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Overcrowding overstated?

'Overcrowding' is the new buzzword in the factor investing community. Luc Dumontier **and** Guillaume Garchery **from La Française Investment Solutions explain why this fear is largely overstated**

The rush into factor investing strategies – today worth about $1 trillion – has raised concerns that alternative factors are becoming crowded, and therefore overpriced and more sensitive to dislocation events. Is this fear justified?

This article seeks to answer that question in relation to equity alternative premia, the best known and most popular premia. The arguments put forward are equally valid for premia in other asset classes.

We first return to fundamentals that underlie the existence of the alternative premia to assess the potential for popularity to impact returns. We then look at how factor exposures have changed across the market. Lastly, we turn to the risks associated with concentrated rather than widespread groups of investors holding exposure to factors.

Persistence depends on whether premia stem from rational expectations or mispricing

The link between possible overcrowding and a decline in performance is not necessarily valid for every factor.

Risk premia

At one end of the spectrum, risk premia remunerate investors for exposure to systematic risk factors that cannot be diversified away. The best example is the equity risk premium, which rewards investors for bearing the risk of an unexpected economic downturn that could translate into a drop in companies' earnings.

Likewise, the most convincing explanations for the historical over-performance of value and small capitalisation stocks are risk-based. Stocks with attractive valuations – based on price-earnings and price-to-book ratios – are vulnerable to share price falls if the reasons for their low valuation intensify: the 'value trap'. Small cap stocks tend to have, on average, more concentrated revenue streams both geographically and in terms of business mix.

Rational investors are unlikely to stop requiring a premium to accept such risks. "Even if an opportunity [resulting from an additional risk] is widely publicized, investors will not change their portfolio decisions, and the relatively high average return will remain," finds Cochrane (1999). On the other hand, if all stocks in the investment universe had comparable valuation multiples (or comparable market capitalisation levels respectively), rational investors would choose not to implement the value factor (or the size factor, respectively). Moreover, it's worth noticing that most of the risk factors – such as value and size – have built-in protection against overvaluation. As stocks become more expensive and larger, they automatically drop out of the relevant investment universe.

Style premia

At the other end of the spectrum, so-called style premia remunerate investors for their capacity (eg, in terms of investment infrastructure, available cash and regulation) to implement strategies that profit from structural biases linked to market participants' behaviour, investment constraints and structural flows. Arbitrage strategies that exploit pricing inefficiencies in the cash (or spot) and futures markets for the same asset fall into this category. This type of opportunity is often due to the inability of market participants to hold the underlying asset, either due to capital requirements or regulatory constraints.

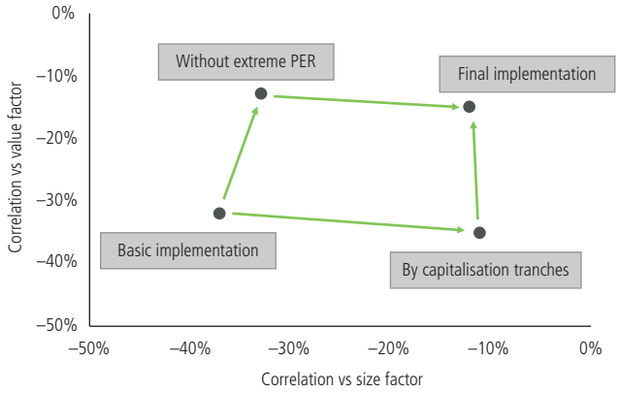
Style premia can be likened to a cake to be shared. The more guests there are, the more rapidly the opportunity will disappear. Mclean and Pontiff (2016) summarised their research into the persistence of style premia thus: "If return predictability reflects mispricing and publication leads sophisticated investors to learn about and trade against the mispricing, then we expect the returns associated with a predictor should disappear. [But there are] frictions [that] prevent arbitrage from fully eliminating mispricing, [such as] transaction costs." Moreover, these arbitrage opportunities are only visible to investors whose scope of counterparty relationships allows them to see the opportunity in the first place – for example, a bank that needs to recycle a given risk. They are mostly accessible via over-the-counter products, which investors need to be able to price and book. And the infrastructure to do that creates a high barrier to entry (see table A).

