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Bitcoin Returns and the Frequency of Daily Abnormal Returns

Abstract

This paper investigates the relationship between Bitcoin returns and the frequency of daily abnormal returns over the period from June 2013 to February 2020 using a number of regression techniques and model specifications including standard OLS, weighted least squares (WLS), ARMA and ARMAX models, quantile regressions, Logit and Probit regressions, piecewise linear regressions, and non-linear regressions. Both the in sample and out-of-sample performance of the various models are compared by means of appropriate selection criteria and statistical tests. These suggest that, on the whole, the piecewise linear models are the best, but in terms of forecasting accuracy they are outperformed by a model that combines the top five to produce “consensus” forecasts. The finding that there exist price patterns that can be exploited to predict future price movements and design profitable trading strategies is of interest both to academics (since it represents evidence against the EMH) and to practitioners (who can use this information for their investment decisions).

Keywords: Bitcoin; abnormal returns; frequency