

-RESEARCH ARTICLE-

## IS BITCOIN THE BLACK TULIP OF THE 21ST CENTURY?

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### —Abstract—

This study examined the literature longitudinally to determine if the correlation between Bitcoin and tulip hysteria is valid. The study's findings indicate that Bitcoin has gradually separated itself from the tulip frenzy. As an electronic payment system and investment instrument, it has integrated itself into the modern financial system, unlike the tulip mania, a strictly speculative bubble with limited utility. Bitcoin's price may resemble the tulip hysteria and other bubbles, but its exploratory price pattern is characteristic of disruptive technologies.

**Keywords:** bitcoin, blockchain, boom, bubble, burst, cryptocurrency, tulipmania

### 1. BACKGROUND AND INTRODUCTION

Bitcoin, introduced in 2008 by Satoshi Nakamoto under the alias Satoshi Nakamoto, is a disruptive electronic payment system based on blockchain technology. Bitcoin is the earliest and most expensive cryptocurrency out of more than six thousand. Bitcoin's popularity, price, and market capitalization have increased exponentially over its lifetime. According to [Rahardja, Aini, Harahap, and Raihan \(2021\)](#), Bitcoin is one of the most widely discussed topics on social media and search engines. Due to the price dynamics, its popularity continues to rise. "The price of Bitcoin rose from \$2.24 on 20 October 2011 to \$63 564.48 on 13 April 2021, resulting in a compound annual growth

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rate of 194.67%" (Shu, Song, & Zhu, 2021). In October 2021, its market capitalization crested at US\$1.2 trillion, surpassing the GDP of more than 96 countries. Bitcoin has lost over 60% of its value since its apogee in 2021 due to a recent sell-off, bringing its market capitalization to \$415 billion as of 20 August 2022.

Bitcoin's excessive growth has prompted skepticism about its sustainability and raised concerns about the relationship between its price and its underlying worth. Whether Bitcoin has any intrinsic value has never been definitively resolved. According to authors such as Cheung, Roca, and Su (2015) and Gunji (2016), Bitcoin has no intrinsic value. This indicates that conjecture is the driving force behind the price increase. Jakub (2015), on the other hand, contends that Bitcoin's price adheres to the Efficient Market Hypothesis because it promptly responds to new information. This suggests that Bitcoin's price is reasonable and rational. Hollekim and Raa (2018) indicate that fundamental value may need to be redefined to incorporate cryptocurrencies, a new asset class.

The Bitcoin boom has been compared to the Dutch tulip mania of the 17th century, which was characterized by an intense, brief, and highly speculative bubble in which the price of tulips rose exponentially before collapsing abruptly. The Netherlands was introduced to tulips in the 16th century. They became a highly coveted status symbol in the 17th century. (Garber, 2001) In 1634, the bulb market was flooded with seasoned and speculative merchants. The interaction between the tulip's increasing popularity, rising demand, and limited supply caused the price to grow exponentially. At the height of the mania, the most coveted tulips cost as much as luxurious homes (Thompson, 2007). While Garber (2001) asserts that the exorbitant prices commanded by the rarest bulbs were rational, a contention that has been extensively criticized, the author agrees that the costs of common tulips did not correspond to their intrinsic worth. In February 1637, purchasers could no longer afford the previously agreed-upon prices, and as a result, doubts about the viability of the astronomically inflated prices began to emerge. These uncertainties sparked hysteria and a sell-off. In three months, tulip prices fell at an annualized rate of 99,999.9 percent from their peak (Thompson, 2007).

