



Education | Digital Assets

2024 Bitcoin Halving

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Introduction

In a year filled with milestones, the much-anticipated bitcoin halving event took place on April 19, 2024, marking a historic moment in the world of digital assets. We explore the purpose of Bitcoin's halving and review its impact on supply and market structure, effects of previous halvings and potential changes to the market.

What is the Bitcoin halving

As a core component of Bitcoin’s design, the halving is a scheduled recalibration of the rewards that are earned for mining the asset. As an asset that uses a Proof-of-Work consensus mechanism to reach an agreement on the state of its network, Bitcoin provides rewards to miners who generate new blocks. On the Bitcoin blockchain, after every 210,000 blocks are mined, or approximately every four years, there is a mechanism called the “halving” that reduces the creation of new Bitcoin by cutting the mining reward in half.

The halving is one of Bitcoin’s most distinctive features, with the precision and predictability of each halving event setting it apart from other crypto and traditional assets. Embedded firmly in Bitcoin’s blockchain code, the halving mechanism provides a clear, unalterable schedule for the future issuance of new Bitcoins. Bitcoin is scheduled to have 32 halving events in total, with the last one likely to occur in 2136, at which time the asset’s maximum supply of 21M BTC will be reached.

Halving	Date	Block Reward Change
1	November 28, 2012	50 BTC to 25 BTC
2	July 9, 2016	25 BTC to 12.5 BTC
3	May 11, 2020	12.5 BTC to 6.25 BTC
4	April 2024	6.25 BTC to 3.125 BTC

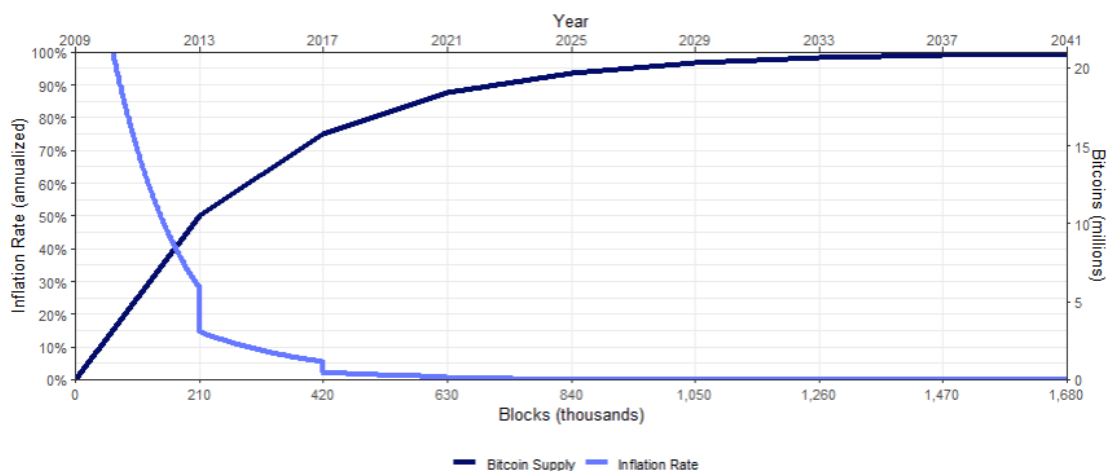
Source: Digital Asset Research

Why is Bitcoin’s halving important?

Since its creation in January 2009, Bitcoin has been the subject of many narratives, referred to at various times as an independent and decentralized answer to the traditional monetary system; the driver of a more transparent financial future; and as a store of value similar to “digital gold”, among other themes that have been assigned to the asset. Bitcoin’s halving mechanism can be seen to strengthen its position as a store of value asset like gold, as it increases supply scarcity, which when combined with its decentralized nature can appeal to those seeking a hedge against economic uncertainty.

