

SAIFEDEAN AMMOUS

THE
BITCOIN
STANDARD

The DECENTRALIZED ALTERNATIVE
to CENTRAL BANKING

May 28, 2018

Bayerische Landesbank, Munich

Outline

1. Bitcoin's monetary uniqueness
2. What is Bitcoin good for?
3. What would a Bitcoin Standard Look Like?

1. Bitcoin's uniqueness

- What makes good money?
- A free market chooses the money that is the hardest to produce in response to increased demand
- People who save in hard money preserve wealth into the future
- People who save in money that is easy to produce will lose wealth over time
- Whatever technology built that was hardest to produce was chosen as money

Why Money Must Be Hard?

- **Anything** can be used as money if its held as a store of value and used in exchange
- But rising monetary demand raises the price of the money
- Rising price incentivizes more production of the money
- Excess production brings the price down, making it a useless store of value
- Only things that are hard to make succeed as money in the long term

What have humans used as money?

- Cattle
 - Rare seashells
 - Glass beads in areas that can't produce them
 - Metals, initially by weight
 - Precious metals & coins
 - Government money
-
- What do they all have in common (when they work)?

Hard to make

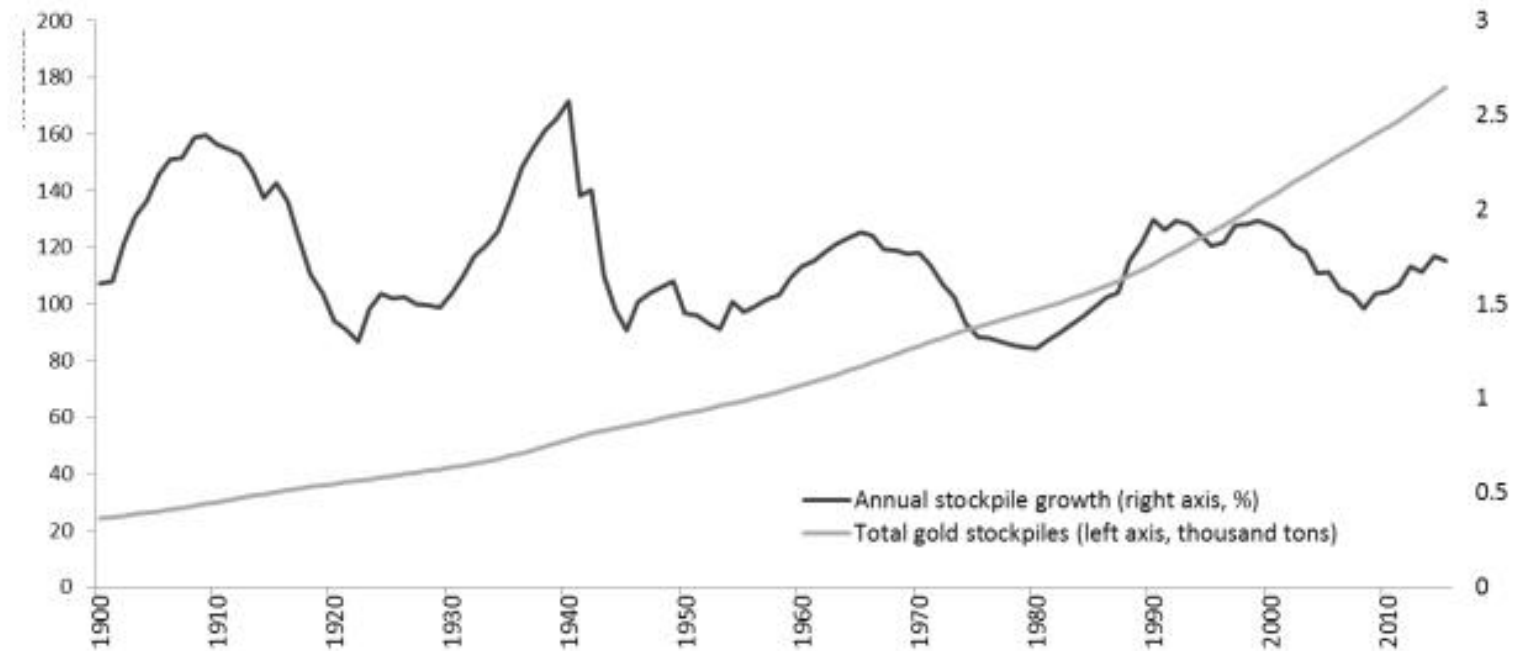
Hard money kills easy money



- Rai stones in Yap Island
- Slave beads in West Africa

Hard money kills easy money

- Gold practically demonetized all other metals by the end of the 19th century because its new production is the lowest compared to existing stockpiles



