A Study on the Performance Persistence of Hedge Funds
-Application of the Generalized-k Step SPA Test

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The purpose of this study is to test the performance of a broad range of hedge funds recorded in the database provided by Hedge Fund Research. The dataset includes both live and dead funds spanning a period from July 1995 to June 2010 and . All returns are net of management and incentive fees, which means that the returns are the actual reward obtained by investors. The number of the hedge fund investigated is 2,815 after filtering out small funds of AUM less than 200 million USD and short-lived funds of age less than one year to account for the backfill/incubation bias. Although the dataset is categorized into five subgroups according to the main strategy, i.e. Macro, Event Driven, Relative Value, Equity Hedge and Fund of Funds, we focus on funds pertaining to the first four strategies since the results of Fund of Funds are combinations of those from the first four strategies which are difficult to analyze.

We employ a new technique, called the Generalized-k step-SPA test, introduced by Donald, Hsu, Kuan and Yen (2012), to tackle the data-snooping bias, a problem arising from large-scale multiple hypotheses testing. When evaluating the relative or absolute performance of a large sample of hedge funds with a similar investment strategy, one will incur the data-snooping bias if each fund is tested individually. One way to overcoming this problem is to use a joint hypotheses test such as Boferroni’s Inequality. However, it is infeasible to do this when the number of hypotheses tested is large since the test power will approach to zero. Based on the literature on multiple hypotheses tests controlling for the data-snooping bias, pioneered by White (2000) and followed by Hansen (2005), Romano and Wolf (2005) and Kosowski, Timmermann, Wermers and White (2006), Romano, Shaikh and Wolf (2008) and Hsu, Hsu and Kuan (2010), the Generalized-k Step SPA test aims to identify as many true hypotheses (genuinely good funds) as possible while allowing for as few false hypotheses (seemingly good funds) as possible.

As regards approaches to testing the performance of hedge funds, we employ both the model-free and model-dependent measures. The former measures concern the Sharpe ratio, mean return and the manipulation-proof performance measure (MPPM) by Goetzmann, Ingersoll and Spiegel (2007), while the latter measures concern factor alpha and standardized factor alpha. Having surveyed the literature on benchmarking hedge fund performance, we adopt three factor models to compute a fund’s alpha and its standardized version: the 1-factor model by Brown, Goetzmann and Ibbotson (1999), the 7-factor model by Fung and Hsieh (2004) and the 11-factor model by Capocci and Hübner (2004).
In general, our empirical results show that the equally-weighted portfolio of identified good hedge funds of all four strategies tend to show positive performance persistence during the out-of-sample period of both one year and three years. In other words, the identified good hedge funds, as a whole, tend to maintain their good performance in the future. One caveat lies in their statistical inference, however. Model-free measures of the identified good fund portfolio generally do not show statistical significance while their model-dependent counterparts tend to show statistical significance given the 10% significance level.

JEL: C12, C14, G19

*Key words*: hedge funds, data-snooping bias, multiple hypotheses testing, step SPA test, performance persistence