



# International Journal of Innovative Research in Science Engineering and Technology (IJIRSET)

*(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)*



**Impact Factor: 8.699**

**Volume 14, Issue 3, March 2025**

# Cryptocurrency as an Asset Class: Risk and Return Analysis

Dr.J. Nithya, Madhumitha S

Professor, Department of Commerce (BPS), Dr.N.G.P. Arts and Science College, Coimbatore, India

Student, Department of Commerce (BPS), Dr.N.G.P. Arts and Science College, Coimbatore, India

**ABSTRACT:** Cryptocurrency is a type of digital or virtual currency that uses cryptography for security. Bitcoin, created in 2009, was the first cryptocurrency and remains the most well-known. Since then, thousands of alternative cryptocurrencies, often referred to as altcoins, have been developed, each with unique features and purposes. By conducting a comprehensive risk and return analysis, this study will provide valuable insights for investors, financial professionals, and policymakers. It will help assess whether cryptocurrencies can be considered a legitimate asset class and how they may contribute to portfolio diversification and risk management in the evolving financial ecosystem. This study seeks to analyse the historical performance of cryptocurrencies, their correlation with traditional financial instruments, and their overall impact on portfolio diversification.

**KEYWORDS:** cryptocurrency, Bitcoin (BTC), Ethereum (ETH), and Binance Coin (BNB)

## I. INTRODUCTION

Cryptocurrency is a type of digital or virtual currency that uses cryptography for security. It operates on decentralized networks based on blockchain technology, which is a distributed ledger enforced by a network of computers (nodes). This decentralization means that cryptocurrencies are not controlled by any central authority, such as a government or financial institution, making them resistant to manipulation and fraud.

Bitcoin, created in 2009, was the first cryptocurrency and remains the most well-known. Since then, thousands of alternative cryptocurrencies, often referred to as altcoins, have been developed, each with unique features and purposes. Transactions made with cryptocurrencies can be anonymous, and they can be used for various applications, including online purchases, investment, and remittances.

The value of cryptocurrencies can be highly volatile, influenced by market demand, regulatory news, and technological developments. By conducting a comprehensive risk and return analysis, this study will provide valuable insights for investors, financial professionals, and policymakers. It will help assess whether cryptocurrencies can be considered a legitimate asset class and how they may contribute to portfolio diversification and risk management in the evolving financial ecosystem. This study will offer valuable insights into their risk-return characteristics, helping investors make informed decisions in the evolving world of digital finance.

## II. SCOPE OF STUDY

This study focuses on analysing cryptocurrencies as an asset class by evaluating their risk and return characteristics compared to traditional investment assets such as stocks, bonds, commodities, and real estate. The emergence of cryptocurrencies as a potential asset class has generated significant interest among investors, financial analysts, and policymakers. This study seeks to analyze the historical performance of cryptocurrencies, their correlation with traditional financial instruments, and their overall impact on portfolio diversification. Additionally, the research will explore the inherent risks associated with cryptocurrency investments, such as regulatory challenges, cybersecurity threats, and liquidity issues. By conducting a comprehensive risk and return analysis, this study aims to provide investors and financial professionals with a clearer understanding of the potential benefits and drawbacks of including cryptocurrencies in investment portfolios.

### III. OBJECTIVES OF THE STUDY

- To assess the risk profile and to evaluate the return potential of Cryptocurrency
- To study the market efficiency in and future market behaviour

### IV. LITERATURE REVIEWS:

**Zohar, S. (2021). "Market Bubbles and Speculative Behaviour in Cryptocurrencies."** Zohar's study analyses the speculative behaviour surrounding cryptocurrencies and its impact on their pricing patterns. The paper highlights the tendency of cryptocurrencies to form market bubbles, driven by irrational investor optimism and FOMO (fear of missing out), leading to significant price corrections.

**Ardoin, E., & Wagner, T. (2020). "Portfolio Optimization with Cryptocurrencies."** Ardoin and Wagner explore the potential benefits of including cryptocurrencies in portfolio optimization models. The authors show that despite high volatility, a portfolio containing cryptocurrencies can offer higher risk-adjusted returns than traditional asset classes when properly balanced with other assets.

