

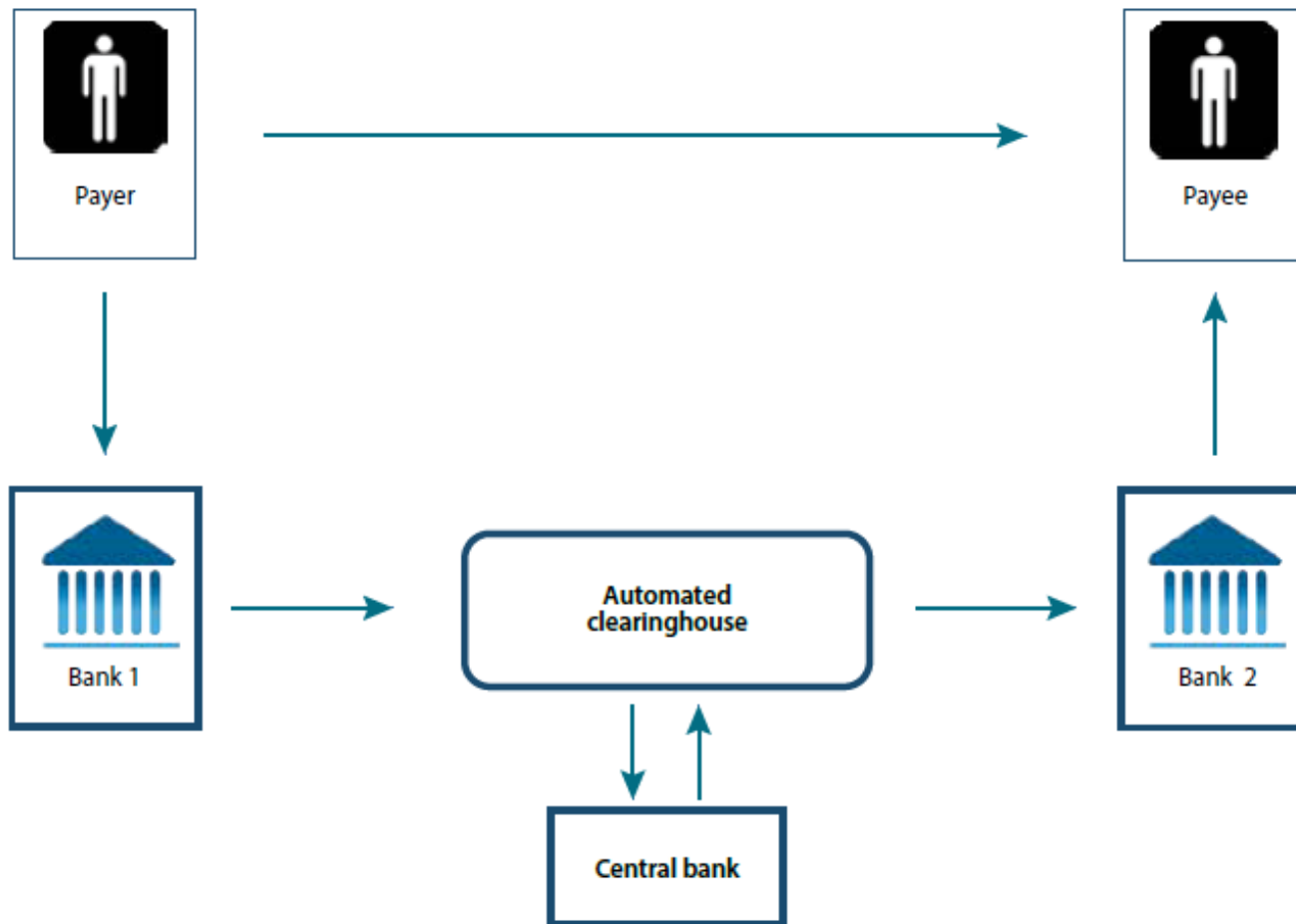
Do Digital Currencies Pose a Threat to Sovereign Currencies and Central Banks

