

E-CNY: CBDC AND NARROW BANKING IN CHINA

ZHIGUO HE (何治国)

FUJI BANK AND HELLER PROFESSOR OF FINANCE

DIRECTOR OF BECKER FRIEDMAN INSTITUTE, CHINA

**UNIVERSITY OF CHICAGO, BOOTH SCHOOL OF
BUSINESS; NBER**



The University of Chicago Booth School of Business



**Becker Friedman
Institute China**

芝加哥大学贝克尔-弗里德曼经济研究所

WHAT IS E-CNY

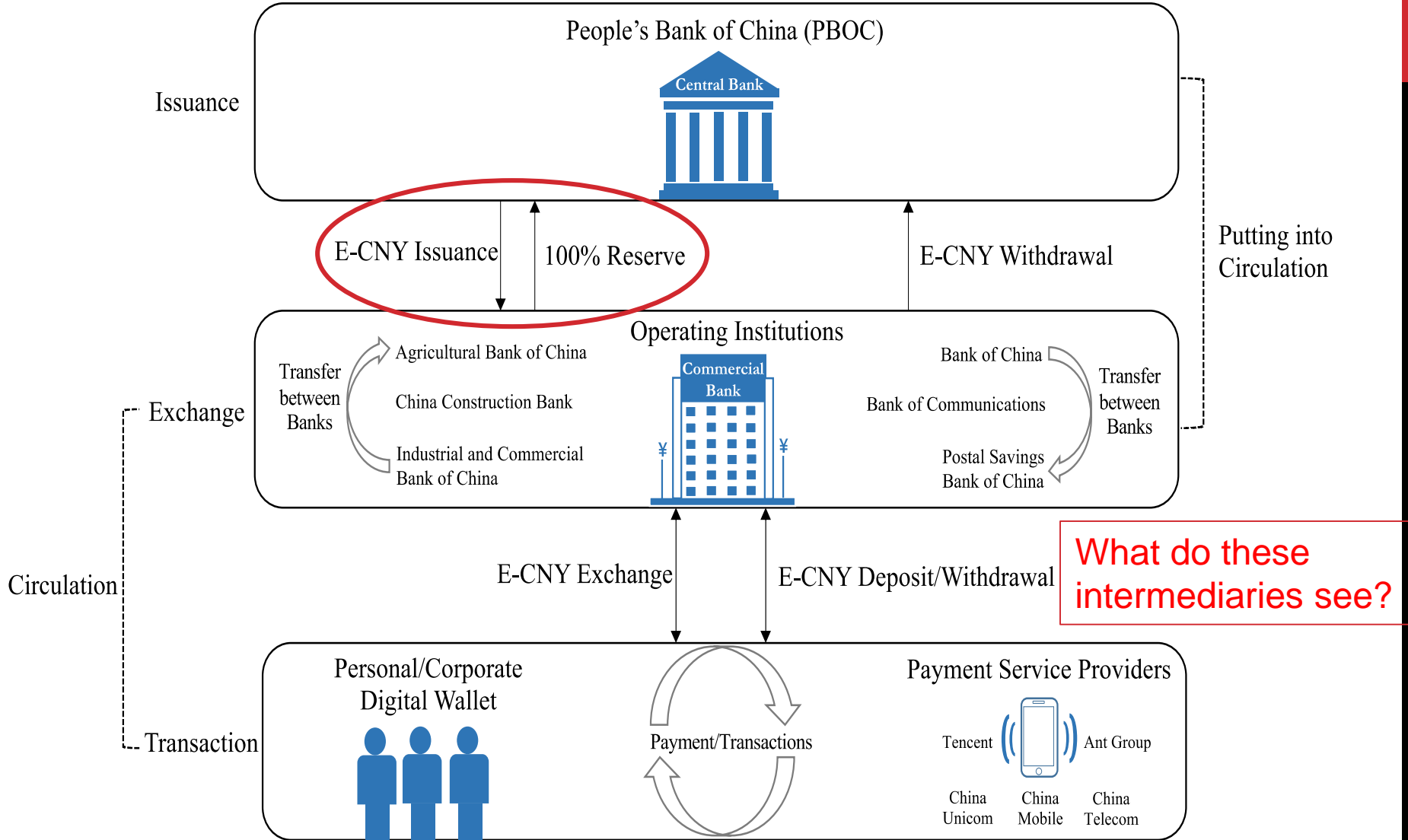
❖ CHINA'S CBDC IS CALLED E-CNY

- ❖ Previously Digital Currency and Electronic Payment (DCEP)
- ❖ 13.61 Billion RMB e-CNY in circulation, 0.13% M0 (Dec 2022)

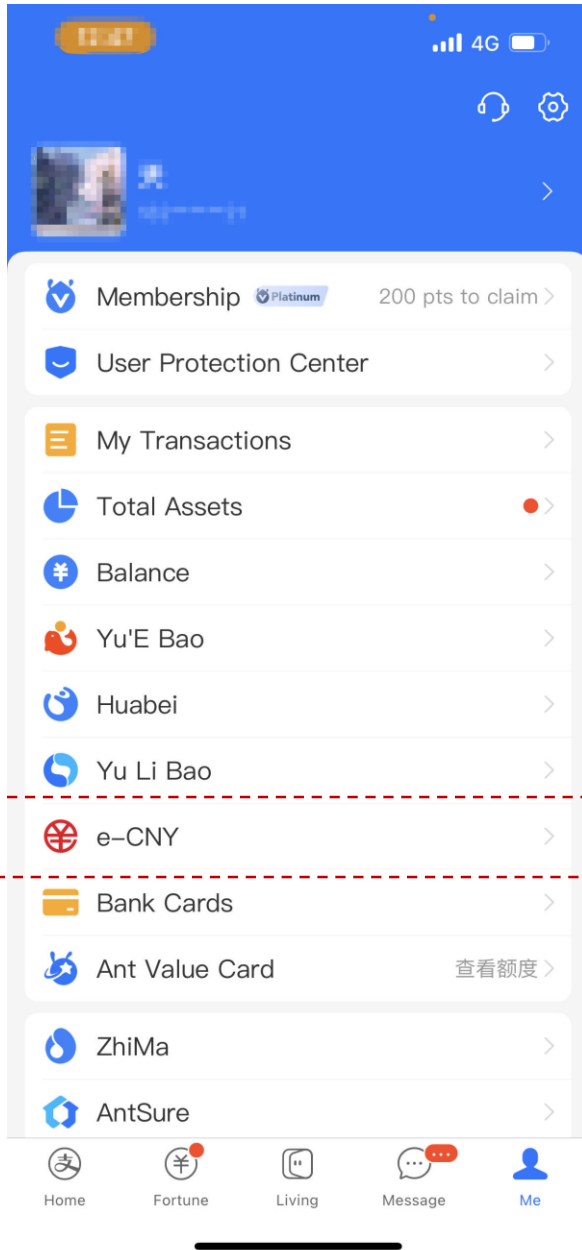
❖ PUBLIC SOURCE:

- ❖ a digital legal base currency (part of base money supply) issued by the PBOC
- ❖ takes the form of an encrypted numeric string representing a specific amount of money
- ❖ operated by designated operating institutions and exchanged with the public, running 24/7 both online and offline
- ❖ characterized by managed anonymity (可控匿名) which is based on the loose coupling of bank accounts (松耦合)

TWO-TIERED SYSTEM



Alipay App



BOC Bank App



MANAGED ANONYMITY AND IMPLICATIONS FOR DATA

❖ WITHIN THE E-CNY SYSTEM

- ❖ Operating institutions cannot directly see who is paying whom or even how much is being paid
- ❖ the PBOC's authentication center verifies the authenticity of circulating e-CNY, not the operating institutions or users
- ❖ Basically, banks' or 3rd-party payment providers' verification requests return only a "yes" or "no" response from the PBOC

