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Chi on China

CHINA BANS BITCOIN, EMBRACES DLT WITH ESG IMPLICATIONS

We don't have to sacrifice a strong economy for a healthy environment.

Dennis Weaver

SUMMARY

- China's renewed crackdown on bitcoin aims at tackling the country's problems of power shortages, climate control, creeping erosion of monetary policy sovereignty and financial disruption – issues that the emergence of bitcoin has aggravated.
- However, Beijing is embracing the distributed ledger technology (DLT) to help improve ESG development in the environment, financial inclusion and monetary policy governance.
- Internationalising the renminbi in a digital form is not a policy priority, although the e-CNY is technically ready for cross-border transactions. Renminbi internationalisation ultimately depends on its convertibility, policy credibility and the depth and liquidity of China's financial markets.

Since May 2021, China has intensified its crackdown on cryptocurrency trading and mining,[1] suggesting that it would decouple from the private crypto-financial world.

In June, the Qinghai provincial government banned all bitcoin mining. Other regions followed quickly, including Yunnan, Xiangjiang's Changji autonomous prefecture, Sichuan, Henan and Anhui.

In July, the State Grid issued a nationwide notice requesting the closure of all crypto mining operations and disconnecting them from its network.

THE ECONOMIC AND ENVIRONMENTAL FACTORS

[1] See "*Chi on China: The Inherent Risks of Cryptocurrencies – When Bitcoin Meets CBDC*", 20 May 2021.

Power shortages and the government's ambitious climate control targets are the crucial factors that have prompted Beijing to ban bitcoin. Its climate-control efforts have aggravated the problem of the shortages and imposed a policy constraint on energy consumption.

Beijing has set targets for reaching peak carbon emissions in 2030 and being carbon neutral by 2060. These are tall orders[2] because

1) The projected emissions peak of China is much higher than those of the US and the EU are

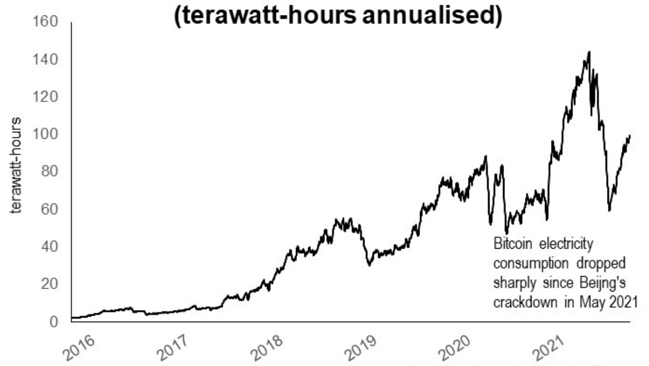
2) The timeframe to achieve carbon neutrality is much shorter (30 years after the peak) than for the US (45 years) and the EU (71 years).

The industrial sector, which accounts for 80% of carbon emissions, will have to shrink and shift from coal to clean energy. The trouble is that the growth of renewables such as hydro, wind and solar power has not been fast enough to offset the fall in energy supply from cutting coal (which accounts for 67% of the total power supply). Importing more coal is not going to help as imports account for only 10% of China's total demand.[3]

China is torn between raising coal output to alleviate its power shortage problem and committing to the carbon emissions reduction targets. It is sticking with the latter by setting targets for cutting both energy consumption per unit of GDP and total energy consumption and evaluating the progress of local governments on these targets every quarter instead of once a year. Officials are held accountable for failing to achieve them.

Banning cryptocurrency mining, which uses a huge amount of energy, is a major step to cutting energy consumption.[4] The impact has been significant (Exhibit 1). The People's Bank of China has intensified its crypto-trading crackdown since May 2021 by banning vendors from providing services to crypto-related entities in China,[5] effectively outlawing all crypto-exchanges and services in China.

