

# Cryptocurrency Adoption and Its Implications: A Literature Review

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**Abstract:** Cryptocurrencies have emerged as a disruptive technology with the potential to revolutionize the financial landscape. This research paper aims to explore the topic of cryptocurrency adoption and its implications from multiple perspectives. This research paper is based on secondary data collected by researchers from various sources and papers reviewed by the researcher. It was clear from the secondary data that the cryptocurrency landscape continues to mature and overcome the challenges it faces, and the potential for Bitcoin and other digital assets to transform the global financial system and revolutionize the way we conduct transactions, store value, and access financial services seems increasingly likely. A cryptocurrency-based ecosystem can provide opportunities for new market entrants and support startups by facilitating the process of fundraising. For instance, initial coin offerings enable entrepreneurs and investors to finance new projects without the recourse to intermediaries and endorsements of traditional investors and financial bodies. Cryptocurrency is a constant evolution driven by a diverse and passionate community of developers, entrepreneurs, investors, and users. The future of money is being reimagined, and cryptocurrencies such as Bitcoin are at the forefront of this exciting transformation.

**Keywords:** Cryptocurrency, Blockchain, Bitcoin, Digital Currency

## 1 Introduction

Throughout history, currencies and monetary systems have held a prominent position as key subjects of interest within human society. Throughout the course of human history, a multitude of different types of currency have arisen and played crucial roles within a wide range of economic systems. During the 20th century, there was a notable correlation between currencies and nation-states, leading to a progressive transformation toward more standardized currency systems. The emergence of the internet and computer networks presented novel approaches to address the technological complexities involved in currency management. The advancement of technology has resulted in a decreased reliance on conventional financial institutions for the verification of transactions. Cryptocurrencies, in particular, depend on a decentralized network of computer users for verification purposes. Cryptocurrencies are specifically engineered to incorporate cryptographic measures, which effectively inhibit any arbitrary expansion of the money supply. This is achieved through the utilization of preset procedures that are readily visible and comprehensible to users.

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In recent times, there has been a notable expansion in cryptocurrency marketplaces, wherein Bitcoin has emerged as the foremost cryptocurrency since its introduction to the public in January 2009. Following this, a multitude of additional cryptocurrencies have surfaced, with a significant number attaining popularity inside the cryptocurrency industry. Bitcoin initially presented a cost-efficient alternative to conventional financial transactions, exhibiting transaction fees that frequently proved to be lower than those linked to credit card payments.

It is noteworthy to acknowledge that cryptocurrencies exclusively exist in a digital format, devoid of any tangible manifestation. The value of these digital coins is derived from their intrinsic properties and their adoption within the financial ecosystem, which has led to a steady growth in value due to growing investor interest. Cryptocurrencies are produced by cryptographic mechanisms and possess the capacity to tackle a range of obstacles encountered by developing nations, including but not limited to poverty, inadequate banking accessibility, insufficient capital, and restricted market entry. The global accessibility of financial services can be potentially enhanced by the widespread use of blockchain technology, which serves as the foundation for cryptocurrencies. This prospect is endorsed by a diverse group of individuals, including entrepreneurs, economists, bankers, and government officials.

## **2 Literature Review**

### **2.1 Fluctuation of Prices in the Cryptocurrency Market**

Numerous scholarly investigations have been conducted to analyze the various determinants that impact the fluctuation of prices within the cryptocurrency market. These studies are presented in chronological order.

In their study, Kapar and Olmo [1] examined the methods employed to ascertain the price of Bitcoin, encompassing the integration of both futures and spot prices. The analysis conducted placed particular emphasis on the substantial impact exerted by Bitcoin futures prices in the process of determining prices. It was found that the convergence of futures and spot prices played a pivotal role in determining the spot market price of Bitcoin.

In their study, Dutta, Patel, and Athaide [2] conducted an analysis on the price fluctuations of several cryptocurrencies. The researchers examined daily data spanning from January 1, 2016, to November 7, 2017. The findings of their study unveiled the presence of cointegration among cryptocurrencies, indicating a statistical relationship that suggests a long-term equilibrium. Additionally, a substantial level of correlation was observed, indicating a strong association between the price movements of different cryptocurrencies. It is worth noting that the prices of Bitcoin exhibited a reasonably autonomous behavior with respect to Twitter emotions.