Hard money kills easy money

- Average annual increase of the supply of national currencies: 32.15%
- Good currencies grow much slower
- Bad currencies grow faster, and collapse against hard currencies

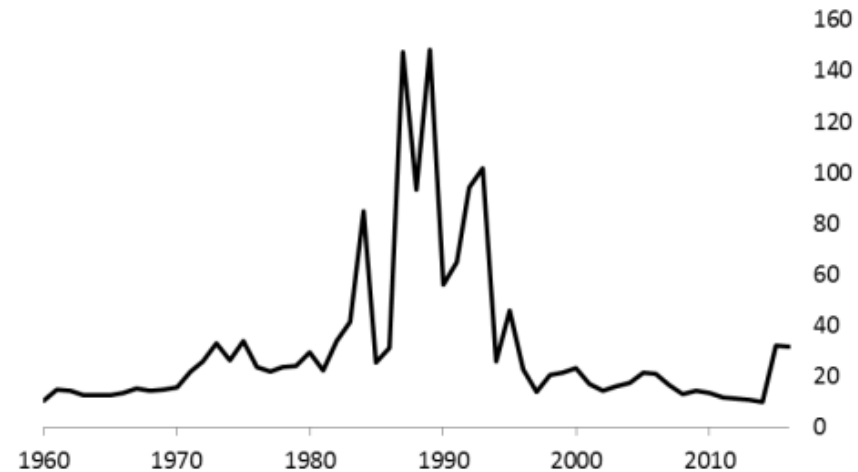


Figure 6: Annual average Broad money growth rate percentage for 167 currencies, 1960–2015⁴⁴