Exhibit 1: Global Bitcoin electricity consumption (terawatt-hours annualised)



sources: Cambridge Centre for Alternative Finance, BNP Paribas Asset Management

BITCOIN'S DAYS IN CHINA ARE NUMBERED

The crypto bans concern mining operations using industrial electricity, which is much cheaper than retail electricity. Some miners have tried to continue mining at home by paying retail electricity prices, but most have

[2] "*China Has a Grand Carbon Neutrality Target But Where is the Plan?"* by Alicia Garcia-Herrero and Simone Tagliapietra, Bruegel Blog Post, April 14, 2021 https://www.bruegel.org/2021/04/chinas-has-a-grand-carbon-neutrality-target-but-where-is-the-plan/

[3] China has also stopped importing from Australia (which is China's second largest coal supplier after Indonesia) due to worsening political relations between the two countries.

[4] See reference in footnote 1.

[5] "*China Bans Financial Payment Institutions from Cryptocurrency Business*", CNBC, May 18, 2021 https://www.cnbc.com/2021/05/18/china-bans-financial-payment-institutions-from-cryptocurrency-business.html

stopped. There has been a surge of ASCI mining rig[6] listings on China's e-commerce platforms since May 2021, signalling that bitcoin miners had been selling their equipment.

Moving mining operations overseas, notably to Kazakhstan, Russia and the US, is not practical as miners lack the skills and commitment to work abroad and, most importantly, the resources to navigate the complex foreign business and regulatory environment.

There is also a high cost for moving mining equipment to the US as ASIC mining machines are subject to US 301 tariffs. These machines require substantial maintenance. They would have considerable operational costs in the US given the higher labour and electricity costs in the country.

BEIJING EMBRACES DLT

Despite China's anti-crypto moves, it has been developing an official digital renminbi. It is embracing the distributed ledger technology (DLT) given the benefits it could bring to the financial system and monetary policymaking.

In the face of the declining use of cash, which erodes monetary control and transmission, and the rise of a small number of private payments providers now dominating the payments system with negative effects on privacy, security, access and competition, the PBoC risks losing policy sovereignty. By offering a digital platform for transactions and payments in the decentralised e-payment infrastructure, the PBoC is trying to cater to the public's demand for such tools and services.

Beijing realises that DLT could underpin the development of a digital renminbi with wider applications to improve financial efficiency via the development of virtual finance[7] and financial inclusion. Banks are already starting to use DLT to automate functions such as regulatory reporting and risk management.

Digitisation can reduce transaction costs, speed up processing, increase regulatory oversight and reduce risk. The expensive and, arguably, inefficient correspondent banking model[8] for most cross-border payments[9] has to go through intermediaries operating in different countries. Differences in regulatory controls and operational and technical standards have imposed high compliance and operational costs on international payments settlement. This model relies on using the US dollar as a conduit currency for cross-rate transactions, effectively holding the payments system hostage to the volatility of USD liquidity.

Central bank digital currencies (CBDC), such as the e-CNY, can reduce these costs and inefficiencies by using DLT to standardise operational and settlement systems across institutions, countries and time zones by creating one single global network that allows cross-border payments to be settled almost instantly[10] and results in cost-efficient peer-to-peer payments transfers.

[6] ASIC, or Application-Specific Integrated Circuit, mining refers to a type of circuit built to mine a specific digital currency. Therefore, a bitcoin ASIC miner can only mine bitcoin. A bitcoin ASIC mining rig is a device (computer with mining algorithm) that uses microprocessors for the sole purpose of mining bitcoin.

[7] See "*Chi on China: The Crypto-Renminbi's Disruption to the Market, Economic Growth and Policy*", 5 August 2020.

[8] Bank of Canada, Bank of England and Monetary Authority of Singapore (2018), "*Cross-border Interbank Payments and Settlements – Emerging Opportunities for Digital Transformation*", November.

[9] The correspondent-banking model exists because each country's payments system operates in a highly monopolised domestic environment. It uses only the domestic currency, has high barriers to entry limiting the number of participants and does not clear cross-border transactions directly. Instead, domestic banks use correspondent banks to settle international payments. Consider a cross-border transaction between bank A and B in two different countries; they do not participate in each other's settlement system. Therefore, they use a correspondent bank that has settlement accounts in both A and B's settlement systems. This process often involves not just one, but many, intermediaries in different jurisdictions, making payments process lengthy and costly.

[10] Assuming countries can sort out their regulatory differences.