Nadarajah and Chu [3] conducted a study to examine market efficiency within different subsets of time periods in the Bitcoin market. The analysis conducted in this study encompassed the conversion of Bitcoin prices into returns, followed by the implementation of eight distinct tests on the dataset spanning from August 2010 to July 2016. The findings of the study suggest that the Bitcoin market exhibits a lack of efficiency, which is consistent with the poor efficiency hypothesis put forth during certain periods of analysis.

In their study, Wang, Xue, and Liu [4] investigated the volatility of Bitcoin prices in correlation with stock price indices, oil prices, and daily trading volumes of Bitcoin. The research encompassed the timeframe spanning from January 2011 to April 2016, revealing indications of both enduring equilibrium and transient dynamic associations among the

aforementioned variables. The short-term effects of oil prices and trading volumes were observed; however, the influence of stock indices on Bitcoin prices was shown to be more significant.

Kristoufek [5] conducted one of the initial studies exploring the relationship between Google Trends and Wikipedia as indicators of investor attention and their influence on cryptocurrency returns. The research employed cointegration and impulse response techniques, utilizing a dataset that covered the period from May 2011 to June 2013. The findings of the study indicated that there exists an asymmetrical relationship between the search volumes of Google and Wikipedia and the prices of Bitcoin.

## **2.2 Post-Industrial Economic Development and Cryptocurrency**

The phenomenon of postindustrial economic development has been a subject of scholarly interest and analysis in recent years. One area that has garnered particular attention is the emergence and impact of cryptocurrency within this context.

During the postindustrial stage, economies of developed countries exhibit a higher level of wealth generation in comparison to both industrialized and emerging nations. Cryptocurrencies are dependent on decentralized peer-to-peer networks to facilitate transactions. These networks ensure that all transactions comply with defined procedures and standards that have already been established. The protocols are designed, deployed, and carried out by broadcast transaction nodes, but there are no incentives for transaction verification included in the design of the system.

The purpose of the research that was carried out by Aslanidis, Bariviera, and López [6] was to reevaluate the connection that exists between data from Google Trends and cryptocurrency. To achieve this, the researchers employed Transfer Entropy analysis on a dataset consisting of daily observations from August 7, 2015, to April 22, 2021. The researchers' findings demonstrated a statistically significant bilateral relationship between the returns of cryptocurrencies and the data obtained from Google Trends.

Aboluwodi, Nomlala, and Muzindut [7] conducted a study to investigate the enduring relationships between the Johannesburg Stock Exchange (JSE) stock index, global assets such as oil, gold, and platinum, and Bitcoin. A range of statistical tests were utilized on daily data spanning from January 1, 2015, to December 31, 2021. The findings of the study revealed statistically significant cointegration connections between Bitcoin and the JSE stock index prior to the onset of the COVID-19 pandemic. However, after the pandemic, there was an absence of substantial cointegration or causal ties between cryptocurrencies and other financial assets.

The research that was carried out by Subramaniam and Chakraborty [8] looked into the connection that exists between the prices of cryptocurrencies and the impact that attention-driven trading has on the dynamics of price changes. Quantile causality analysis served as the research approach throughout the entirety of the study, which stretched from January 2013 through March of 2018. The findings of the study provided convincing evidence that price changes in the cryptocurrency market are driven by attention, with a particular emphasis placed on well-known cryptocurrencies such as Bitcoin and Ethereum.

## **2.3 The rationale behind investors' consideration of cryptocurrencies**

India has experienced a significant surge in the volumes of cryptocurrency investments, positioning itself as a prominent worldwide leader in this domain. Following the Supreme Court of India's decision in March 2020 to overturn the ban imposed by the Reserve Bank of India on cryptocurrency trading, there has been a notable comeback of cryptocurrencies

within the nation. According to [9], it has been estimated that a sum above \$1 billion, comparable to the currency of India, has been invested by a population of approximately 15 million individuals from the country. The aforementioned phenomenon underscores the increasing fascination with cryptocurrencies within the Indian context, hence underscoring the imperative to provide investors with comprehensive knowledge pertaining to the ever-changing realm of finance. It is worth noting that in a nation recognized for its inclination toward conventional assets such as gold, a substantial number of 1.5 crore (15 million) Indian individuals have engaged in the investment of cryptocurrencies. This trend indicates a notable transformation in investing patterns, particularly among the younger demographic [10].

