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# Should hedge funds be cautious reporting high returns?

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ABSTRACT

In a recent article, Schuster and Auer (2012) show that fund managers with a certain positive performance need to be aware of the fact that too high prospective excess returns can lower the empirical Sharpe ratio of their funds. In this note, we investigate the empirical relevance of this effect. We analyse whether hedge funds being evaluated on the basis of the Sharpe ratio negatively influence their performance by reporting too high returns. Our results show that a economically significant number of hedge funds listed in the CISDM hedge fund database has at least once reported a high return causing this effect.



## 1. Introduction

In the last decades, the widespread belief that the best-known reward-to-risk ratio, the Sharpe ratio, is an inadequate performance measure in the case of non-normally distributed returns has led to an explosion in the development of alternative performance measures. The Sharpe ratio was discarded especially for the evaluation of hedge funds because their returns show asymmetry and fat tails. However, the recent contributions of Eling and Schuhmacher (2007) and Schuhmacher and Eling (2011, 2012) move an important step towards rehabilitating the Sharpe ratio. The authors show that (a) a comparison of the Sharpe ratio to twelve other performance measures results in almost identical rank ordering across hedge funds and emphasise that (b) normally distributed returns are not required

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to justify the use of the Sharpe ratio to rank funds. Taking also into account that the Sharpe ratio can be used when a hedge fund represents the entire or only a portion of the investors risky investment (see Dowd, 2000), that the Sharpe ratio is a computational easy performance measure for which we already have sophisticated statistical tests (see Lo, 2002; Ledoit and Wolf, 2008) and that it is the standard measure used in most empirical studies (for recent applications, see Arnold et al., 2004; Huang and Lin, 2011; Hammami et al., 2013), it might be considered as the performance measure investors prefer from a theoretical as well as from a practical point of view.

It is well-known that hedge fund managers do not have to provide information regarding a fund's return and usually voluntarily report to hedge fund databases after an incubation period – a time lag between the inception date of the fund and the date the track record is included into a database (see Fung and Hsieh, 2000, 2006). As hedge funds are not allowed to attract investors through public advertisement (see Fung and Hsieh, 1999; Posthuma and Van der Sluis, 2003), they use the listings in the databases for marketing purposes. A fund with a successful incubation period will backfill the returns, whereas a fund with a negative performance will start reporting as soon as a good performance is achieved and will not backfill data. Thus, hedge funds only supply data on which they wish to be evaluated by investors. If investors evaluate the performance of funds on the basis of the Sharpe ratio, hedge fund managers may also have an incentive to take into account the recent findings of Schuster and Auer (2012) when reporting new returns to databases. The authors show that for funds whose performance exceed a certain limit, not only low (below a certain critical level) but also high (above a certain critical level) excess returns in a prospective period can result in a lower empirical Sharpe ratio. Therefore, good funds evaluated on the basis of the Sharpe ratio may negatively influence their performance by reporting too high returns. These findings are especially relevant for hedge funds because Brown et al. (1999) and Ibbotson et al. (2011) report that hedge funds have shown a persistent good performance in the last decades. Thus, they may often encounter situations where they might be tempted to shift payments between periods in order to avoid too high returns and a reduced empirical Sharpe ratio. There may even be an incentive to optimise (or manipulate) backfill data in order to fight negative effects on historic funds rankings and to make relative performance look more persistent.

In this note, we analyse the hedge funds listed in the Center for International Securities and Derivatives Markets (CISDM) database. We focus on answering two research questions: How often were hedge funds in situations where reporting a too high return could have reduced their empirical Sharpe ratio? And, have managers actually negatively influenced their performance by reporting too high returns?

The note is organized as follows: Section 4 briefly reviews the theoretical results of Schuster and Auer (2012). Section 3 describes the dataset. Section 4 presents the results of our empirical analysis. Finally, Section 5 concludes.

## 2. Critical excess returns

Consider a fund for which we have a time series of $n-1$ excess returns (over a riskfree rate) denoted $r_1, \ldots, r_{n-1}$. Its sample average excess return for the first $n-1$ periods is $\bar{r}_{n-1} = (1/(n-1))\sum_{i=1}^{n-1} r_i =: a$ and the related sample variance is $\hat{\sigma}^2_{n-1} = (1/(n-2))\sum_{i=1}^{n-1}(r_i - a)^2 =: b$. Thus, the empirical Sharpe ratio is given by $\widehat{SR}_{n-1} = \bar{r}_{n-1}/\hat{\sigma}_{n-1} = a/\sqrt{b}$.

Schuster and Auer (2012) show that for a fund fulfilling the four conditions $n>2$, $a>0$, $b>0$ and $na^2 - b > 0 \Leftrightarrow \widehat{SR}_{n-1} > n^{-1/2}$ a prospective excess return $r_n$ below

$$r^l = a + n \cdot \left( h - \sqrt{h^2 + \frac{ah}{(n-1)}} \right) \tag{1}$$

or above

$$r^u = a + n \cdot \left( h + \sqrt{h^2 + \frac{ah}{(n-1)}} \right), \tag{2}$$