

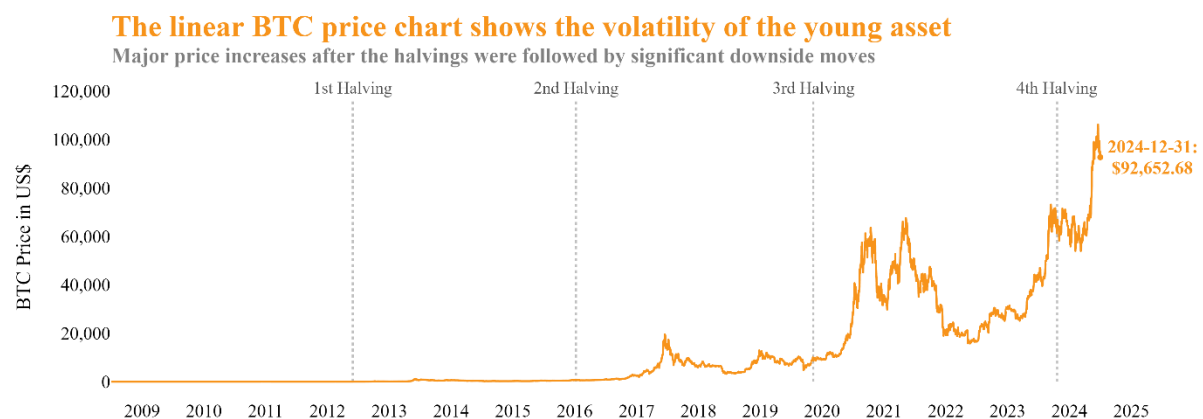
Bitcoin: A Digital Asset Redefining Value

On January 3rd, 2024 Bitcoin celebrated its 15th birthday. The network, created by the pseudonym Satoshi Nakamoto, went live in 2009 as an indirect response to the financial crisis of the previous years. The respective whitepaper, titled “Bitcoin: A Peer-to-Peer Electronic Cash System,” was released a few weeks earlier and explains how money can be transferred easily without a middleman like banks. But that’s not all. It also describes a digital monetary system that is decentralized, trustless, secure, and scalable. One of the main reasons for Bitcoin’s success is its fixed supply of 21 million units, arguably making it the hardest asset in the world. Not only is this supply limited, but it is also released in a manner dictated by a mathematical formula that cannot be arbitrarily changed, making the system resistant to human intervention.

Since its early days, opponents have declared Bitcoin a fraud or claimed it has no intrinsic value and will ultimately fail. Yet, none of these statements have held true. Quite the opposite has been the case: more people continue to discover Bitcoin and its advantages. In 2024 Bitcoin even became a significant topic during the US presidential election campaigns, which helped its price crossing the 100,000 US\$ mark for the first time in history. While Bitcoin remains volatile compared to traditional financial assets, its value appreciates over longer time periods. For this reason, many people no longer view Bitcoin as an alternative banking system but rather as a store of value for the digital age. Some proponents even believe that Bitcoin could one day surpass gold in significance. Let’s explore why this cryptocurrency continues to succeed and might have a bright future ahead.

Bitcoin’s Price Evolution: Volatility and Growth

Bitcoin's price is influenced by the way it is issued and particularly the halving events that occur every 210,000 blocks, which is approximately every four years. During these events, the reward for mining a block is cut in half, effectively reducing the rate at which new Bitcoin enters circulation. Historically, these halvings have been followed by significant price increases as reduced supply meets consistent or growing demand. However, these rallies are often followed by deep corrections, reflecting Bitcoin’s volatility.

