

Elroy Dimson

Looking at the long-term evidence on factors

Elroy Dimson (pictured) chairs the Newton Centre for Endowment Asset Management at Cambridge Judge Business School, and is Emeritus Professor of Finance at London Business School. We spoke with him about the current state of academic research in that particular field and the appetite for factor-based and smart beta investment strategies.

Great Minds

Your work provides compelling evidence for the existence of an equity risk premium. Do you think the evidence for factor premiums is just as convincing?

"I think there is a difference. My work, together with Paul Marsh and Mike Staunton, shows it is difficult to measure precisely the equity risk premium. And, from that point of view, factor premiums are almost certainly estimated with greater error. I do not favor seeking exposure to a large number of factors. One should be considering premiums that are well supported by academic evidence across multiple markets and over multiple research periods."

Factor investing has become increasingly popular among investors. Do you think we have enough hindsight from an academic research point of view?

"There is considerable scope for investigations in this field. Research shows that factor premiums tend to be smaller 'out-of-sample'. That is, premiums tend to be smaller when the data analyzed is not the same as that which initially revealed the factor. Several papers have been published over the past couple of years highlighting the disappointing performance of many factor strategies after the research findings have been published. Professor Campbell Harvey, confirmed in his 2017 presidential address to the American Finance Association that 'many of the research results being published will fail to hold up in the future'¹."

"Statisticians refer to the risk of misjudging a certain pattern and wrongly identifying a factor as 'p-hacking' or 'data mining'. The 'p' value refers to the probability that a researcher detected a phenomenon that is really robust and significant. And 'p-hacking'

is the term used for trying many different forms of analysis until you appear to have found something which looks like a premium. This concept is commonly used in medical sciences, where pharmaceutical companies are often accused of putting forward, among a large number of existing studies, only those that show the most favorable results. This is also a very serious issue for investors. In a way, if they still made those old telephone books, it would be like searching through one of these books and trying to find some kind of pattern in the phone numbers that would suggest the existence of a factor premium. But finding a pattern in one book would not necessarily mean that it could be found in another phonebook, in particular for another country."

Which factor premiums do you think are strongest, and which do you think are more questionable?

"If you would ask randomly any two experts to name five factors that they consider the most relevant or interesting ones, they would probably come up with different answers. Having said that, a few factors would likely be common to both lists. In a recent article² I and my co-authors focused our analysis on the following factors: size, value, income or yield, volatility and momentum. Why these? Well, we always look at data globally and over long periods of time, which is a distinctive feature of how we like to work. This obviously has an influence on the kind of data we choose to look at. For example, it is very difficult to analyze the low volatility effect across a large number of countries for a very long period of time. This is an important aspect, because the research that underpins some of the factor premiums that have become popular among investors often relies heavily on US stock market data. These studies may show very compelling results, but we don't really like the idea of basing investment strategies solely on US evidence. Ultimately, the resulting investment strategies



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could prove very profitable in one particular country, and yet fail in other countries.”

“This is a dilemma for academics as well as for investors and asset managers because there are only two to three decades of market data available internationally. Take the quality factor, for example. It has drawn a lot of attention from academics and investors in recent years. But quality remains a relatively new and more subjective concept than value or low volatility, for example. To assess the quality factor rigorously, researchers should analyze data globally over numerous decades. In my view, looking only at a quarter of a century is not enough. Things could go well or turn bad simply due to chance. This is why investors and asset managers need to remain cautious when analyzing and exploiting market data. They should not rush towards one single factor that they find attractive. In addition, while empirical evidence is important, it is also key to gather some theory behind it. If you cannot find economic reasons to explain the existence of a factor premium, then I think it is more questionable whether it will persist.”

In particular, what is your view concerning the Size factor?

“Evidence for a size premium was first published in the very early 1980s for US stocks, but it has since been found across many different equity markets. Taking the result from various research studies and updating them using available small and large-cap indices, Paul Marsh, Mike Staunton and I showed that small caps have achieved a long-term premium of 0.32 percent per month, on average, relative to large caps. This study was based on data from 23 countries with an average history of 43 years. The length of the research period for individual markets ranges from 16 years for countries such as Austria, Norway or Portugal to 91 years for the US.”

“Still, the relative long-term outperformance of small-capitalization stocks has not been consistent and steady over time. There were some periods of relatively disappointing performance, in particular from the mid-1980s to the mid-1990s. The small cap effect seems to have somewhat faded in recent decades. Small caps continue to perform differently from large caps, but not to the extent suggested by the first studies that reported the existence of a very pronounced size premium. If researchers were to investigate this factor for the first time nowadays, they would probably only find a modest small-cap premium and would most likely not deem it a major anomaly. In terms of performance, investors with a long-term horizon should expect a ‘normal’ reward for the illiquidity risk and the higher management costs associated with running a small cap fund. Buying such stocks often implies a more sophisticated investment process than with large caps and requires greater patience when building a position.”