Economically, the reduction in the rewards rate associated with the halving introduces a deliberate scarcity, potentially impacting Bitcoin’s market value if demand is sustained or escalates. This deliberate slowing of supply growth is akin to an economic throttle, controlling inflation and mimicking the extraction of a finite resource. The chart below shows how Bitcoin’s inflation rate and supply change over time.

Bitcoin Inflation vs. Time



Source: Digital Asset Research

As the reward decreases, the scarcity of new Bitcoin creation can increase the asset's perceived value, under the principle that a reduced supply coupled with steady or increasing demand leads to a price increase.

The transparent and predetermined reduction in the mining reward also instills a level of certainty of scarcity not matched by traditional assets. Unlike gold or other precious metals that are seen as store-of-value assets, Bitcoin's supply curve is not subject to the unpredictability of new discoveries or technological advancements in extraction. While gold reserves can potentially be found and mined unexpectedly, flooding the market and impacting its value, Bitcoin's issuance is strictly governed by its inalterable programming, ensuring that no such sudden increase in supply can occur.

The halving's implications extend far beyond the token's price as the network's underlying model is also impacted. By reducing rewards given to miners, the halving exerts financial pressure on the mining community, which can particularly impact individual miners and smaller operations. For those in the mining business, halving events lead to a period of adjustment as miners seek to remain profitable under the new reward structure. Miners may seek greater efficiency and reduced operational costs by optimizing their hardware, known as mining rigs, but consolidation may also occur, potentially leading to a less secure and more centralized network. Since the computational power provided by miners is instrumental in safeguarding the network, a drop in mining profitability could make the network more vulnerable.

However, the Bitcoin ecosystem is designed with counterbalancing mechanisms. Ideally, as mining rewards diminish, the increasing scarcity of Bitcoin would drive its price up, maintaining or even enhancing mining profitability in fiat terms. This relationship between halving, price, and miner revenue is crucial; if the price fails to appreciate post-halving, miners might struggle to cover their operational costs, leading to a drop-off in mining activity and, consequently, a drop in the Bitcoin hashrate and network security.

Thus, Bitcoin's halving mechanism and each halving event serve as not just a feature of the token's economic strategy but also as a critical inflection point that shapes the future of the network's security, operational dynamics, and, ultimately, its long-term viability.

The impact of previous halvings

The April 2024 halving event will be Bitcoin’s fourth. Historically, Bitcoin halvings have served as pivotal landmarks, each event ushering in a new era of market dynamics, as described below.

First halving

1st Bitcoin Halving



Source: Digital Asset Research

The first halving occurred on November 28, 2012, and reduced the reward for mining a block from 50 BTC to 25 BTC. At the time of this halving, BTC was priced at ~\$12.20. This halving marked the beginning of Bitcoin’s deflationary reward supply and occurred early in the asset’s life cycle prior to its widespread recognition as an investable asset.

Price Change After 1st Bitcoin Halving			
30 Days	60 Days	90 Days	180 Days
8.51%	40.74%	152.79%	982.21%
1 Year	2 Years	3 Years	4 Years
7,872.96%	2,937.81%	2,892.27%	6,019.82%

Source: Digital Asset Research

Following the first halving, Bitcoin’s price saw a peak of \$1,134.78 on November 30, 2013, which was 367 days after the halving event. After that peak, Bitcoin’s price retracted to \$183.76 on January 13, 2015, which was 409 days after reaching its peak.

Second halving



Source: Digital Asset Research

The second halving occurred on July 9, 2016 and reduced the reward for mining a block from 25 BTC to 12.5 BTC. Bitcoin was priced at ~\$651 at the time of this halving and a period of significant price increases followed, drawing considerable attention to the asset’s investment potential and scarcity-driven value proposition.

Price Change After 2nd Bitcoin Halving			
30 Days	60 Days	90 Days	180 Days
-13.05%	-10.39%	-8.61%	64.48%
1 Year	2 Years	3 Years	4 Years
282.59%	921.41%	1,698.02%	1,303.91%

Source: Digital Asset Research

Following the second halving, Bitcoin’s price saw a peak of \$19,262.19 on December 16, 2017, which was 525 days after the halving event. After that peak, Bitcoin’s price retracted to \$3,170.34 on December 13, 2018, which was 312 days after reaching its peak.

