

BITCOIN THIRD HALVING: WHAT DOES IT CHANGE?

April 2020

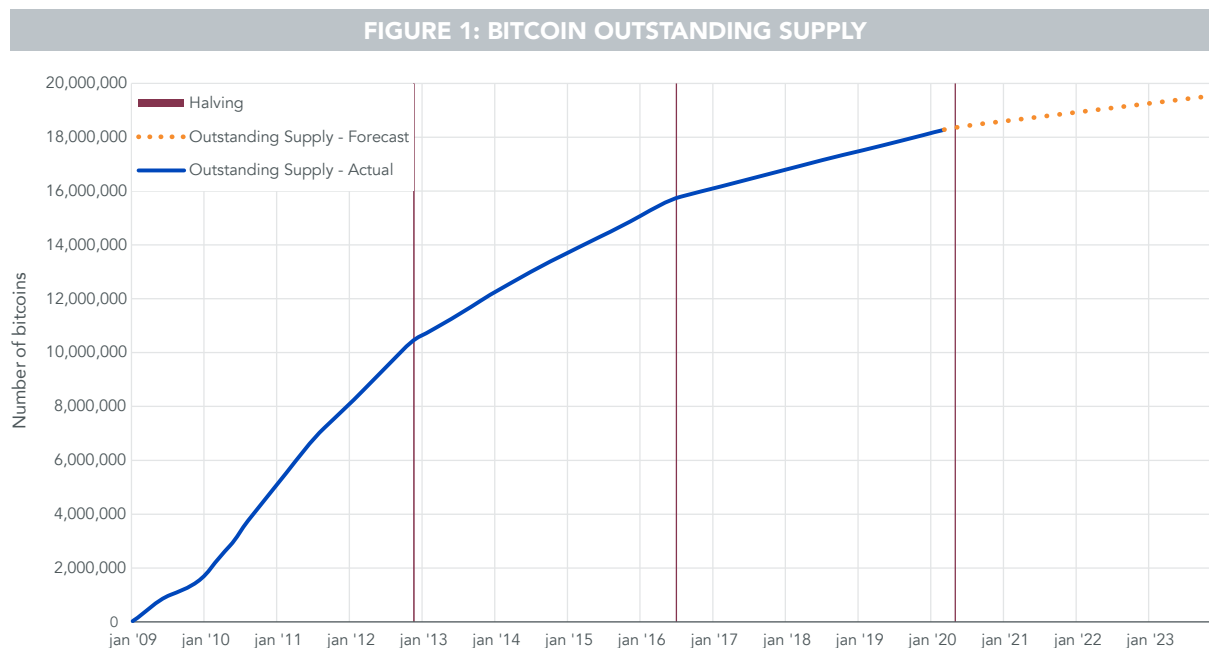
One of the main discussion topics currently raging in the cryptosphere is the upcoming Bitcoin halving, the third in the asset's history. It is indeed an important event, as it modifies the economics of the network by reducing the rate of new supply to the market, and consequently the reward miners get for validating a block. So how does it all work, and what are the potential consequences for the network economics, and ultimately for the price trajectory of bitcoin?

CONTROLLED SUPPLY IS CORE TO UNDERSTANDING BITCOIN DYNAMICS

One of the most widely praised characteristics of bitcoin is its fixed, stable, predictable, and independently controlled supply. It confers bitcoin with some of its gold-like characteristics.

As a block is validated on average every 10 minutes, and because we know how many new bitcoins will be created with each block validation, it is easy to infer an estimation of what should be the number of bitcoins in existence at any point in time in the future. These rules are embedded in the Bitcoin protocol and would be extremely difficult to modify.

Figure 1 shows the actual supply up to 31 March 2020 and the expected future supply for the next few years. The blue line represents the actual supply, while the orange line represents the expected supply. The number of outstanding bitcoins starts at zero at the time the network launches, and then starts increasing as new bitcoins are created with each validated block. The red bars represent the halvings, which we are going to talk about more in details later. You will notice that coincidentally with the halving, the slope of the supply line decreases, indicating a slower rate of growth in the outstanding supply.