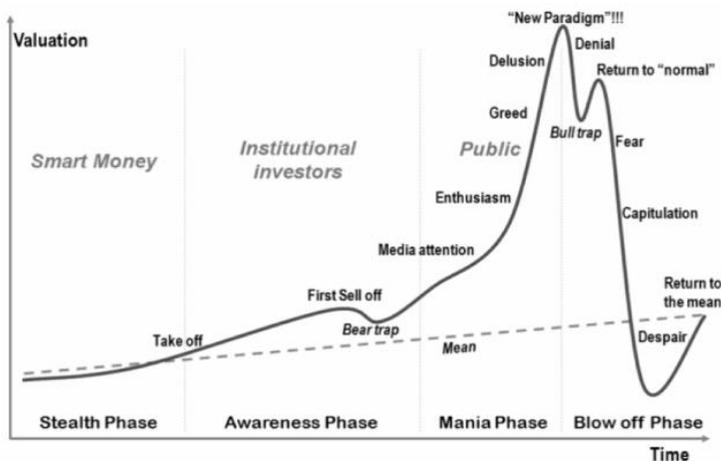
The tulip mania demonstrates the need for prudence in situations approximating irrational exuberance, which R. C. Shiller (2000) defines as unreasonable investor enthusiasm that spreads through psychological contagion and drives asset prices higher than their fundamental values justify. The association of Bitcoin with the tulip mania is, therefore, cause for concern, given the wealth linked to the cryptocurrency, the recent surge in its acceptance, and the global economic repercussions of a crash comparable to the tulip mania.

This study conducted a semi-systematic literature review on Bitcoin and the tulip mania to determine if the association between the two is valid and what this implies for the cryptocurrency's adoption and incorporation into investment portfolios.

The remainder of the paper is structured as follows: the second section discusses the pertinent literature, the third section describes the methodology employed, the fourth section presents and discusses the study's findings, and the fifth section concludes and makes suggestions for future research.

## 2. LITERATURE REVIEW

According to [Thompson \(2007\)](#), tulip hysteria is frequently used as an analogy for economic bubbles. [R. C. Shiller \(2000\)](#) defines financial bubbles as transitory high prices sustained by investors' enthusiasm rather than a change in the asset's fundamental value. As depicted in [Figure 1](#), [Rodrigue \(2008\)](#) divides the stages of an economic bubble into the covert, awareness, mania, and blow-off phases.



**Figure 1:** Main stages of a psychologically driven bubble

**Source:** ([Rodrigue, 2008](#))

The origins of Bitcoin are comparable to the tulip hysteria and other economic bubbles. Initially, it was traded only among cryptography enthusiasts for little or no value. In 2011, after introducing the first Bitcoin payment processor, businesses and organizations supporting charitable causes began accepting Bitcoin for purchases and donations. The cryptocurrency price rose incrementally until 2013, when it skyrocketed due to extensive media coverage of cryptocurrency market events. The expansion and ensuing decline of the Silk Road is a notable occurrence. Silk Road was an online black market for procuring and selling illicit goods. According to [Campbell-Verduyn \(2018\)](#), the enterprise utilized Bitcoin as its medium of exchange. By concealing the identities of purchasers and sellers behind a string of alphanumeric addresses, Bitcoin made transactions possible in complete privacy. When the news about Silk Road was published, the public became aware of a fascinating, technologically disruptive, decentralized currency. This currency protected the privacy of consumers participating in transactions. The increase in demand is attributable to rising awareness of

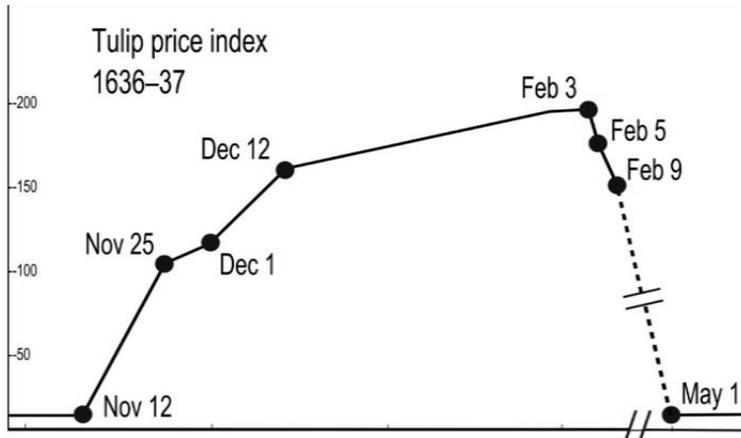
cryptocurrency. In the eleven months preceding November 2013, according to [Kristoufek \(2015\)](#), the price of Bitcoin skyrocketed, increasing by more than 9000% to a record high of \$1242. According to [Rodrigue \(2008\)](#), at this stage in the development of the market, naive traders first engage it. According to [Xi-Xi et al. \(2019\)](#) and [Van der Veen \(2012\)](#), speculation is the leading cause of the recent price increase. [Dale, Johnson, and Tang \(2005\)](#) argue that the presence of a price bubble can be determined by analyzing the proportion of an asset's price that can be attributed to speculative activity.