THE SOCIAL ASPECTS

Financial inclusion is an important social benefit that an e-CNY with DLT can bring. With a significant number of people still without bank accounts, the e-CNY would let them access banking services through the usage of digital wallets that can be linked to digital bank accounts or used offline independently.[11] This would go a long way to help reduce wealth and social inequality, a goal that President Xi Jinping's "common prosperity" policy seeks to achieve. The financial services sector is carrying out trials. Ping An, the second largest Chinese insurance company, has rolled out new policies in Shenzhen offering users discounts when they choose to pay premiums in e-CNY.

Furthermore, since late 2020, there have been trials linking the e-CNY to local transport systems in major Chinese cities including Chengdu, Beijing and Suzhou, with free e-CNY being given to residents as an allowance to take public transport.

Used in this way, the e-CNY facilitates carbon neutrality and creates environmental and social benefits.

MONETARY POLICY SOVEREIGNTY & GOVERNANCE

Regaining monetary control and enhancing policy levers in a technologically fast-changing environment are strong motives for China to drive out bitcoin, develop its e-CNY and embrace DLT.

Firstly, the programmability of an e-CNY should allow the PBoC to implement with greater accuracy its targeted monetary policy, boost financial inclusion and even use 'helicopter money' by injecting liquidity into designated areas of the system, thereby strengthening monetary policy control and transmission.

Secondly, in a no-physical-cash system, which seems to be the direction of development, an e-CNY could remove the zero-lower-bound constraint on monetary policy by allowing the PBoC to use negative interest rate to tackle deflationary shocks.[12] By paying negative interest rate on the e-CNY, the PBoC could induce economic agents to cut savings and spend more, thus lifting the economy out of the doldrums.

China's two-tier e-CNY system combines a centralised architecture and a distributed architecture[13] to create 'controlled anonymity' as opposed to the 'untraceable anonymity'[14] of private-sector cryptocurrencies. While the potential applications of DLT are still being developed, the PBoC has indicated that the e-CNY would include central features such as cryptography (to enhance privacy and security) and programmability (to allow automatic execution of transactions based on smart contracts with pre-defined criteria).

INTERNATIONALISATION NOT A PRIORITY

Since the e-CNY uses the existing e-payment platforms, its legal status and centralised nature give it the governance backdrop for promoting the international use of the digital renminbi. However, China is in no hurry to push internationalisation. The PBoC aims at launching only small-scale trials in 2024[15], though preparations

[11] China's two-tier e-CNY model is different from the conventional CBDC model assumption that people maintain digital accounts directly with the central bank that issues retail CBDCs. Account holders can access their money and transact through digital wallets that are linked to their digital accounts at the central bank. The process needs internet access; but the China model does not.

[12] For example, see "*Negative Interest Rates on Central Bank Digital Currency*", by Jia Pengfei, Nanjing University, in Munich Personal RePEc Archive, 26 October 2020 https://mpra.ub.uni-muenchen.de/103828/1/MPRA_paper_103828.pdf or "*Monetary Policy with Negative Interest rates: De-linking Cash from Digital Money*", by Katrin Assenmacher and Signe Krogstrup, International Journal of Central Banking, March 2021 https://www.ijcb.org/journal/ijcb21q1a3.pdf

[13] "*Progress of Research & Development of E-CNY in China*", Working Group on E-CNY Research and Development of the People's Bank of China, July 2021 http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf

[14] See "*Chi Time: Impact of the Digital Renminbi's 'Controlled Anonymity*'", 14 July 2021,

[15] This was stated in the PBoC's white paper in July 2021.

for the digital yuan in cross-border payments have been under way since March 2021. The m-CBDC Bridge project[16] is to explore the application of DLT and CBDC to enhance the financial infrastructure so that it can support multi-currency cross- border payments. Meanwhile, the usage of CBDC in cross-border flows will involve coordination complications, such as monetary sovereignty, currency policies, regulations and compliance terms.

While the cross-border use of e-CNY for retail purposes could act as the starting point for wider use down the road, the renminbi's status as a global currency fundamentally depends on the degree to which China opens up its capital account; the depth, liquidity and transparency of domestic capital markets; and the credibility of monetary policy. This will be a long road for China to navigate.

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[16] The Hong Kong Monetary Authority, the Bank of Thailand and the Central Bank of UEA joined the PBoC in March 2021 to launch the m-CBDC Bridge project, which is endorsed by the BIS.

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