A Data Science Solution to the Multiple-Testing Crisis in Financial Research

February 1, 2019

When a researcher conducts multiple analyses, and from them he reports only the best outcome, that finding is more likely to be false than if a single analysis would have been conducted. In the statistics literature, this problem is known as “selection bias under multiple testing” (SBuMT). The key to addressing SBuMT is to disclose the intermediate results that the researcher has discarded. With that information, it is possible to evaluate the probability that the best outcome is actually false, as a result of multiple testing. In this paper, we present a real example of how multiple testing information can be reported. We use that information to estimate the Deflated Sharpe Ratio of an investment strategy.

Hypothetical performance results have many inherent limitations, some of which, but not all, are described herein. The hypothetical performance shown was derived from the retroactive application of a model developed with the benefit of hindsight. Hypothetical performance results are presented for illustrative purposes only.

Diversification does not eliminate the risk of experiencing investment loss.

Certain publications may have been written prior to the author being an employee of AQR.
AQR Capital Management is a global investment management firm, which may or may not apply similar investment techniques or methods of analysis as described herein. The views expressed here are those of the authors and not necessarily those of AQR.