

## PERFORMANCE OF CRYPTOCURRENCY IN COMPARISON WITH TRADITIONAL FINANCIAL MARKETS

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### ABSTRACT

This study analyses the performance of cryptocurrencies relative to that of traditional financial assets (equities, bonds, and gold) over the period of the fiscal years 2011-2024. The performance is analysed by applying paired t-tests, followed by ARCH and ARIMA models to assess the returns, volatility, and growth paths of the assets discussed. The findings show that cryptocurrency has had very high returns, but also extremely high volatility. Cryptocurrencies follow certain clustering patterns determined by market sentiment and exogenous shocks. The study will provide important direction for investors and policymakers alike, emphasizing diversification, risk management, and adjustments according to changing regulations and technologies.

### Keywords:

Cryptocurrency, traditional financial markets, volatility, diversification, ARCH, ARIMA.

### INTRODUCTION

Cryptocurrencies built on blockchain technology disruptively challenge the traditional assets for investment. High profits and speculative nature caught investors' attention to cryptocurrencies like Bitcoin and Ethereum; however, their extreme volatility is a far cry from the relative stability of equities, bonds, and gold.

The study thus aims at providing a comprehensive comparative analysis of cryptocurrencies and traditional financial markets based on returns, volatility, and growth potential. Findings are meant to be a guide for investment decisions highlighting existing opportunities and risks that these assets come with.

### LITERATURE REVIEW

Chi-Min Ho (2020): The research aims to provide an in-depth examination of cryptocurrency and its impact on financial assets in China and Taiwan at South Taiwan University of Science and Technology. Key findings showed that Chinese financial assets exhibit stronger correlation with the influence of cryptocurrency than does Taiwanese assets, with marked differences in the market dynamics. The study emphasizes the role of cryptocurrency in reshaping the financial structure and urges proactive adaptation to the developing influence of cryptocurrency.

Rachida Ben Ahmed Daho (2021): This research examined Bitcoin's influence on tech companies' share prices during the COVID-19 pandemic. A robust correlation was discovered, signaling opportunities for investors but challenges because of Bitcoin's volatility. The study recommends closely watching Bitcoin's interaction with tech shares during world events.

Bhupendra Kumar et al. (2022): Focused on Gen Z and millennials perceptions of cryptocurrencies as investment assets. A sample comprising 11,152 participants detected the preference of younger generations for digital currencies despite market volatility. The study provides the recommendations of educational programs to help people make informed decisions regarding investing in cryptocurrencies.

Panisara Phochanachan et al. (2022): Analyzed Bitcoin, gold, oil, and stocks as hedges against inflation using the MS-VAR model. Inflation was found to be weakly effective as a hedge in the long run, although effective in a short-term context. The study insists upon the dynamic, regime-dependent changes of these assets in their inflation hedging capabilities.

Nguyen Hoang Nam (2023): Evaluated the impact of cryptocurrencies on financial markets, finding very significant interactions with exchange rates, gold prices, and stock indices. The study recommends policies to boost financial literacy and reduce volatility in the crypto market.

S.V.S.P.P. Jaya Sankar Krishna et al. (2023): The study sees the termination of traditional markets by cryptocurrency by adopting its disruptive path. Volatility, regulatory concerns, and other challenges should properly engage the stakeholders in monitoring the evolving financial landscape, stated the findings.

Benu Chatterjee (2023): This study looks into how cryptocurrencies have been disruptive for the conventional financial systems. Competition in this ever-evolving industry ought to show that the integration of cryptocurrencies into the financial system may evoke significant structural changes, hence the policymakers will have to adapt and innovate.

Chioma Nwosu et al. (2023): Studied how Bitcoin interacts with the Nigerian financial market. The results show a weak correlation between Bitcoin and traditional markets, implying little to no market integration. Suggested recommendations include monitoring crypto exchanges and adopting policies to mitigate risk.