❖ PBOC IS MANAGING A GIGANTIC DATABASE

- ❖ The PBOC, with the link between address and real-world identity to open wallets, can trace the entire flow of money

❖ IMPLICATIONS FOR DATA

- ❖ Operating institutions as third-party payment providers are no longer keeping the record of "who pays who"
- ❖ Ensures "privacy" from 3rd-party payment providers, but also detaches payment data from the rest of the ecosystem

IMPACT ON REAL ECONOMY

❖ **LIKELY TO BE SMALL IN SHORT-TERM**

- ❖ Benefit: faster & more efficient settlement, greater liquidity
- ❖ Cost: potential disintermediation or **narrow banking**
 - ❖ In China, controlling required reserved ratio is still an effective monetary policy tool
- ❖ The target is really on retail, with little take-up, though recently there are some discussions on smart contract
- ❖ More importantly, PBOC is vigilant on this issue

❖ **ALIPAY AND TENPAY?**

- ❖ May hurt Alipay or Tenpay
- ❖ No effect on real economy, as Alipay and Tenpay have adopted 100% reserve since Jan 14, 2019
- ❖ Yes, China already implemented “narrow banking” without triggering massive disintermediation

RULES ON CUSTOMER FUNDS HELD BY PAYMENT INSTITUTIONS

❖ CHINA

- ❖ Before: Deposit in a commercial bank account with interest. Each payment institution is mandated to deposit all its customer funds into one commercial bank
- ❖ After: 100% reserve in the Central Bank, no interest

❖ US

- ❖ Deposit into an interest-free account at an FDIC-insured commercial bank
- ❖ FDIC provides deposit extension insurance to safeguard the funds

