



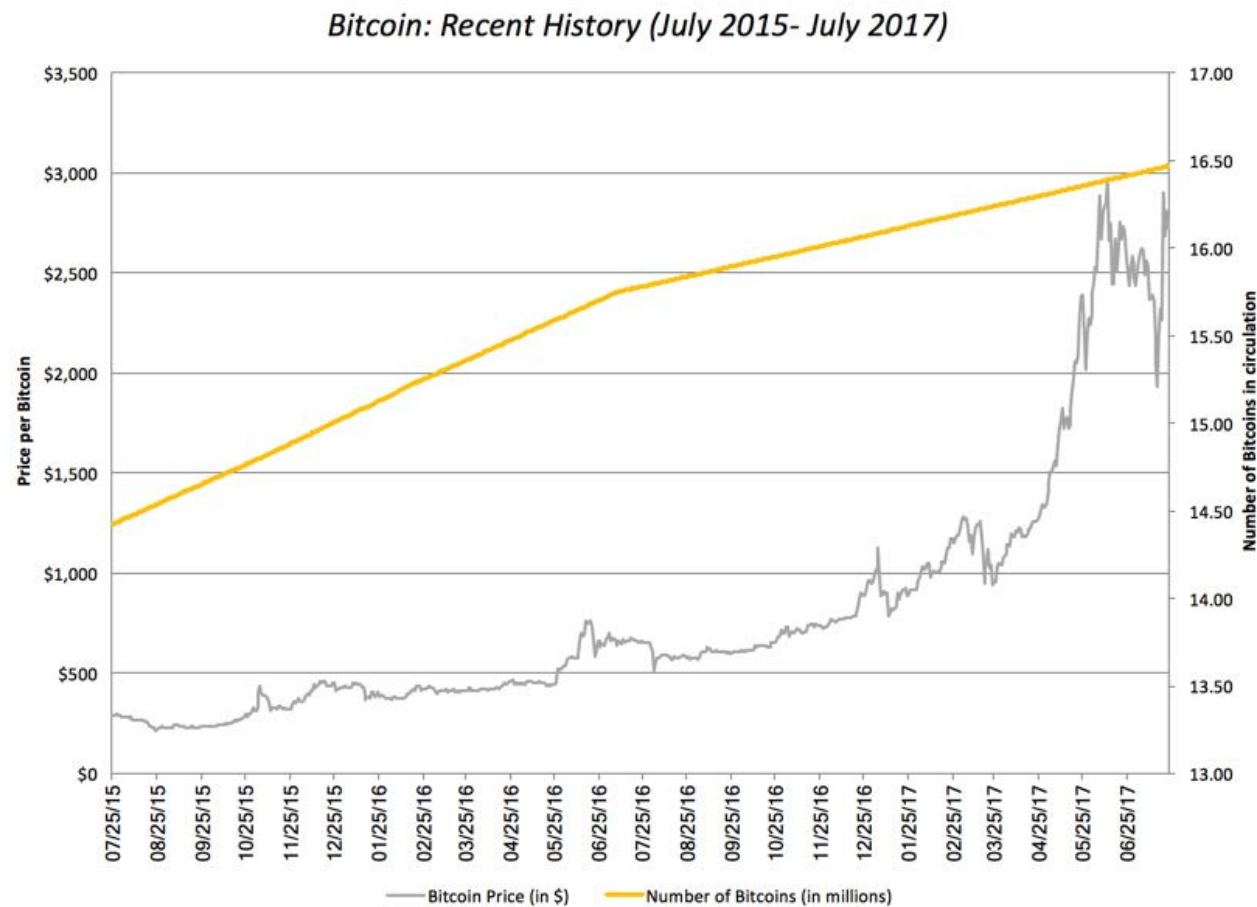
# CRYPTO CURRENCIES: FLASH IN THE PAN OR THE FUTURE OF CURRENCY?

