

The Sharpe Ratio's Market Climate Bias – Theoretical and Empirical Evidence from US Equity Mutual Funds

Abstract

In this paper we analyze the influence of market climates on mutual fund Sharpe ratios. First, in a theoretical analysis based on a common factor model in performance analysis, we show that a significant bias results from market climate – in addition to the obvious influence of fund management performance. Market climate is determined by the random mean and standard deviation of market excess returns for a specific evaluation period. Especially the mean of the market excess returns has a considerable impact on the Sharpe ratios of funds. It causes one to overestimate the performance of funds that exhibit relatively high proportions of unsystematic risk in outstandingly negative market climates, and vice versa. Thus the Sharpe ratio does not provide a meaningful assessment of the performance of funds, especially in extraordinary times. Our theoretical results are supported by a subsequent empirical study of US equity mutual funds. We first find that, on average, poorly diversified funds exhibit a superior ranking based on the Sharpe ratio in bear markets, and vice versa. Subsequently, via regression analyses, we confirm the dependence of actual mutual fund Sharpe ratios on especially the mean excess returns of the market. We suggest using the “normalized” Sharpe ratio in future empirical research, in order to avoid the bias of Sharpe ratios and rankings due to market climate.

Keywords: portfolio performance evaluation, mutual funds, Sharpe ratio, bear market, market conditions