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THE DIGITAL RENMINBI'S DISRUPTION

Shaping the Global Economic, Financial and Policy Landscapes

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Shaping the Global Economic, Financial and Policy Landscapes

BY

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emerald PUBLISHING

United Kingdom – North America – Japan – India
Malaysia – China

Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2022

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-80455-331-2 (Print)
ISBN: 978-1-80455-330-5 (Online)
ISBN: 978-1-80455-332-9 (Epub)

To Margaret, Edwyn and Arthur

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BOOKS ALSO BY CHI LO

When Asia Meets China in the New Millennium – China's Role in Shaping Asia's Post-Crisis Economic Transformation, Pearson Prentice Hall, 2003

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LIST OF ABBREVIATIONS

AI	Artificial intelligence
ASEAN	Association of Southeast Asian Nations
BIS	Bank for International Settlements
BRI	Belt and Road Initiative
CBDC	Central Bank Digital Currency
CBIRC	China Banking and Insurance Regulatory Commission
CIPS	Cross-Border Interbank Payment System
DCEP	Digital Currency Electronic Payment
DLT	Distributed Ledger Technology
DSR	Digital Silk Road
DXCD	Digital Eastern Caribbean Dollar
EEU	Eurasia Economic Union
GFC	Global Financial Crisis 2007–2008
HSR	Health Silk Road
ICO	Initial Coin Offering
IPO	Initial Public Offering
IT	Information Technology
PBoC	People's Bank of China
QE	Quantitative Easing (monetary policy)
SIIs	Systemically Important Institutions
SMEs	Small and Medium-Sized Enterprises
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TPS	Transactions per Second

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INTRODUCTION

CHINA, CENTRAL BANK DIGITAL CURRENCY AND CRYPTOCURRENCY

Both cryptocurrency and central bank digital currency (CBDC) have caught the world's attention in recent years. This subject has put China in the spotlight because it is the frontrunner in developing CBDC, or an official digital currency. More generally, the world's demand for analysis on China has been rising rapidly due to its ascent to the global stage and its expanding influence through digitalisation. The emergence of China is an inevitable disruptive force in the global system, for good or bad, as the world has to accommodate a rising power. This is a natural geopolitical and economic evolution from which one can run but not hide.

China digital revolution and its speed in disrupting the global system have caught the world off-guard. The digital renminbi has also complicated the analysis on the Middle Kingdom's global impact. Misinformation and mischievous behaviour of some media have aggravated the difficulty of making fair and clear assessments on China's role in a changing world of high tech advancement. Media coverage on China's digitalisation and its impact on both China and the world is especially lacking partly because the subject is new and evolving and partly because journalists do not have the knowledge and technical capability to provide proper coverage. Meanwhile, academic and policy research are often too technical for the public to follow.

China has a leading edge over many advanced countries in some important process of digitalisation. It has created the world's first CBDC, called Digital Currency Electronic Payment (DCEP). It has also been spreading its digital influence to the developing world while the West is 'sleeping on the wheel', as I shall argue in this book. Far from being an obstacle, the COVID-19 crisis has actually facilitated China's digital penetration in the poor countries. By the time the West wakes up, in my view, China will likely have entrenched its dominance in the developing world. This development will create more geopolitical tensions between China (the East) and the United States (the West), which will be a major disruption to the global system.

It is imperative to gain better understanding about China's digital disruption to the world because it stands in the forefront of the global trend of digitalisation. Meanwhile, geopolitical developments have complicated China's role in shaping the development of this trend. To understand China's digital impact, this book uses a rigorous research-driven approach for discussions with data and evidence, but not anecdotes, narratives and opinions out of thin air, as the backbone for the debates and arguments. Applying economic theories and data analysis, this book discusses, and projects, the impact of China's digital disruption to the world's financial system, trade and investment trends, economic policy, regulations and geopolitics. I also stretch the analysis to uncharted territories into which the world is moving, namely the future digital currency war and China's expansion of its digital infrastructure to the developing world and even advanced economies.

China has become a force to be reckoned with in digital technologies at home and around the world. As a major global investor in digital technologies and one of the world's leading adopters of technologies, it is already shaping the global digital landscape and supporting, and inspiring, entrepreneurship far beyond its own borders. There is much more to come. As China digitises, global industries will experience huge shifts in revenue and profit pools across the value chain. The forces behind globalisation will change and create crosscurrents that will affect global investment decisions and supply chains. The world's financial infrastructure will undergo sea changes to shake up operational inefficiencies. The internet may be bifurcated to a system led by China's technology and another one led by the United States or other advanced countries. Governments around the world will have to make changes to their economic policies and regulations to accommodate these global shockwaves.