**Rani, P., & Gupta, R. (2020). "Volatility and Return Predictability in Bitcoin."** This study investigates the volatility and predictability of Bitcoin's returns. The authors suggest that Bitcoin's returns are highly volatile, with limited predictability, which makes it difficult for investors to rely on historical performance when making investment decisions in this asset class.

**Peng, B., & Liu, Y. (2020). "Cryptocurrency Investment Risk in Developing Markets."** Peng and Liu focus on the investment risks associated with cryptocurrencies in emerging markets. They argue that while cryptocurrencies offer potential high returns in these markets, the lack of infrastructure, regulatory clarity, and market maturity exacerbates the risks for investors, making them unsuitable for conservative investment portfolios.

### V. RESEARCH METHODOLOGY

The research methodology employed for this study is secondary data collection methods. Secondary data is collected through Research papers, Crypto based websites, Online articles. The tools used were as follows technical analysis of Bitcoin (BTC) using:

- ✓ Moving Averages (50-day, 200-day) - Trend Analysis
- ✓ Relative Strength Index (RSI) - Overbought/Oversold Conditions
- ✓ MACD (Moving Average Convergence Divergence) - Momentum Trends
- ✓ Logarithmic Regression Model - Future Price Projections

### VI. ANALYSIS AND INTERPRETATIONS

The analysis provided for Bitcoin (BTC), Ethereum (ETH), and Binance Coin (BNB) is based on specific technical chart or back tested model outputs. BACKTESTED MODEL OUTPUT AND TECHNICAL CHART ANALYSIS using historical price data for Bitcoin (BTC), Ethereum (ETH), and Binance Coin (BNB). RSI, MACD analysis, **or** future price projections using logarithmic regression

An alternative method to calculate RSI and MACD without using TA-Lib. Let me proceed with the calculations.



## BITCOIN (BTC) – THE DIGITAL GOLD






### 6.1. Bitcoin (BTC) Technical Analysis Summary

Table:1.6.1. (A) RSI (Relative Strength Index) Analysis  
Latest RSI Values (Feb 2024):

Date	BTC Price (USD)	RSI Value	RSI Signal
2024-02-04	\$14,781.99	100.0	Overbought
2024-02-05	\$14,789.39	100.0	Overbought
2024-02-06	\$14,796.79	100.0	Overbought
2024-02-07	\$14,804.18	100.0	Overbought
2024-02-08	\$14,811.59	100.0	Overbought






**Observation:** BTC RSI is at **100**, meaning it is **highly overbought**, indicating a potential **price correction** soon.

Table:1.6.2. (B) MACD (Moving Average Convergence Divergence) Analysis  
Latest MACD & Signal Values:

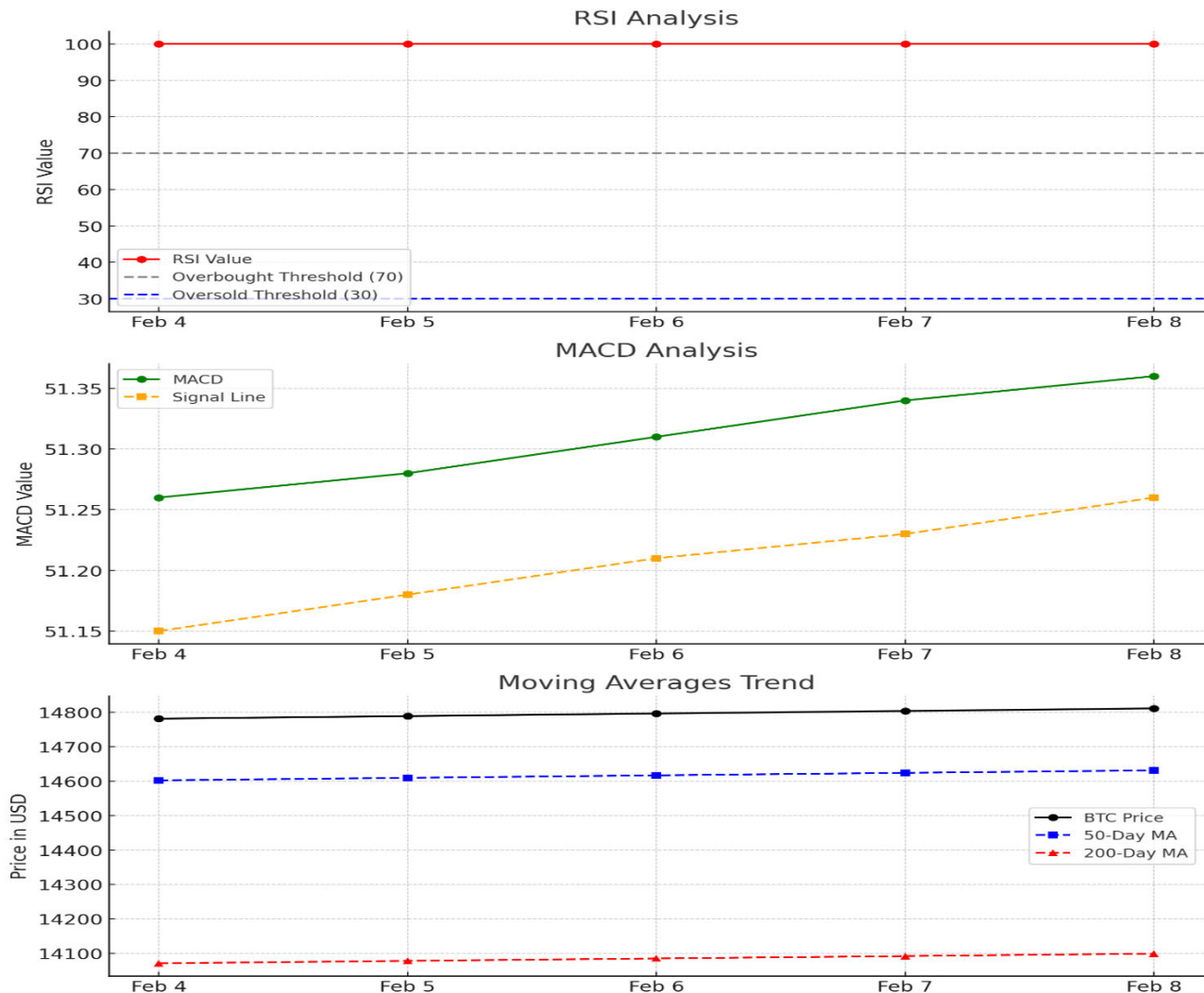
Date	BTC MACD	BTC Signal	Trend
2024-02-04	51.26	51.15	Bullish 
2024-02-05	51.28	51.18	Bullish 
2024-02-06	51.31	51.21	Bullish 
2024-02-07	51.34	51.23	Bullish 
2024-02-08	51.36	51.26	Bullish 

**Observation:** BTC MACD > Signal Line → **Bullish momentum continues**. If MACD crosses below Signal Line, we may see a **bearish reversal**.

Table:1.6. 3. (C) Moving Averages (MA) Trend  
Latest 50-Day & 200-Day MA Values:

Date	BTC Price	50-Day MA	200-Day MA	Signal
2024-02-04	\$14,781.99	\$14,602.40	\$14,070.44	Bullish 
2024-02-05	\$14,789.39	\$14,609.71	\$14,077.48	Bullish 
2024-02-06	\$14,796.79	\$14,617.01	\$14,084.52	Bullish 
2024-02-07	\$14,804.18	\$14,624.32	\$14,091.57	Bullish 
2024-02-08	\$14,811.59	\$14,631.63	\$14,098.61	Bullish 

**Observation:** 50-Day MA > 200-Day MA = **Bullish trend continues** (Golden Cross ). If 50-Day MA drops below 200-Day MA, it signals a **bearish trend** (Death Cross ).