Source: WisdomTree, Coinmetrics. 09 January 2009 to 31 December 2023.

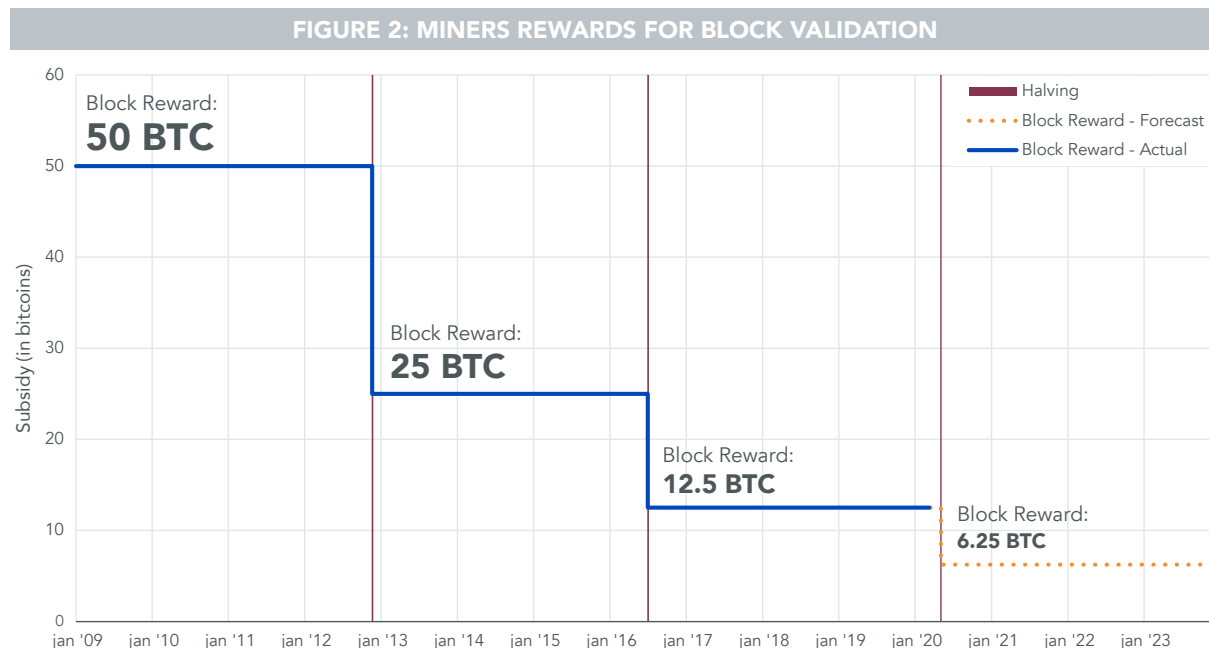
Forecasts are not an indicator of future performance and any investments are subject to risks and uncertainties.

HALVING IMPACTS BITCOIN ECONOMICS

As we already mentioned, Bitcoin halvings have happened twice in the past and we'll now look at what happened then, and what scenarios we might expect for the coming one, which is expected to happen on the 13th of May 2020 at the time of this writing.

Every 210,000 block, or roughly around every 4 years, that reward is cut in half - called a "halving" - as part of the mechanism leading to the final 21 million bitcoins in circulation around the year 2140.