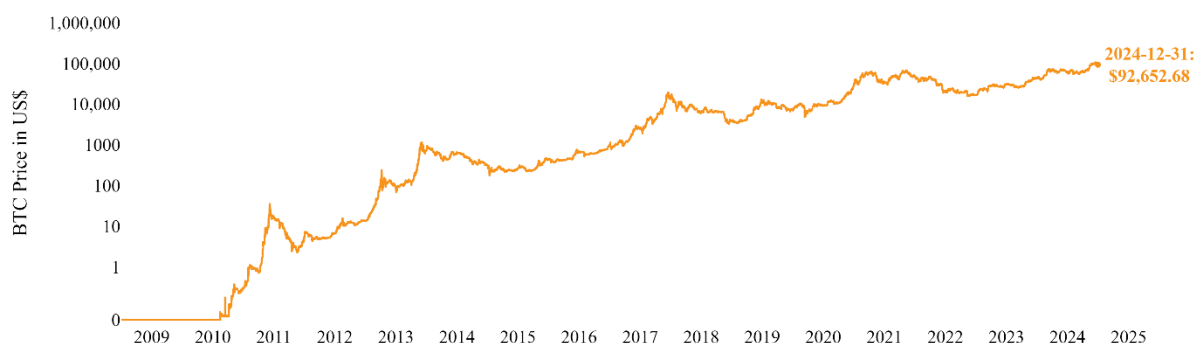


Volatility is not unusual for assets with lower market capitalization. In financial markets, smaller assets are more prone to significant price fluctuations due to relatively low liquidity and higher sensitivity to external factors like news or investor sentiment. To analyze long-term trends effectively, especially in such volatile environments, logarithmic scales are often used in finance. Logarithmic charts present percentage changes in a uniform way, making it easier to compare growth rates across different periods or across different assets. They are particularly helpful in identifying consistent patterns of growth and reduce the visual distortion caused by large absolute changes in price, which are visible on a linear chart.

But when Bitcoin's price is viewed on a logarithmic scale, its steady upward path becomes even more evident. It indicates the rising interest in Bitcoin and its increasing adoption, as well as a potential store of value in the digital age.

The logarithmic price chart shows Bitcoin's value appreciation with less volatility

Log charts treat percentage price movements equally, which is more useful for long term price analysis

