Introduction

Bitcoin hit a record high of US$ 64,804.72 on 14th April '21. However, concerns over the environmental impact of bitcoin mining and regulatory crackdown in China, the world's biggest digital asset has corrected close to 50% from its all-time high. Although digital tokens remained under heavy selling pressure in the month of June, the blockchain community continued to build and we have had some important technological updates in both Bitcoin and Ethereum. In this newsletter, we discuss Taproot Upgrade for Bitcoin, EIP 1559 for Ethereum, and The Chinese Ban and its impact on the digital assets market.

Bitcoin – Taproot Upgrade

After Segwit’s Upgrade in 2017, Bitcoin is set for its most anticipated improvement plan, i.e., the Taproot Upgrade. This upgrade is locked in to go live in November, with over 90% of the miners signaling the support for this soft fork. In the most basic sense, this upgrade is a bundle of several improvement proposals that seek to give greater privacy to the network, help in making transactions faster, easier and cheaper, and most importantly, allow the network to support the deployment of complex smart contracts.

What is Taproot Upgrade?

The Taproot upgrade was first proposed in 2018 by Gregory Maxwell, a Bitcoin Core (BTC) contributor, and former chief technology officer at Blockstream. To understand the Taproot upgrade, first, we need to understand how does a transaction work on the Bitcoin Network.
Once these transactions are authorized, all the details are posted on to the public blockchain. All this data makes the blockchain bulky and reveals all the transaction details, including the wallets involved.

**What is the Current Status and How will Taproot Add Value?**

With Taproot, all parties in a transaction can cooperate to make these complex transactions look like standard, person-to-person transactions. They’d do so by combining their public keys to create a new public key and combining their signatures to create a new signature. It does this through a device called **Schnorr signatures**. This would enhance privacy while reducing the amount of data, thereby lowering transaction costs that have become much higher as Bitcoin has become popular.

Currently, having smart contracts on bitcoin’s core protocol layer is not exactly feasible since it is expensive and time-consuming. Taproot upgrade will allow complex smart contracts to take up less space on the network. Technologically speaking, the bitcoin network currently uses the **Elliptic Curve Digital Signature algorithm** which occupies more space. It will be switched over to the ‘Schnorr signatures’ that will make the complex transactions potentially indistinguishable from simple transactions. It would mean greater anonymity in the network while maintaining transparency.

In order for the upgrade to pass, it needed 90% of the mined blocks during the period to include data known as a “signal bit”. If the threshold wasn't met, miners get another chance during the next two-week period, up until August 11 to reach the target. After multiple failed attempts to reach the **90% threshold**, the network’s miners finally managed to breach the target on 12th June ‘21, with 2 months to spare. If all goes well, the taproot upgrade is expected to go live in mid-November.

**Ethereum Upgrade – EIP 1559**

The most expensive blockchain to use in the world is Ethereum. Users pay in total over **US$ 5mn** per day in transaction fees to interact with the Ethereum blockchain. In comparison, only **26%** of this amount is spent by individuals and businesses on Bitcoin, the world’s first and largest cryptocurrency by market capitalization.

Ethereum just like Bitcoin is also ready for an important upgrade which is termed the “London Upgrade”. This upgrade has an important code change which is the **Ethereum Improvement Proposal (EIP) 1559**. At its core, EIP 1559 will aim to make the gas fee (transaction fee) less volatile and more predictable. EIP 1559 is already live at the Ropsten testnet and is **scheduled** to be live on the mainnet by July end.

**What is EIP 1559?**

On Ethereum, all operations require gas which is set by the network. The amount of gas required is proportional to the amount of computational resources required to perform the operation. Whenever a transaction is sent by a user he needs to enter a specific “gas price” that he is willing to pay for getting his transaction included in the blockchain. The higher the gas price, the faster a user’s transactions will get executed on the blockchain. In this way, Ethereum’s fee market resembles
an auction. These transaction fees go to the miners of the ethereum network as a part of the block rewards. Due to this auction mechanism and the growing ETH ecosystem, the Ethereum network is becoming congested and high gas prices. Owing to this scalability challenge and highly volatile transaction fees, the developer community of ETH proposed EIP 1559.

EIP 1559 would replace the auction system of the gas price with a new transaction price mechanism based on gas rates. This would introduce a concept of base fee – a dynamic rate of conversion from gas to gwei – into the Ethereum protocol, which would vary according to the activity on the network.