Digitalisation, including the creation of CBDCs, is a creative destruction process that will sweep through the world. However, it is likely to happen more quickly and on a relatively larger scale in China given the large scale of its structural reforms and aspiration to make the country a global technology powerhouse in the future. The digital renminbi is a crystallisation of China's creative destruction to transform itself from an emerging middle-income country to a major economic power. The transformation will create externality to disrupt the *status quo* of the world system and shape the evolution of the global digital transformation.

Consider the following areas of China's digital creative destruction that will spill over to the world. There is a major trend of commercial disintermediation unfolding in China. Alibaba and others have disrupted the retail industry by cutting out the intermediary layer and linking suppliers and consumers directly through digital platforms. Industries with high margins on offline channels, a lack of information transparency due to multiple layers between suppliers and customers, and a highly fragmented business landscape are ripe for this type of digital disruption. The global consumer market is already undergoing sea changes catalysed by China's digital transformation. The role of digital currencies, including the digital renminbi, will expand as the retail industry goes through digitisation on a global scale.

Meanwhile, digital innovators are disrupting traditional business models and reinventing industries by disaggregating huge assets into many pieces, turning them into services and serving fragmented consumer bases. Industries that have high value, high durability and high capacity-utilisation volatility are the main territories for this type of disruption. Digital disruption through disaggregation is increasingly prominent in China, with the shared economy being a prime example. Global companies, such as Uber (shared transport) and Airbnb (shared accommodation) etc., are born out of this disaggregation trend propelled ardently by China's digitisation of industrial segments.

This digital force changes products or processes from physical to virtual form, unbundling demand with digital delivery that enables consumers to receive products or services anywhere, anytime. In China, the pace of this conversion has been faster than anywhere in the world due to its greater acceptance of digital forms of transactions and payments than in other countries. Understanding China properly is, thus, imperative to enable the world to manage the upcoming disruption and transit to a new state of global technology power.

What complicates the analysis on China's digital disruption is the emergence of neo-conservatism, led by the United States (Elghossain, 2019), towards the rise of China in the global stage. This attitude has manifested itself in strategic competition between the two nations, creating biased views on each other, by each other and by the public that interfere with rational analysis. China's digitalisation has aggravated this hostile attitude by raising the world's concern about China's threat to the global national security. Hence, international trade and technology development have all been 'weaponised' in the name of protecting a country's national security. This phenomenon, arguably, is a derivative of China's digital disruption to the world order.

CRYPTOCURRENCY VERSUS CBDC

Before we dive into analysing the digital renminbi's global disruption, let us clarify the concepts of cryptocurrency and CBDC for the benefit of those who are not familiar with these new types of currencies. The first thing to remember is that digital currencies are a collective term that includes cryptocurrencies, CBDCs or other forms of virtual currency.[1] They are currencies that are only accessible with computers or mobile phones because they only exist in electronic form.

According to the European Central Bank's 2015 "Virtual currency schemes – A Further Analysis" report, virtual currency is a digital representation of value, not issued by a central bank, credit institution or e-money institution, which, in some circumstances, can be used as an alternative to money. In a nutshell, digital currencies are another name for money used to pay for specific goods or services on the internet. Furthermore, digital currencies do not require intermediaries and, hence, offer the cheapest method for trading.

The next important thing to remember is that all cryptocurrencies are digital currencies, but not all digital currencies are cryptocurrencies. A cryptocurrency (or crypto) is one type of digital, or virtual, currency that uses encryption to safeguard transactions. It does not have a central issuing or regulating authority, but instead depend on a decentralised system to record transactions and produce new units. It is not a legal tender.

Cryptocurrencies, like Bitcoin, and others are stored on a decentralised blockchain network, and transactions are conducted, authenticated and recorded in the public ledger without third-party interference. Owners of cryptocurrencies can have direct access to their 'coins', which are nothing more than encrypted electronic records on the public ledger on the internet; there are no physical coins for digital currencies as there are for fiat money.

Cryptocurrencies are highly volatile in nature. A crypto holder typically opens a 'wallet' account and uses the wallet address, which contains no personal information, for conducting transactions. This means that the holder's privacy is guaranteed in the transaction process.