Daniel Heller

April 2017



Figure 2 Traditional payment process with intermediation



Definition of a Digital Currency



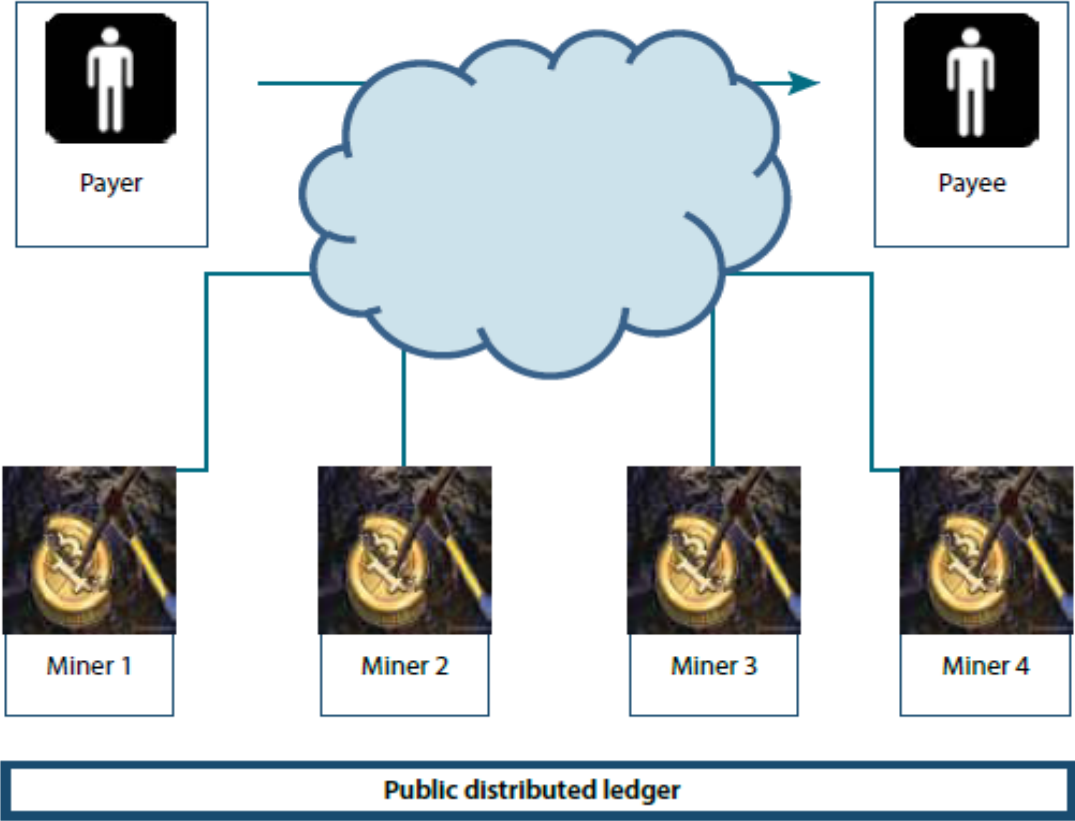
«Digital currencies are assets that are not a liability of any individual or institution, nor are they backed by any authority».

«In contrast to commodities, they have zero intrinsic value».

CPMI report on digital currencies (2015)



