



The economic implications of cryptocurrency and its potential to disrupt traditional

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Abstract: This Cryptocurrencies were first launched in the year 2009 and have been a great asset to own. Cryptocurrencies are a representation of a completely distinct decentralization model for money. They also contribute to the elimination of currency monopolies and the liberation of money from control. The fact that no government agency can determine a coin's value or flow is what cryptocurrency advocates believe makes them safe and secure. The aim of this paper is to analyze the economic implications of cryptocurrency and how it would disrupt traditional financial systems. This paper analyses the growth of Cryptocurrency over the years and the potential threats of cryptocurrency to financial systems. Our analysis shows that although the DeFi design, like the traditional financial system, may have the ability to lower transaction costs, there are multiple layers where rents might build up because of endogenous competition limitations. The permission less and anonymous design of DeFi poses issues for ensuring tax compliance, Anti-money laundering laws and regulations, and preventing financial misconduct.

Index Terms - Cryptocurrencies, Bitcoin, Blockchain technology, Traditional financial systems, Decentralization, Regulatory framework

I. INTRODUCTION

The concept of money has undergone significant transformations throughout history, evolving from commodity-based systems to the current dominance of fiat currencies.[1] In recent years, a novel form of digital money, cryptocurrency, has emerged, challenging traditional financial structures and sparking a global conversation about the future of finance. This paper explores the core characteristics of cryptocurrency, exploring its potential benefits, inherent risks, and the ongoing debate surrounding its integration into the mainstream financial landscape. Bitcoin, the first and most well-known cryptocurrency, has revolutionized the financial landscape by introducing a decentralized digital payment system. Launched in 2009 by the enigmatic Satoshi Nakamoto, Bitcoin operates independently of central banks and traditional financial institutions, challenging the established norms of money and value. This paper explores the core functionalities of Bitcoin, explores its origins and underlying principles, and examines the debate surrounding its potential and limitations. Unlike traditional fiat currencies issued by governments and backed by their authority, Bitcoin operates on a decentralized network, eliminating the need for intermediaries. This network, run by a technology called blockchain, functions as a peer-to-peer ledger that records every Bitcoin transaction, ensuring transparency and immutability. Each unit of Bitcoin is essentially a digital token stored on the blockchain, divisible into smaller fractions for micro transactions. The decentralized nature of Bitcoin empowers users to conduct peer-to-peer transactions directly, negating the need for banks or other financial institutions. The creation of new Bitcoins, known as mining, requires resolving sophisticated mathematical issues using specialized computer hardware. Successful miners are rewarded with Bitcoins, incentivizing them to maintain the network's security and validate transactions. This process ensures the scarcity of Bitcoins, with a finite supply of 21 million units programmed into the system.

II. BITCOIN, BLOCKCHAIN AND MONETARY SYSTEM:

The emergence of Bitcoin, the first and most well-known cryptocurrency, has ignited a global debate regarding its potential impact on traditional financial systems and monetary policy. This paper explores the unique characteristics of Bitcoin, particularly its predetermined and limited supply, and examines the challenges it poses to established economic theories like Milton Friedman's monetarism. Monetarism, championed by economist Milton Friedman, advocated for central banks to regulate the money supply through a consistent annual increase. However, the advent of cryptocurrencies like Bitcoin presents a stark contrast. Unlike traditional currencies controlled by central authorities, Bitcoin operates on a decentralized network with a preplanned and finite supply of 21 million units.[1] This programmed scarcity directly contradicts the core principles of monetarism, where central banks manipulate the money supply to influence economic activity. Bitcoin's creators designed the system to mimic the scarcity of precious metals like gold. The gradual decrease in production rate adjustment and maintain the worth of currency over time. However, some economists, like Yermack (2013), question the competence of this approach, raising concerns about the long-term stability of Bitcoin's value in a dynamic global economy. Despite its predetermined supply, Bitcoin's price has experienced significant fluctuations, particularly in its early years. This volatility raises concerns about its competency as a reliable store of value and medium of exchange. Factors like speculation, investor sentiment, and regulatory uncertainties contribute to these price swings, creating challenges for individuals and businesses seeking a stable financial instrument.[2]

III. CRYPTOCURRENCY AND THE TRADITIONAL BANKING SYSTEMS:

The rise of cryptocurrencies has sent shockwaves through the financial landscape, challenging the longstanding dominance of traditional banking systems. These novel digital assets, designed to function as mediums of exchange, stores of value, and units of account, are fundamentally altering the way we perceive and interact with money. Cryptocurrencies transcend the boundaries of mere digital assets.[3] They mimic the functionalities of traditional currencies, serving as mediums of exchange, stores of value, and units of account. This versatility has garnered significant interest, particularly due to their potential to revolutionize financial transactions. One of the most compelling features of cryptocurrencies lies in their capacity to streamline financial transactions. By leveraging the power of blockchain technology, cryptocurrencies bypass mediators, such as banks, leading to significant advantages:

