



# **SANTACROCE TECH**

## **OPINION AND INSIGHTS**

**MARCH 13, 2024**



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# INTRODUCTION



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***In our inaugural newsletter, we'll address several frequently asked questions about the upcoming Bitcoin halving, set for April 20, 2024.***

*In today's world, where technological advancements continually shape our lives, we carry the responsibility to improve our quality of life. This holds true not only for ourselves but also for our families and the broader community. At Santacroce Tech, we recognize the essential role of technology in driving human progress.*

*With most of the world experiencing a level of abundance, it's crucial to acknowledge the scarcity of certain resources, most notably our time on this planet. Throughout my twenty years in the tech industry, I've learned that genuinely scarce resources are exceedingly rare.*

*The choices we make in life are ours alone, thanks to free will. However, we can't increase the number of days we live in good health or the time we spend with friends, family, and those who bring joy into our lives. Beyond these, Bitcoin stands out as a uniquely scarce resource, with its halving events highlighting its limited nature.*

***Roberto Santacroce Martins***

*Programmer, Santacroce Tech Founder*

# WHAT THE F#CK IS BITCOIN HALVING?

It's a decrease in the number of Bitcoins given per block as a reward to miners. The concept is simple: a 50% cut in block rewards, embedded in Bitcoin's software, occurs every 210,000 blocks. Initially, mining required just a PC and a basic internet connection, starting with a 50 Bitcoin reward per block. However, these coins held minimal street value.

The first halving, in November 2012, reduced the reward to 25 Bitcoins per block. By this time, mining had evolved with the [introduction of GPUs](#), making the process more competitive. Additionally, Bitcoin's price had surged above \$10, offering an effective return for miners. The second halving took place on July 9, 2016, reducing the reward to 12.5 BTC, and the third on May 11, 2020, to 6.25 BTC.

# WHAT IS THE RATIONALE BEHIND THE BITCOIN HALVING?

You might not agree with Bitcoin's fixed monetary policy, but the sheer fact that it has been stable since inception is quite a feat. The halving was designed to incentivize adoption in the initial years, with 50% of the 21 million total supply issued in the first halving cycle – roughly 4 years – and another 25% in the second cycle, which lasted until July 2016. Some will argue that this is 'unfair', but at least everyone had a fair shot to mine, and it successfully established a credible and reliable monetary policy.



## WHO DECIDED THOSE TERMS, AND WHY?

Satoshi's emails recently revealed that each of those decisions was an 'educated guess', meaning there's no real science behind the 21 million limit, the 50 BTC initial cycle miner's incentives, or the 4-year halving. In essence, it might as well have worked just fine with a 100 million coin limit or a 20% issuance cut every year. However, it is the mining [difficulty](#) adjustment that created digital scarcity as it balances out processing power ([hashrate](#)) increases or decreases, maintaining an average 10-minute-per-block interval in the long term.

## SHOULD WE CARE ABOUT 'STOCK-TO-FLOW'?

No, making price predictions based on the so-called '[stock-to-flow](#)' model, which measures the current supply in circulation versus the annual issuing of Bitcoins and compares them with other assets such as gold, is not advisable. Anyone can create a Bitcoin fork (clone) with a 10 million supply or implement a 'burn' mechanism to destroy a certain percentage of coins every year. What makes Bitcoin valuable is its predictability, the rules ([consensus](#)) enforced by every participant not to change those terms.

## WILL BITCOIN EVER TRANSITION OUT OF MINING?

Unlikely. The [Proof-of-Work](#) mechanism, designed by Adam Back, Ph.D., to block email spamming, compels the sender to expend energy, thereby increasing the cost of attacks. The receiver, conversely, can effortlessly verify if the solution is valid—similar to solving a Rubik's Cube. This isn't to say that other validation methods are unreliable or untrustworthy, but the Bitcoin community has opted to prioritize decentralization at all costs, even if it restricts the base layer to 4 transactions per second. Each aspect of the blockchain trilemma—security, scalability, decentralization—has its benefits and drawbacks.