Figure 3 Peer-to-peer settlement in bitcoin





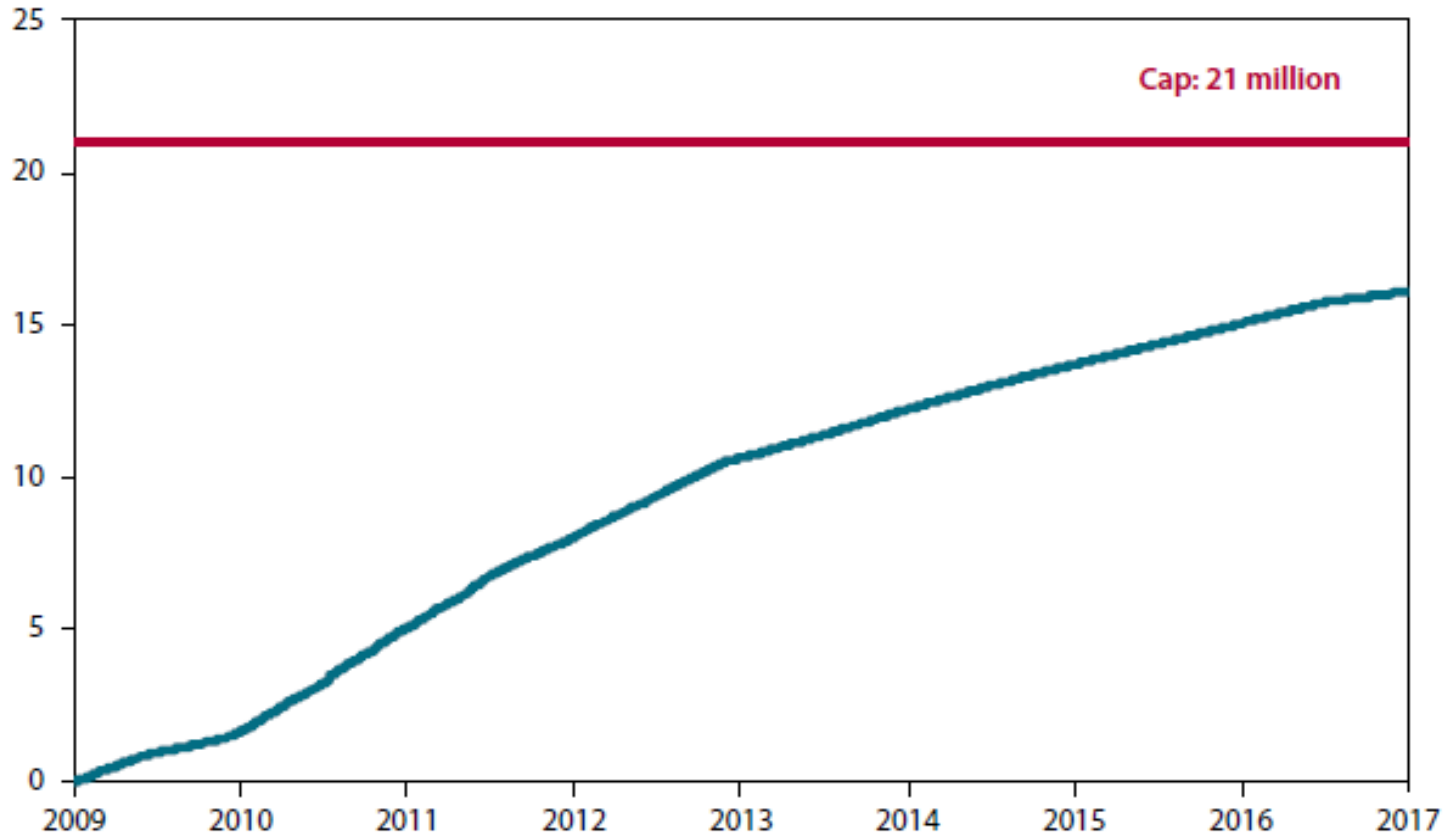
Transaction Processing

- Dual role of miners:
 - i. Validation of transactions
 - ii. Record keeping
- Every 10 minutes the latest transactions are packaged in a file (block)
- System selects one miner to create a block:
 - Receives 12.5 newly issued coins as compensation
 - This block reward is cut in half every 4 years



