

Hedging and Safe-Haven Properties of Cryptocurrencies Against Stock Market Risk: A New Approach to The Assessment of Hedging Effectiveness

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Abstract

This paper investigates the hedging and safe-haven properties of five cryptocurrencies (Bitcoin, Ether, Binance Coin, Cardano, and Ripple) against the stock index risk. We consider stock indices from developed (G7) and emerging (BRICS) markets in the period from 2017 to 2022. First, we focus on correlation and the ratio of volatilities of the hedging instrument to the stock index indicated as two factors of hedging performance. Then, we compare the hedging effectiveness of cryptocurrencies for developed and emerging stock markets under the minimum variance framework. Last but not least, we propose a new method of verification of hedging efficiency based on the univariate and bivariate peaks over threshold methods. Empirical results indicate that the probability of at least 10 percent hedging effectiveness of Bitcoin is approximately equal to zero. Moreover, the conditional probability that Bitcoin can reduce at least 10% of volatility provided that index returns fall below the 1st percentile is higher and ranges from 2% to 28% depending on the stock index. Finally, the probabilities estimated for Ether, Binance Coin, Cardano, and Ripple are lower. The extreme volatility of cryptocurrencies destroys the hedging property.

Keywords: Bitcoin, hedging performance, peaks over threshold, stock index, variance-optimal hedging