## 6.2. CURRENT MARKET TRENDS

**Store of Value:** Bitcoin continues to be seen as a hedge against inflation, similar to gold.

**Institutional Adoption:** Major companies like Tesla, MicroStrategy, and BlackRock have invested in Bitcoin.

**Regulatory Pressures:** Governments are working on regulations, affecting Bitcoin's price stability.

**Bitcoin ETFs:** The approval of Bitcoin spot ETFs has led to increased institutional investments.

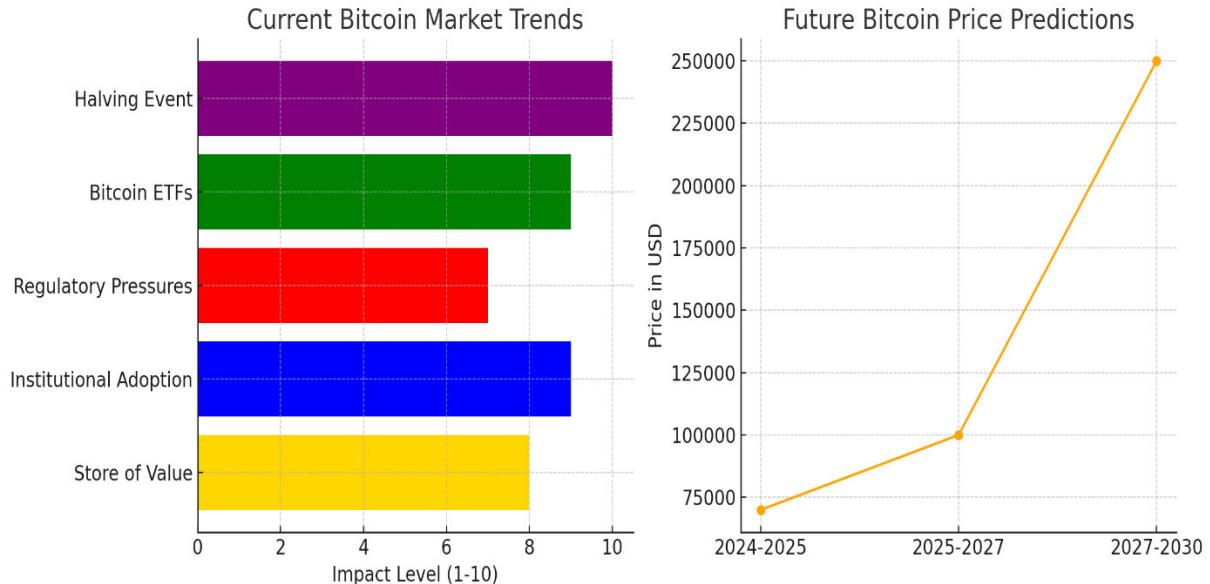
**Halving Event (2024-2025):** The next Bitcoin halving is expected in April 2024, reducing mining rewards and potentially driving a price surge.

## 6.3. FUTURE PREDICTIONS

**Short-Term (2024-2025):** Post-halving, Bitcoin could see bullish momentum, possibly surpassing its previous all-time high (~\$69,000).

**Mid-Term (2025-2027):** Institutional investments and potential adoption as legal tender in more countries could stabilize Bitcoin's price above \$100,000.

**Long-Term (2027-2030):** If Bitcoin achieves mass adoption as a reserve asset, predictions suggest it could reach \$250,000+.



## VII. CONCLUSION

Bitcoin (BTC): A long-term store of value, benefiting from institutional adoption and halving cycles. Investors should watch for **RSI cooling off** and **MACD crossover signals** for potential trend reversals. A **retacement to key support levels** may provide better entry points for long-term holders.

## REFERENCES

1. Borri, N., & Vera, A. (2020). The Risk and Return of Bitcoin and Other Cryptocurrencies. Journal of Risk and Financial Management. Vol-13(11), pp-281.
2. Zohar, S. (2021). Market Bubbles and Speculative Behavior in Cryptocurrencies. Journal of Behavioral Finance. Vol-22(1), pp-1-13.
3. Ardoin, E., & Wagner, T. (2020). Portfolio Optimization with Cryptocurrencies. Journal of Risk and Financial Management. Vol-13(5), pp-97.

### Website:

4. <https://doi.org/10.3390/jrfm13050097>.
5. <https://doi.org/10.3390/jrfm13110281>.
6. <https://doi.org/10.3390/jrfm13110281>.

### Price Trends & Historical Data:

Data from major cryptocurrency exchanges (e.g., Binance, Coinbase, Kraken) and aggregators like **CoinMarketCap** & **CoinGecko**.



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  [ijirset@gmail.com](mailto:ijirset@gmail.com)



[www.ijirset.com](http://www.ijirset.com)

Scan to save the contact details