Figure 4 Volume of bitcoin in circulation, January 2009–February 2017

millions of bitcoin

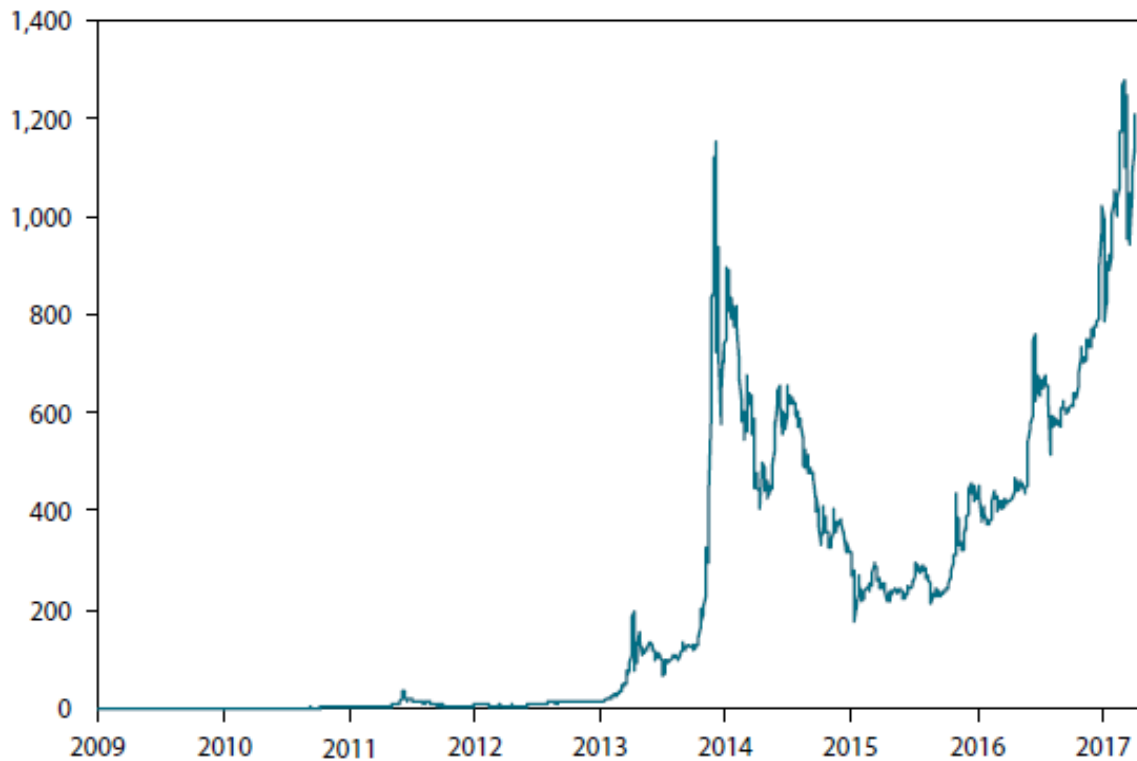


Source: blockchain.info.



