

Currency Competition: The Digital Dimension

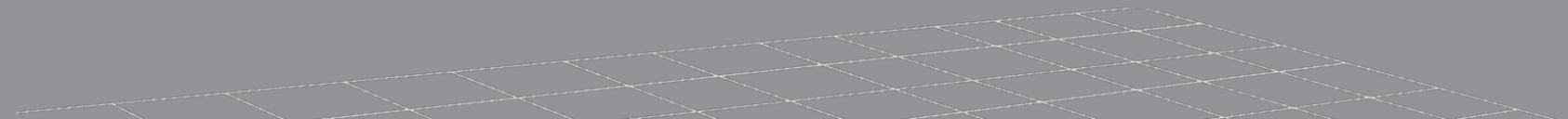
Jean-Pierre Landau

Sciences Po

Markus Brunnermeier

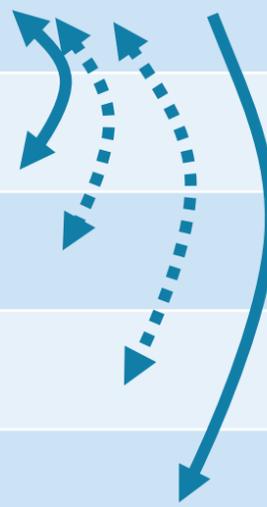
Princeton

4. March 2021



“Money is a score, and more” ©

- “Money is an entry in a data base”, Elon Musk
- “Money is societal memory” *PLUS*

Scores in life	Medium of exchange purchase consumption	Interoperability
• Liquid wealth	✓	
• Illiquid wealth	✓	
• Airline miles	somewhat	
• Game token (monopoly)	No	
• Parking tickets	No	
• FICO score/ Social score	No	
• Prison sentence	No	

- Score = “wealth on a platform/data base” (unit of account + store of value)
- Money = score + medium of exchange

What defines a **separate (digital) currency area**?

■ **Single currency**

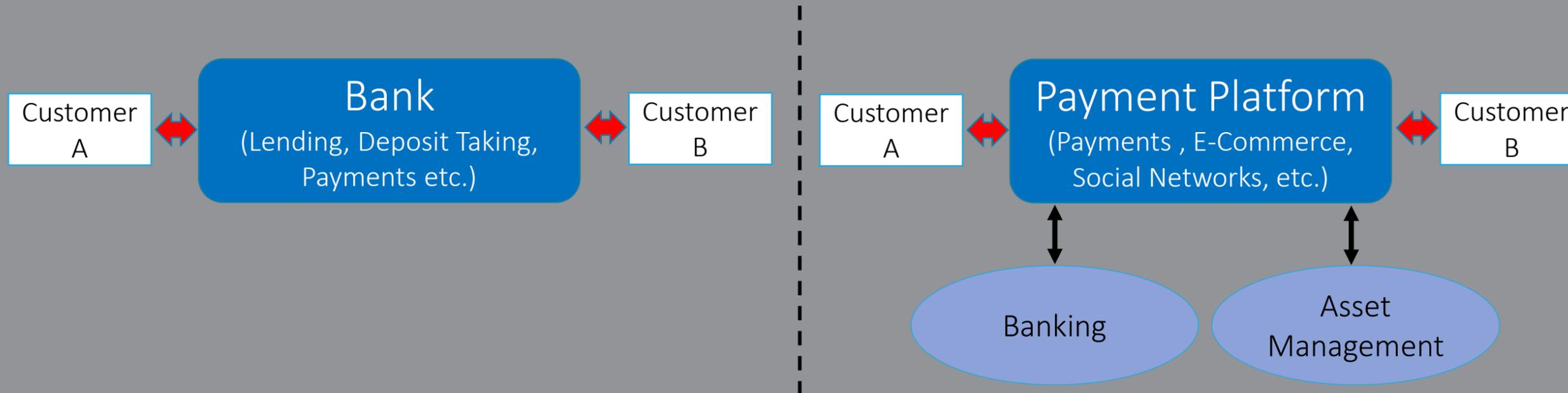
- Same unit of account (like stable coin) AND
- Legal claim to anchor of currency (liability of issuer)
 - **Interoperability** e.g. demand deposit