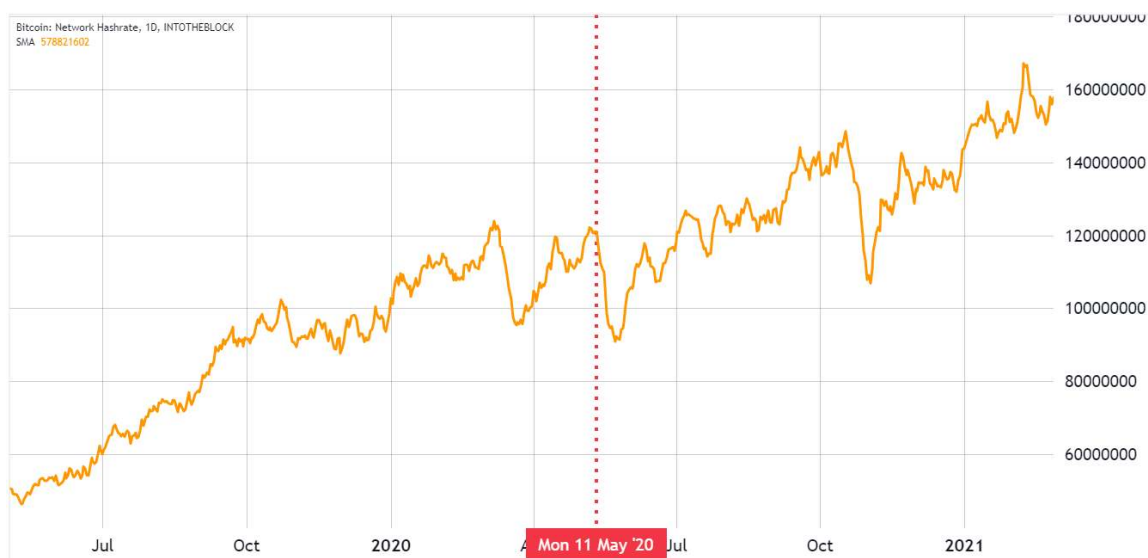


# WHO GETS TO DECIDE THOSE RULES NOW THAT SATOSHI IS (SUPPOSEDLY) GONE?

Each user running their own node decides which transactions are valid. Therefore, to implement a change, you need to convince every user in the network. Previous attempts to increase the block size, for instance, were supported by major mining pools and exchanges. However, the user base preferred a strategy to incentivize layer-2 scaling, such as the Lightning Network, and did not accept the changes. The dispute [lasted over two years](#) and culminated with the Bitcoin Cash (BCH) fork in 2017, which only demonstrated the resilience and decentralization of Bitcoin (BTC).

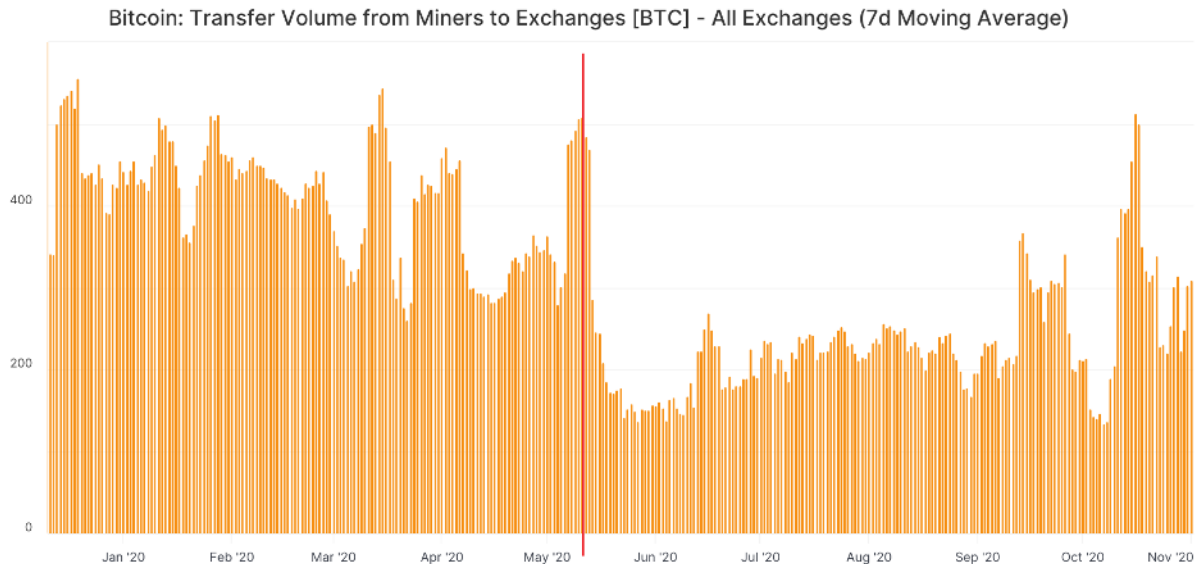
# DOES THE BITCOIN HALVING IMPACT THE HASHRATE?