**Base Fee**
The base fee is the minimum gas price required for users to send a transaction or complete an operation on Ethereum under EIP 1559. It will vary in accordance with the utilization of the block that is being generated. The maximum block size is a cap on the total amount of computation (represented by gas amount in transactions) that any block can contain. Currently, this maximum is set at 15 million gas. In times of high volume, this can increase up to a maximum of 30 million gas. Every time the block mined has more than 15 million gas, the base fee will increase maximum by 12.5% according to the protocol. Assuming a new block is produced every 3 sec, the base fee can increase by a factor of 10 in 5 minutes if the network utilization remains high. Similarly, if the network utilization remains under 15 million gas, the base fee will keep reducing by 12.5% with every block that gets mined.

**The Burning Mechanism**
The base fee can only be paid in the native tokens of the network which is ETH. With this new upgrade, once paid, the base fee is burned and permanently removed from the total circulating supply of ETH. This burning mechanism will help in putting downward pressure on the ETH supply. In addition to the base fee, users can give an inclusion fee (or tip) to the miners as an incentive to include their transactions on priority. This fee will be independent of any network parameter and will be optional. This fee would directly go to the miners for including that transaction on priority over others.

Let’s estimate how much ETH burn can be expected post EIP 1559 –

Average Transaction fees currently - 5k ETH/Day

Average Base Fee - According to an Ethereum Foundation Researcher's report, we can assume that the base fee would range between 50-80% of the current transaction fees. Let’s assume it to be 60%, which translates to 3k ETH/Day being burned post the upgrade.

**Inclusion Fees**
The inclusion fee is primarily for users or businesses which require fast transaction confirmation. Its importance would increase when the base fee is nearly zero and there is little to no filtering of non-paying transactions. When the base fee is excessively low, users must compete for scarce block space through their tips, and the 1559 mechanism effectively reverts back to a first-price auction.
Why EIP 1559?

- **Supply Pressure** - EIP 1559 will act as a counterbalance to the increasing supply of Ethereum. Theoretically, Ether has an unlimited supply that comes into existence via mining rewards. With base fee burn, we should expect Eθ supply to grow at a lesser rate. As of June ‘21, supply growth is ~4% annually. In times of high network activity, the ETH burned via payment as base fee could be greater than the block rewards resulting in negative growth of ETH Supply.

  ![ETH's Annualized Issuance Rate](image)

  ETH's Annualized Issuance Rate Is Almost Always Higher Than BTC's

- **Gas Price Stability:** In the current system, gas prices are left to users which can skyrocket the gas fees in a very short duration. But with EIP 1559, the increase and decrease in gas price would happen by 1.125x only after each block. This introduces stability and predictability to Ethereum's volatile fee market. However, it is not expected to reduce transaction fees on Ethereum.

- **Optimized Block Sizes:** As of 17th June '21, there were over 150,000 transactions waiting to be processed on Ethereum. Due to each block's limited capacity, miners selectively choose the highest paying transactions in this queue to process first. Under the current Ethereum fee market, in order to expand block capacity to include more pending transactions and their fees, miners have the ability to incrementally adjust the block gas limit and expand the number of transactions processed in a block. The block gas limit has been raised a total of six times since the launch of Ethereum in 2015. But with increased block size, computational requirements to process each block increases making it burdensome for validators. With EIP 1559, the block size would become dynamic and will float between 0 gas and 30 million gas. At the time of the high network congestion, block size would be increased to 30 million gas within moments, without any lag time.

Post EIP 1559, it would be interesting to see whether Ethereum becomes deflationary at some point. Theoretically, this will happen when the base fee getting burned becomes greater than the block rewards generated to include the block to the network.
**Web 3.0**

Web 3.0 is slated to be a new paradigm in web interaction and will mark a significant change in how developers create websites, software, protocols, and, more importantly, how people interact with these protocols and websites. It could leverage peer-to-peer (P2P) technologies like blockchain, open-source software, virtual reality, the internet of things (IoT), and more. Web 3.0 also aims to make the internet more open and decentralized. In the current framework, users have to rely on network and cellular providers that surveil the information going through their systems. With the advent of distributed ledger technologies, that soon might change, and users could take back ownership of their data.

With digital asset markets running 24x7 across different exchanges, blockchains, and protocols, it becomes extremely important to get accurate data from this mesh. Projects like Covalent are working on solving this problem by being a real-time data provider. If you are new to blockchain and would like to understand more about Web 3.0 and Covalent read our investment thesis on Covalent.

