# EXPLANATION OF BITCOIN STOCK-TO-FLOW MODEL

The Bitcoin stock-to-flow model was developed by a popular Dutch institutional investor who operates under the twitter account PlanB@100trilionUSD and was published in March 2019. With this model, he uses scarcity to quantify bitcoin value. This model attempts to compare bitcoin to scarce commodities like gold and silver. These commodities can also be referred to as "store of value" resources because they retain value over a long period of time, due to their relative scarcity and low flow.

## Understanding Stock-to-Flow

To explain this better, we would have to understand what a stock-to-flow model is. Stock-to-flow model measures the relationship between the currently available stock of a resource and its production rate/flow. The stock is the reserves of an asset at a point in time and flow represents the annual production.

Stock to Flow (SF) ratio = Current Reserves / Annual Production

A higher ratio indicates that the commodity is increasingly scarce - and therefore less new supply enters the market and thereby raising its value over a long period of time. As annual supply reduces, SF increases, in turn value increases. For example, the world gold council estimates 185,000 tons of gold in stock with about 3000 tons mined each year (flow).

SF ratio = 185000/3000= ~62.What this means is that it would take 62 years of production to generate the current gold stock(190,000 tons).

Bitcoins total supply is 21 million with approximately 18 million currently in circulation (stock). With production of about 0.7 million per year(flow), BTC stock to flow ratio is around 25.

## Bitcoin and its "Halvings"

When a Bitcoin is mined (the process by which new coins are created and transaction information is verified), it is mined in what is referred to as a "block". A block is a 1MB piece of information that contains every transaction that takes place in the Bitcoin network within a certain time frame. Blocks are created every 10 minutes.

There is a reward for mining new blocks. The reward for mining the first block on the Bitcoin network was 50 Bitcoins. Every miner got this 50 bitcoin reward until bitcoin "halving "occurred. This event is where the reward is cut in half on the Bitcoin network every 210,000 blocks (roughly four years).In other words, every 210,000th block - the Bitcoin reward went from 50 BTC per block, to 25 BTC, to 12.5 BTC and so on.

· The First halving occurred in 2012 with miners getting 25 BTC per block. The price of BTC/USD rose from $12 to $1,038 with the increasing rate of 9336%.

· The Second halving occurred in 2016 with miners getting 12.5 BTC per block. BTC price went up to $2,500 with 288.6% increase and reached $19,783.

· The Third halving occurred May 12, 2020 and miners now get 6.25 BTC per block.BTC now trades at $8,500.

Bitcoin halvings are important events for traders because they reduce the number of new bitcoins being generated by the network.This event will continue to take place until the reward for Bitcoin miners reaches 0 Bitcoin per block. At that point, the 21 millionth Bitcoin would have come into existence, making it impossible to create anymore.

**Conclusion**

According to this model, as long as the SF can be calculated in accordance with bitcoin halvings, Bitcoin would be an asset that retains its value over the long-term. The article written by100trillionUSD, "Modelling Bitcoin Value with Scarcity", anticipates that Phase 5 of the Bitcoin Stock to Flow will take the price to $288,000 USD.

**An argument for why this model is a bad idea**

Stock to flow model relies solely on scarcity as a feature that drives value despite the fact that there are other useful features which might cause the model to fail if not taken into consideration.

- There are Black Swan Events (events that come as a surprise and have a significant effect) that might affect bitcoin price.
- Bitcoin has only been around for a little more than ten years. For long-term valuation models like the Stock to Flow, larger data sets would be needed for more reliable accuracy.
- S2F does not also explain the prices of other crypto currencies so that some comparison can be done between two or more digital assets.
- The valuation of an asset requires taking into account its volatility. If the volatility is predictable to some some extent, the SF model may be more reliable. The price of bitcoin can be determined on the open market by traders,users and speculators, therefore making its volatility unpredictable/uncertain. However, Bitcoin is notorious for its large price moves.Combined with its relative low liquidity, it is more likely to be exposed to sudden huge volatility. Hence, the validity of Bitcoin's Stock to Flow model is required to be tested again.