What about the Income factor?

“This is actually a very long-established factor. I think it is reasonable to assume that, if you go back long before any modern financial theory, investors already looked at income or yield. So this is probably one of the best substantiated approaches to investing. Moreover, it seems to have paid off. A number of studies published over the past decades have shown a significant premium for higher-yielding US stocks, based on data going back as far as 1927. In the UK, my research together with Paul Marsh and Michael Staunton has also evidenced a similar pattern since the beginning of the 20th century. Meanwhile, outside the US and the UK, our analysis also showed a clear income effect in almost 20 countries over the 1975-2016 period.”

“Some people may say that income has paid off because there is a reward for taking certain sorts of risks. For example, one risk that you take with a high yield strategy is buying a stock whose price declined for legitimate reasons. As such, they may become more volatile or they may be more prone to collapse, for example. However, our analysis shows that, on all the measures we can come up with, those risks are not very large. In other words, the Sharpe ratios are much higher for high yield than for low yield securities. Not only is the return higher, but the ratio of reward to risk is also larger for high yield stocks.”

What is your view on the economic explanations that are often brought forward to justify the existence of factor premiums?

“I think there is still a lot of research to be done in this area too. Let me take the very popular momentum and low volatility factors, for example. Momentum strategies are nothing new. They used to be called ‘relative strength’ and they were a standard investment approach half a century ago. In practice, you would buy stocks that are moving up and you would avoid stocks that are moving down. Back in the 1960s, there were already a number academic papers that demonstrated that this approach had worked. One of these studies was even published in the Journal of Finance, one of the most prestigious academic publications. At some point, however, these articles were ridiculed because the reasons mentioned to explain this phenomenon were considered unconvincing and the empirical research lacked rigor. People felt uncomfortable about that.”

“The main explanation that was brought forward in the 1960s for the ‘relative strength’ effect was that investors only adjust gradually to information. First, some particularly smart investors would spot good or bad news concerning a specific company and they would buy the stock. The next day, less smart investors would buy the newspapers and they would buy the stock as well. A week or two later, other investors would see prices going up



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and only then they would also buy the stock, and so on. But it is also not very difficult to imagine that those smart investors, who bought the stocks in the first place, could have foreseen the coming adjustment and could have taken action. Doing so, they would arbitrage away this price anomaly. After a while, these strategies would just self-destruct. Moreover, in today's world, you don't have to wait for tomorrow's paper to appreciate what's happening. News cannot take days and weeks to permeate through the market, so the momentum anomaly is really puzzling."

"Now, let's turn to the low volatility factor. I have a deep desire to discover long-term evidence concerning low vol stocks around the world. It's an intriguing anomaly because one of the explanations most frequently mentioned is the asset management industry's focus on performance relative to benchmarks. But many decades ago, people were not engaging in benchmark driven investing. In the UK, the FTSE All-share Index was launched only in 1962 and the total return version of this index did not appear until 1993. Before that, you just had capital gains indices and an average income to work with. As a result, if you go back to the 1970s for most countries, and to the 1960s for almost every country, people had little reason to be interested in relative to benchmark investing."

"If this explanation is correct and benchmarked management is the main driver of the low volatility effect, we should not be able to find any convincing evidence of this phenomenon in prior decades. Well, I have no data to support this and I just don't know what the answer is. But I suspect the anomaly was already

there. To be sure, other factors such as size or value were about as prominent many decades ago as they have been in more recent years. This is why the search for long-term evidence is so crucial. I think we, academics, should join forces with asset managers to carry out this kind of research. Putting together very long series of market data is arduous and tends to be done only on a single-country basis. Using lengthy single-country datasets we can test models out of sample. We can see what happens using data going back to long ago. Otherwise, looking forward, we'll need to wait for an unacceptably long time to get sufficient new data."

Would you recommend institutional investors to allocate strategically not just to traditional asset classes, but also to factor premiums? To what extent? Monitoring factor exposure or actively seeking to capture premiums?

"It does depend on their time horizon and the costs they face, but I think investors should at least monitor factor exposures. Let me give you a concrete example of this. I was once a member of the investment committee of a charity which was hungry for income. It was made clear to the manager that the charity wanted more income because it could not spend out its capital. As a result, all other things equal, the manager tried to buy high yielding securities. And when high yield stocks did well, this fund did very well. When high yield stocks did not do so well, the fund would lag. This illustrates the fact that simply having a view about sustainable levels of spending can drive asset managers into unplanned factor exposures. I believe factor tilts are important and that both asset managers and their clients need to be aware of their existence. Even conventional investors, not just the very sophisticated, quant-oriented ones, need to assess and to take into account their exposure to different sources of risk."

