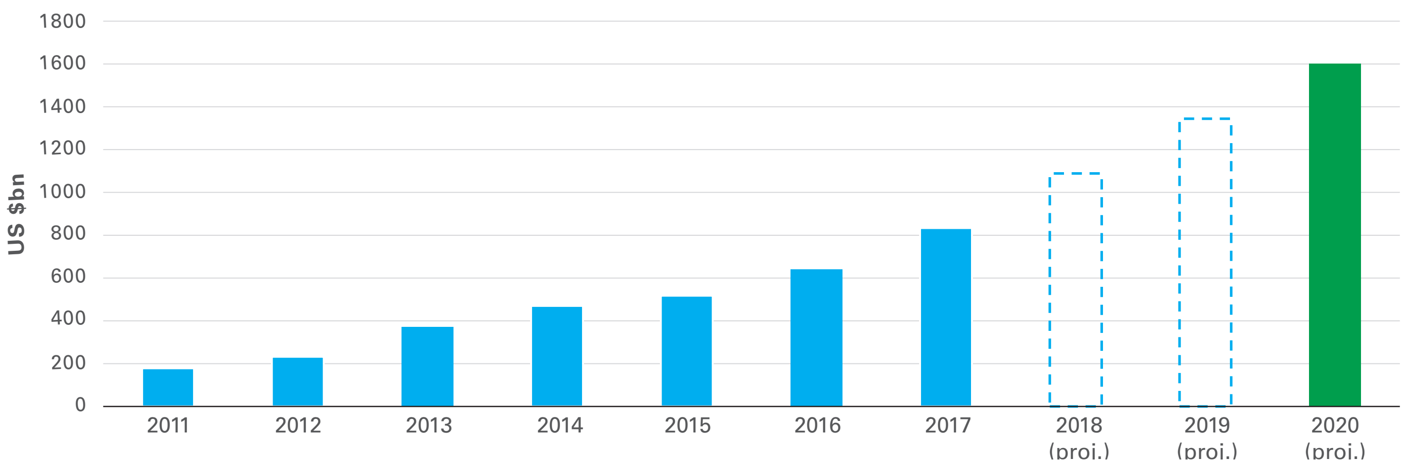
Those attempting to establish a basis for factor crowding predictions often look to valuations as the metric of choice, typically using price-to-earnings measures. Logic dictates that all else equal, if the price-to-earnings ratio of a group of stocks is higher today than it was a year ago, those stocks are more 'expensive'. If we link in inflows (additional demand) for a factor exposure, as has been the case in passive factor-based products (Figure 1) then the conclusion that the proliferation of these products has caused stretched valuations is also logical. For the risk-averse, this fact may be the only burden of proof necessary to steer clear of further investment and perhaps even warrant divestment. Enter the complexity of the financial markets and our ability to predict bubbles.

## BUT ARE FACTORS OVERCROWDED?

Stock valuations are one method of evaluating the relative 'richness/cheapness' of a stock or group of stocks. If we can link a state of richness with excess demand via factor-based product proliferation, then we're on our way to a more informed state of factor valuations. While Figure 1 suggests that demand for factor-based strategies has been increasing in popularity in recent years, this only tells us half of the story. The supply, in other words the source of these assets, has actually tended more towards market cap-weighted index funds instead of factor-based or alternatively weighted strategies, often many times over. There simply is not enough 'hype' for factor-based index funds when compared to the more traditional passive vehicles. With this vast disparity in place between market cap and factor-based index fund flows, it is hard to make the case that factors are overcrowded.

As discussed in previous articles on factor-based investing, factor returns are cyclical and therefore subject to drawdowns over time. Furthermore, the factors do not behave in concert and can therefore be used to achieve certain objectives on their own, or in combination with each other. As such, merely observing performance of a factor strategy over a period of time is simply not enough to proclaim its failure.