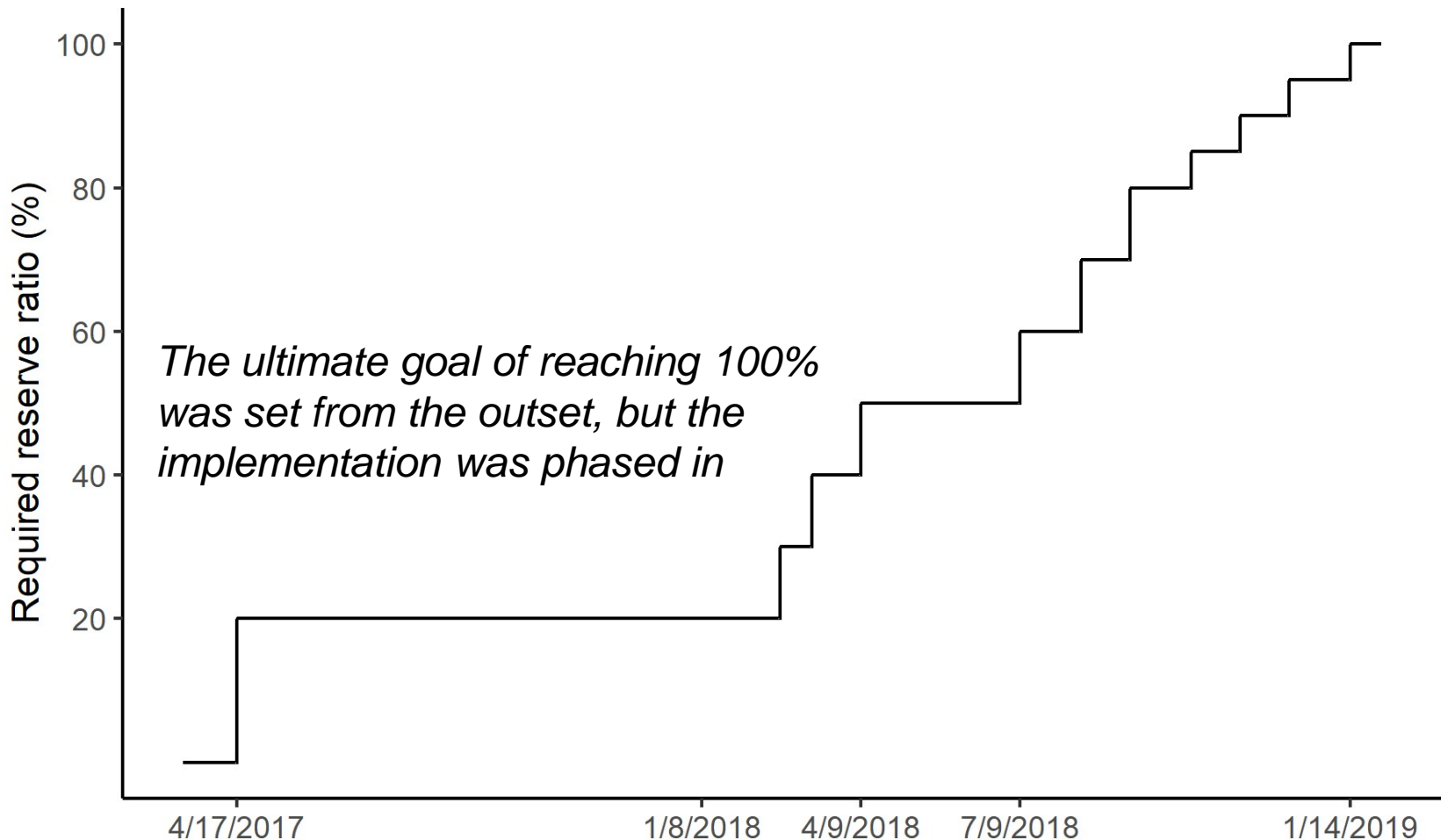
❖ EU

- ❖ Strictly segregate customer funds from payment institutions' own funds
- ❖ Deposit in a commercial bank account with interest or invest in safe, low-risk liquid assets

NARROW BANKING