Roberto Isaac et al. (2023): This study investigated cryptocurrency in Ecuador and noted very little public knowledge of and fidelity to traditional finance. Beacons for the educational campaign have been sounded, and the need for technological overrides will need to deal with legitimacy.

Shreyansh Verma and Dr. Ruchi Atri (2024): Experienced a huge change in cryptocurrencies in the financial systems in both the UK and the US. Results showed the immense possibilities of blockchain by way of DeFi, smart contracts, and CBDCs. The research stresses the need for ethical innovation and for interdisciplinary cooperation to make the best use of these technologies.

## RESEARCH GAP

Previous works have seldom addressed the comparison of volatility and growth paths of cryptocurrencies relative to traditional markets. The study, hence, compensates for the existing void by putting forth sophisticated modeling for discerning this underlying point of difference.

## OBJECTIVES

1. Evaluate cryptocurrency returns relative to traditional investments.
2. Assess volatility profiles of cryptocurrencies and traditional assets.
3. Predict future growth trajectories of cryptocurrencies and traditional markets.

## RESEARCH METHODOLOGY

### Data Collection

Secondary data from 2011 to 2024 was obtained from financial databases and market reports.

### Analytical Tools

1. **Paired t-test:** Used to compare mean returns between cryptocurrencies and traditional assets.
2. **ARCH Model:** Applied to analyze the phenomenon of volatility clustering and persistence.
3. **ARIMA Model:** Utilized for forecasting future asset performance.

## DATA ANALYSIS

### Returns Performance (Paired t-test)

Comparison	Mean Difference	t-Statistic	p-Value	Conclusion
Cryptocurrency vs Gold	9480.82	7.72	0.000	Cryptocurrencies significantly outperform gold.
Cryptocurrency vs Bonds	8002.04	6.59	0.000	Cryptocurrencies yield higher returns than bonds.
Cryptocurrency vs Equity	7506.51	6.31	0.000	Cryptocurrencies outperform equities.

### Volatility Analysis (ARCH Model)

Asset	Variance Coefficient	Residual Coefficient	Volatility Clustering	Conclusion
Cryptocurrency	429.64	1.97	High	Significant volatility clustering.
Gold	16.15	0.22	Moderate	Relatively stable compared to crypto.
Equities (MSCI)	12.13	0.33	Low	Lower volatility clustering observed.
Bonds	96.90	0.35	Moderate	Exhibits volatility persistence.

#### Growth Predictions (ARIMA Model)

Asset	Model Parameters	AIC Value	Forecast Trend
Cryptocurrency	(3,3)	19.19	Continued high growth with volatility.
Gold	(2,3)	-3.32	Gradual growth with stability.
Equities (MSCI)	(4,4)	11.86	Moderate growth trend.
Bonds	(2,1)	-0.10	Declining growth projection.

#### FINDINGS

1. Cryptocurrencies deliver significantly higher returns than traditional assets, albeit with increased volatility.
2. Volatility clustering is more pronounced in cryptocurrencies, driven by market sentiment and external shocks.
3. ARIMA models project sustained growth for cryptocurrencies, though marked by substantial fluctuations.
4. Gold and equities exhibit stability, suitable for risk-averse investors.

#### SUGGESTIONS

1. **Diversification:** Combine cryptocurrencies with traditional assets to enhance returns and mitigate risks.
2. **Long-term Strategies:** Prioritize long-term investment in cryptocurrencies to offset short-term volatility.
3. **Regulatory Awareness:** Monitor global regulations to adapt strategies accordingly.
4. **Risk Management:** Employ stop-loss orders and regular portfolio rebalancing.
5. **Education:** Equip investors with knowledge on cryptocurrencies to enable informed decisions.

#### CONCLUSION

Cryptocurrencies represent a high-risk, high-reward investment class, characterized by unparalleled returns and substantial volatility. Integrating cryptocurrencies into a diversified portfolio can enhance risk-adjusted returns, provided robust risk management strategies are in place. As the financial landscape evolves, adapting to regulatory and technological developments will be essential for investors and policymakers alike.

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