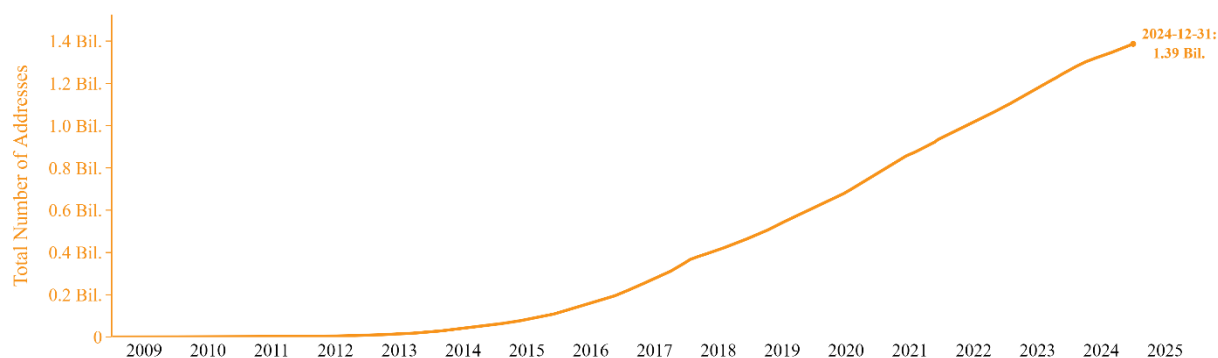


Adoption Trends: A Network Expanding and Engaging

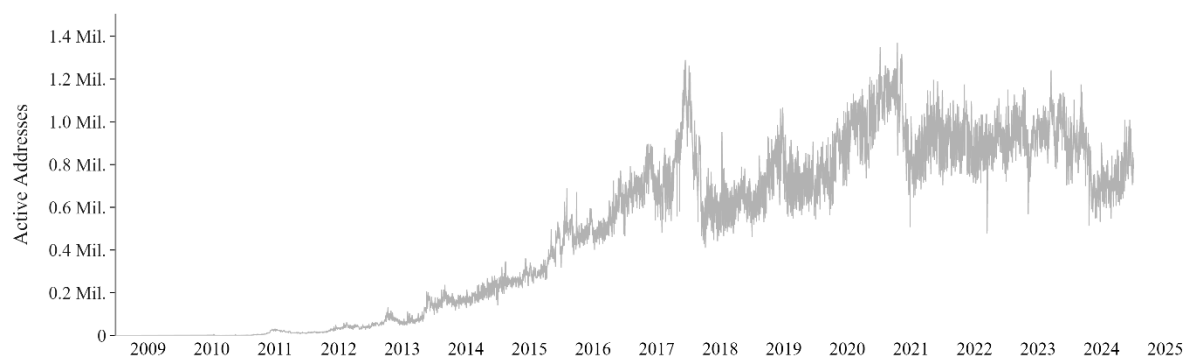
The adoption of Bitcoin is reflected in the consistent growth of total addresses, a cumulative measure of how many wallets have been created on the network until a given day. However, this metric alone does not provide the full picture. Daily active addresses, which represent the number of unique addresses involved in transactions on a given day, allow for a better evaluation of regular user engagement.

Bitcoin's increase in total addresses highlights its user growth and adoption over time. Meanwhile, fluctuations in daily active addresses show that the transaction activity doesn't keep up with this increase. Instead it varies, possibly based on factors such as market activity, news events, or user behavior. Another explanation could be, that over time people started to see Bitcoin as a long-term store of value, not as an asset for daily transactions anymore. Therefore it's important to use both metrics together, as separate views couldn't provide the whole picture.

The total number of Bitcoin addresses is on a steady increase



But not all addresses are active on a daily basis



Bitcoin vs. Gold: The Future vs. The Traditional Store of Value

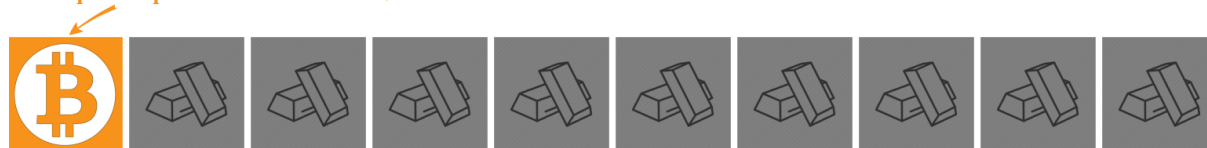
Bitcoin's journey did not begin with the store-of-value narrative. Originally envisioned as a "peer-to-peer electronic cash system," Bitcoin was intended to facilitate easy and trustless transactions without relying on intermediaries like banks. However, over time, as Bitcoin gained wider adoption and its price appreciated, the store-of-value narrative emerged as its primary use case. This evolution aligns Bitcoin closely with gold, which has long been seen as a reliable hedge against inflation and economic uncertainty.

However, Bitcoin's current market capitalization of 1.8 Trillion US\$¹ is just 10% of gold's market capitalization of 18 Trillion US\$¹. So despite its success so far, Bitcoin still has much more room for growth. Portability, transparency, and predictability. These are just some of the unique characteristics which make the cryptocurrency a strong contender to rival gold as a modern store of value.

Bitcoin could grow 10x to match the market cap of Gold

Currently Bitcoin's market cap is just 10% of Gold's market cap

Each square represents 1.8 Trillion US\$



In addition to its growth potential, Bitcoin's transparent and predictable supply provides a unique advantage. Bitcoin's maximum supply is fixed at 21 million coins, and over 94 % of these coins are already in circulation. However, it is estimated that a significant portion of these coins have been lost due to forgotten keys or inaccessible wallets, meaning the effective supply may be even smaller. This contrasts with gold, whose total supply remains uncertain due to ongoing discoveries and technological advancements in mining. Bitcoin's fixed issuance schedule ensures that it is immune to sudden supply shocks, further reinforcing its value proposition as a scarce asset.