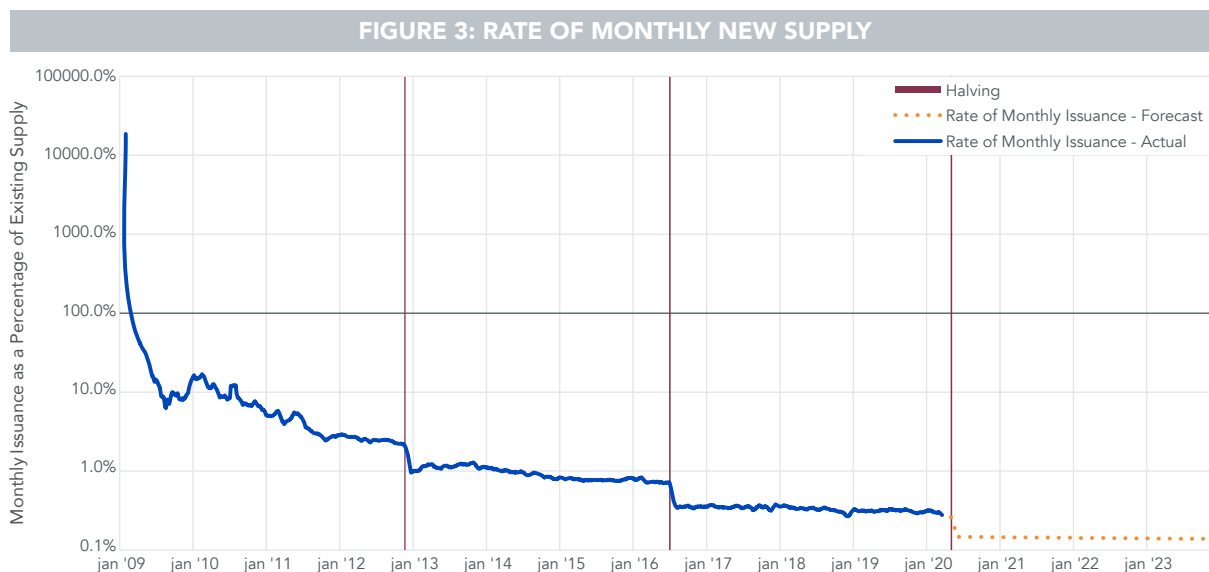
Figure 2 illustrates that mechanism, showing the number of bitcoins awarded to miners when they successfully validate a block. Roughly every four years, this number is cut in half.



Source: WisdomTree. 09 January 2009 to 31 December 2023. **Forecasts are not an indicator of future performance and any investments are subject to risks and uncertainties.**

As you can see on Figure 1, the outstanding supply of bitcoins, i.e. the number of bitcoins in circulation does continue to rise, only at a slower pace. What the halving decreases is the rate of new supply, which is illustrated in **Figure 3**, showing the daily rate of new supply as a percentage of the total outstanding supply.

The graph shows that the rate of new supply dips on halvings, and then decreases steadily between halvings, as the number of bitcoins created monthly remains relatively stable while the outstanding supply rises.



Source: WisdomTree, Coinmetrics. 09 January 2009 to 31 December 2023. **Forecasts are not an indicator of future performance and any investments are subject to risks and uncertainties.**

From a supply-demand perspective, cutting the rate of supply in half should be supportive for the price, provided that demand does not decline significantly. Looking at the market over the past year, it seems buyers have been absorbing around \$500 million of monthly new supply (ignoring the bitcoin reserves that miners may have been building by selling only a portion of their reward) while the price fluctuated around the \$9,000 mark (ignoring the recent price collapse on COVID-19 fears), without a significant and sustained breakthrough in either directions. The upcoming dollar supply cut will be significantly larger than the dollar supply cut in the first two halvings with close to a \$180 million reduction at current prices¹, or close to \$250 million at pre-crash price levels (see Figure 4).

FIGURE 4: USD MONTHLY NEW SUPPLY



Source: WisdomTree, Coinmetrics. 18 July 2010 to 31 December 2023.

Forecast assumes a \$6,500 price for bitcoin.

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¹We use 6,500 USD per bitcoin as the current price in the whole analysis.

WHAT IMPACT FOR MINERS?