**The China Factor**

Last month, we de-mystified the recent price correction in the digital assets market. One of the likely drivers for this price fall was China's crackdown on Bitcoin mining and trading activities. In this month's newsletter we explore:

- China's policymakers' history with digital assets
- The influence of the Chinese community in the digital asset space (pre-ban)
- The mining and trading ban along with the other anti-crypto moves from the Chinese government
- The short and long term impacts of these policies

### China's Tumultuous History with Bitcoin

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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</table>
| 2013 | - The People's Bank of China (PBOC) and four other ministries and agencies announced that financial institutions were barred from offering services related to Bitcoin.  
- This meant that these institutions could not use Bitcoin, exchange it for fiat currency, or act as a facilitator for Bitcoin payments.  
- However, citizens were free to buy and sell Bitcoin. |
| 2017 | - PBOC banned citizens from trading on digital token exchanges and declared Initial Coin Offerings (ICOs) as illegal.  
- Trading on domestic exchanges was banned, however, Over-The-Counter (OTC) transactions were permitted.  
- This ban expanded restrictions beyond Bitcoin to cover all cryptocurrencies. |

Over the years, critics would often refer to these bans to discredit the digital asset markets. Furthermore, the ecosystem has seen multiple waves of conversation around China's bans. Despite these unfavorable regulatory signals, the Chinese blockchain community of miners, traders, and builders grew strong.
Status Quo Before the Ban

Miners
Cheap electricity from hydro and coal, along with some legal grey areas, had encouraged Bitcoin mining to explode in the country.

As of April ‘20, the Cambridge Bitcoin Electricity Consumption Index reported that China hosts 65.1% of the global hash rate for Bitcoin. Chinese blockchain mining equipment makers are also market leaders with Canaan and Ebang trading on Nasdaq.

Traders
Getting data about the trading demand from China is slightly difficult, however, a Chainalysis report from August ‘20 revealed that East Asia accounted for 31% of all cryptocurrency transacted for a period of 12 months. Another proxy for the Chinese traders and investors’ appetite for digital currencies could be the performance of Huobi and OKEx which cater to the Chinese community. As of 27th June ‘21, 39.5% of Huobi’s desktop traffic was from China. This number stood at 31.6% for OKEx.

Builders
Cointelegraph’s Venture Capital report reveals that blockchain projects from the US, UK, and China accounted for 68% of the venture capital raised between 2012–2020. The presence of Fenbushi Capital, IOSG Ventures, NGC, LD Capital, Sino Global Capital, etc shows the demand for blockchain VCs and hence the strength of the blockchain start-up community in China.
# The Ban

## What is the Chinese Mining Ban?

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>May '21</td>
<td>- Three financial authorities of China reiterated their stance on banning crypto services according to the rules from the 2013 and 2017 policies.</td>
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<td>- Some services in the recent notice, such as purchasing crypto with fiat currencies and setting up crypto funds, were not included in the 2017 ban.</td>
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<tr>
<td>May '21</td>
<td>- <strong>Liu He</strong>, a Chinese Vice Premier, hosted a meeting of the Financial Stability and Development Committee of the State Council.</td>
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<tr>
<td>21st</td>
<td>- “We should be more alert and look for potential risks,” according to a statement posted on the website after the meeting. “We should crackdown on bitcoin mining and trading activities and prevent individual risks from being passed to the whole society.”</td>
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<tr>
<td>May '21</td>
<td>- <strong>Inner Mongolia’s</strong> draft rule targets industrial parks, data centers, telecom companies, internet firms, and even cyber cafes.</td>
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<tr>
<td>26th</td>
<td>- It promises to punish bitcoin miners or those providing resources to miners by banning them from the region’s power trading scheme, revoking business licenses, and even shutting their businesses down completely.</td>
</tr>
<tr>
<td>June '21</td>
<td>- <strong>Qinghai’s</strong> local government cited the central government’s concerns about high energy-consuming industries and environmental pollution as well as the State Council’s directive to maintain financial stability by cracking down on crypto mining and trading as the two reasons why they will eliminate all mining activities in the province.</td>
</tr>
<tr>
<td>9th</td>
<td>- <strong>Xinjiang</strong> issued a notice to its subordinate government officials and instructed them to shut down all crypto mining activities under their administration.</td>
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<tr>
<td>June '21</td>
<td>- <strong>Yunnan</strong> issued a notice ordering a probe into misappropriation and unauthorized use of electricity by bitcoin miners, vowing punishment.</td>
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<tr>
<td>12th</td>
<td>- <strong>Sichuan</strong> order to crack down on crypto mining operations in the province.</td>
</tr>
<tr>
<td>18th</td>
<td>- It was one of the largest <strong>hydro-based crypto mining</strong> hubs in China.</td>
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</tbody>
</table>

The regions mentioned in the table above accounted for 59% of the total hash rate for Bitcoin according to April '20 data.

