

Cryptocurrency as an Alternative Investment: A Risk and Return Analysis

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Abstract: *The rise of cryptocurrencies over the past decade has transformed the global financial landscape, introducing new paradigms in investment, value storage, and monetary exchange. This study investigates the role of cryptocurrencies—specifically Bitcoin (BTC) and Ethereum (ETH)—as alternative investment assets within modern portfolio frameworks. As digital currencies continue to gain legitimacy and acceptance among retail and institutional investors, it becomes imperative to examine their financial performance, volatility characteristics, and correlation with conventional asset classes such as equities, bonds, and commodities.*

This research adopts a hybrid methodological approach, combining rigorous quantitative analysis with qualitative review. Using historical market data from 2015 to 2024, it evaluates key performance indicators such as average returns, standard deviation, Sharpe and Sortino ratios, Value at Risk (VaR), and maximum drawdown. It further explores the utility of cryptocurrencies in enhancing portfolio efficiency through diversification benefits, while also considering risk mitigation through dynamic asset allocation and rebalancing.

The study extends beyond price metrics to include macroeconomic factors, such as inflation trends and monetary policy shifts, which influence crypto markets. It also addresses behavioral finance phenomena—including herd behavior, market sentiment, and media impact—that contribute to the observed volatility and price surges. The emergence of decentralized finance (DeFi), stablecoins, and central bank digital currencies (CBDCs) are also discussed to contextualize the evolving ecosystem and its implications for future investment strategies.

Key findings indicate that while cryptocurrencies have historically outperformed traditional assets in terms of absolute returns, they also exhibit significantly higher volatility and downside risk. Despite these risks, their low to moderate correlation with conventional financial instruments enhances their value as diversification tools in modern portfolios. However, the study cautions that this benefit may diminish during times of extreme market stress when cross-asset correlations tend to rise.

Moreover, the research highlights critical regulatory, technological, and environmental challenges associated with crypto adoption, including inconsistent global regulations, concerns over energy-intensive proof-of-work systems, and vulnerabilities in smart contracts. These factors underscore the need for robust governance frameworks and investor education to support sustainable growth in the digital asset market.

In conclusion, the paper asserts that cryptocurrencies can serve as high-risk, high-reward components of a diversified portfolio, particularly for investors with higher risk tolerance and a long-term investment horizon. The future integration of cryptocurrencies into mainstream finance will depend largely on regulatory clarity, technological innovation, and the maturation of supporting infrastructure such as custody services, derivative markets, and institutional-grade investment vehicles.

Keywords: Cryptocurrency, Alternative Investment, Blockchain Technology, Bitcoin (BTC), Ethereum (ETH), Risk and Return Analysis, Portfolio Diversification, DeFi (Decentralized Finance), Stablecoins, CBDCs (Central Bank Digital Currencies)

