How many monkeys does it take to find a successful strategy?

Angela Ashton | PortfolioConstruction Forum | 08 November 2013

"How many monkeys does it take to find a successful strategy?" by Michael Edesess and Kwok L. Tsui, Advisor Perspectives, 22 October, 2013

Michael Edesess is at it again. From the man who argued that DFA's recent research might be flawed, we have another but broader swipe at the general lack of mathematical rigour in finance. And, this time, he has some interesting investment truisms in his sights.

In this recent article, Edesess and co-author Tsui, consider the general lack of rigour in much of the mathematical work done in testing investment theories. In particular, they reference a recent article beguilingly entitled "Pseudo-Mathematics and Financial Charlatanism: The Effects of Backtest Overfitting on Out-of-Sample Performance".

They make the very relevant point that much of the testing of various investment strategies does not include "Out Of Sample" work. That is, those testing various investment strategies use all the data they have available to develop relationships, but do not keep some aside to independently test them. This is considered standard procedure when working with these types of mathematical approaches.

Does it matter? Well, yes, it does. If you can't or don't test on an independent set of data, you can inadvertently undertake data-mining much more easily – that is, you can fit the data to a relationship you dream up. Just on the law of averages, you can come up with variables that bear no relationship with each other at all that might look to have a strong relationship over the period of the data you're testing. In fact, Edesess and Tsui show that you can produce investment strategies with very high Sharpe ratios over long periods of time, based on variables that actually have no relationship at all. And, when you don't test Out-Of-Sample, and you don't have strong reasoning as to why a relationship might hold, you can try as many spurious relationships as you like until you get one that sticks – you can easily identify a potential strategy where there actually is none.

Of course, testing Out-Of-Sample won't weed out all mis-fitted relationships, but it will help a lot. The authors argue that asking simple questions of groups trying to sell strategies based on back-testing about their testing methodologies will save lots of investors a lot of time and money.

They then go on to point out a number of potential flaws with some of the current new themes running through the investment world and some of the investment truisms many of us take for granted. These include smart beta (which we have reviewed here recently and plan

to do more work on). The authors suggest that the standard arguments used to validate the idea that alternative forms of indexing may be superior (that is, cap-weighted indices overweight overvalued stocks) have no mathematical basis and can be proven false quite easily. They then point out how they believe that much of the mathematical work done recently in the Cass Business School study on smart beta (also referred to in our recent review of smart beta) was flawed.

Perhaps most interestingly, though, the article also touches on the long held belief – proven countless times in the literature – that small cap stocks and value stocks outperform in the long run and suggests that this relationship may actually be the result of some poorly applied maths.

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