Finally, the issuance of new Bitcoin will gradually taper off until the last Bitcoin is mined, which is estimated to occur in the year 2140. This controlled and finite supply dynamic creates a deflationary system over time, adding to its long-term appeal as a store of value.

Mining in Progress...



Current status: 94.3 % of all Bitcoin in circulation

Mining Dynamics: Security Through Adaptability

Bitcoin's mining process is fundamental to the network's security and decentralization. Mining involves solving complex mathematical puzzles to validate transactions and add new blocks to the blockchain. This process requires computational resources, which are measured in hashrate and reflect the total computational power miners contribute to securing the network.

A higher hashrate strengthens Bitcoin by making it more secure against attacks. The higher the computational power securing the network, the more impossible it becomes for a malicious actor to attack the system. This ensures trust in the immutability and security of the blockchain, even as Bitcoin grows in adoption and value.

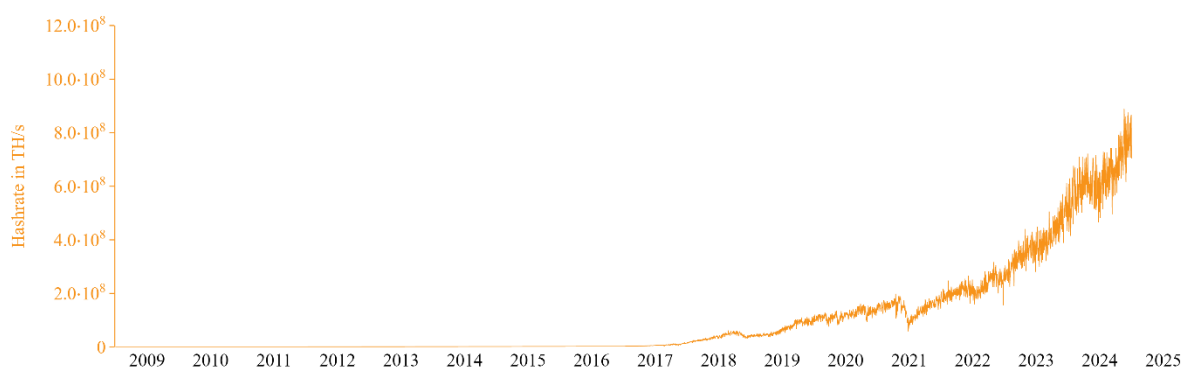
¹ Market capitalizations as of 2024-12-31

To maintain a consistent block production time of approximately 10 minutes, Bitcoin has a self-regulating mechanism known as mining difficulty. The difficulty is a measure of how hard it is to find a valid hash for a new block and it does not have a physical unit because it represents a relative value rather than an absolute measurement. For context, the difficulty of the very first Bitcoin block mined in 2009 was set to 1. Since then, it has grown exponentially as more computational power has been added to the network. The mining difficulty dynamically adjusts based on network conditions, ensuring that the time to mine a block remains stable. Every 2016 blocks, or roughly every two weeks, the difficulty adjusts to align with the current hashrate. This mechanism ensures that the network remains stable regardless of changes in the number of active miners or the amount of computational power they contribute.

