Return and Volatility Linkages between Bitcoin, Gold Price, and Oil Price: Evidence from Diagonal BEKK–GARCH Model

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Abstract

This chapter examines the dynamic linkages between the returns of Bitcoin, gold, and oil by using daily closing price data between July 17, 2010 and January 8, 2021. This study applies the diagonal BEKK–GARCH model for the purpose of analyzing a volatility spillover of variables in positive or negative ways. The empirical results show that the lagged returns inversely affect their current returns in oil. Based on the return spillovers between Bitcoin and gold, the empirical results indicate a unidirectional return spillover from Bitcoin to gold. Moreover, the authors found a unidirectional return transmission is observed from oil to Bitcoin, implying that oil returns are useful in forecasting Bitcoin returns. These findings are not only valuable for understanding of the interrelationships between the returns of Bitcoin, gold, and oil, but they are also of great interest to portfolio managers, investors, and investment funds that are actively dealing in Bitcoin, gold, and oil.

Keywords

Bitcoin; Dynamic linkage; Gold price; Multivariate GARCH; Oil price; Volatility