

Title [The impact of inflation and estimation risk on portfolio management with cryptocurrencies and Bitcoin]**1. Introduction**

Cryptocurrencies have gained tremendous popularity in recent years, and their significance in the investment market has been rapidly increasing. The unpredictability and high volatility of the cryptocurrency market have led to increased attention towards risk management in cryptocurrency portfolios. Hedging strategies have been widely used to protect the downside risk of commodities through cryptocurrencies. However, it remains unclear how effective these strategies are in the cryptocurrency market. The relevance of this research lies in its potential to provide insights into the effectiveness of hedging the downside risk of commodities through cryptocurrencies. Understanding the effectiveness of these strategies is crucial for investors and financial institutions who are looking to incorporate cryptocurrencies into their investment portfolio. The research problem also addresses the need to explore the risk management of cryptocurrencies, which is becoming increasingly important as more investors and institutions are investing in cryptocurrencies. The research aims to investigate the risk management strategies that can be used to minimize the downside risk of commodities through cryptocurrencies.

2. Literature review

Several studies have examined the diversification benefits of cryptocurrencies in a portfolio context. Dorfleitner and Lung (2018) re-examined the diversification benefits of cryptocurrencies from the perspective of Euro investors and found that cryptocurrencies can provide diversification benefits for long-term investors. They also identified a day-of-the-week effect, where the returns on Bitcoin are highest on Mondays and lowest on Saturdays. This finding suggests that investors should consider the day-of-the-week effect when deciding on the optimal allocation of cryptocurrencies in their portfolio (Dorfleitner & Lung, 2018).

The Role of Estimation Risk," Platanakis and Urquhart (2019a) explore the role of estimation risk in portfolio management with cryptocurrencies. Estimation risk refers to the uncertainty associated with the estimation of the parameters of the asset return distributions, which is particularly relevant in the case of cryptocurrencies due to their high volatility and non-normal distribution characteristics. The authors argue that traditional portfolio optimization models that assume normal distribution of returns and constant variance may not be appropriate for cryptocurrencies and may lead to suboptimal portfolio allocation decisions. The authors propose a novel portfolio optimization model that accounts for

estimation risk through a Bayesian approach, which allows for the incorporation of prior information and the updating of portfolio weights as new data becomes available. The results of their empirical analysis suggest that the incorporation of estimation risk improves portfolio performance and reduces downside risk (Platanakis & Urquhart, 2019a).

Naeem et al. (2021) proposed a hedging strategy for the downside risk of commodities using cryptocurrencies. They found that a portfolio of Bitcoin and Gold can effectively hedge against the downside risk of commodities, and that the optimal allocation of Bitcoin varies depending on the level of risk aversion of the investor. This finding suggests that investors can use cryptocurrencies not only for portfolio diversification but also for hedging against specific risks (Naeem et al., 2021).

The author states that the extreme volatility and rapid changes in the cryptocurrency market make it challenging to predict future prices and risks. The article discusses the application of the GARCH model in estimating VaR, which is the maximum potential loss a financial institution may suffer within a specific period. Obeng (2021) evaluates the effectiveness of the GARCH model by analyzing data from Bitcoin, Litecoin, and Ethereum markets between 2015 and 2020. The results show that the GARCH model effectively estimates VaR in the cryptocurrency market, and its accuracy outperforms other traditional models. The study also finds that the cryptocurrency market exhibits a high level of volatility, and the VaR estimates obtained from the GARCH model vary depending on the chosen confidence level. The article contributes to the existing literature by highlighting the effectiveness of the GARCH model in predicting risks in the cryptocurrency market. The study also shows that the GARCH model is superior to traditional models and can be used by financial institutions and investors to manage risks in the cryptocurrency market. Furthermore, the study highlights the importance of the confidence level in VaR estimation, which is crucial for making informed investment decisions (Obeng, 2021).

Blau, Griffith, and Whitby (2021) explored the relationship between inflation and Bitcoin, using descriptive time-series analysis. The authors acknowledged the increased interest in Bitcoin as a potential hedge against inflation in recent years, particularly after the COVID-19 pandemic. The study's main objective was to examine whether Bitcoin could serve as an inflation hedge. The authors used daily data from January 2012 to March 2021 and employed time-series techniques to explore the relationship between inflation and Bitcoin. The study's findings revealed that Bitcoin was not a reliable inflation hedge. The authors found that Bitcoin's correlation with inflation was generally weak and inconsistent, implying that the cryptocurrency's value did not reliably rise in response to inflation. Furthermore, the authors found that the relationship between Bitcoin and inflation varied over time. In particular, they found that Bitcoin's response to inflation was stronger in the early years of the sample than in the later years. This suggests that Bitcoin's inflation-hedging ability may have weakened as it became more popular (Blau et al., 2021).

The study by Phochanachan et al. (2022) aims to shed light on this debate by examining whether Bitcoin and traditional financial assets act as an inflation hedge during stable and turbulent markets, using data from countries with high cryptocurrency adoption. The authors use a variety of statistical methods to analyze the data, including regression analysis and Granger causality tests. The findings of the study suggest that Bitcoin and traditional financial assets can act as an inflation hedge during both stable and

turbulent markets. Specifically, the authors find that Bitcoin and traditional financial assets have a negative relationship with inflation, meaning that as inflation increases, the value of these assets tends to increase as well. Additionally, the authors find evidence of a bidirectional causality between Bitcoin and inflation, suggesting that changes in Bitcoin prices can influence changes in inflation, and vice versa. While the study provides compelling evidence that Bitcoin and traditional financial assets can act as an inflation hedge, there are some limitations to consider. For example, the study only focuses on countries with high cryptocurrency adoption, which may not be representative of the broader global market. Additionally, the study does not consider the potential impact of other macroeconomic factors, such as interest rates or exchange rates, on the relationship between Bitcoin and inflation (Phochanachan et al., 2022).

3. Conclusion

The growing interest in cryptocurrencies as a potential investment option, both for diversification and as a safeguard against particular risks, is highlighted by this literature review, which comes to a conclusion. The studies covered in this review shed light on several market aspects, including volatility, risk management, inflation, and the market's connection to conventional financial assets.

The review emphasizes how cryptocurrencies, like Bitcoin, can benefit from diversification and possibly serve as a safety net against downside risks. It is difficult to accurately forecast future prices and risks due to the cryptocurrency market's extreme volatility and rapid changes. As a result, it is essential to implement effective risk management techniques, such as estimating value at risk using models like GARCH.

The studies also indicate that the relationship between cryptocurrencies and inflation is weak and inconsistent, suggesting that it may not reliably serve as an inflation hedge. However, Bitcoin and traditional financial assets can act as an inflation hedge during both stable and turbulent markets, providing investors with a potential avenue to manage inflationary risks.

Overall, the literature reviewed here suggests that cryptocurrencies, particularly Bitcoin, can provide valuable opportunities for investors seeking to diversify their portfolios or manage specific risks. However, investors must be aware of the risks associated with the cryptocurrency market and employ appropriate risk management strategies. These findings can inform the question of how to approach investment decisions in the cryptocurrency market and highlight the importance of considering diversification and risk management strategies.

4. Resources:

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