In the case of the tulip frenzy, several variables contributed to and catalyzed the speculation's takeoff. The absence of regulation of the tulip trade meant that there were minimal barriers to entry, the threat of death from a plague that ravaged the Netherlands between 1635 and 1636 caused reckless behavior, and the introduction of a futures market allowed traders to speculate on the price of tulips without an understanding of the flower's fundamental value ([Van der Veen, 2012](#)).

Similar to the tulip mania of the 17th century, scholars assert that the meteoric rise in the price of Bitcoin was wholly driven by speculative activity, with no change in the currency's intrinsic value. According to [Cheung et al. \(2015\)](#), the investors' faith and confidence in innovative technology was the propelling force. Between November 2013 and March 2015, the value of Bitcoin decreased by more than 76%, according to [Fišer \(2015\)](#). This occurred during the initial popularity surge of the cryptocurrency. Several factors contributed to the sell-off, including the Chinese government's decision to prohibit financial institutions from using Bitcoin and suspending trading at MtGox, the world's largest Bitcoin exchange ([Gerlach, Demos, & Sornette, 2019](#)).

In contrast, the price of Bitcoin began to recover in 2015, and the cryptocurrency market appears to have entered the frenzy period, characterized by psychological contagion and herd behavior. As a result, both the trading volume and the price increased significantly. During this stage, according to [Rodrigue \(2008\)](#), the demand for the bubble and its cost is propelled by emotions such as enthusiasm, greed, and delusion. According to [R. J. Shiller \(2005\)](#), psychological contagion is transmitted through the media, attracting more investors who are either resentful of others or excited by the prospect of generating abnormal returns. In addition to attracting additional untrained traders who speculate on future price changes, the activity of the herd inflates the bubble to unsustainable levels. This pattern of behavior was exemplified by the tulip craze, in which people of all ages, socioeconomic backgrounds, and even infants participated in tulip trading. The preponderance of these transactions took place in beer halls ([Shulga, Yakubovich, & Piskun, 2018](#); [Van der Veen, 2012](#)). According to [Van der Veen \(2012\)](#), introducing a futures market for tulips facilitated the entry of speculators. This permitted speculators to participate in the market without knowing anything about tulips, their cultivation, or their worth; all required was knowledge of their market prices. A significant difference

between Bitcoin and the tulip mania is the price trajectory after the mania episode. When the tulip hysteria reached its manic phase in 1637, prudent investors began to doubt the prices' viability, selling off their holdings and taking profits to avoid losses. This resulted in a domino effect as more people sold off their holdings, and prices declined. As depicted in [Figure 2](#), the tulip craze ended when panic spread, and prices continued to decline until they reached rock bottom.



**Figure 2:** Tulip price index from 1636-1637

**Source:** (Thompson, 2007)

Bitcoin, on the other hand, has continued to experience exponential development for over a decade. Despite extreme volatility, the cryptocurrency's price increases have been more significant than its declines. The cryptocurrency has experienced several of what the model identifies as frenzy phases, but the blow-off phases have not reached desperation levels.

Considering Bitcoin's history, it is easy to see why tulip hysteria is frequently compared to cryptocurrencies. Nonetheless, the cryptocurrency has evolved and developed characteristics that justify this study's decision to challenge the association between Bitcoin and the tulip frenzy.

