

DECISION SCIENCES INSTITUTE**An improved scale-free forecast accuracy metric over Hoover's MAD/MEAN on returns under efficient market****ABSTRACT**

In this study, we find that Hoover's scale-free forecast accuracy metric MAD/MEAN cannot distinguish different simple moving average methods with different moving periods on simulated i.i.d. normal time series when the coefficient of variations are -75, 30, 45, and 75. Empirical data analysis on four of the near i.i.d. normal times series with the coefficient of variations being -84, 60, 84, and 40, studied in Fama in 1965 and 1970, proves the same claim. To improve Hoover's metric MAD/MEAN, we propose a metric based on the MAD over the mean of the absolute values of out-of-sample observations. It overcomes the deficiency of Hoover's metric of not being able to distinguish different simple moving average methods with different moving period on i.i.d. normal time series.

KEYWORDS: Coefficient of variation, Efficient market, Hoover's scale-free forecast accuracy metric, Mean absolute deviation, Moving average methods.