What is your view on the current smart beta frenzy and the numerous product launches?

"Factor investing was highlighted in a December 2009 report, 'Evaluation of Active Management of the Norwegian Government Pension Fund – Global', prepared at the request of the Norwegian Ministry of Finance. The authors were three finance professors, Andrew Ang, then at Columbia Business School; William Goetzmann, Yale School of Management; and Stephen Schaefer, London Business School. Sometimes referred to as "AGS", they revealed the substantial impact of factor exposure on the investment performance of Norway's sovereign wealth fund. As I document in work with two co-authors³, Norway has been a model for other asset owners, and the AGS analysis had a far-reaching impact on asset owners, investment managers and index compilers."

"Often marketed as smart beta, factor investing has taken the

investment community by storm. You can see its impact in the successive editions of the annual smart beta survey published by FTSE Russell. By 2017, nearly three-quarters of survey respondents had either implemented, or were evaluating or planning to evaluate, smart beta index products."

"Is the increasing enthusiasm for smart beta a passing fad – or, in your words, a frenzy? In the FTSE Russell survey, the primary objectives of institutional adopters have been return enhancement and risk reduction. Another important factor that asset owners cite is cost savings, which suggests that smart beta is increasingly perceived as an alternative to active strategies. Retail investors, such as buyers of ETFs, may well be pursuing the latest fashion, and smart beta is certainly in vogue among individual investors as well as institutions. But I don't think it is a full blown frenzy – at least, not yet. There is still upside for promoters, suppliers and consumers of factor-driven products to increase the penetration of factor strategies in the investment marketplace."

What is your view on overcrowding risk for certain factor-based strategies?

"A typical example of the concern about possible overcrowding relates to the income factor. All managers, not just quantitative managers, are worried about the possibility that they could be overpaying for income stocks or bonds. In the current low-yield environment, investors are chasing all sorts of sources of income, sometimes with the mistaken conviction that higher income will not be associated with lower capital appreciation. Asset owners want exposure to this factor, so of course there is a risk of overcrowding. Thoughtful investment professionals now voice the fear that high yielding securities may have been pushed to unsustainable valuation levels, in multiple countries and for many asset classes."

"However, other investors may consider that the need for income is still there. As a result, there may still be upward momentum for high yield assets. Many managers are certainly wondering whether they are overpaying for income right now. But they also probably fail to see an obvious alternative for meeting their clients' performance targets. I think that, for an academic, it is too close to call. Certain segments of the market may turn out to be overvalued, but we don't know which segments or when the top will have been reached. But I would also say that overcrowding is an important issue and something investors should clearly be paying attention to."

Could you tell us a bit more about the Norway model and its approach to factor investing? What lessons for other investors?

"The Norwegian Government Pension Fund-Global (GPGF)



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was formally established in 1990 to channel and manage the country's oil revenues in a long-term and sustainable way. Several key characteristics set its model apart. I would highlight its large size, its long-term horizon and its public ownership. Moreover, its investment strategy builds extensively on modern financial theory, as well as robust empirical evidence. As such, it takes advice from leading consultants and prominent academics across the globe. This is important if one is to understand the fund's approach to factor investing, because many of these external advisors have recommended that the GPFM should consider it."

"After the AGS report at the turn of the century, the fund started to make small allocations to style tilts, such as value or momentum. These tilts only contribute to a small portion of GPFM's active risk, mostly because of the fund's considerable size. But the impact of the AGS recommendations on the asset management industry worldwide has been profound. The Norway model is increasingly seen by other investors and investment managers, as an approach that can and should be emulated. We've already discussed the growing number of factor-based investment solutions available in the market. Low cost products, exchange traded funds and factor strategies make it easier for smaller asset owners to mimic Norway in running an inexpensive, diversified global portfolio with moderate factor tilts that meet the needs of investors."

¹ In C. Harvey, "The scientific outlook in financial economics", Duke I&E Research Paper No. 2017-05

² E. Dimson, P. Marsh and M. Staunton, "Factor based investing: The long term evidence", *Journal of Portfolio Management* (2017), Vol. 43, No. 5, Pages 15–37.

³ D. Chambers, E. Dimson and A. Ilmanen, "The Norway model", *Journal of Portfolio Management* (2012), Vol. 38, No. 2, Pages 67–81.