IMPLEMENTATION IN CHINA

Dynamics of Required Reserve Ratio for Third-Party Payment



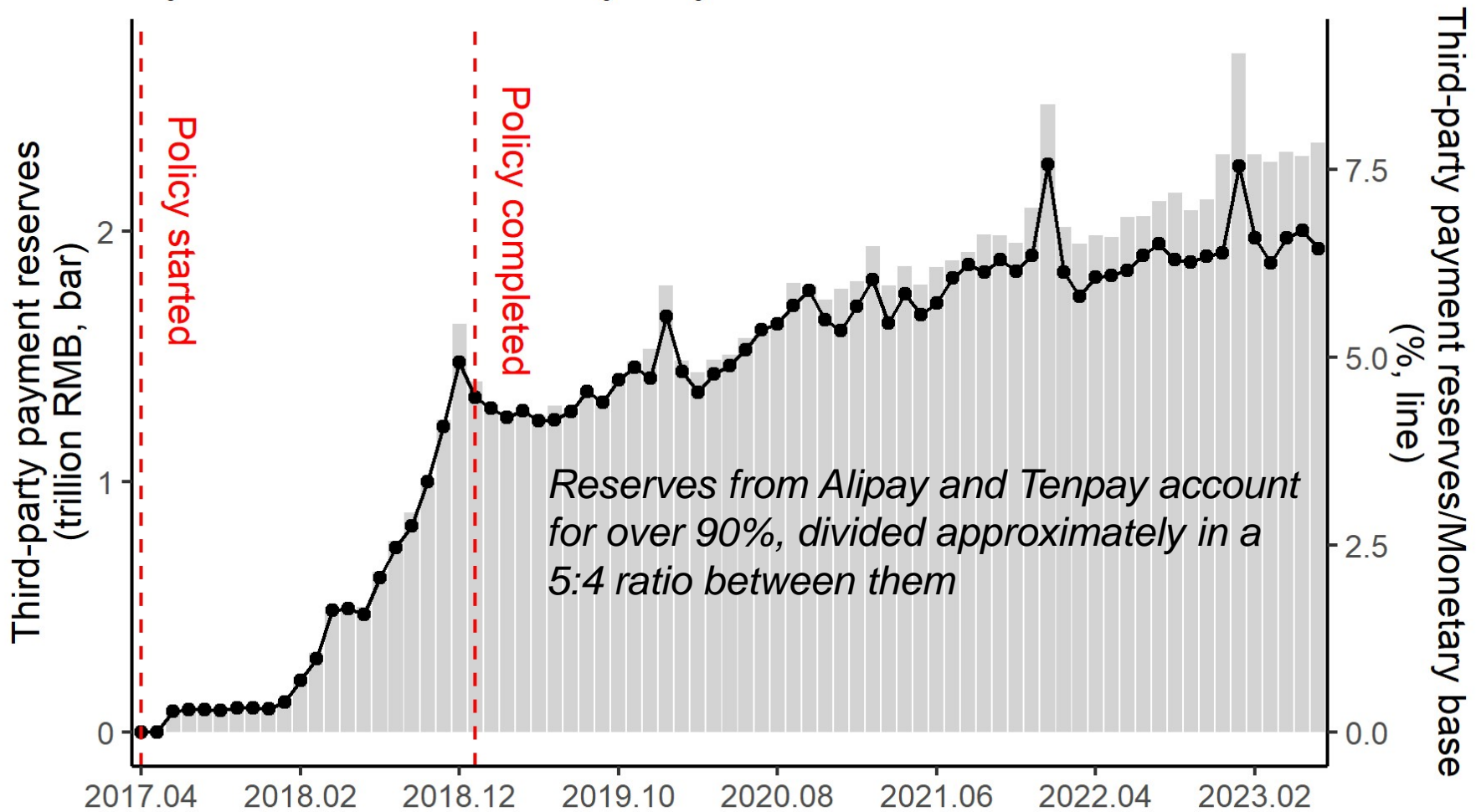
The ultimate goal of reaching 100% was set from the outset, but the implementation was phased in