Third halving

3rd Bitcoin Halving



Source: Digital Asset Research

The third halving occurred on May 11, 2020 and reduced the reward for mining a block from 12.5 BTC to 6.25 BTC. Bitcoin’s price at the time of this halving was ~\$8,821, a significant rise over the previous halving and a reflection of the asset’s growing stature.

Price Change After 3 rd Bitcoin Halving			
30 Days	60 Days	90 Days	180 Days
11.60%	7.87%	34.42%	78.67%
1 Year	2 Years	3 Years	4 Years
566.89%	260.36%	218.17%	-

Source: Digital Asset Research

Following the third halving, Bitcoin’s price saw a peak of \$67,586.95 on November 9, 2021, which was 547 days after the halving event. After that peak, Bitcoin’s price retracted to \$15,851.77 on November 21, 2022, which was 377 days after reaching its peak.

What to expect with the April 2024 halving

Impact on institutions and markets

As Bitcoin approaches its fourth halving event in April 2024, digital asset markets are at a point of evolving regulatory clarity and increasing institutional adoption. On the regulatory side, governments and authorities globally continue to scrutinize digital assets while working to establish frameworks that ensure investor protection and compliance with anti-money laundering (AML) and counter-terrorism financing (CTF) standards. This regulatory evolution has implications for the industry. Bitcoin has several factors that have positioned it uniquely against concerns, like its decentralized Proof-of-Work consensus mechanism, established track record as one of oldest digital assets, and the absence of a yield component.

Throughout early 2024, Bitcoin has seen increased institutional adoption, largely in part due to the U.S. Securities and Exchange Commission (SEC) approving spot ETFs in January 2024. These products not only enhance liquidity, but also integrate digital assets more closely with broader financial markets, signalling a maturation phase for the industry. ETFs and growing institutional acceptance may lead to an environment where digital assets play an increased role in the diversification and strategy of investment portfolios, further solidifying their position in the global financial architecture.

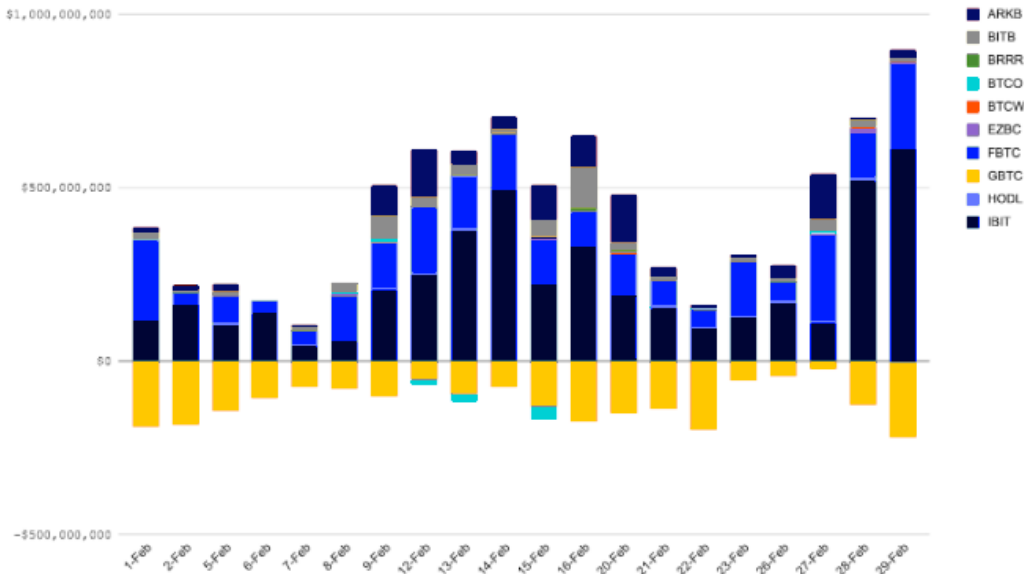
As of 1 March 2024, the 10 spot Bitcoin ETFs in the U.S. had over \$48B in assets under management (AUM), with Grayscale's GBTC leading with over \$26B in AUM. From February to March, all of the spot Bitcoin ETFs saw an increase in their AUM, as detailed in the table below.