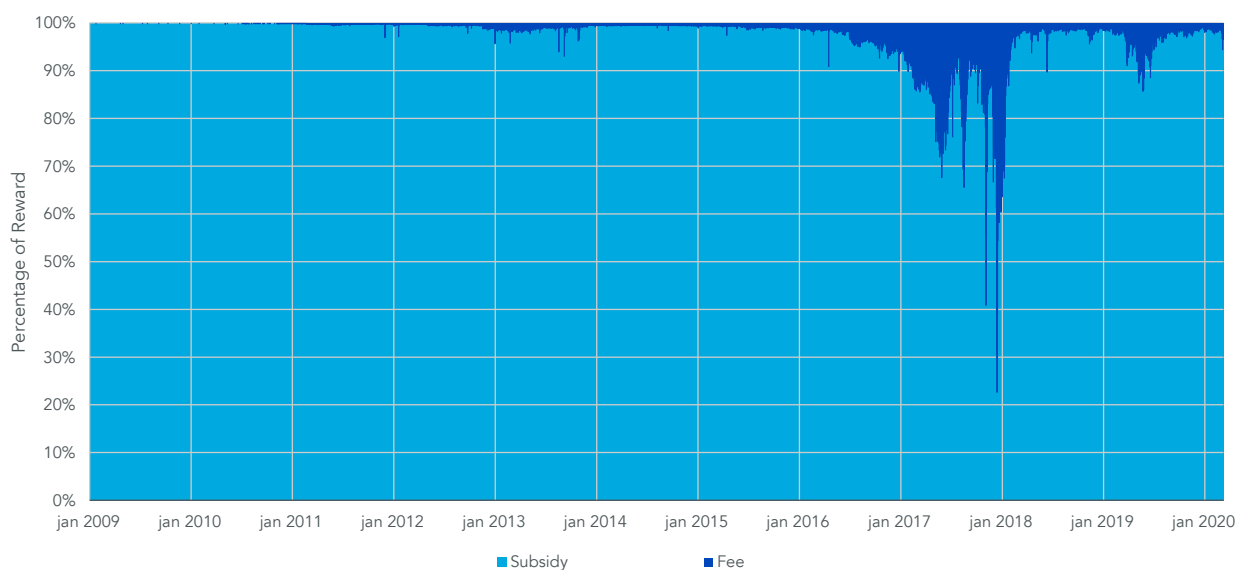
Halvings have a significant impact for one of the most important parts of the ecosystem: **the miners**.

Miners remuneration come from two sources. One is the fee paid on each transaction, the other one is in the form of freshly minted new bitcoins, called the subsidy:

$$\text{Reward} = \text{Fees} + \text{Subsidy}$$

The average fee per block currently stand between 0.1 and 0.5 bitcoin per block, while the subsidy is currently set at 12.5 bitcoins per block. It is thus very clear that the vast majority of miners' revenue comes from the subsidy.

FIGURE 5: FEES USUALLY REPRESENT A SMALL PORTION OF MINERS' REWARD



Source: WisdomTree, Coinmetrics. 09 January 2009 to 31 March 2020.

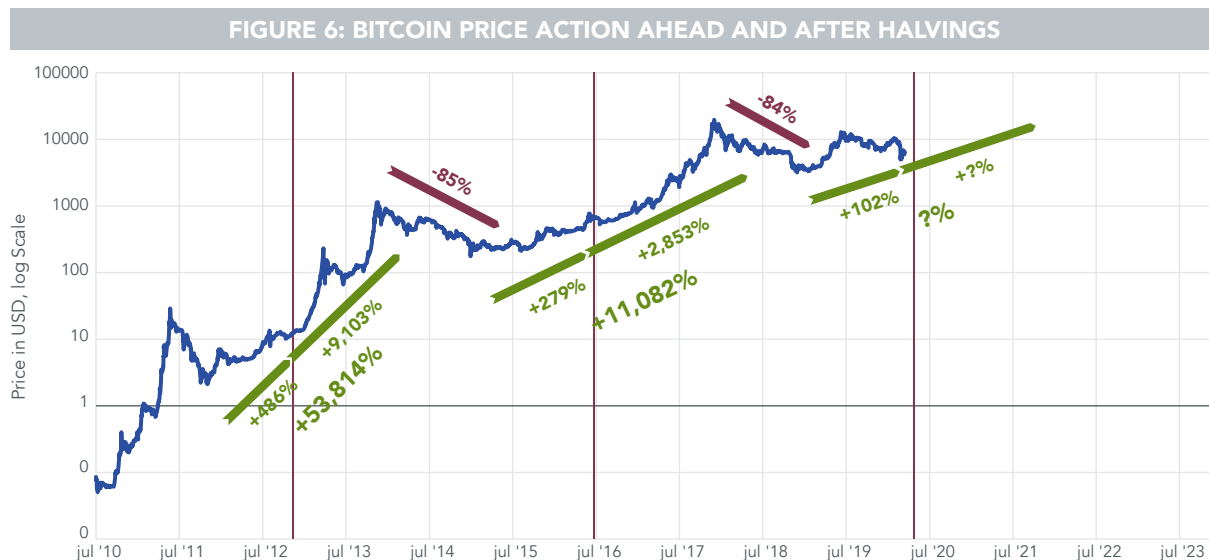
Consequently, halving the reward will have a significant impact on miners' profitability, as their USD revenue **per block** will be reduced by more than \$40,000 at current post-crash price levels, or more than \$50,000 at an approximative \$9,000 pre-crash level. There is a risk to see some miners capitulate as a result of lower revenues. Miners capitulation, if sudden and significant, could be a risk for the network. It would lead to less computing power being dedicated to the network, measured as the hash rate, which is generally looked at as a proxy for network security. A large decline in the hash rate could eventually generate a negative feedback loop, with a sharp decrease in hash rate leading to an erosion in the confidence in the network, leading to a lower bitcoin price, in turn lowering again miners revenues, prompting more miners to capitulate, etc.