### 3. RESEARCH METHODOLOGY

This study employed the literature review methodology to conduct a comprehensively structured analysis of Bitcoin research. It was contrasted to the research findings on the tulip mania. It analyzes how literature has evolved alongside cryptocurrency and how its school of thought regarding Bitcoin's underlying and distinguishing characteristics has evolved compared to the tulip mania. [Snyder \(2019\)](#) distinguishes three systematic, semi-systematic, and integrative literature review methods. This research employed the semi-systematic review methodology, an integrated review of all potentially relevant studies with implications for the subject that different researchers evaluated differently

as the field evolved. As Bitcoin has matured, it has been examined and analyzed by scholars from various academic disciplines. The methodology also assisted in detecting themes and identifying theoretical concept components.

Figure 3 depicts the Preferred reporting items for Systematic Reviews and Meta-analysis (PRISMA) flowchart, which shows how the literature for the study was chosen. The databases were searched using known research titles and keywords such as bitcoin, cryptocurrency, tulip mania, bubble, and blockchain to locate relevant research papers. The inclusion criteria for this study were English-language, peer-reviewed articles published on the tulip mania since 1634 and on Bitcoin since 2009. Nevertheless, this data collection method presented the challenge of sifting through irrelevant data to find relevant material, and papers with insufficient data and a lack of rigor were excluded from the analysis. Readily accessible sources supported the needed longitudinal analysis of Bitcoin and that of the tulip mania. Social Science Research Network (SSRN), ScienceDirect, Scopus, Journal Storage (JSTOR), and the Google Scholar search engine were used as databases.

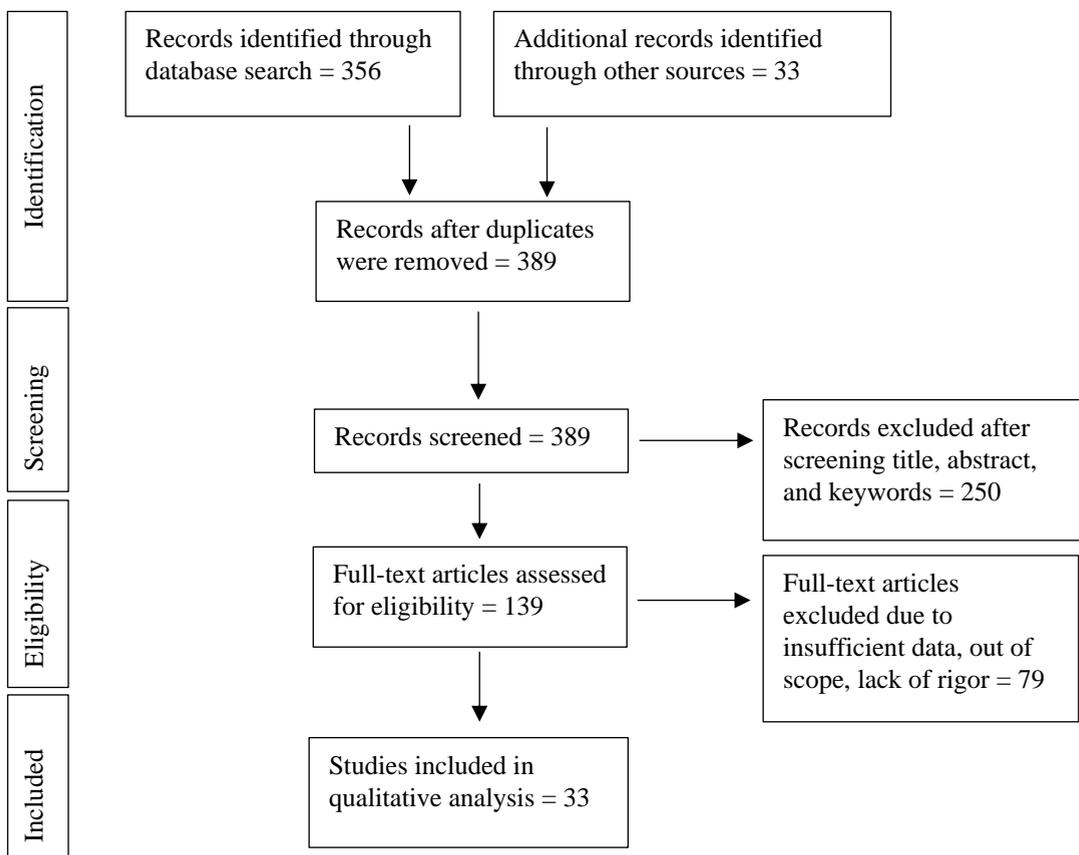


Figure 3: PRISMA Flowchart (Sampling)