Hardest money ever

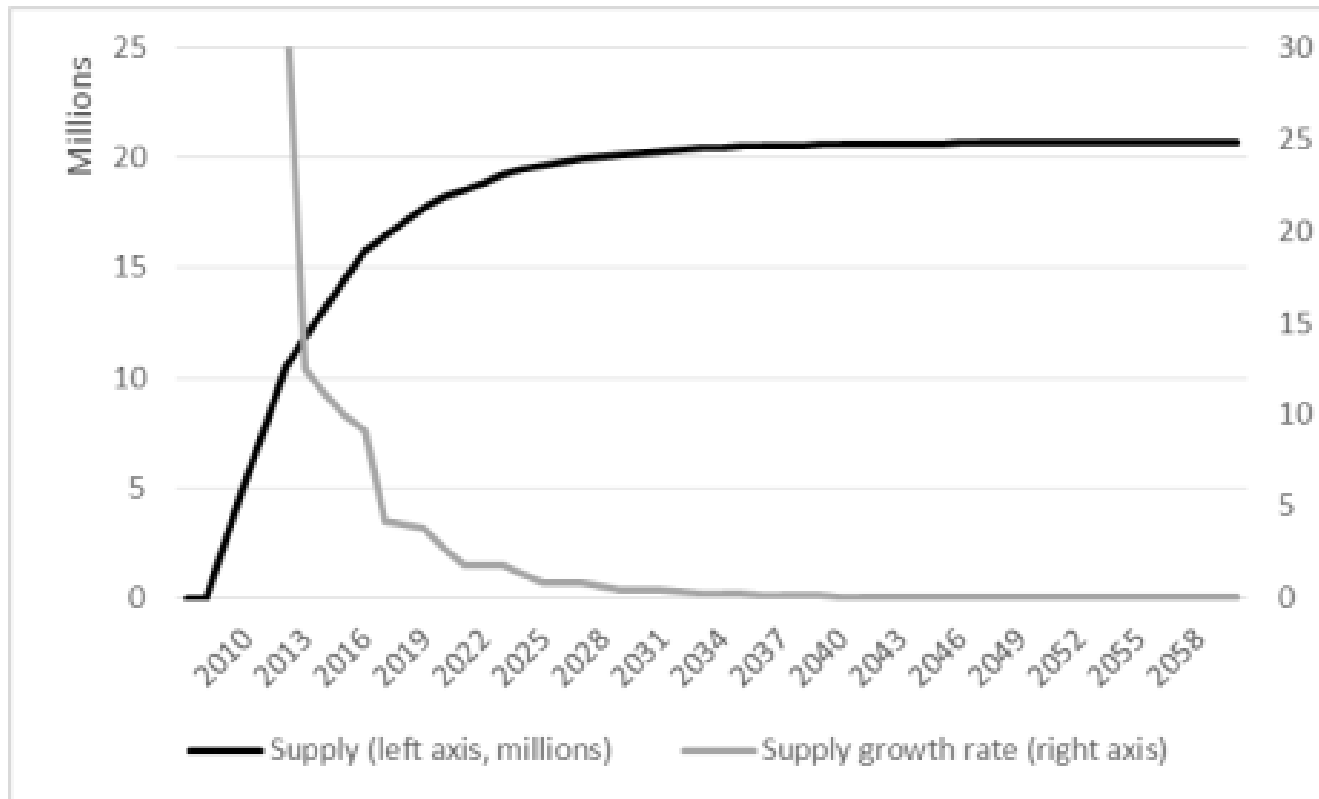


Figure 14: Bitcoin supply and supply growth rate assuming blocks are issued exactly every ten minutes.

Bitcoin's monetary uniqueness

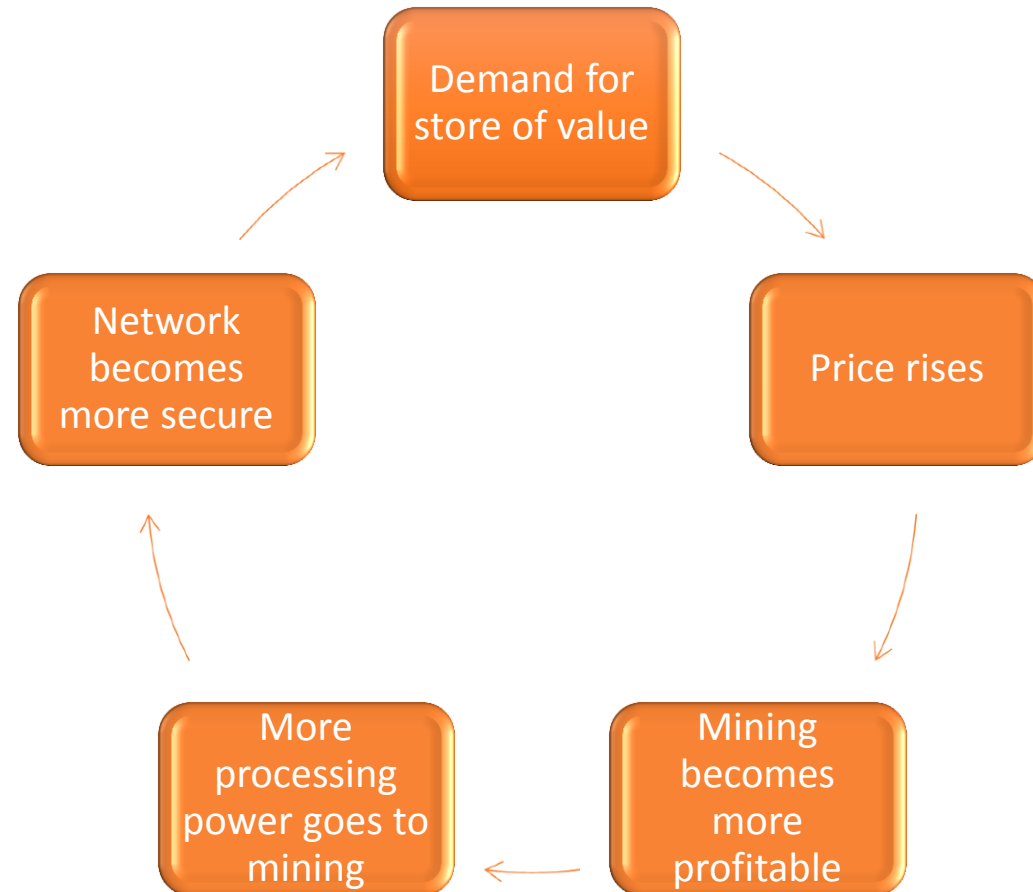
- The more something is chosen as a store of value the more its production increases at the margin...

EXCEPT BITCOIN

- When Bitcoin is chosen as a store of value, its value goes up, but more production is not possible
- Instead: The *difficulty* of mining new bitcoin increases, making Bitcoin harder to produce!
- This incentivizing more processing power to produce Bitcoin, making the network more secure.