A. Expected sensitivity of alternative premia to asset raising

		Rationale	Example	Expected sensitivity to asset raising
Alternative premia	Risk premia	**Risk sharing** Compensation for bearing additional risks	Value	**Little** No reason for rational investors to accept risk without return
	Style premia	**Structural constraints** Compensation for having fewer constraints	Cash and carry arbitrage	**Moderate to significant** Sophisticated investors learn about the mispricing
		Information processing Compensation for processing information better	Pair trading	Only those that benefit from a strong investment infrastructure can arbitrage them away and find others

Source: La Française Investment Solutions

1. Different implementations of the low-risk equity strategy



Monthly data from January 2011 to December 2015; Source: Dumontier (see refs)

In-between premia

Finally, there are premia with characteristics of both risk and style premia, such as momentum and low risk. The rationale behind these premia includes both additional systematic risk and investors' behaviour or constraints. Momentum premia are often explained by the anchoring bias, investors' tendency to react only gradually to new information. Since momentum factors are also exposed to sudden reversals, rational investors require premia to hold them. Similarly, investors tend to overpay for riskier assets due to behavioural biases (eg, lottery effect) and investors' constraints (eg, the preference of insurance companies for high-beta stocks in an effort to get more bang for a given regulatory capital charge). But the low risk equity factor tends to realise negative returns when funding liquidity constraints tighten and/or when funding liquidity risk is high, so that it can also be considered a risk factor.

The overcrowding debate is the most heated around these "in-between" premia that do not have a mechanical valuation anchor, ie, inherent overvaluation protection. Some in the industry, most notably Rob Arnott of Research Affiliates, think their valuation multiples are currently high. Meanwhile, other experts such as AQR's Cliff Asness contend that multiples are reasonable by historical standards.

How can we explain this lack of consensus? What has happened is the debate has turned from the factor itself to its practical implementation. For example, the low risk equity strategy is typically implemented by building an equally weighted portfolio that is long the 20% of least-volatile stocks and short the 20% of most-volatile stocks (the long leg being leveraged so the portfolio is globally market-neutral). But Dumontier (2016) shows this 'basic implementation' is negatively correlated to both the value and the size factors, or, in other words, structurally expensive in terms of valuation multiples and capitalisation criteria. This is easily remedied by removing the most expensive and cheapest stocks from the investment universe and combining low-risk portfolios constructed within several tranches of stock capitalisation (see figure 1).

Funds have been exposed to alternative factors for decades

Factor-based assets under management are still dwarfed 20:1 by the market as a whole. Meanwhile, most of the money flooding into the sector is switching from funds that also tilted towards factors in the past – though perhaps less explicitly.

Academic research by Robert Haugen and James Heins highlighted the low risk factor as far back as 1975, and Eugene Fama and Kenneth French documented the value and size factors in 1992. Since then – intentionally or not, both quantitative and fundamental fund managers have skewed their portfolios towards factors to outperform their cap-weighted benchmarks.

The most famous example is Berkshire Hathaway's Warren Buffett, whose performance can largely be explained by exposures to the value, low-risk and quality factors, together with a leverage of about 1.6 to 1 (Frazzini, 2013).

In Carhart (1997) we see persistence in mutual fund performance for a range of US funds over a period of 30 years to 1993 failed to reflect stock-picking skill. "Common factors in stock returns […] explained almost all of the predictability in mutual fund returns," he wrote. Bender et al (2014) showed the same phenomenon in a more recent study (see table B), finding a handful of risk premia indexes accounted for as much as 80% of alpha in US equity markets from 2002 to 2012.