NARROW BANKING

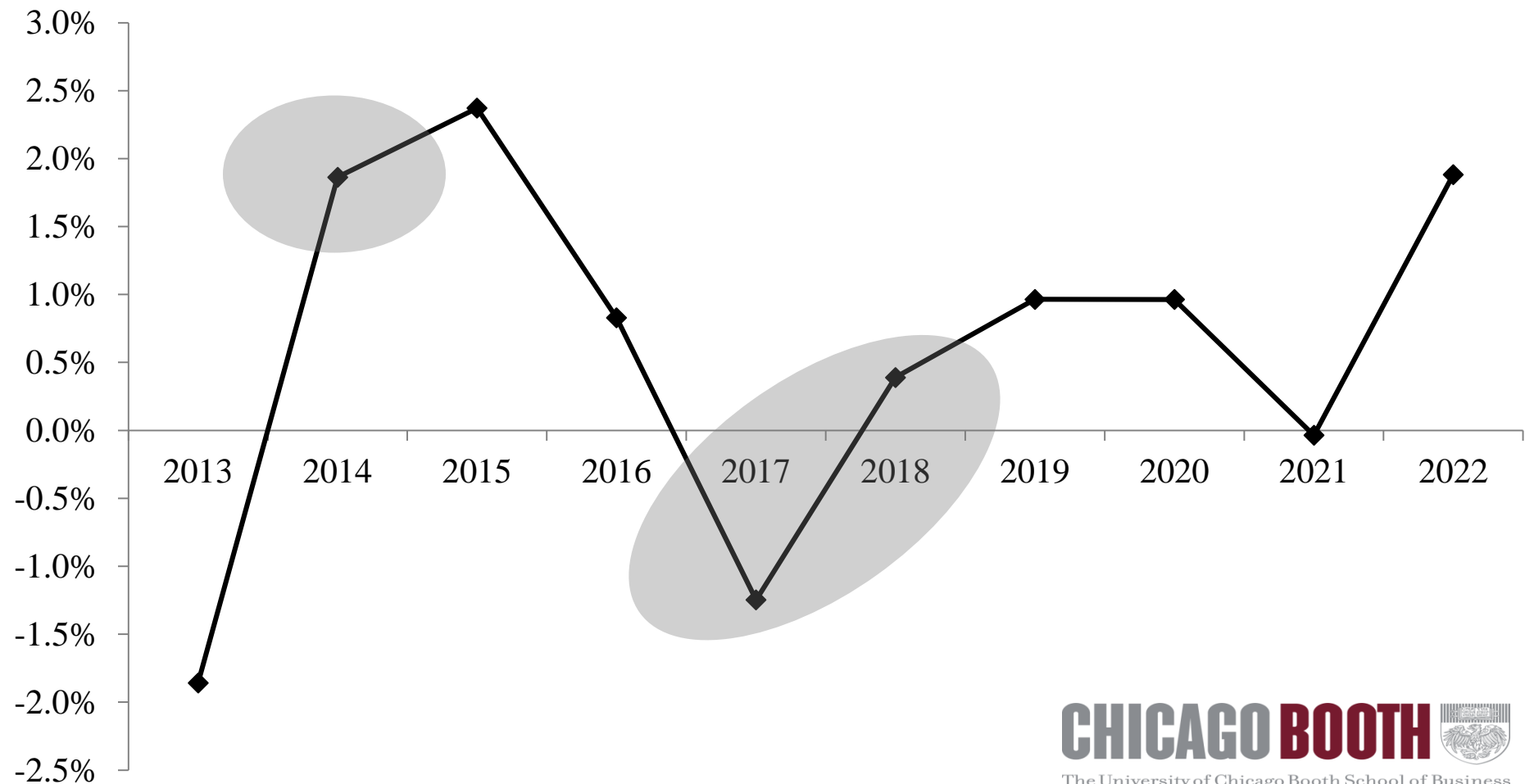
IMPLEMENTATION IN CHINA

Dynamics of Third-Party Payment Reserves



NARROW BANKING IMPLEMENTATION IN CHINA