Source: Balzani and Hanlon (2020)

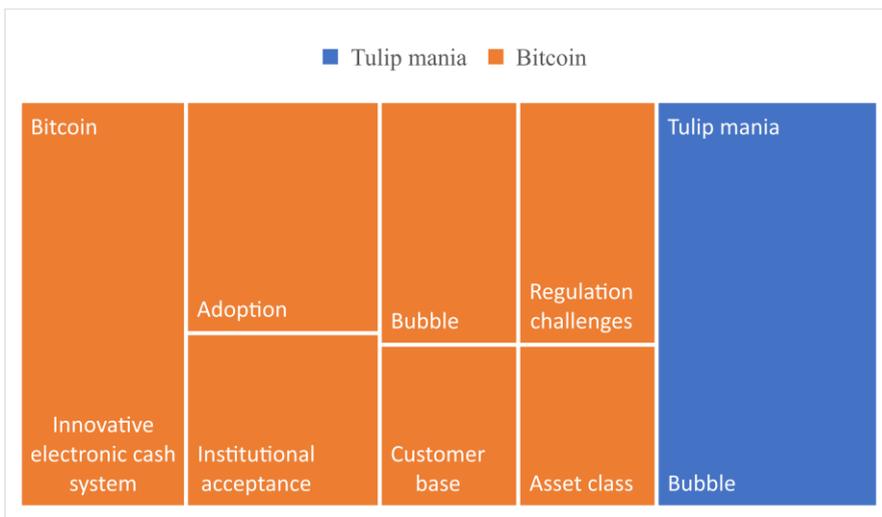
The NVivo 12 software was used to investigate and analyze the data. The software enhanced productivity and time management. The reviewed papers were analyzed regarding their publication year, school of thought, and methodological approaches. The examined articles' findings were organized into themes to facilitate a comparison between Bitcoin and the tulip mania.

**Reliability and validity**

The literature for the qualitative analysis was gathered from journals with peer reviews and screened for unsuitable sources. The methodology was informed by an article by [Balzani and Hanlon \(2020\)](#).

**4. PRESENTATION AND DISCUSSION OF THE FINDINGS**

Thirty-three studies from Finance, Economics, Cryptography, and Law were examined. Eight articles published between 2000 and 2019 on the tulip craze were analyzed. According to the studies, the tulip craze was an obvious error that serves as an example of irrational exuberance and economic bubbles. Each article utilized a unique descriptive research methodology. From 2009 to 2021, twenty-five studies on Bitcoin and other cryptocurrencies were analyzed. 24% of these studies focused on Bitcoin's potential to revolutionize the conventional electronic payment system.



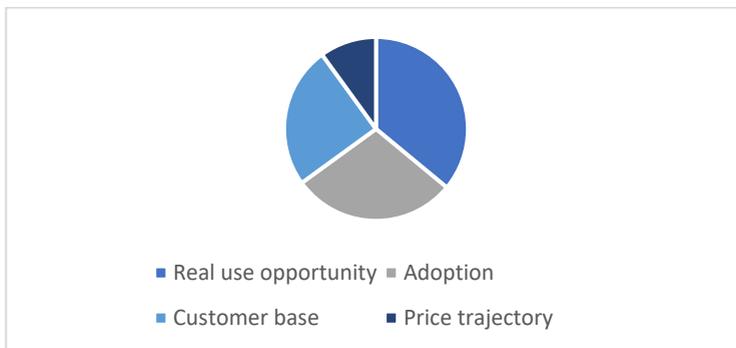
**Figure 4:** Range of topics reviewed

**Source:** Author's computations

12% focused on Bitcoin's acceptability by institutions, 12% on Bitcoin's mass adoption, and 4% on Bitcoin's acceptance as legal tender. Twelve percent of respondents argued that Bitcoin was a bubble that mirrored the tulip frenzy and had no fundamental value. Twelve percent of the papers addressed the regulatory difficulty of the Bitcoin market.

