

Research Review: Small portfolios are beautiful

Ron Bird | University of Technology Sydney | 11 September 2018

Markowitz (1952) informed us of the risk-reduction advantages associated with diversification. Since then, investors, fund managers, regulators and the Courts have all taken this finding to heart, resulting in diversification being widely promoted at all levels of the investment community. But just how diversified does an investor have to be to realise almost all of the benefits of diversification?

Evans and Archer (1968) were the first to examine just how diversified one had to be to realise almost all of the diversification benefits attributable to diversification. They suggested that only 15 securities would be required, although subsequent papers criticised their methodology and found the number to be more like 30 to 50 securities (Cesarone et al. (2018)). Most previous research has been based upon the premise that the securities are randomly selected, but Cesarone et al. (2018) – using a more targeted means of choosing securities – found that 99% of the advantages of diversification could be achieved from holding no more than 15 stocks. All the studies have been purely based on the relationship between diversification and risk and have failed to consider the implications for returns. Yeung et al. (2016) examine the ability of fund managers to identify cheap stocks, finding that fund managers as a group do have good stock selection ability but this ability is limited to no more than 20 stocks.

Based on these two findings, it is difficult to justify holdings for average active investors of in excess of 20 securities – the exception being where the active manager is particularly good, where even smaller portfolios would appear more sensible. Alternatively, investors can walk away from active management and hold the ultimate in diversified portfolios, an index fund.

1. Why small portfolios are preferable and how to choose them

Francesco Cesarone, Jacopo Moretti and Fabio Tardella | *SSRN Electronic Journal* | April 2018

One of the fundamental principles in portfolio selection models is minimisation of risk through diversification of the investment. However, this principle does not necessarily translate into a request for investing in all the assets of the investment universe. Indeed, following a line of research started by Evans and Archer almost 50 years ago, the authors of this paper provide further evidence that small portfolios are sufficient to achieve almost optimal in-sample risk reduction with respect to variance and to some other popular risk measures, and very good out-of-sample performances. While leading to similar results, their approach is significantly different from the classical one pioneered by Evans and Archer. Indeed, they describe models for choosing the portfolio of a prescribed size with the smallest possible risk, as opposed to the random portfolio choice investigated in most of the previous works. They find that the smallest risk portfolios generally require no more than 15 assets. Furthermore, it is almost always possible to find portfolios that are just 1% more risky than the smallest risk portfolios and contain no more than 10 assets.

2. Diversification versus concentration . . . and the winner is?

Danny Yeung, Paolo Pellizzari and Ron Bird | *UTS Working Paper Series 18* | December 2012

Diversification has well-known benefits but inevitably it involves a trade-off between risk and return. The authors of this paper investigate this trade-off by examining the relative performance of diversified versus concentrated portfolios where both are formed on the basis of the same stock preferences. They establish that the most preferred stocks of the average US equity fund manager perform extremely well, but typically they are able to identify less than 20 mis-priced stocks. The typical US equity mutual fund holds in excess of three-times this number of stocks which suggests that the managers' stock selection skills are heavily diluted in their pursuit of diversification.



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