This finding repeats in long-short portfolios. Dumontier (2016) showed during the market dislocation in August 2007 – the so-called 'quant crisis' – equity market neutral funds (as represented by the HFRX sub-index) and equity alternative premia posted significant losses at the same time between August 6–9. This proves that the criteria used by fund managers to select stocks were on average the same as those used to build alternative premia. In Harvey (2016), we find the performance of equity hedge funds from 1996 to 2014, whether systematic or discretionary, was mainly attributable to their exposure to a standard set of factors.

B. Regressions with and without alternative factors

Average across managers (US equity long-only)	Market	Market, value, low risk	Market, value, low risk, momentum	Market, value, momentum, size
Alpha	0.181%	0.060%	0.053%	0.030%
Beta				
Market	1.08	1.15	1.14	0.98
Value		–0.42	–0.20	–0.20
Low risk		0.55	0.55	
Momentum			0.22	0.15
Small cap				0.51
Adjusted R^2	0.86	0.87	0.88	0.92

Monthly data from June 2003 to March 2012; Source: Bender et al. (see refs)

Aggregate exposure to alternative factors is quite limited

One may argue the exposure of 'factor investing' strategies to alternative factors is higher than that of 'active' funds, so that the previous discussion may be incomplete. Blitz (2017) conducted a study on US equity ETFs – the universe where there has been the greatest growth in interest for factor investing strategies. Blitz regressed the returns of 415 US equity ETFs with combined assets under management of more than $1.2 trillion on the returns of size, value, momentum and low-volatility factors over the 2011–2015 period. He split ETFs into those explicitly targeting alternative factors or using alternative weighting formulas versus others he classified as "conventional".

The study showed – as you would expect – that smart beta ETFs were on average positively exposed to alternative factors (see table C). But conventional ETFs showed negative average exposure towards the same factors. At the industry level, the two effects largely cancel each other out.

This occurs because conventional ETFs are often thematic or sector-focused. Funds focused on the biotechnology sector, for example, are negatively exposed to the value factor and those focused on the information technology sector are negatively exposed to the low-risk factor.

C. Aggregate factor exposures of US equities ETFs

Assets weighted aggregate exposure	All ETFs	Smart beta ETFs	Conventional ETFs
Alpha	0.02%	–0.03%	0.04%
Market	0.97	0.97	0.97
Value	–0.03	0.08	–0.08
Low risk	–0.00	0.06	–0.03
Momentum	0.01	0.03	0.01
Small cap	0.03	0.25	–0.06

Monthly data from January 2011 to December 2015; Source: Blitz (see refs)

Concentration can lead to dislocation

That said, while overcrowding might be less of a concern, investor concentration should not be. Overcrowding in terms of the type of investors holding specific factors can fuel dislocation phenomena.

If Blitz's 2017 study were conducted on the global equity universe, the overall exposure to the market factor would be exactly one, with no exposure to alternative factors. Every security has a holder. So, if stocks that embed specific factors are held by only a few investors, they are not held by others.

This highlights a more pernicious danger beyond the potential issue of factor compression, the risk of investor concentration at the level of specific factors. If only a few investors hold most of the assets or if these investors all share common characteristics, such as margin leverage or restrictive liquidity requirements, dislocation events become more likely. This was seen in the 2007 'quant crisis', which occurred even though there is a general consensus that factors were not previously overvalued.

Bayraktar et al (2015) indicate useful directions to gauge the investor concentration for the specific case of the momentum factor, but this field of study is at its inception.

One natural way to mitigate the effects of concentration and potential deleveraging is to diversify a 'factor investing' approach to include other asset classes that are less broadly popular than equity factors.

Ultimately, alternative factors are no more overcrowded today than in the past. The link between overcrowding and a decline in performance is not necessarily valid for every factor. And professionals are far from reaching a consensus on whether or not established alternative factors are overvalued.

Questions surrounding overcrowding are often used to justify somewhat disappointing results and divert attention away from very real issues of data mining, overfitting, cost-ineffective implementation and re-correlation phenomena. ■

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