Hype, hope and disappointment

# The Rise of Crypto Currencies



# And the bloom is not off the rose, yet..

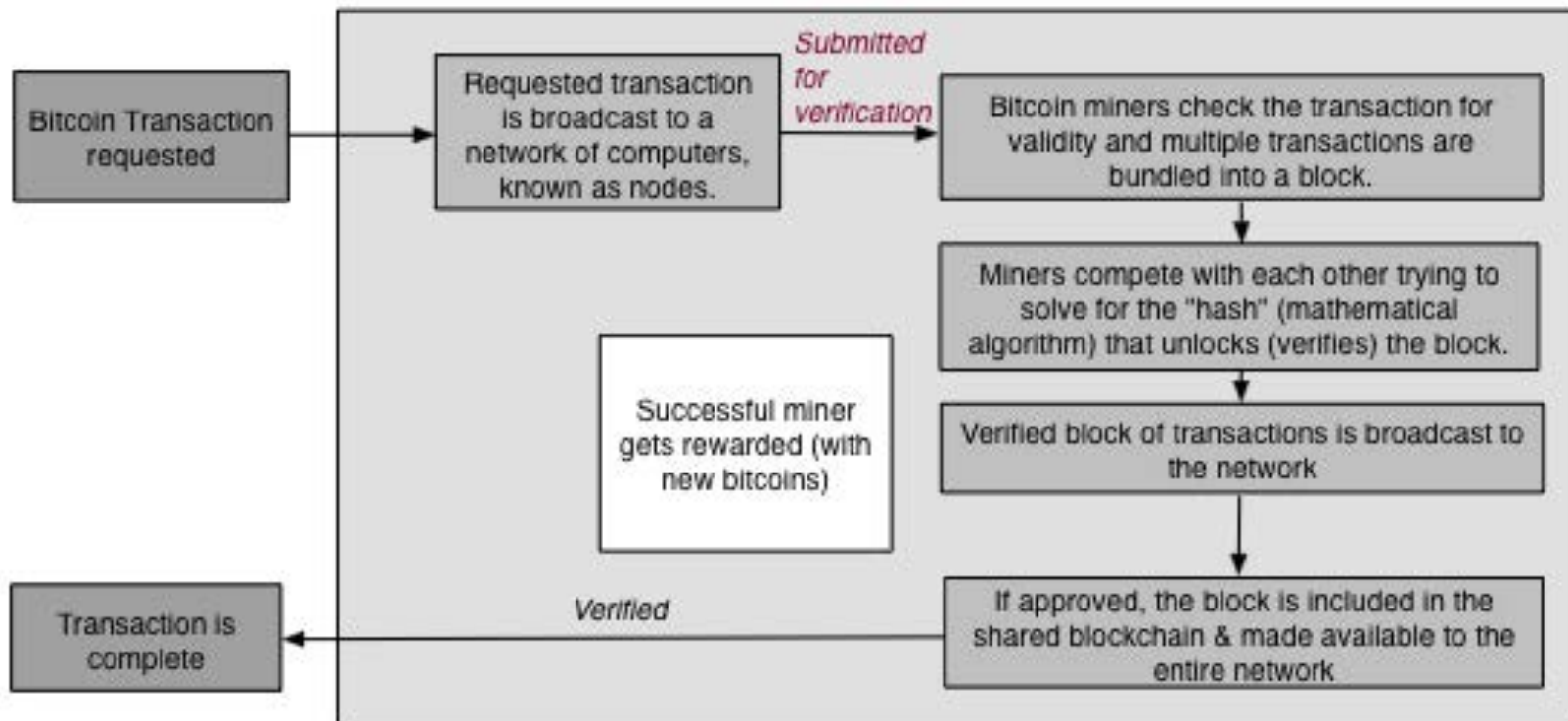


# A Newcomer rises too...



# The Architecture behind the Crypto Currencies..

## The Transaction



# The Block Chain: Characteristics

- ❑ Decentralized verification: The validation of a transaction is sourced to members, called miners in the crypto currency world. Validation usually involves trying different algorithms (hashes) to find the unique one that matches the transaction block, and the successful miner is rewarded, currently with the crypto currency.
- ❑ Complete and open records: Every transaction, once validated, is converted into a block of data that is recorded in the block chain ledger, which is accessible to everyone in the network. If you are worried about privacy, the transaction records do not include personal data but take the form of encrypted data (hashes).
- ❑ Incorruptible: A block chain, once recorded and shared, cannot be changed since those changes are visible to everyone in the network and are quickly tagged as fraudulent. Thus, the ledger, once created, becomes almost incorruptible.

# The Future of Blockchain

- In effect, a block chain is a digital intermediation process where transactions are checked by members of the network, and recorded, and once that is done, cannot be altered fraudulently.
- The block chain technology is about far more than crypto currencies. It can be used to record transactions in any asset, from securities in financial markets to physical assets like houses, and do so in a way that replaces the existing intermediaries with decentralized models.
- Banks and stock exchanges, which make the bulk of their money from intermediation, not only see block chains as a threat to their existence but have been early investors in the technology, hoping to co-opt it to their own needs.

