Caveat Emptor: Does Bitcoin Improve Portfolio Diversification?

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Bitcoin is an unregulated digital currency originally introduced in 2008 without legal tender status. Based on a decentralized peer-to-peer network to confirm transactions and generate a limited amount of new bitcoins, it functions without the backing of a central bank or any other monitoring authority. In recent years, Bitcoin has seen increasing media coverage and trading volume, as well as major capital gains and losses in a high volatility environment. Interestingly, an analysis of Bitcoin returns shows remarkably low correlations with traditional investment assets such as other currencies, stocks, bonds or commodities such as gold or oil. In this paper, we shed light on the impact an investment in Bitcoin can have on an already well-diversified investment portfolio. Due to the non-normal nature of Bitcoin returns, we do not propose the classic mean-variance approach, but adopt a Conditional Value-at-Risk framework that does not require asset returns to be normally distributed. Our results indicate that Bitcoin should be included in optimal portfolios. Even though an investment in Bitcoin increases the CVaR of a portfolio, this additional risk is overcompansated by high returns leading to better risk-return ratios.