What is interesting to note about this ‘ban’, is that there is no new nationwide law that has been passed, rather, it is **Liu He**’s meeting and statements that caused the local authorities to clamp down on blockchain mining. David Z Moris writes “... in China, the statement often effectively is the policy: the instant declaration of a new status quo. That’s why Chinese miners started going offline within days of the committee declaration instead of waiting for any more formal process.”
As seen with the regions covered in the table above, municipal governments, city governments, and energy providers have led the mining crackdown.

**Trading Ban**
The clampdown on Bitcoin mining was supplemented by PBOC’s *strongly worded statement* that told banks to promptly discontinue payment channels to digital asset traders and institutions. The notice called for a few things from all Chinese banks and payment processors:

1. Verify identities of customers and not provide account opening, registration, exchange, clearing, and settlement services for crypto users.
2. Identify cryptocurrency exchanges and OTC services and immediately cut off fiat funding channels.
3. Incorporate advanced processes to isolate key attributes of transactions related to cryptocurrency trading to improve financial surveillance.

**‘Soft’ Bans**

- **Censoring of keywords:** Major internet services in China including Baidu, Weibo, Zhihu, and Sogo started censoring keywords associated with crypto exchanges catering to Chinese traders and investors in early June ‘21. CoinDesk *reported*, “...at press time, searching either the Chinese or English names of Binance, Huobi, and OKEx on Google–like Baidu, Sogo, Quora–like Zhihu or Twitter–like Weibo shows zero search results, as verified by CoinDesk.”
- **Blocking of Social Media Accounts:** Weibo (China’s Twitter) *blocked* the accounts of blockchain influencers, media outlets, miners, and wallets on 7th June ‘21.
- **Derivatives Restrictions:** Huobi temporarily *removed access* to certain derivatives to protect the interest of investors. The new restrictions *specifically target* users in China.

Last year, Huobi and OKEx executives and Dong Zhao, one of the most prominent Chinese OTC traders, were taken into police custody.

**Discussing the Rationale Provided for the Ban**

- Volatility, speculative trading activity, disruption of the normal economic and financial order, illegal cross-border transfer of assets, money laundering, etc were *cited* as the reasons for the mining and trading crackdown. However, it is worth noting that:
  - Edelweiss states ‘In investing, volatility is a feature, not a bug’.
  - Speculation abounds in traditional financial sectors like Forex and Bond markets.
  - Only *0.34%* of digital asset transactions were associated with illicit activities in 2020.
- Concerns around the environmental impact of Bitcoin mining were discussed as a reason for the ban.
  - However, this is contradicted by China’s *continued embrace of coal power* (it added *three times* as much in 2020 as the rest of the world combined) and that the crackdown extended to hydro-powered regions like Sichuan.

It’s also worth noting that China is also developing its own centralized digital currency.
Impact

China is more serious about this ‘crypto crackdown’ than it has been in the past, and the impacts could be more lasting and deeper.

Hashrate Migration

The April ‘21 hash rate drop was caused by a coal mine accident in the Xinjiang region. The computational power sustained an upwards trend till mid-May, post which the Chinese government started putting pressure on the mining community.

Is the network not secure now?
No, the Bitcoin network adjusts its difficulty level every 2,016 blocks. Thus, when the hash rate drops, the computational difficulty is decreased so as to maintain a block time of 10 minutes.

As seen by the hash rate graph, Chinese miners are going offline. The metric should bounce back as displaced miners start to relocate outside China. These miners are seeking political stability, regulatory clarity, and respect for private property rights instead of just looking for the cheapest electricity prices.

Kazakhstan, Central Asia, and Russia, the US (in particular Texas, Jackson, Tennessee, and Miami) are favorable destinations for blockchain miners.