Indeed, it does in the short term. The May 2020 event was followed by a 25% drop in the 7-day average hashrate. Miners experienced a ~50% reduction in their revenues overnight, leading some to shut down operations as they became unprofitable. However, the hashrate continued to surge over the next 3 months, indicating that other miners remained profitable and continued to add equipment. It's important to remember that there is a 3 to 4 month lag between ordering ASICs and effectively deploying the capacity.



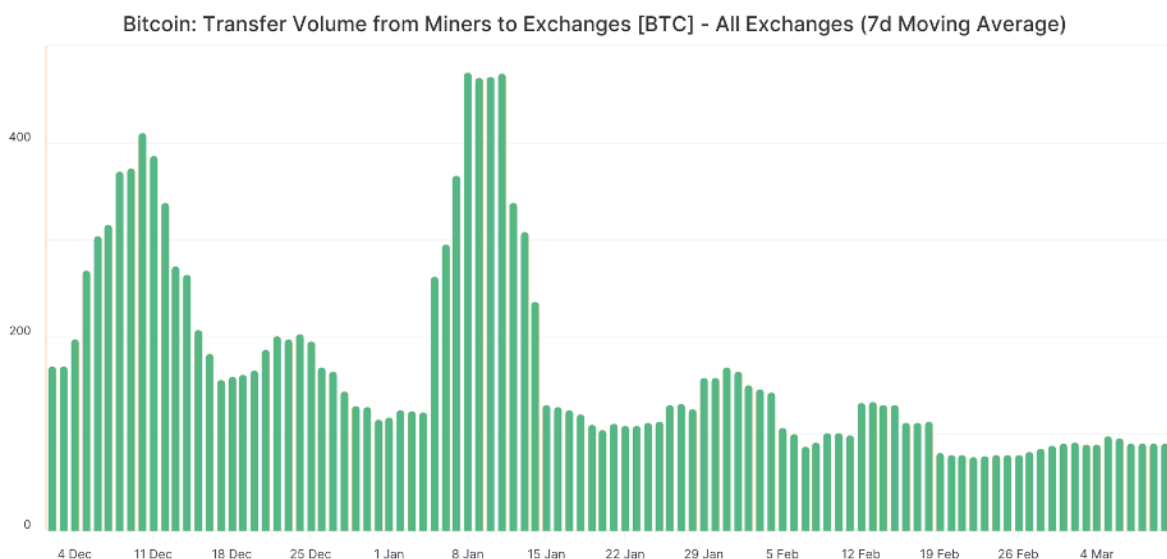
Bitcoin hashrate, 7-day average. Source: TradingView

# DOES THE BITCOIN HALVING IMPACT MINERS OUTFLOWS?



Bitcoin mining pools outflows in 2020, 7-day average.

Certainly. Miners typically anticipate these movements to ensure they have enough runway to survive longer if they need to shut down less profitable operations. It's worth noting that a peak in [transfers from mining pools](#) to exchanges occurred two months prior to the halving, followed by another peak right at the halving. This movement was followed by three months of normalized flows, confirming that miners anticipate rather than hope for a miraculous BTC price rally. "History doesn't repeat itself but it often rhymes."



Bitcoin mining pools outflows in 2024, 7-day average.

# DOES THE HASHRATE IMPACT BITCOIN PRICE?



Bitcoin/USD (orange, left) vs. Hashrate (blue, right) and correlation (below).

No, because the hash rate will naturally increase as miners become more efficient, regardless of whether they become more or less profitable. If the BTC price declines, less efficient equipment gets shut down, and those that remain in business get a larger share of the pie. Therefore, they have every incentive to keep buying more efficient ASICs and secure their position. The 60-day correlation rarely exceeds 50%, rendering it statistically null.