Figure 5 Price of bitcoin in dollars, January 2009–April 2017

US dollars/bitcoin

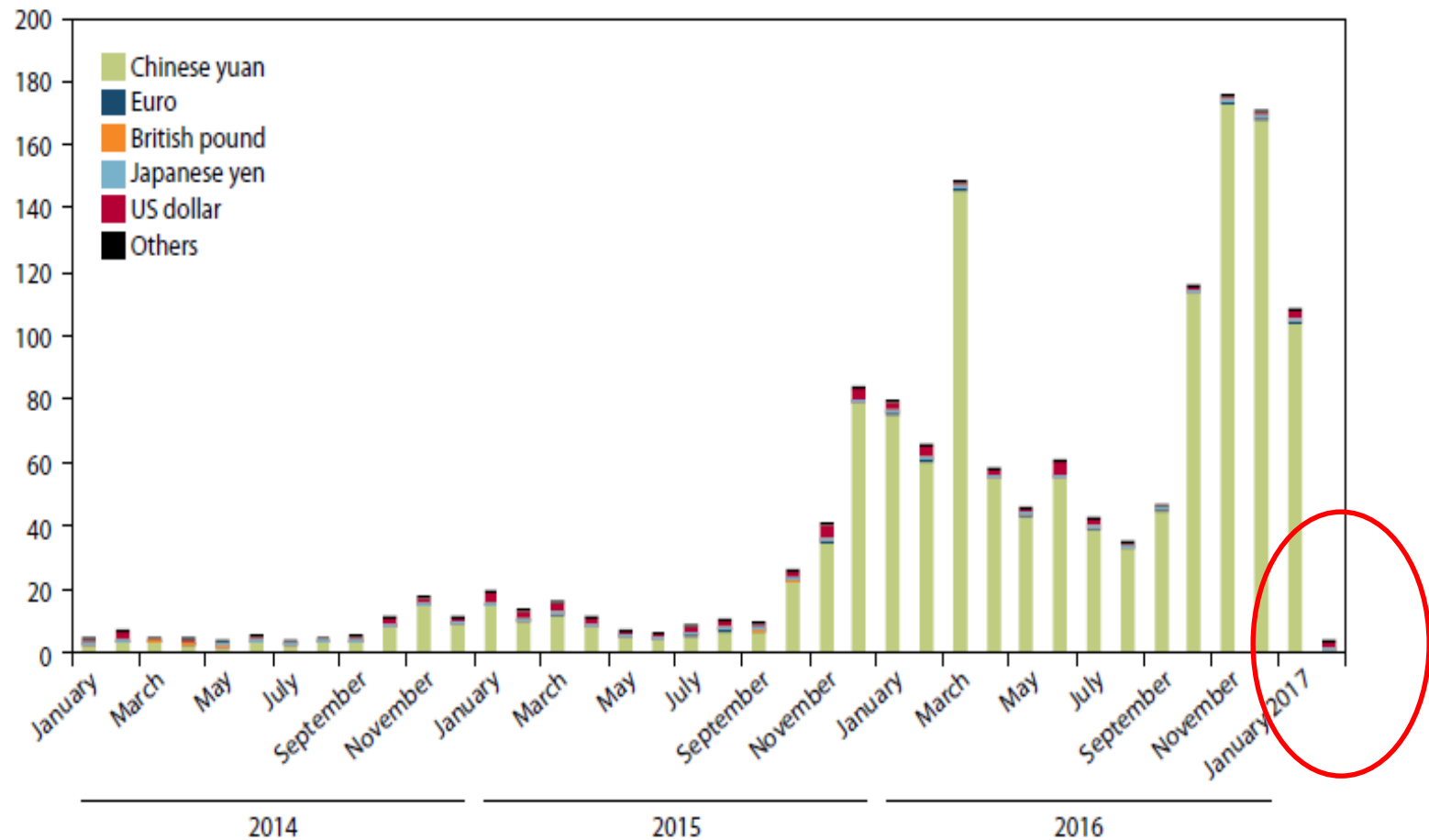


Source: blockchain.info.