Ticker	Name	AUM as of 1 March 2024	Month-over-Month AUM Change
GBTC	Grayscale Bitcoin Trust ETF	\$26,994,143,946	34.14%
IBIT	iShares Bitcoin Trust	\$10,092,933,613	204.92%
FBTC	Fidelity Wise Origin Bitcoin Fund	\$6,569,000,000	138.87%
ARKB	ARK 21Shares Bitcoin ETF	\$2,178,110,000	203.78%
BITB	Bitwise Bitcoin ETF	\$1,584,037,218	135.58%
BTCW	WisdomTree Bitcoin	\$534,210,000	54.57%
BTCO	Invesco Galaxy Bitcoin ETF	\$393,100,000	28.67%
HODL	VanEck Bitcoin Trust	\$272,600,000	102.98%
BRRR	Valkyrie Bitcoin Fund	\$194,394,639	70.07%
EZBC	Franklin Bitcoin ETF	\$156,100,000	144.67%

Source: Digital Asset Research

While price increases for Bitcoin have contributed to increases in AUM across the spot Bitcoin ETFs, there were also positive flows throughout February 2024, as shown in the chart below, which is another indicator of increasing adoption.

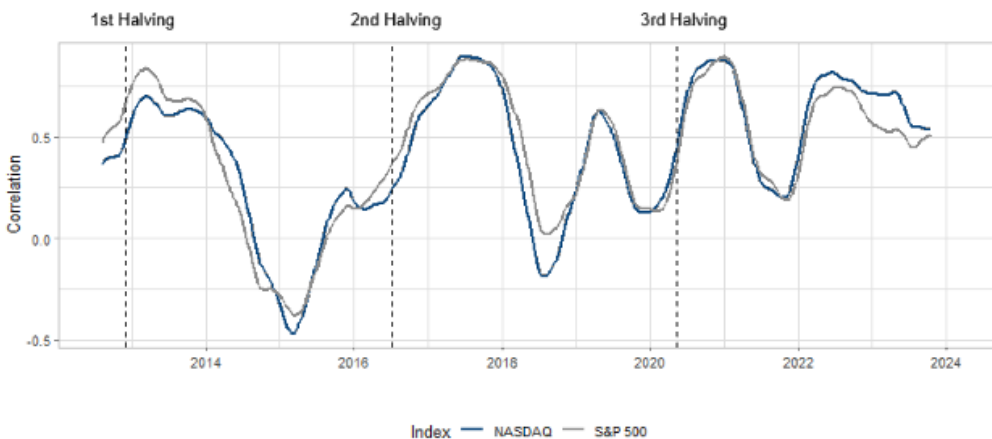
Spot Bitcoin ETF Flows



Source: Digital Asset Research

Previous halving events have seen Bitcoin’s price movements respond by increasing its correlation to markets like the S&P 500 and NASDAQ, as shown in the chart below. In the past, crypto markets have sometimes rallied when traditional markets have also increased in value, such as when interest rates were lowered in response to the COVID-19 pandemic. After the halving, it is possible that Bitcoin could again see its correlation to the S&P 500 and NASDAQ rise again, especially due to the increased integration with the traditional system through ETFs.