8% illuminate the expanding Bitcoin customer base. Eight percent of respondents argued that it was a disruptive technology, while eight percent asserted that it should be classified as a new asset class. A time series analysis of the literature reveals that the earliest research viewed Bitcoin as an economic mirage. Since 2020, however, most published works have focused on Bitcoin's increasing adoption by individuals, corporations, and governments as legal tender. The literature has also focused on regulatory hurdles and how to overcome them to facilitate widespread adoption. In addition to being classified as a new asset class and treasury instrument with diversification benefits, cryptocurrencies have also been categorized as a new asset class. Due to the immaturity of Bitcoin as a subject and the emergence of new knowledge, all relevant literature utilized qualitative exploratory research methods.

The literature survey revealed four major themes that were the basis for comparing Bitcoin to tulip mania. These were adoption, consumer base, the potential for actual use, and the price trajectory. [Figure 5](#) depicts how the reviewed literature corresponds to each theme.



**Figure 5:** Themes identified in the literature review

**Source:** Author's computations

## Adoption

According to [Garber \(2001\)](#), the adoption of tulips accelerated exponentially in 1634 when numerous non-professional traders entered the market. The author also suggests that the influx of new merchants may have resulted from a gambling binge caused by the bubonic plague, which devastated society and the economy. According to ([Shulga et al., 2018](#)), this occurred when the Netherlands was the wealthiest country in Europe, so even the middle class could afford non-essential items. Everyone, including minors, was involved in the trade at the height of the tulip bulb craze. More than ten times daily, futures contracts on light bulbs were traded in beer halls ([Shulga et al., 2018](#)).

In contrast, the Bitcoin market is significantly more sophisticated. According to a survey by [Schuh \(2016\)](#), 23.8% of Bitcoin adopters cited the cryptocurrency's technological appeal as the reason for their adoption. The adoption trajectory for Bitcoin is still immature, nearly

a decade after its price explosion (DeVries, 2016). Bitcoin is still confined to a small group of developed, affluent, and technologically savvy investors (Darlington III, 2014). As of July 2021, 18 million coins and 38 million Bitcoin addresses were circulated (Statista, 2021). 51.11% of these addresses had a balance of 0 to 0.001 coins, representing just 0.021% of all coins in circulation. Only 2% of Bitcoin addresses had a balance between one and one hundred thousand coins, but they held 95% of all coins in circulation (BitInfoCharts, 2021). This emphasizes the wealth concentration of Bitcoin. Beginning in August 2020, institutional investors have flooded the Bitcoin market. Philipps and Graves (2021) state that public companies like Square and Tesla follow in MicroStrategy's footsteps. This software company began accumulating Bitcoin in August and September of 2020 and currently has a reserve of 140,000 Bitcoin. This institutional acceptance has accelerated the cryptocurrency's adoption rate and enabled those who do not possess it to obtain exposure by holding shares in these companies. It has also established the legitimacy of the cryptocurrency. The success of Bitcoin has prompted some nations to contemplate creating their cryptocurrencies. It has also inspired the development of additional cryptocurrencies, such as Ethereum and Dogecoin.

### **Real use opportunity**

Tulips are a non-essential commodity whose use during the tulip mania was limited to that of a speculative asset and a medium of exchange for consumer products, land, and other luxury items (Taskinsoy, 2019). On the other hand, Bitcoin has established itself as a multi-use tool that falls into various asset classes and offers real-use opportunities, giving it a significant future and threatening to supplant some traditional assets while complementing others.