However, it is important to note that [11] emphasize the need for a nuanced comprehension of cryptocurrencies and traditional currencies as financial assets, despite their shared characteristics. Despite experiencing significant price increases in recent years, cryptocurrencies have been accused of exhibiting price bubbles. These charges are generally linked to factors such as regulatory scrutiny, the possibility for illicit activities facilitated by the anonymity of new exchange systems, and susceptibility to cybercrime. The aforementioned elements collectively shape individuals' attitudes regarding the viability of cryptocurrencies as a distinct asset class [12].

The growing ubiquity of cryptocurrencies presents significant issues for nations, encompassing risks to the monetary system, apprehensions about potential criminal utilization, and restricted oversight of private cryptocurrency exchanges that facilitate transactions. The taxation of bitcoin transactions is a significant factor that warrants careful attention at both domestic and global levels.

## **2.4 Concept of Cryptocurrency as an Asset**

The concept of cryptocurrency as a form of asset has gained significant attention and interest in recent years.

In their study, Corbet et al. [12] examined the dynamic associations between diverse cryptocurrencies and a range of financial assets. Their findings led them to assert that cryptocurrencies present distinct advantages to investors when compared to conventional assets. Although cryptocurrencies offer certain benefits, the investigation also underscored the distinct hazards linked to the cryptocurrency sector that can pose difficulties in terms of mitigation.

In the initial phases of the COVID-19 epidemic, Bitcoin, akin to the stock market and other commodities, encountered obstacles; nonetheless, it subsequently had a significant upswing, attaining a value of \$60,000 in March 2021.

## **2.5 Phenomenon of volatility and spillover effects within the realm of cryptocurrency**

The study examines the phenomenon of volatility and spillover effects within the realm of cryptocurrency.

Yi, Xu, and Wang [13] conducted a study to examine the interconnections of volatility within the cryptocurrency market. The analysis covered a total of 52 distinct cryptocurrencies and utilized both spillover index procedures and high-dimensional VAR estimation techniques. The outcomes of the investigation highlighted the large amount of interconnectedness that was seen among cryptocurrencies. This indicates that cryptocurrencies are able to propagate shocks across the network. Some of the effects of the

phenomena known as volatility spillover were shown to be caused by lesser-known cryptocurrencies.

In their research, Symitsi and Chalvatzis [14] investigated the relationship between Bitcoin and traditional assets such as shares, currencies, gold, and oil. Additionally, they looked at the correlation between Bitcoin and conventional assets. The conclusions of this study reveal that Bitcoin has exhibited a limited correlation with traditional assets. These findings were reached by employing four portfolio methodologies and performing an analysis of daily data spanning the time period from September 20, 2011, to July 3, 2017. This quality has the potential to reduce the overall risk that is connected to making portfolio investments. The findings of the study did, however, point to the existence of price bubble characteristics inside the bitcoin market, which reduces the benefits of diversity.

In [15], the effectiveness of cryptocurrencies as a tool for risk management in financial markets was evaluated. This evaluation was included in their study. They did this by employing an AG-DCC-GARCH model and doing an analysis of daily data spanning from August 8, 2015, all the way through July 2, 2019. The research conducted a comparative analysis between cryptocurrencies and equity indices from five different nations, as well as the iShares S&P GSCI commodity-indexed trust. The findings of the study revealed that the utilization of a solitary cryptocurrency as a hedge for equities did not yield significant effectiveness. However, the construction of a portfolio consisting of five cryptocurrencies with equal weights demonstrated the ability to effectively hedge equities. The inclusion of cryptocurrencies in portfolios was discovered to largely serve the purpose of improving the Sharpe ratio rather than acting as a risk hedge. This finding is supported by traditional minimum variance models, which demonstrated only a negligible beneficial impact on hedging effectiveness. The research emphasized that commodities show greater suitability for hedging effectiveness within the Southeast Asian market.