On the other hand, CBDC is a digital form of money issued by the central bank of a country. It is a replacement of cash and, thus, the liability of the central bank, which will have to maintain reserves to back that liability, in

1 A virtual currency is a digital representation of value that functions as a medium of exchange, a unit of account, or a store of value. It can be a cryptocurrency, such as Bitcoin, Ethereum and Binance Coin etc., or a stablecoin (which is a cryptocurrency that pegs its market value to some other assets, including commodities, or the US dollar). A typical example of a stablecoin is Tether, which pegs it value to the US dollar on a 1-to-1 basis.

theory. CDBC is based on the issuing country's fiat currency value and has a legal tender status. It is not a cryptocurrency, and it does not have to be related to anything that caters to the crypto world.

While cryptocurrencies are decentralised without government control, CBDCs are centralised with regulatory control. While cryptocurrencies offer anonymity, a CBDC holder is not anonymous to the issuing authority as the personal details are attached to the holder's CBDC. The transaction details are only available to the sender, receiver and bank, just like any bilateral transactions using physical cash. This is distinctively different from crypto transactions that are available to the public on the electronic ledger (although the personal details are still not observable in the transactions).

If CBDCs are equivalent to traditional notes, why do central banks want to create them? When CBDCs are truly digital forms of physical cash, theoretically, they could be exchanged instantaneously and seamlessly at any time anywhere, including across borders. This could dramatically reduce the cost of transactions by raising efficiency. CBDCs could also be a way for governments to control the flow of money more directly, or implement targeted monetary policy to certain groups in the economy, as China often does.

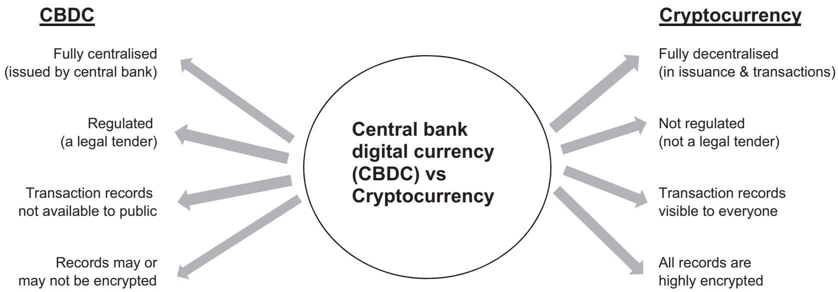
For example, in an economic crisis, a central bank could issue instant stimulus payments to particular groups of companies and/or citizens using CBDC, whose infrastructure contains personal particulars of the economic agents. This operation of targeted monetary policy is markedly different from the conventional monetary expansion of money printing, which filters through the whole system instead of specific groups of economic agents. Thus, arguably, CBDC gives the monetary authorities better control of how monetary policy is conducted. It can also facilitate the implementation of inclusive finance to benefit the unbanked, typically underprivileged, public, as I shall elaborate in the book.[2]

Of course, there are risks of CBDC that governments need to take into consideration. For one, it could destabilise the country's financial order by disintermediating banks and damage the country's money multiplier and velocity, like what could potentially happen in China under its current digital renminbi design. Other worries include privacy concerns, money laundering and fraud issues, cybersecurity etc., which I shall explore in the book.

2 In banking, inclusive finance, or financial inclusion, refers to efforts to deliver financial services and products at affordable costs to all individuals and businesses regardless of their net worth or company size. In particular, inclusive finance strives to remove the barriers that exclude the disadvantaged and low-income segments of the society from participating in the financial sector and using financing services to improve their lives.

A Summary

From a macroeconomic perspective, the key difference to remember is that a cryptocurrency is created by cryptographic algorithm with its quantity limited by the speed and capacity of algorithm and there is no central authority controlling it. But a CDBC is created and controlled by a central bank with its supply corresponding to the amount of cash/asset behind the digital currency. The following diagram compares the different aspects between CBDC and cryptocurrency.



PLAN OF THE BOOK

Chapter 1 talks about China's official digital currency, which is a crystallisation of China's digitalisation process of its system, to set the background for discussions in subsequent chapters. It covers the CBDC's development history, legal status, operation system, applications and experiments by the Chinese authorities. Crucially, the information contains food for thought for other countries that are considering the creation their CBDCs.

