

Occasional Paper

Understanding Hedge Fund Alpha Using Improved Replication Methodologies

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Abstract

In this paper, we estimate alpha for major hedge fund indexes. To set the stage, we examine several alternative methods for replicating Hedge Fund Research Inc. hedge fund indexes. The replication methods include stepwise regression, variations of the lasso shrinkage method, principal component regression, partial least squares regression, and dynamic linear regression. We find that the lasso methods and dynamic regression are superior for generating hedge fund replications and that the performance of the replications corresponds closely to that of the respective actual indexes. Using these superior replications provides us with a solid platform for estimating alpha. We find that at the height of the financial crisis, the alphas computed with our methods were generally negative; in early 2009, when the stock market was rising, alphas were generally positive; and in the recent environment of low volatility and low interest rates, the alphas computed with our methods were generally close to zero and tended to exhibit low volatility.

Keywords: Hedge fund replication and alpha, the lasso method, dynamic linear regression, stepwise least squares, principal component regression, partial least squares regression.

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