Regardless of where miners settle, this move will likely have a net positive effect on the blockchain ecosystem because it spreads nodes from a concentrated cluster in China to different locations across the world.

Temporary Loss of Value

Top-tier mining rigs’ price has plunged about 75% since April ‘21, causing top players like Bitmain to stop sales temporarily to buoy prices.

Canaan has lost 65% value between 01st April ‘21 to 28th Jun ‘21. Ebang’s stock prices fell by 57% in the same time period.

Even though nothing about the fundamentals of the technology changed, the market sentiment turned negative because of the Chinese government’s moves. This is one of the likely drivers of the market correction we are witnessing since May ‘21.
Exclusion of the Chinese Blockchain Community

While China has not banned the ownership of cryptocurrency, stronger enforcement could dampen interest among individual market participants and start-ups due to the increased risk of individual punishment.

Summary

For the time being, there isn't that much mining capacity worldwide that is ready to absorb the Chinese miner diaspora. While they scramble to find a new home, we could see the hash rate go offline – and stay offline. In practice, that would mean all the remaining miners are more profitable for a period of time. Having more geographic dispersion would even out the global balance of power, and it would also reduce the ability of anyone sovereign nation to co-opt or control the network.

However, a recent document, published by the Ministry of Industry and IT of China on 7th June ‘21 stated that China should “promote the deep integration of blockchain and economy and society and accelerate the promotion of blockchain technology for application and industrial development.”

In the coming years, China may re-embrace the digital asset market, however, for the time being, their loss could be the world's gain.

Woodstock in the News

1. Read our Covalent investment thesis
2. We conversed with the Future Blockchain Summit team about VC funding in the blockchain space
3. DeFi can be difficult to understand, check out our explanatory article demystifying DeFi yields
4. We hosted a Sunday brunch along with our friends at Biconomy, Persistence and Mechanism Capital in Miami to discuss the future of Web 3.0
5. Get a primer on the fundamentals of the Bitcoin network.
Market Dashboard

*Updated on 30th June’ 21

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>MoM Gr%</th>
<th>YoY Gr%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Market Cap</strong></td>
<td>US $1.51 Trillion</td>
<td>-1.9%</td>
<td>480%</td>
</tr>
<tr>
<td><strong>BTC Dominance</strong></td>
<td>44.5%</td>
<td>2%</td>
<td>-30%</td>
</tr>
<tr>
<td><strong>ETH Dominance</strong></td>
<td>16.8%</td>
<td>-10%</td>
<td>74%</td>
</tr>
</tbody>
</table>

Total Market Cap (1 Yr)

BTC Dominance (1 Yr)

ETH Dominance (1 Yr)

Source – TradingView
DeFi Market Cap

<table>
<thead>
<tr>
<th>Value</th>
<th>MoM Gr%</th>
<th>YoY Gr%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US $65.4 Billion</td>
<td>-30%</td>
<td>1100%</td>
</tr>
</tbody>
</table>

Source - Coingecko

NFT Sales US $ (30-Day)

<table>
<thead>
<tr>
<th>Value</th>
<th>MoM Gr%</th>
<th>YoY Gr%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US $20.14 Million</td>
<td>19%</td>
<td>2998%</td>
</tr>
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</table>

Source - Non-Fungible

Market Movers

<table>
<thead>
<tr>
<th>Top 5 Gainers*</th>
<th>MoM</th>
<th>Top 5 Losers*</th>
<th>MoM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amp (AMP)</td>
<td>51.1%▲</td>
<td>Internet Computer (ICP)</td>
<td>-56.5%▼</td>
</tr>
<tr>
<td>Quant (QNT)</td>
<td>46.0%▲</td>
<td>ThorChain (RUNE)</td>
<td>-47.6%▼</td>
</tr>
<tr>
<td>XinFin Network (XDC)</td>
<td>40.6%▲</td>
<td>Synthetix (SNX)</td>
<td>-46.5%▼</td>
</tr>
<tr>
<td>Waves (WAVES)</td>
<td>22.1%▲</td>
<td>Kusama (KSM)</td>
<td>-43.9%▼</td>
</tr>
<tr>
<td>Theta Fuel (TFUEL)</td>
<td>7.9%▲</td>
<td>Polygon (MATIC)</td>
<td>-40.7%▼</td>
</tr>
</tbody>
</table>

*Top 100 coins by market cap. Source - CoinMarketCap

You can find the previous month’s newsletter here.
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