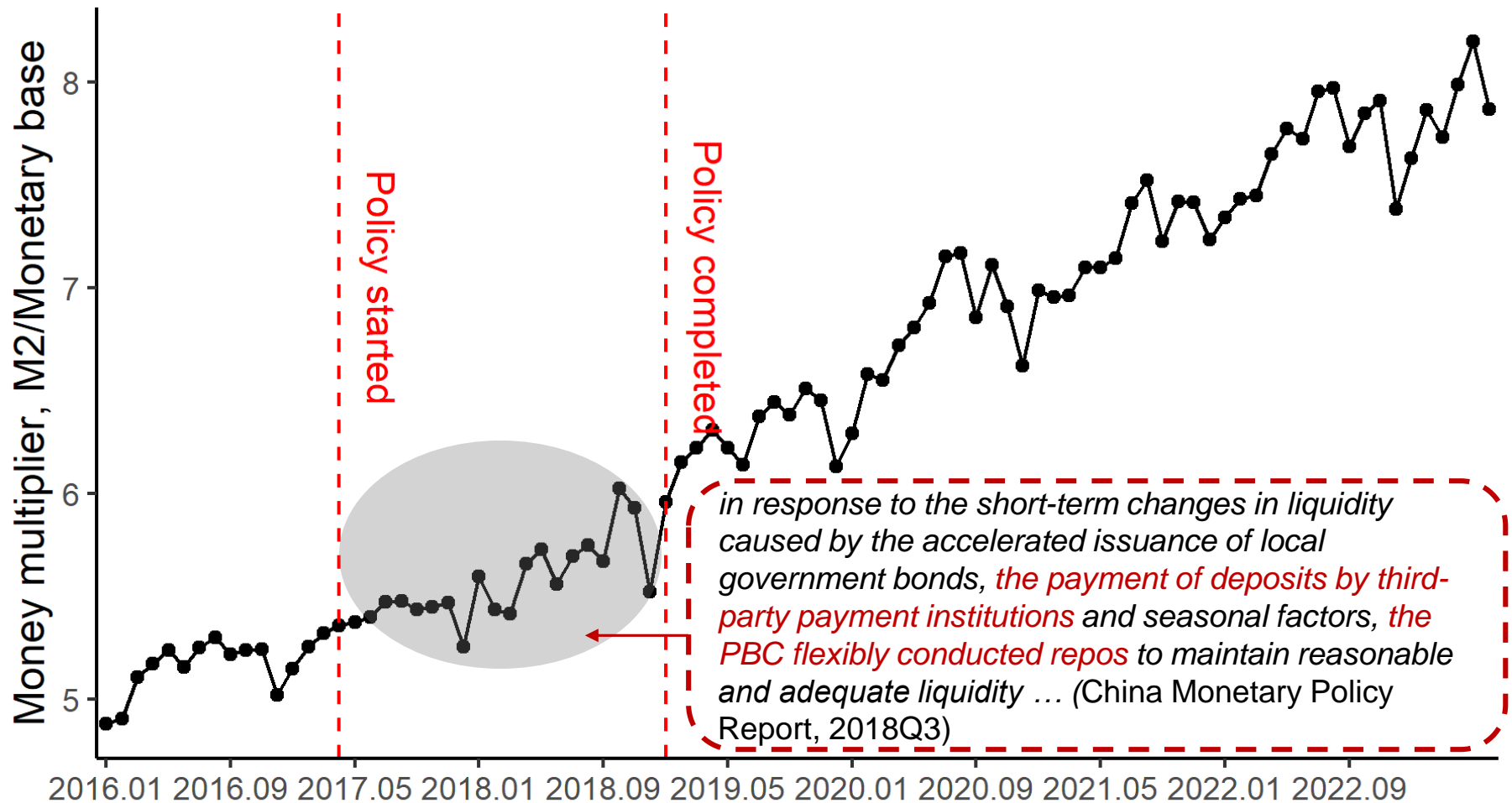
$\Delta(\text{Deposits from Banks and NBFIs})/\text{Total Assets}$
China Construction Bank