We do not believe this is the base scenario. Miners had a lot of time to adapt their operations ahead of the event, and past halvings have shown virtually no decline in the hash rate. Furthermore, drops in the hash rate would also lead to a decrease in the mining difficulty, and thus a lower mining cost, improving miners' financial situation, and probably bringing balance to the system. Now, previous halving occurred in bull markets, while we have experienced a price crash over the past few weeks, denting miners' USD revenues, so we will keep monitoring this metric for signs of weakness.

WHAT WAS THE PRICE ACTION OF BITCOIN AROUND THE TWO PRIOR HALVINGS?

Figure 5 above shows a similar pattern around the two first occurrences. Halvings happened right in the middle of very strong bull markets, with some of the upward move happening before the halving, while most of it occurred after those events. In both occasions, these were followed by strong corrections of similar magnitude.

Recent price action seemed to be taking the same direction despite the rout in global markets that did not spare digital assets.



Source: WisdomTree, Coinmetrics. 18 July 2010 to 31 March 2020.

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The market dynamics were quite different at the time, and numerous factors were certainly in play, change in new supply only being one amongst many. The asset was much more in its infancy, the market was almost completely dominated by retail investors, and sentiment was arguably a more prominent force.

It might have been the case that halvings occurred while rising demand was already pushing the price up, and the issuance cuts exacerbated the rise into the strong post-halving bull markets that we see here. The price rise could have then entered what is often referred to as the “mania phase” of a bubble, leading to the parabolic rise in price, before finally reversing and entering the “blow off phase”, the brutal 80%+ price corrections.

Will next time be the same? A lot of the dynamics has changed. While retail trading remains an important share of the activity, hedge funds, prop trading firms and other professional investors have started to take advantage of the evolving infrastructure and are now more active in the digital assets space. Derivative trading has intensified, and it is now easier to short most of the largest assets.

In our opinion, those two factors (more institutional actors and ease to short) could help balance retail’s FOMO² inclination, and thus limit the extent of the potential bubbles.

Still, coming back to the halving, we believe that the rate of new supply cut, taken in isolation, should be supportive to price, as it still represents a relatively large portion of the outstanding supply. How much of that new issuance is kept by miners, and thus how much actually gets absorbed by the market might be a subject of further research. As time passes, halvings will represent less and less supply cut as a percentage of the outstanding supply, and we expect subsequent occurrences of such events to have a lesser impact on the network economics.

²Fear Of Missing Out. If the term is now widely used in the crypto sphere, often in an ironic way, to describe the tendency of traders to pile in following a strong upside price move, it more generally designates a well-documented behavioural bias describing the social anxiety resulting from seeing other people being rewarded from activities in which one is not involved.

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