## WHAT IS THE IMPACT OF BITCOIN'S HALVING ON THE BTC PRICE?

Initially, there's almost no impact, as these events are well-known in advance. For instance, Bitcoin's price gained 38% in the 30 days prior to the 2020 halving and took 11 weeks to reclaim the \$10,000 mark. Similarly, the U.S. spot ETF launch in January 2024 experienced a 25% rally in the 60 days prior, and the \$47,000 level was reclaimed 30 days after the event. In essence, market participants are not as naive as one might expect, but the positive long-term impact of these events remains unaltered.





Bitcoin/USD @ 2020 halving / BTC price @ spot ETF launch in 2024.

## HOW DOES THE CURRENT HALVING DIFFER FROM THE PREVIOUS ONE?

The stock market initially responded to Covid-19 uncertainty, leading the Nasdaq-100 index to plummet by 30% in the 30 days leading up to March 22, 2020. Consequently, the halving coincided with market recovery, indicating a strong correlation to traditional markets during that time. Quantitatively, the 40-day correlation exceeded 70% in the three months preceding the 2020 halving. There's no way to know if an eventual crash in the S&P 500 index will negatively impact Bitcoin's price in the months following the 2024 halving.

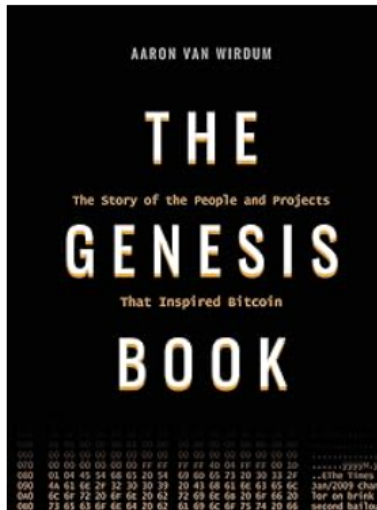


Nasdaq-100 (orange, left) vs. Bitcoin/USD (blue, right).

## BOOK RECOMMENDATION

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The Genesis Book: The Story of the People and Projects That Inspired Bitcoin



### The Genesis Book: The Story of the People and Projects That Inspired Bitcoin Paperback – January 3, 2024

by Aaron van Wirdum (Author)

5.0 ★★★★★ 32 ratings

Bitcoin did not appear out of nowhere. For decades prior to Satoshi Nakamoto's invention, a diverse group of computer scientists, privacy activists, and heterodox economists tried to create a digital form of money that could operate independently of government control. *The Genesis Book* tells the story of the people and projects that inspired the invention of the world's first successful peer-to-peer electronic cash system.

<https://www.amazon.com/Genesis-Book-Projects-Inspired-Bitcoin/dp/BOCQLMQRH7/>

## INTERNAL DIALOGUE

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**Chet:** "You think you can rebuild Bitcoin, just from its whitepaper, BIPs, and data files, like some kind of crypto Frankenstein?"

**Miles:** "Man, the whitepaper is a manifesto, not a how-to guide. You'd need the codebase, the community, and the economic incentives—don't forget, it's a whole ecosystem."

**Chet:** "Ah, the fallacy of recreating genius. You can have the ingredients but still screw up the recipe. The devil's in the details, my friend."

# ABOUT US

Santacroce Tech is a dedicated blockchain technology company committed to scalability and decentralization. We're actively participating in the Stratum V2 development, fine-tuning mining protocols to achieve better efficiency and providing flexibility to the miners.

Additionally, Santacroce Tech is innovating in the Ethereum space by creating an automated staking platform that simplifies the Proof-of-Stake process for users, prioritizing security and ease of use. Lastly, we're also engaged in zero-knowledge proof privacy solutions.

Our twenty year proven experience in the tech industry and strong partnership with hardware suppliers allows us to manage data centers with proprietary security modules to ensure streamlined and efficient systems in the cryptocurrency ecosystem.

# CONTACT INFO

Count on Santacroce Tech's content to guide you through the dynamic digital asset and blockchain industry. Subscribe now for invaluable insights! For business inquiries or general questions, please don't hesitate to contact us at [info@santacroce.xyz](mailto:info@santacroce.xyz)

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