



University
of Basel

Center for
Innovative Finance



Bitcoin, Blockchain and Cryptoassets

Bitcoin Pricing Models

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Recap: Monetary Value

	Intrinsic value
+	Promise of payment
+	Liquidity premium
=	Market value of monetary unit

→ Bitcoin's value is solely determined by its liquidity premium.

Discounted Cash Flow (DCF)

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n} \quad (1)$$

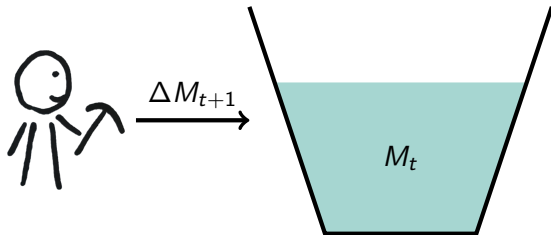


Cash flows



Cash flows?

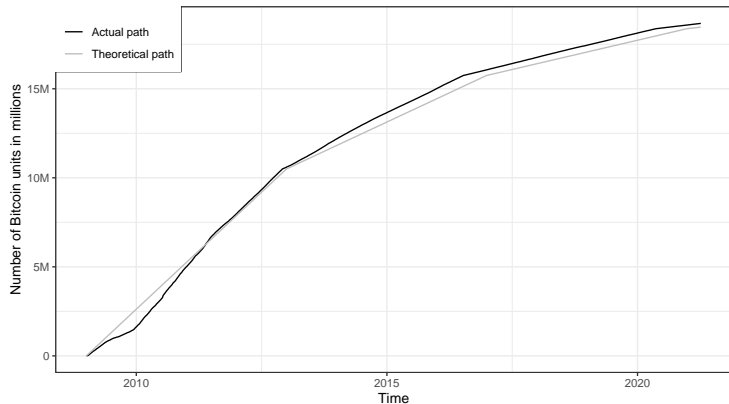
Stock-to-Flow



$$SF_{t+1} = \frac{M_t}{M_{t+1} - M_t} \quad (2)$$

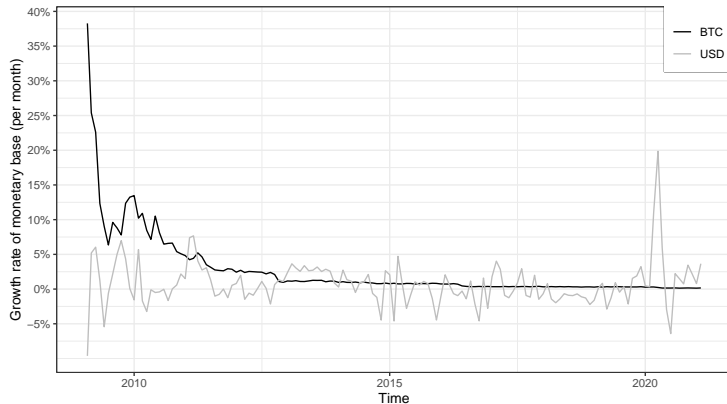
$$g_{t+1} = \frac{M_{t+1} - M_t}{M_t} \quad (3)$$

Bitcoin Supply



Data source: blockchain.info

Growth Rate of the Monetary Supply



Data sources: blockchain.info and FRED

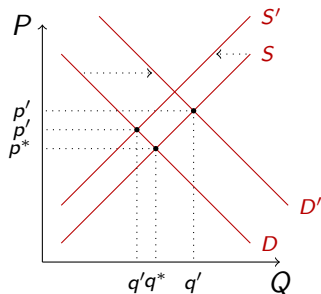
Growth Rate of the Monetary Supply



Price data sources: blockchain.info and coinmarketcap.com

Price Expectations

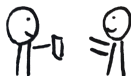
Is Bitcoin deflationary?



- Ever-increasing demand?
- Limited (even decreasing?) total supply

Will the value increase forever?

Sell for $E[p_{t+1}]$ at time $t + 1$:



Two equilibria:

- $p = 0$
- $p > 0$

Bitcoin as a Store of Value

"As a thought experiment, imagine there was a base metal as scarce as gold but with the following properties:

- boring grey in colour*
- not a good conductor of electricity*
- not particularly strong, but not ductile or easily malleable either*
- not useful for any practical or ornamental purpose*

and one special, magical property:

- can be transported over a communications channel"*

Source: ↗ [satoshi on bitcointalk.org](#)