In their study, Gkillas et al. [16] investigated the relationship between crude oil, gold, and BTC (Bitcoin) in terms of higher-order moments. They employed Granger causality and generalized impulse response functions for their analysis. The investigation utilized high-frequency data encompassing the time period from December 2, 2014, to June 10, 2018. The results indicated that it is imperative to incorporate the modeling of interrelationships among these three markets to enhance the evaluation of investment risks. Significantly, the findings revealed a less pronounced correlation between Bitcoin (BTC) and crude oil in contrast to the correlation observed between Bitcoin (BTC) and gold.

Zhang and He [17] conducted a study to investigate the spillover effects among various financial assets, such as gold, stock markets, oil, and Bitcoin. They employed a DG-GC-MSV model for their analysis. The findings of the study suggest that the utilization of the MSV (multivariate stochastic volatility) model yielded more precise outcomes. There was also no convincing proof that Bitcoin had a causal transmission effect on other assets.

## **2.6 Concept of Efficiency within the Realm of Cryptocurrency**

Khuntia and Pattanayak [18] conducted research that looked into the Adaptive Market Hypothesis (AMH) and its implications for the capacity to predict Bitcoin market returns. The analysis utilized daily pricing data for Bitcoin starting on July 18, 2010, and going all the way through December 21, 2017. To investigate the association between AMH and Bitcoin, a comprehensive analysis was carried out by employing the Dominguez-Lobato (DL) consistency test and the generalized spectral (GS) test inside of a rolling window framework. This was done so that the relationship between the two could be investigated. The findings of the study showed support for the assumption that was made by the AMH, demonstrating that there is dynamic efficiency present within the Bitcoin market.

In the research [19] published in 2018, the level of predictability present in the performance of 73 different cryptocurrencies was investigated. To carry out an in-depth study of the data, the researchers utilized data that were gathered from August 2015 through November 2017 and carried out stringent liquidity tests. In addition, the researchers utilized data that were collected prior to August 2015. The findings of the research pointed to a substantial connection between efficiency and liquidity, suggesting that the predictability of cryptocurrencies decreases with larger levels of liquidity. This was shown by the fact that there was a correlation between the two concepts. This was one of the most important takeaways from the research that was done. It was important to bring attention to the correlation that existed between the two ideas, and the existence of a clear connection between the two ideas accomplished this purpose.

The study of the cryptocurrency market [20] looked into the likelihood of there being asymmetric efficiency in the market. To carry out an analysis on a dataset that covered the span of time beginning July 1, 2017, and ending April 1, 2020, the researchers made use of a method known as multifractal detrended fluctuation analysis, or MF-DFA. This methodology was utilized to carry out the analysis. The purpose of carrying out the analysis was to arrive at certain conclusions regarding the data. According to the results of the study, the outbreak of the COVID-19 virus may have had a negative impact on the operation of the bitcoin market. This conclusion is drawn from the data of the study. It is important to note that Bitcoin and Ethereum both suffered enormous losses as a direct result of this incident, even though both have seen recent signs of a rapid recovery since then. More specifically, the values of Bitcoin and Ethereum both significantly decreased during the day.

Numerous tests were run on a dataset spanning the years September 2011 to January 2020 as part of the research that was conducted on seasonal and calendar anomalies [20] by Qadan et al. (2022). The time range that was examined was from September 2011 to January 2020. The years 2011 through 2020 were included in the scope of the dataset's coverage. Their findings revealed that asset pricing in the cryptocurrency market is efficient, and they emphasized the advantages of diversifying one's portfolio by including cryptocurrencies. Their research suggested that the market for cryptocurrencies is efficient. According to the findings of their research, the cryptocurrency market possesses efficiency in terms of asset pricing.

### 3 Conclusion

In conclusion, the review of the relevant literature has offered a detailed description of a number of qualities that are important to the cryptocurrency sector. The dynamics of prices, trends in adoption, variables considered by investors, the classification of bitcoin as an asset, volatility, the repercussions of spillover effects, and the efficiency of the market are some of the aspects that fall under this category. The on-going academic conversation on cryptocurrencies and the effect that having them can have on the state of the world's financial system is enriched by the contributions made by these works, which are essential contributions.

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