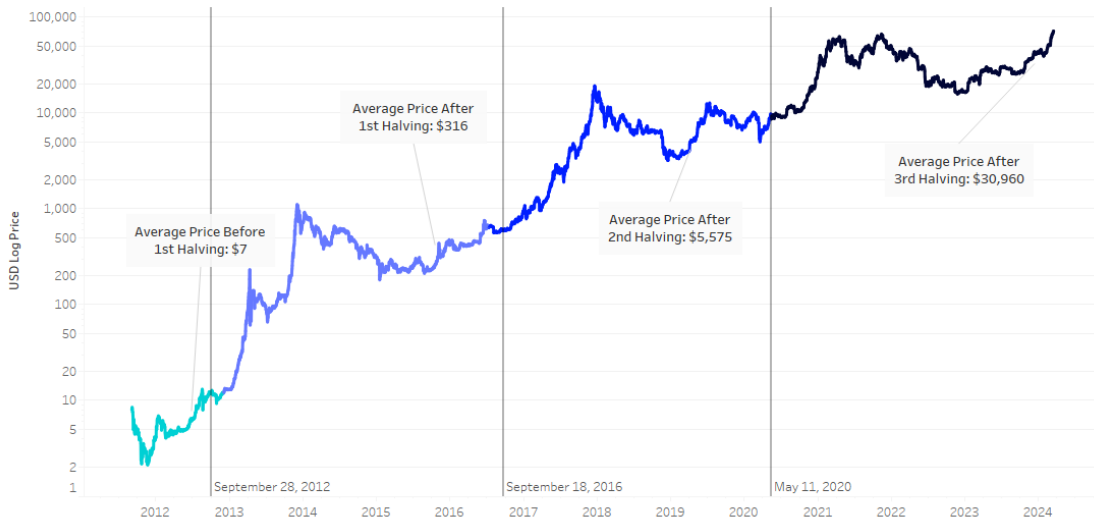
30 Day Rolling Correlation of BTC and Other Markets With Halving Dates



Source: Digital Asset Research

Following each previous halving event, Bitcoin has also seen its average price increase over the period preceding the next halving. Prior to the first halving, Bitcoin’s average price was ~\$7; between the first halving and the second halving, Bitcoin’s average price was ~\$316; between the second halving and the third halving, Bitcoin’s average price was ~\$5,575; and after the third halving and through March 2024, Bitcoin’s average price was \$30,960. While the upcoming halving’s impact is unknown, it is possible that this trend will continue.

**Bitcoin Price History – Log Scale
With Reward Halving Dates**



Source: Digital Asset Research

Impact on miners

The halving’s impact on miners will be a key area to watch after it occurs. The adjustment in miner revenue due to reduced rewards could lead to increased volatility, especially if the network’s computational power, or hashrate, fluctuates significantly. In the long run, if the price of Bitcoin does not appreciate to match the reduction in rewards, a decrease in miners could make the network more vulnerable to manipulation or attacks, such as a 51% attack, where an entity gains control of the majority of the network’s mining power and can manipulate the blockchain.

Even if Bitcoin’s price does not increase after the halving, there are some factors that could help to compensate miners for the reward reduction. Miners also earn transaction fees and if Bitcoin’s adoption continues to increase, then transaction volume and associated fees may also rise. The rise of the BRC-20 token standard could also lead to increased miner revenue. BRC-20 allows for the creation of fungible tokens on the Bitcoin blockchain using a method known as ordinal inscriptions and has introduced a new way to utilize the Bitcoin network beyond its original purpose as a peer-to-peer electronic cash system.

Conclusion

Bitcoin’s halving events impact the asset itself, its community, and the broader digital asset market. Halving events, previous to that which took place in April 2024, have led to periods of price increases and a rise in Bitcoin’s correlation to traditional markets. This recent halving comes at a unique time, with Bitcoin seeing rising prices throughout early 2024 and increased institutional adoption due to the approval of spot Bitcoin ETFs in the U.S. Alongside potential price impacts, the halving’s effect on decreasing mining rewards will affect the Bitcoin mining ecosystem, which is a key area to watch as the network seeks to maintain decentralization and security.

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