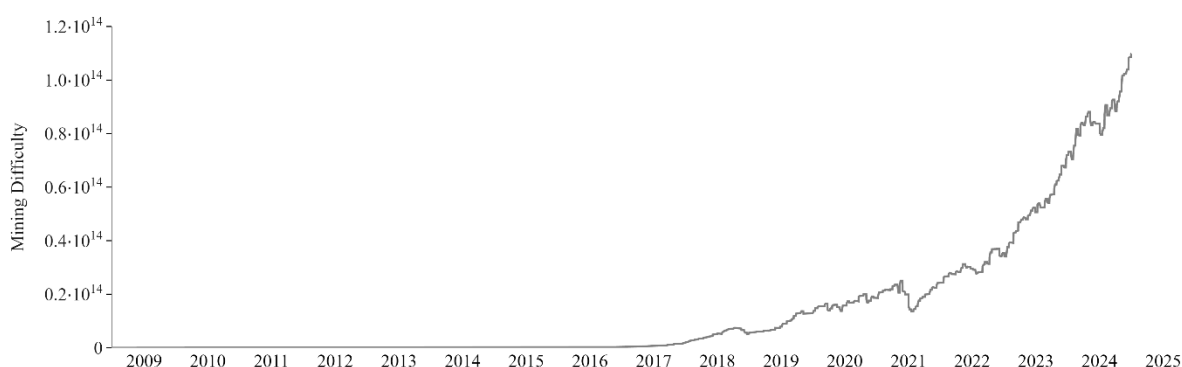
The dependency between hashrate and mining difficulty reflects Bitcoin's self-regulation. If more miners join the network and the hashrate increases, the mining difficulty rises to prevent blocks from being produced too quickly. Otherwise, if miners leave the network and the hashrate decreases, the difficulty lowers to maintain the production of blocks. This adaptive mechanism ensures Bitcoin's resilience and consistency over time, setting it apart from traditional assets like gold, which don't have such self-regulation.

The ability of Bitcoin's difficulty to adapt to the growing hashrate highlights the asset's strength as a decentralized and secure network. Unlike gold, which is influenced by external factors like discovery rates and extraction technology, Bitcoin's mining system is governed by predictable and transparent rules. This reinforces its narrative as a better store of value for the digital age.

An increasing hashrate indicates network growth and security



The mining difficulty adapts to the growing hashrate every 2016 blocks



Conclusion

Bitcoin's story is one of perseverance, adaptability, and growth, reflecting its unique role in a rapidly evolving financial landscape. From its modest beginnings as a digital experiment to its current status as a global phenomenon, Bitcoin has demonstrated an unparalleled ability to adapt and thrive. Its price history reveals a trajectory of increasing trust and adoption, while its growing network engagement and transparent supply underscore its legitimacy as a financial asset.

The comparison with gold highlights Bitcoin's vast potential, not only as a store of value but also as a technological advancement that integrates transparency and predictability into the very fabric of its design. Unlike traditional assets, Bitcoin self-regulates, ensuring consistent operation regardless of external pressures. This ability to balance scarcity with resilience is what sets it apart and makes it a compelling option for the digital age.

As Bitcoin's network continues to grow, its security strengthens alongside it. The increasing hashrate and adaptive difficulty mechanism are testaments to a system that has been carefully crafted to endure. This resilience ensures that Bitcoin can face future challenges, whether from economic uncertainty or technological advances, with confidence.

While challenges remain, such as regulatory scrutiny and concerns over energy consumption, Bitcoin's core principles of decentralization, immutability, and scarcity resonate deeply in a world seeking alternatives to traditional financial systems. It is not just a technological achievement but a symbol of innovation and possibility, inviting individuals and institutions alike to consider its place in the future of finance.

Bitcoin is more than just an asset. It represents a rethinking of trust and value in the digital age. By decentralizing control and embedding transparency into its design, Bitcoin empowers individuals in ways traditional systems cannot. Its growth is a testament to the increasing demand for alternatives to centralized financial systems. While nobody can predict with certainty what Bitcoin's future holds, those who recognize its potential are positioned to benefit as adoption continues to expand.

Other Resources

Nasdaq Data Source: <https://data.nasdaq.com/databases/BCHAIN>

CryptoCompare Data Source: <https://min-api.cryptocompare.com/documentation>

Bitcoin Symbol: <https://banner2.cleanpng.com/20180811/aea/42726f67cae210141b65d41f85d83733.webp>

Gold Symbol: <https://getdrawings.com/free-icon-bw/gold-bar-icon-10.png>