# Currency 101: The Purposes of Money

- Unit of account: A key role for a currency is to operate as a unit of account, allowing you to value not just assets and liabilities, but also goods and services. To be effective as a unit of account, a currency has to be fungible (one unit of the currency is identical to any other unit), divisible and countable.
- Medium of exchange: Currencies exist to make transactions possible, and this is best accomplished if the currency in question is easily accessible and transportable, and is accepted by buyers and sellers as legal tender. The latter will occur only if people trust that the currency will maintain its value and if transactions costs are low.
- Store of value: To the extent that you hold some or all of your wealth in a currency, you want to feel secure about leaving it in that currency, knowing that it will not lose its buying power while stored.



# Good versus Bad Currencies

- Forms: Currencies can take one of three forms, a physical asset (gold, silver, diamonds, shells), a fiat currency (usually taking the form of paper and coins, backed by a government) and crypto or digital currencies.
- The Survivor: Gold's long tenure as a currency can be attributed to its strength as a store of value, arising from its natural scarcity and durability, though it falls short of fiat currencies, in terms of convenience and acceptance, both as a unit of account and as medium of exchanges.
- The Fiat Currencies: Fiat currencies are backed by sovereign governments and consequently can vary in quality as currencies, depending upon the trust that we have in the issuing governments.

# How do crypto currencies measure up?

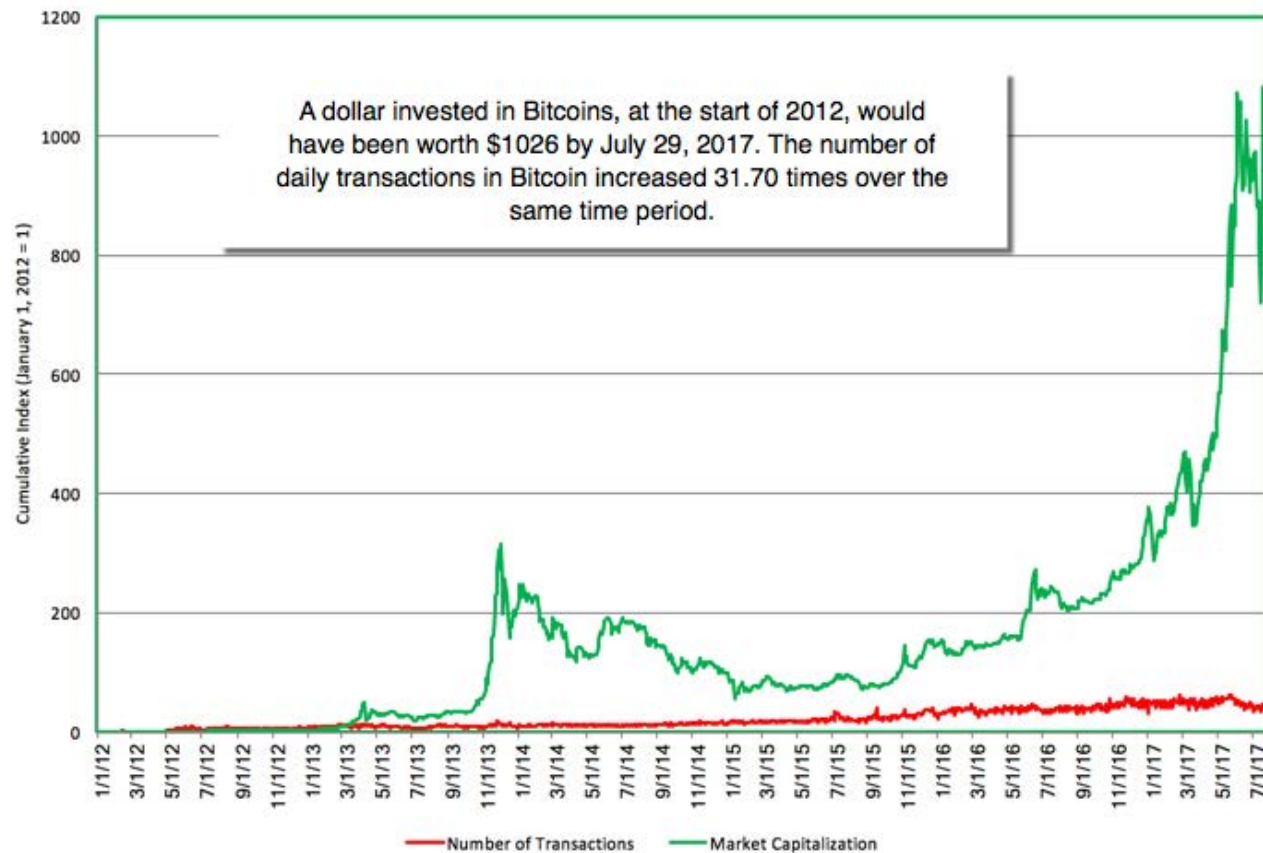
- As units of account, there is no reason to doubt that they can function, since they are fungible, divisible and countable.
- The weakest link in crypto currencies has been their failure to make deeper inroads as mediums of exchange or as stores of value.
- Using Bitcoin, to illustrate, it is disappointing that so few retailers still accept it as payment for goods and services. Even the much hyped successes, such as Overstock and Microsoft accepting Bitcoin is illusory, since they do so on limited items, and only with an intermediary who converts the bitcoin into US dollars for them.