Chapter 2 discusses the rise of cryptocurrencies, assesses the crypto disruption to global finance, the problems of cryptos as money in an economy and potential global environmental problems such as climate changes. I argue in this chapter that cryptos are here to stay and their disruption to the world system will continue, but there are also fundamental problems that make cryptos a mania at this stage and that requires government interventions to reduce potential systemic risk that could wreak havoc on the global economy.

In particular, I address the problems with Bitcoin/cryptos that they are not money and not a store of value but a speculative vehicle that global authorities want to clampdown. Crucially, I explain why cryptos' fixed supply is a serious economic policy problem rather than an advantage that their proponents have argued. Crypto aficionados will not agree with these arguments because they have not thought about them, but my arguments with strong theoretical underpinnings and evidence should stimulate further thinking about the role of cryptocurrencies in the future world.

All this leads to China's anti-crypto policy stance to address the crypto problems and the government's creation of the digital renminbi currency. The discussion argues that the Chinese CBDC's characteristic of 'controlled anonymity' is a direct attack on Bitcoin's (and cryptos') characteristic of 'untraceable anonymity'. The Chinese model may serve as an example for other countries to design their official digital currency mechanisms. The chapter also makes an assessment on the battle between governments who want to protect monetary policy sovereignty and cryptocurrencies that want to escape any central controls.

Chapter 3 argues that China's crackdown on Bitcoin is disrupting the crypto disruption process with Chinese characteristics. It dives into the two-tier system of China's official digital currency and examines its impact on/disruption to the domestic monetary policy framework and financial system. The design of the two-tier system addresses a key question that many other central banks and investors are asking, which is whether a central bank issuing digital currency should also run retail banking operations.

The chapter also examines why China's digital currency will prompt virtual finance development both in China and in the world, how its controlled anonymity will work to correct the information asymmetry problem in China and disrupt the onshore banking market and fintech platforms. It argues that the digital currency would pave the way for further internationalising the renminbi and allowing it to play a role in the future digital currency war. This discussion is meant to set the scene for detailed discussion in subsequent chapters on the future digital currency war and China's digital expansion via the Belt and Road Initiative (BRI).

However, contrary to the western 'conventional wisdom', internationalisation of the digital renminbi is not a policy priority, as I argue, though China's digitalisation has paved the way for eventual expansion of the renminbi to erode the US dollar dominance in the long term. The chapter ends by linking China's anti-Bitcoin move to its ESG (environment, social and governance) policy initiatives, which are what the world's governments all striving to implement.

Chapter 4 decodes China's technology policy, which has created market disruption in the tech sector. China's anti-crypto policy preceded its regulatory crackdown on the tech sector and private businesses between 2020 and 2022. This raises the world's suspicion about China going back on financial liberalisation by 'killing' the private sector and reasserting state control. After all, these sectors are supposed to drive economic and productivity growth in the future and make China a technology powerhouse. This chapter examines the regulatory and economic factors behind the regulatory crackdown and uncovers China's tech policy direction and its disruption to its financial system.

In the chapter, I use the Ant Financial Initial Public Offering (IPO) debacle in late 2020, when it was suspended just two days before launching, to argue and illustrate that the global outcry against Beijing's policy move was a result of misunderstanding. I provide theoretical and data analysis on Ant Financial's business model to show that the suspension of Ant Financial's IPO was a necessary regulatory reform to correct the prevalent problems of spawning monopoly power, moral hazard and rent-seeking in China's fintech sector. Most China observers, especially those in the West, do not understand this policy incentive. Their blind China bashing was manifested in a global market disruption of massive selling of Chinese technology and private-sector stocks in 2021 and 2022.

By examining data on China's structural changes and evidence from China's policy statements, I also argue in Chapter 4 that there was no evidence of China killing the private sector. What most China observers do not see is a shift in China's reform tactics. The chapter explains this policy shift in the context of China's tech policy under the macroeconomic framework that Beijing has persistently been pursuing.

Chapter 5 extends the analysis to the political economy aspect of China's digital disruption. The theme of this chapter is the eventual breakup of the global payments system by China working together with other countries to set up alternative international payments systems. Since the change in the United States' foreign policy towards China from constructive engagement as pursued by the pre-Trump administrations to strategic competition since Trump in 2017, a global notion has emerged whereby China seeks to decouple from the United States, thus disrupting the global economic system. The Russia-Ukraine crisis, which is still ongoing at the time of writing, has intensified this decoupling concern.