How secure is Bitcoin

- Bitcoin is in a positive-feedback loop of economic incentives:



How secure is Bitcoin

- Bitcoin is in a positive-feedback loop of economic incentives:
- The processing power to secure only 500,000 transactions per day:
 - 31.3 Exahashes/s
 - ~ 4,000,000 x the world's top supercomputer
 - ~ 400,000 x the world's top 500 supercomputers combined
 - ~ 4 trillion x your laptop
- The same transactions can be done on a single computer. But Bitcoin does it without relying on anyone or anything.

How secure is Bitcoin

- No single point of failure
- No single piece of critical hardware or infrastructure
- No single critical individual or organization
- Bitcoin cannot be stopped—a protocol always open to anyone who wants it
- around every 10 minutes, a new block of transactions is released. Has never failed.
- The hardest money ever invented is available worldwide for anyone with an internet connection

1. Bitcoin's monetary uniqueness

- The hardest money ever invented
- Unlike all other moneys, increased demand cannot increase production
- Instead, increased demand just makes it more secure & impossible to stop
- Available worldwide for anyone with an internet connection
- Purely voluntary, does not need regulation, enforcement, or police
- By being chosen freely on the market because of its scarcity, and having its price determined freely through buying and selling, Bitcoin meets the criteria of Menger, Hayek, and Mises for *sound money*.

2. What is Bitcoin good for?

1. Store of Value:

- First strictly scarce liquid asset
- Only two things are genuinely scarce: time and bitcoin.
- For the first time, you can store the value produced from your time in a store of value that nobody can create more of.
- Our most advanced technology for preserving the value of time into the future

2. What is Bitcoin good for?

2. Individual sovereignty:

In the short-term:

- Much harder to confiscate
- Easy to send around the world
- Allows citizens everywhere a low-risk low-key option to opt out of wealth confiscation and inflation

3. What is Bitcoin good for?

2. Individual sovereignty:

In the long term

- Severely curtails government's ability to finance itself through inflation
- Taxation must come before spending
- Undoes the twentieth century

2. What is Bitcoin good for?

3. A decentralized, free market alternative to central banks & gold
 - This is not speculation or a prediction.
 - The Bitcoin Standard is already securely operational.
 - The majority of Bitcoin transactions do **NOT** happen on the Bitcoin blockchain, they are settled offchain by payment processors, exchanges, and websites utilizing Bitcoin.

2. What is Bitcoin good for?

3. A decentralized, free market alternative to central banks & gold
 - Over time, Bitcoin on-chain transactions might increase, but only marginally.
 - Bitcoin off-chain transactions can increase exponentially.
 - As liquidity and people willing to accept Bitcoin as payment increase, the contours of an alternative global payment system will begin to develop

2. What is Bitcoin good for?

Friedrich Hayek, in 1984:

I don't believe we shall ever have a good money again before we take the thing out of the hands of government, that is, we can't take it violently out of the hands of government, all we can do is by some sly roundabout way introduce something that they can't stop.²⁵

What would a Bitcoin Standard Look Like?

1. Low time preference

- Easy money loses value & encourages short-termism and consumerism
- Hard money gains value & encourages long-termism and capital accumulation
- Hard money lowers time preference, but does not eliminate it.
- People will still spend, but less frivolously



What would a Bitcoin Standard Look Like?

1. Low time preference

- Low time preference “initiates the process of civilization”

Hard money → Saving → Capital accumulation → Higher productivity → Better material living standards

What would a Bitcoin Standard Look Like?

1. Low time preference

- Time preference is not just an economic factor:
- Personal morality, technology, culture, art, and music are all a reflection of time preference.
- Once material needs are met, humans can focus on flourishing beyond survival: family, society, culture, art, music
- Civilization is built by low time preference people operating with sound money.
- It is destroyed by high time preference generations thinking short-term
- Capital accumulation is not the point of civilization, it is the means to it

What would a Bitcoin Standard Look Like?

2. Limited government

- Capital is no longer physical, but informational, thus easy to move in search of best governance
- Classical liberal limited government, or even beyond that towards government being built on consent (Anarchism).
- Swissification of the world

What would a Bitcoin Standard Look Like?