# Why the slow acceptance?

- Inertia: Fiat currencies have had a long run, and it is not surprising that for many people, currency is physical and takes the form of government issued paper and coins.
- Price volatility: Crypto currencies have seen and continue to see wild swings in prices, not a bad characteristic in a traded asset but definitely not a good one in a currency.
- Competing crypto currencies: The crypto currency game is still young and the competing players each claim to have found the "magic bullet" for eventual acceptance. As technologies and tastes evolve, you will see a thinning of the herd, where buyers and sellers will pick winners, perhaps from the current list or maybe something new.

# The Disconnect

*The Bitcoin Disconnect: Speculative Investment vs Budding Currency?*



# Explaining the Disconnect

- Markets are forward looking: Market are forward looking and that the rise in the prices of Bitcoin and Ether reflects market expectations that they will succeed as currencies, if not right away, in the near future.
- Speculative asset: In the value game, you try to attach a value to an asset based upon fundamentals, and in the pricing game, it is mood and momentum that drive the process. Crypto currency markets are pure pricing games, where fundamentals have been long since forgotten
- Loss of trust in centralized authorities (governments & central banks): Gold has held a special place in the currency continuum, often being the asset of last resort for people who have lost faith in fiat currencies. For some people (especially younger and more technologically inclined), bitcoin and ether are playing the same role.

# Gold versus Crypto Currencies

- Time tested? Gold has held its value through the centuries and is a physical asset. For better or worse, it is unlikely that we will decide a few years from now that gold is worthless.
- The Currency Test: A crypto currency that few people use as currency ultimately will not be able to sustain itself, as shiner and newer versions of it pop up. Ironically, if traders in bitcoin and ether want their investments in the crypto currencies to hold their value, the currencies have to become less exciting and lucrative as investments, and become more accepted as currencies.

# Key tests for success in crypto currencies..

- Transaction, not trading, talk: From creators and proponents of the currency, you will hear less talk about how much money you would make by buying and selling the currency and more on its efficacy in transactions.
- Transaction, not trading, features: The design of the crypto currency will focus on creating features that make it attractive as a currency (for transactions), not as investments.
- Trust in something: To be effective as a currency, you do need to be able to trust in something and perhaps accept compromises on privacy and centralized authority (at least on some dimensions of the currency).

# The Cap Effect: An Acid Test

- Bitcoin and ether miners have been willing to put in the effort to validate transactions because they are rewarded with issues of the currency, feasible now because there is slack in the currency (the current number is below the cap).
- As the cap becomes a binding constraint, the rewards from miners have to come from transactions costs and serious thought has to go into currency design to keep these costs low.



# A “Fair” price for Crypto Currencies

- A fair exchange rate between two fiat currencies will be on that equalizes their purchasing power, an old, imperfect and powerful theorem.
- If you are paying \$2,775 for a bitcoin on August 1, 2017, is whether you can (or even will be able to) but \$2,775 worth of goods and services with that bitcoin.
  - If you believe that bitcoin will eventually get wide acceptance as a digital currency, you may be able to justify that price, especially because there is a hard cap on bitcoin
  - If you don't believe that bitcoin will ever acquire wide acceptance in transactions, it is time that you were honest with yourself and recognized that is just a lucrative, but dangerous, pricing game with no good ending.

# Digital Currencies

- Not there yet: Crypto currencies, with bitcoin and ether leading the pack, have succeeded in financial markets by attracting investors, and in the public discourse by garnering attention, but they have not succeeded (yet) as currencies.
- But they are coming: There will be one or more digital currencies competing with fiat currencies for transactions, sooner rather than later. I am hard pressed to find a winner on the current list, right now, but that could change if the focus shifts from trading to transactions.
- Winner could be a new entrant: If that does not happen, we will have to wait for a fresh entrant and the most enduring part of this phase in markets may be the block chain and not the currencies themselves.