The Commodity Futures Trading Commission and the Internal Revenue Service classify Bitcoin as a commodity and a property, respectively. Bitcoin is a decentralized peer-to-peer digital payment system that facilitates instant and secure transfers between parties (Nakamoto, 2008). Grinberg (2011) states that when credit card fees are applied, it is a cost-effective method for making micropayments because transfers can be made at a reduced cost. Bitcoin eliminates the credit risk associated with submitting credit card information when making payments, according to Spilka (2018). Its decentralized nature distinguishes it from PayPal and gives it a comparative advantage (Lee, Long, McRae, Steiner, & Handler, 2015).

Bitcoin's internet use makes it efficient and resilient, and it offers an online payment system that facilitates international e-commerce transactions. According to Kasiyanto (2016), online purchasing accounted for at least 23 percent of all BitPay card transactions in the second quarter of 2015. According to Njuguna (2014), BitPesa, an African Bitcoin startup, enables cheaper transfers from the United Kingdom to Kenya than conventional money transfer services. According to Gurguc and Knottenbelt

(2018), cryptocurrencies are a natural progression in the evolution of money. However, it must surmount certain obstacles before it can be accepted as a global payment system. Security issues, regulatory concerns, volatility, and widespread adoption as a medium of exchange and unit of account are among these. [Baur, Bühler, Bick, and Bonorden \(2015\)](#) argue that Bitcoin and other cryptocurrencies have a great deal of potential to resolve the cost and efficiency flaws of the current financial system. However, its usability remains limited and a hazardous method for conducting transactions due to regulatory, volatility, and security concerns.

Institutional demand for Bitcoin as a cash and currency-equivalent instrument has recently increased ([MicroStrategy, 2020](#)). In August 2020, Microstrategy was the first publicly traded company to invest in Bitcoin as its primary Treasury Reserve Asset. Soon after, Tesla and Square Inc. followed suit, paving the way for institutional Bitcoin investment. The adoption of Bitcoin as a reserve asset within these companies followed a process of due diligence conducted by the board and followed the companies' treasury policies. In a national address on 24 June 2021, the president of El Salvador, Nayib Bukele, proclaimed that as of 7 September 2021, Bitcoin will be accepted as legal tender ([Esposito & Renteria, 2021](#)). Due to this development, El Salvador is the first nation to implement cryptocurrency as a legal tender. The legislative assembly enacted the Bitcoin law with a majority of 62 out of 84 votes. This indicates that Bitcoin adoption is no longer the result of irrational exuberance and that adopters are conducting due diligence before adoption. The acceptance of cryptocurrencies by institutional investors demonstrates their maturity as an investment asset class.

Bitcoin qualifies as a new alternative investment asset, providing investment opportunity and diversification benefits due to its minimal correlation with traditional assets such as the S&P 500, bonds, and oil, according to [Burniske and White \(2017\)](#).

### **Customer base**

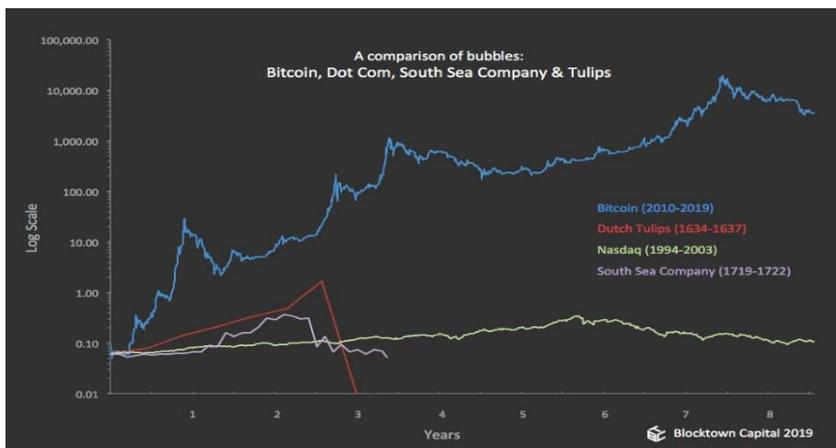
Bitcoin has a global consumer base, whereas the tulip craze was restricted to the Netherlands. China, Germany, India, Japan, Nigeria, Peru, Philippines, Switzerland, Turkey, the United States of America, and Vietnam are among the countries where Bitcoin and other cryptocurrencies are most popular, according to 55 Statista Global Consumer Survey research reports ([Lisa, 2021](#)). The global average rate of cryptocurrency ownership is 3.9% ([Lisa, 2021](#)). According to [Kaal and Calcaterra \(2017\)](#), countries such as Venezuela, Argentina, and Zimbabwe use Bitcoin extensively for value storage during financial distress due to a lack of confidence in their sovereign currencies. There are Bitcoin ATMs on every continent, with 48.72% in North America ([Wonglimpiyarat, 2015](#)). However, Bitcoin faces adoption resistance in China, Indonesia, Malaysia, and Thailand, primarily due to government regulation ([Wonglimpiyarat, 2015](#)).