**Figure 1: Assets invested in factor based strategies (global)**




Source: Morningstar, Citi, LGIM. LGIM projections – filling in linearly 2018,2019 (based on Citi projections for 2020)

## Figure 2: MSCI USA factor returns (%)

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Best | Min Vol -25.7 | Small Cap 39.7 | Small Cap 28.0 | Yield 14.3 | Small Cap 18.2 | Small Cap 38.3 | Min Vol 16.5 | Momentum 37.8 | Small Cap 19.8 | Momentum 37.8 |
| | Yield -27.6 | Growth 36.7 | Momentum 18.2 | Min Vol 12.9 | Growth 17.3 | Momentum 34.8 | Yield 14.9 | Quality 7.0 | Value 16.9 | Growth 28.7 |
| | Quality -30.2 | Quality 32.0 | Growth 16.5 | Quality 9.4 | Market Cap 16.1 | Quality 33.5 | Momentum 14.7 | Min Vol 5.6 | Yield 16.3 | Quality 26.0 |
| | Value -35.4 | Market Cap 27.1 | Yield 15.9 | Momentum 6.1 | Momentum 15.1 | Growth 32.8 | Growth 14.4 | Growth 4.6 | Market Cap 11.6 | Market Cap 21.9 |
| | Small Cap -35.9 | Yield 18.4 | Market Cap 15.4 | Growth 2.4 | Value 15.0 | Market Cap 32.6 | Market Cap 13.4 | Market Cap 1.3 | Min Vol 10.7 | Yield 19.5 |
| | Market Cap -37.1 | Min Vol 18.4 | Min Vol 14.7 | Market Cap 2.0 | Quality 14.0 | Value 32.3 | Value 12.3 | Yield 0.7 | Quality 8.0 | Min Vol 19.2 |
| | Growth -39.0 | Value 18.0 | Value 14.4 | Value 1.5 | Min Vol 11.2 | Yield 28.9 | Quality 11.8 | Value -1.9 | Growth 6.5 | Small Cap 17.3 |
| Worst | Momentum -40.9 | Momentum 17.6 | Quality 12.6 | Small Cap -3.0 | Yield 10.6 | Min Vol 25.3 | Small Cap 7.6 | Small Cap -3.6 | Momentum 5.1 | Value 15.4 |

Source: LGIM, MSCI, Morningstar Direct

### WHAT ABOUT CAPACITY?

Much like market cap-weighted portfolios, the capacity problem is apparent when an index has to rebalance. If all index investors have to buy and sell the same stocks on the same day, this can create notable price distortions and transaction costs will inevitably eat into returns.

The best way to reduce the impact and avoid eroding strategy returns is to increase the rebalance window. By spreading a portfolio rebalance over multiple trading days the threshold capacity AUM should increase dramatically. This should serve as a word of caution to index providers who often rely on a lack of overcrowding and therefore assume that capacity of an index based strategy is enormous. There are three ways of attempting to minimise the effects of this natural consequence of index-based factor implementation, which are increasingly more effective. An experienced index implementer could likely improve rebalance related outcomes by estimating and managing the costs by implementing a portion of the rebalance away from the benchmark point. Second, index providers can create multi-day rebalance strategies that look to naturally spread the execution of a review over multiple periods. Finally, investors could give the index manager a tracking-error bandwidth and take more risk around the review period and manage the transitional period as they see fit.

### BOTTOM LINE

On the basis of valuations, more risk-averse investors may believe that factors are overcrowded. We believe though that there are a few more spare tables at this café. The problem of capacity is more acute for investors' returns. However, if investors were to allow their index fund manager more leeway in tracking error or employ a manager who can estimate and manage the costs more effectively, the capacity threshold could be raised.

## CONTACT US

**For further information contact your usual LGIM representative or contact Adam Willis - Head of Index and Multi-Asset Distribution on:**

**020 3124 3207** **adam.willis@lgim.com** **lgim.com**