3. Functioning price mechanism:
capitalism's
information system

- Hard money is the solution to the business cycle

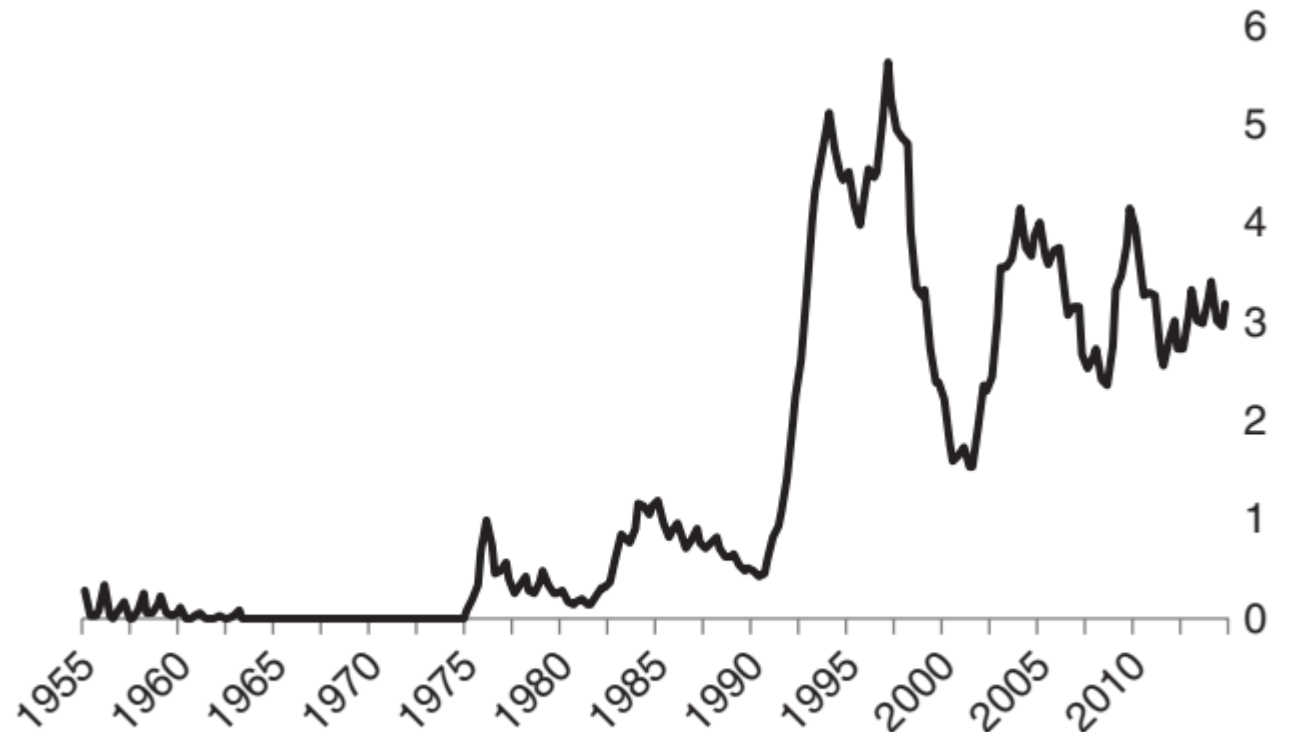


Figure 13 Unemployment rate in Switzerland, %.

What would a Bitcoin Standard Look Like?

3. Functioning price mechanism: capitalism's information system
 - Since the end of the gold standard, global trade has not had a neutral standard, effectively uninventing one of the humanity's most remarkable achievements: a global neutral money.
 - We now have a system of 'partial international barter'
 - Fluctuations in currency prices are more important than fundamentals for businesses
 - FX market around \$1,860trillion, around 25x GDP.

What would a Bitcoin Standard Look Like?

3. Functioning price mechanism: capitalism's information system
 - The dollar standard gives the US an “exorbitant privilege”, running eternal “deficits without tears”
 - Bitcoin is hard money and final settlement, not anyone's liability. Like gold, not credit money.
 - Banks can either settle in government money, which is government liability & easy money; or in gold, which is hard money, but hard to move
 - Global settlement in < 1 hour, much faster than gold & government money

What would a Bitcoin Standard Look Like?

3. Functioning price mechanism: capitalism's information system
 - Politically neutral censorship-free settlement which separates politicians' morality from people's money
 - Automated monetary policy
 - A free market in money, savings, capital, and investments.

Thank you!

- Book is available online and soon in stores
- Website: Saifedean.com
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