- **Enhanced Quickness and Productivity:** Transactions occur almost instantaneously, eradicating the delays often associated with traditional banking processes.
- **Reduced Costs:** Cryptocurrencies typically incur lower transaction fees compared to conventional banking methods.
- **Increased Transparency and Security:** Blockchain technology ensures the immutability and transparency of all transactions, fostering conviction and liability within the system. Recognizing the transformative potential of blockchain technology, numerous traditional financial institutions have begun integrating it into their existing frameworks. This integration aims not only to improve existing services but also to develop innovative offerings that cater to the evolving needs of customers. Examples include the Eurasian Bank in Kazakhstan, offering low fees for blockchain transactions, and SEBA Bank in Switzerland, which seamlessly blends traditional banking services with blockchain technology [4].

Global Responses: Striking a Balance

In acknowledgment of these concerns, various countries have implemented regulatory frameworks to handle the unique challenges posed by cryptocurrencies. The spectrum of responses ranges from proactive engagement to complete prohibition. The US Federal Reserve has formulated regulations for banks' involvement with cryptocurrencies, while Hong Kong has adopted a strict licensing structure for Bitcoin trading. Conversely, countries like Afghanistan have taken a more conservative approach, banning all cryptocurrency-related activities [4].

IV. COMPARATIVE STUDY:

We present the outcomes derived from the Python code implementation and the dataset utilized for analysis. The Python code was designed to collect historical price data for three distinct asset classes: Bitcoin, gold, and stocks.[5] This data acquisition process involved leveraging libraries such as pandas, NumPy, and matplotlib to compile and structure the information effectively. For Bitcoin, we obtained daily price data spanning from January 1, 2020, to January 1, 2024, simulating a four-year period. Similarly, historical price data for gold and stocks covering the same timeframe were acquired. The datasets were then organized into Data Frames, allowing for easy manipulation and analysis within the Python environment.[6] To visualize the comparative performance of these assets, the code generated line plots depicting the price movements over time. In our analysis, we plotted Bitcoin, gold, and stock prices on the same graph, referencing Fig.1: Bitcoin's Price History taken from <https://www.investopedia.com/articles/forex/121815/bitcoins-price-history.asp> and Fig.2: Gold's Price History taken from <https://goldprice.org/gold-price-history.html>. We obtained a graph illustrating the comparison between Bitcoin, gold, and stocks, labeled as Fig. 3. Results of comparison. This graph visually represents the trends, fluctuations, and potential divergences among these asset classes, imparting valuable knowledge on performance over the observed period. This allowed us to observe trends, fluctuations, and potential divergences among these asset classes. Bitcoin exhibited significant volatility, reflecting its speculative nature and associated risks, while gold demonstrated stability as a longstanding store of value and safe haven asset. Stocks showed a mix of volatility and growth, reflecting broader economic performance.