## Price trajectory

Technical analysis is defined by [Simpson \(2015\)](#) as the study of historical price patterns to forecast future price movements. The fundamental analysis of the price behavior of Bitcoin and tulip hysteria is supplemented by technical analysis in this research. Price chart analysis exposes distinguishing factors that are difficult to ignore. [Figure 6](#) demonstrates that Bitcoin's maximum logarithmic price trajectory is not comparable to that of the tulip mania or other historical bubbles. The price trajectory of cryptocurrencies dwarfs the tulip mania, Nasdaq, and South Sea Company surges. Higher highs and lower lows are indicative of an uptrend. [Hougan and Lawant \(2021\)](#) assert that Bitcoin's price dynamics are emblematic of disruptive technologies. The authors suggest that it is typical for a new technology's pricing trajectory to be volatile and extreme during the price discovery phase. Eventually, it will determine its actual equilibrium price. This further distinguishes it from the strictly speculative tulip mania by explaining its price dynamics.

## Discussion of the Results

A comprehensive examination of the analogy between Bitcoin and tulip mania exposes an unfair apples-to-oranges comparison based on all four themes. While bubble characteristics characterize both variables, the price dynamics are driven by different factors. The Bitcoin top price chart has been on an upward trajectory with periodic corrections since its inception, whereas the tulip hysteria did not survive its first pullback. [McDougall \(2014\)](#) states that Bitcoin can potentially strengthen the global economy. Bitcoin has assimilated into the contemporary financial system, addressing the system's flaws and presenting genuine opportunities for use across multiple instrument classes. In addition, it has become a facilitator of globalization by establishing a rapid, efficient, and economical network. In contrast to the tulip frenzy, the study's findings indicate that Bitcoin has a promising future.



**Figure 6:** A comparison of price bubbles

**Source:** ([Todaro, 2019](#))

## 5. CONCLUSION

This study's findings indicate that comparing Bitcoin to the tulip hysteria is not an apples-to-apples comparison. A longitudinal literature analysis reveals that the differences between Bitcoin and the tulip hysteria outweigh the similarities by a significant margin. While both exhibit bubble characteristics, the research indicates that the tulip mania was motivated by pure speculation and irrational exuberance. In contrast, Bitcoin's price dynamics are emblematic of the price discovery phase of emerging technologies. Before reaching a sustainable equilibrium price, the price will likely reach extreme levels.

In contrast to the tulip hysteria, Bitcoin has integrated itself into the modern financial system, providing opportunities for practical use. The adoption decision is also moving away from irrational euphoria, as evidenced by the due diligence in adopting cryptocurrency as a reserve asset in public corporations and as legal tender in nations such as El Salvador. It follows that Bitcoin is a sustainable phenomenon that has contributed to the financial system's evolution.

### Limitations and directions for future research

This study was hampered by a lack of time, which restricted the quantity of literature review conducted for the thematic analysis. This limitation allows for additional research into the cryptocurrency's fundamental characteristics and how they can address the shortcomings of the current financial system. To reduce the volatility of the cryptocurrency and promote its widespread adoption, the researcher also suggests examining how regulation can be implemented to address Bitcoin's problems.

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