NARROW BANKING

IMPLEMENTATION IN CHINA

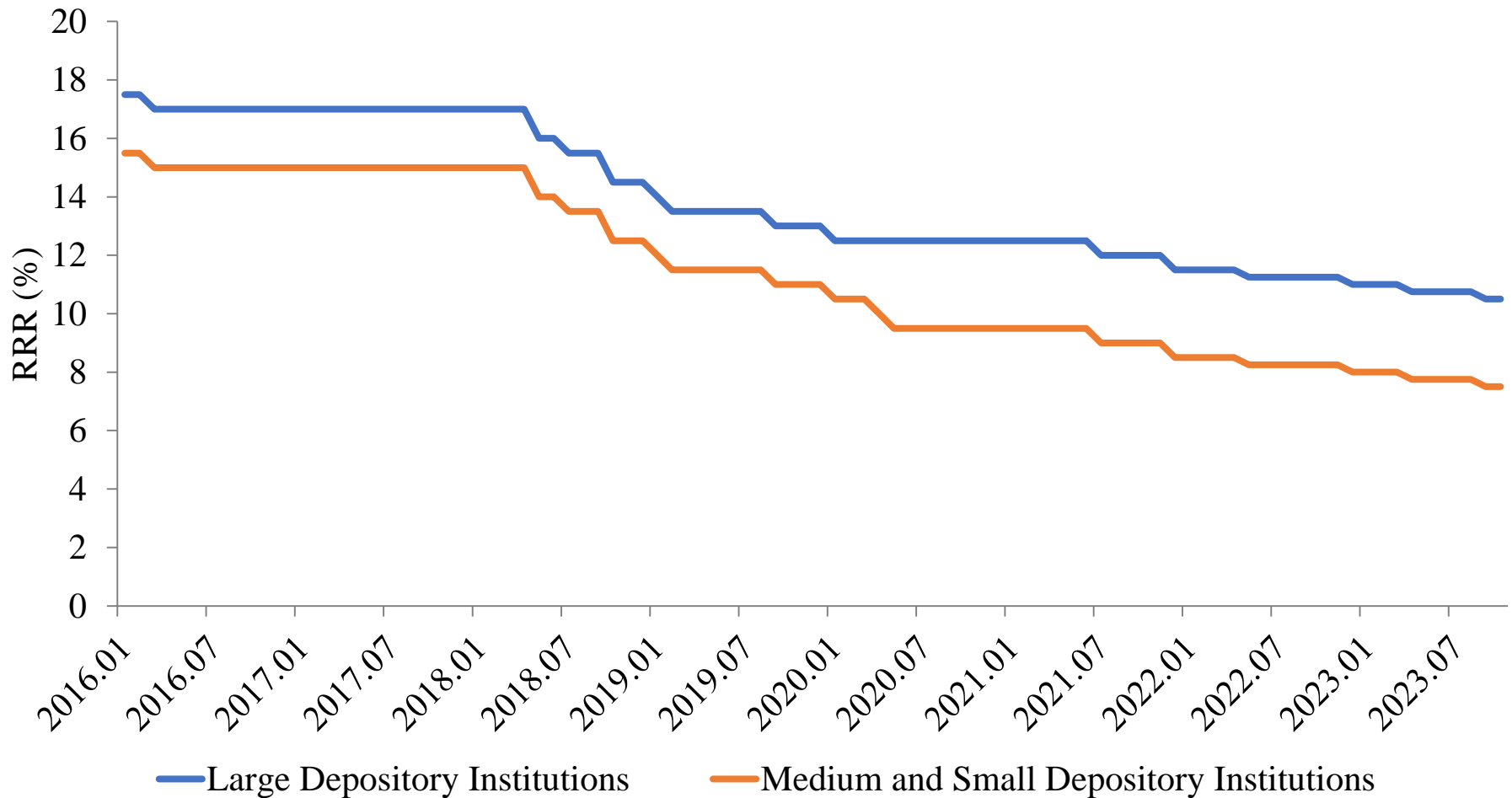
Dynamics of Money Multiplier



NARROW BANKING

IMPLEMENTATION IN CHINA

Dynamics of Reserve Requirement Ratio (RRR)



DO BEIJING WORRY ABOUT E-CNY'S LOW TAKE-UP RATE?

❖ **JUST A BACK-UP PAYMENT SYSTEM**

- ❖ In case Alipay&Tenpay stopped working
- ❖ Honestly, a bit lame

❖ **COULD RE-LABEL ALI/TENPAY TO E-CNY**

- ❖ E-CNY: 14 billion, Ali/Tenpay: >2 trillion
- ❖ Both of them are narrow banking with 100% reserve ratio anyway, zero impact on the real & payment side of China

❖ **EXCEPT FOR THE DATA/INFORMATION**

- ❖ E-CNY is on all major banks and ali/tenpay apps, making it easy for customers to make the switch
- ❖ Anecdotal: most of alipay/tenpay transactions today are bank debit card transactions via app channel, not ali/tenpay. Not sure about data/info flow in this route

IMPACT ON DIGITAL ECONOMY

❖ **HOPEFULLY, FOSTER BLOCKCHAIN INNOVATION**

- ❖ Without too many “coins” and fraud
- ❖ Challenging question: Can e-CNY, which is crypto-based, be integrated into some Blockchain projects that aim to provide real services (say, trade finance)?

❖ **DATA AS FACTOR; DATA OWNERSHIP?**

- ❖ China: the right to hold data resources (数据资源持有权), the right to process and use data (数据加工使用权), and the right to manage data products (数据产品经营权)
- ❖ In EU, the General Data Protection Regulation (GDPR) emphasizes that customers “own” the data
- ❖ In US, the idea that “data is an important input” has been widely accepted. Many other laws cover this issue
- ❖ E-CNY as payment could be independent of “data ownership” which Blockchain should help