Figure 7 Volume of bitcoin trading, by currency, January 2014–February 2017

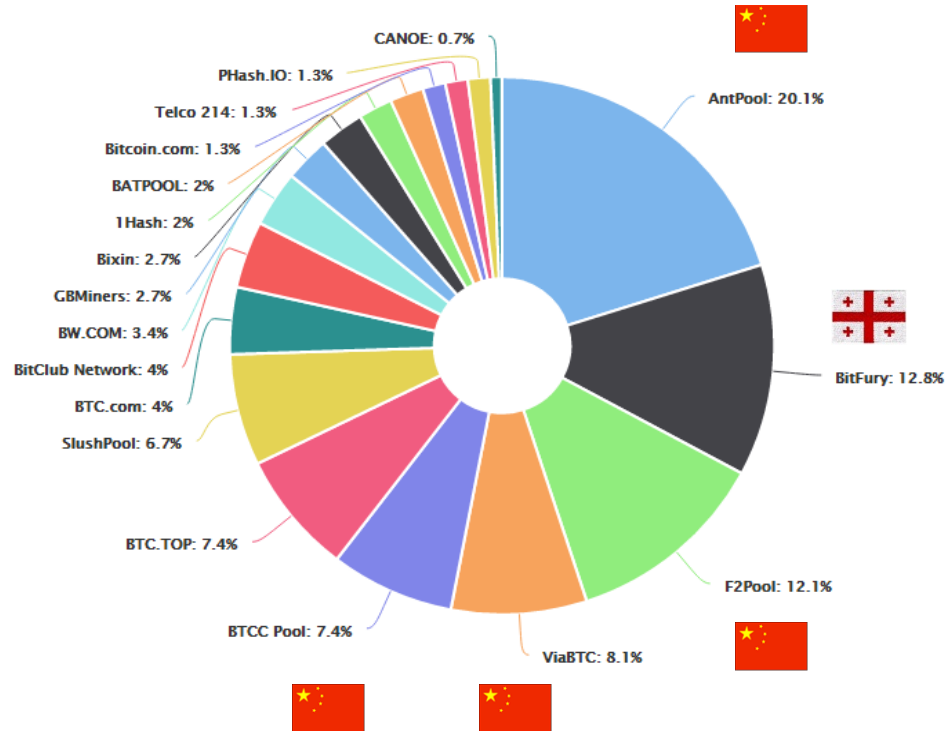
millions of bitcoin



Source: data.bitcoinity.org.



Location of Miners

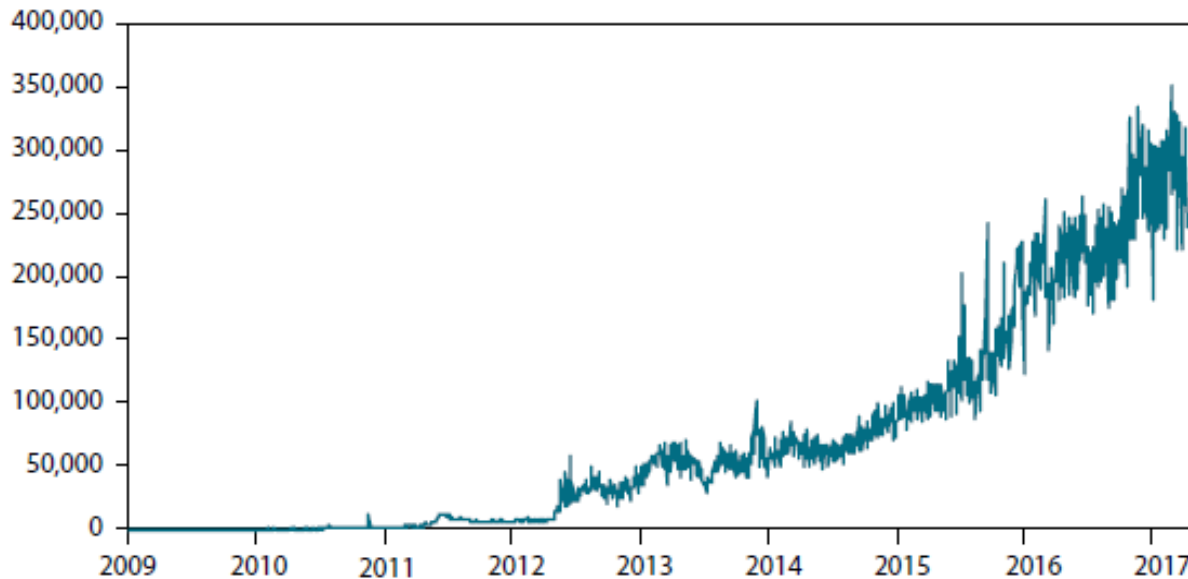




Bitcoin as Medium of Exchange

Figure 6 Number of bitcoin transactions per day, January 2009–April 2017

number of daily transactions



Source: blockchain.info.

Number of Electronic Transactions per day in 2015



Country	Non-bank Credit Transfers millions	Cards millions
Brazil	28	33
China	17	80
Korea	11	41
Sweden	3	8
United States	27	268
Source: CPMI 2016		



Bitcoin as Unit of Account

- The unit of account is the numéraire of an economy
- Prices of goods and services, but also wages are denominated in the numéraire
- Bitcoin is not used as a unit of account



Bitcoin as a Store of Value

- Bitcoin is a high risk asset as its price is extremely volatile
- There is no central bank to dampen price movements
- The supply cap would lead eventually lead to a deflationary environment



Conclusion

- Historically, sovereign currencies have often been challenged, e.g. when quality of coins was poor or inflation high.
- There is no indication at the moment that Bitcoin can exhibit qualities that are equal or superior to well-managed sovereign currencies.