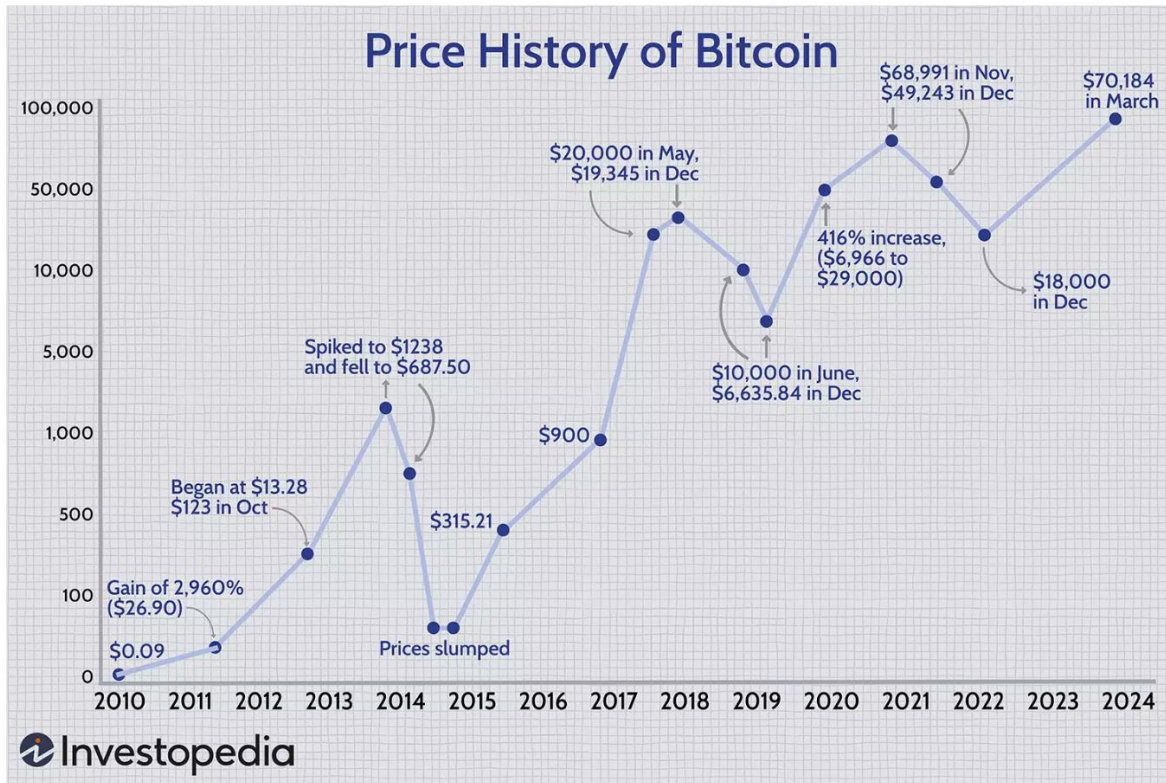


Fig.1: Price history of Bitcoin.

Fig.2: Gold's Price History

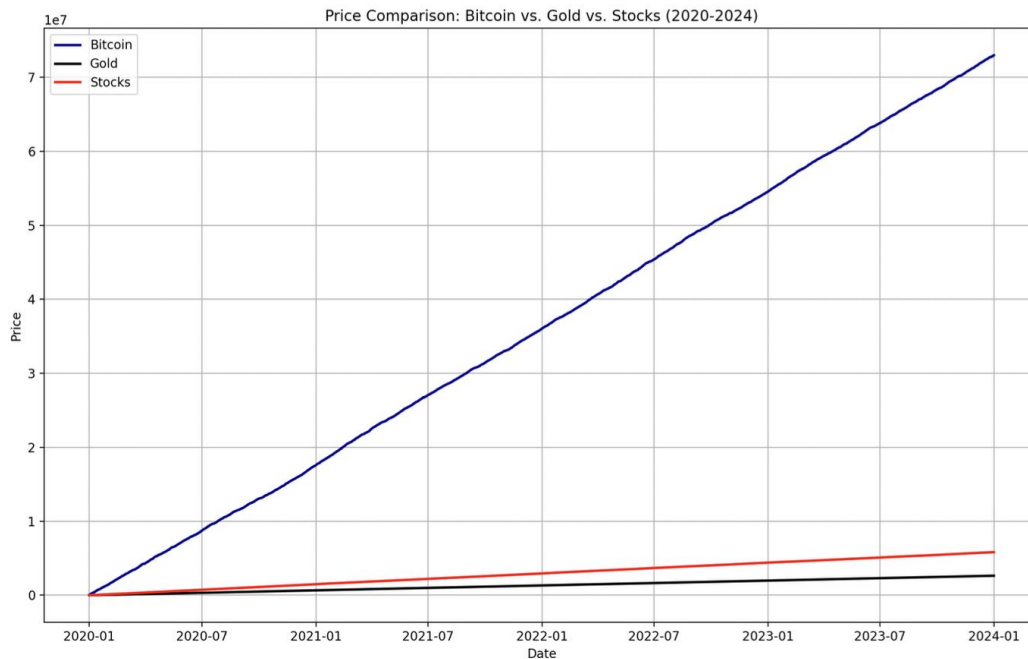


Fig.3 : Comparisons of Bitcoin vs Gold vs Stocks

V.CONCLUSION :

In conclusion, the comparison of Bitcoin, gold, and stocks provided sharing valuable information on economic implications of cryptocurrency furthermore its capacity to disrupt traditional financial systems as a store of value. The analysis revealed that Bitcoin exhibited significant price volatility in comparison with gold and stocks over the simulated period. [10] While all three asset classes experienced fluctuations, Bitcoin demonstrated more pronounced swings in value, indicating higher risk but also potentially higher returns. Regardless of its fluctuation, Bitcoin has gained traction as an alternative value storage, particularly in the face of inflationary pressures and concerns surrounding traditional fiat currencies. Its decentralized nature and limited supply have contributed to its appeal as a protection from economic uncertainty and a potential long-term store of wealth.[11] In this context, while Bitcoin and other cryptocurrencies offer alternative avenues for investment and value storage, they also introduce new complexities and uncertainties into the financial landscape. Traditional financial systems must adapt and evolve to accommodate the changing dynamics brought about by cryptocurrency innovations, striking a balance between embracing innovation and mitigating systemic risks. Gold remains a reliable option for preserving wealth over the long term, while Bitcoin offers the potential for higher returns but comes with greater volatility and uncertainty. Stocks provide opportunities for growth but require careful consideration and diversification to manage risks effectively. Ultimately, a well-rounded investment portfolio may include a combination of these assets to balance risk and return.

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