■ **Separate currency**

- Different unit of account OR
- Stable-coin but “non-liability”
 - Break peg without legal recourse
 - E.g. Argentinian currency board 1:1 with US \$
 - **Costly interoperability** – exchange rate fee
 - Alipay, WeChat Pay: 0.01 fee

The rise of platforms

- Aggregation of diverse activities in closed ecosystem
- Capture of diverse data
- E.g. payments: can change the structure of financial intermediation



- Fundamental challenge for banks' business model
 - Bundling with other activities (on platforms)
 - Unbundling of activities (cream skimming by FinTech)

Platforms as “token central bank” + ...

- Regulating “currency competition”
(btw platform tokens and money (\$, €,...))
fundamentally alters platform design and efficiency
 - Mark-up charges to transact on platform
 - Allocate advertising space on platform
 - Fee to exchange \$ into ₣
 - Fee to exchange ₣ into \$
 - Token seigniorage

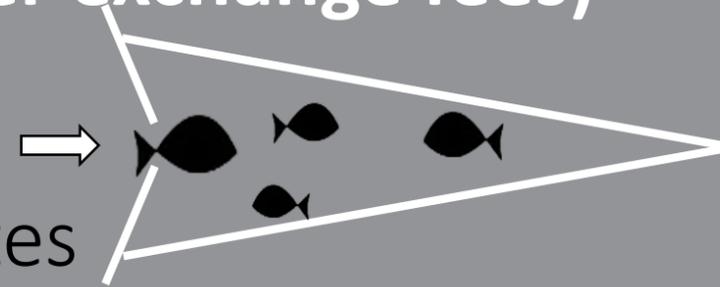
} Market design

} Currency/token design
- Interoperability regulation reduces the dimension of currency competition between platforms

Platform and Tokens (2021) – with Jonathan Payne

Low interoperability (higher exchange fees)

1. lock people in and large platform dominates
 - limits competitions across platforms/tokens



“lure you in,
lock you in, and
inflate value away”
 (“Hotel California”)

Increased interoperability (lower exchange fees)

1. Platforms switches to a low volume, high markup business model
 2. Prevents platforms from using tokens to redistribute to improve platform matching efficiency
 - Matching efficiency depends on network thickness externalities
 - attracting large and small sellers to enhance competition on platform
- Increasing \$-money growth, go for ₣ seigniorage (instead of markups)

Poll Questions

1. Will a Central Bank Digital Currency (CBDC) help China to internationalize the Renminbi?
 - a. yes this is the main objective
 - b. no, digitalization is irrelevant as long as China has capital controls
 - c. yes, but it is accessory, the main policy objective is domestic

2. Were global regulators justified in pushing back against Libra?
 - a. yes that will produce a more acceptable and stable payment system
 - b. yes, Facebook not be allowed to create money
 - c. No, this was a dangerous brake on financial innovation

3. Should the FED issue a digital dollar
 - a. it should prepare actively
 - b. there is no need for it. Prioritize domestic fast payments
 - c. Yes, urgently, to confront competition from other CBDCs

international money competition : the digital dimension

Jean- Pierre Landau, March 2021

the wake up call : Libra

➤ A triple shock

1. size : pre existing network externalities. Instantly credible as a medium of exchange
2. cross border
3. a new unit of account : a direct infringement on monetary sovereignty

➤ a test case of the effects of competition on innovation

- acceleration of domestic fast payment projects (AEs and EMEs)
- increased awareness of :
 - financial exclusion
 - difficulties in retail cross border payments

explosion in interest in Central Banks' Digital Currencies (CBDCs)

projects

- China : pilot phase - introduction maybe 2022
- more than 50 countries in the world having research and tests
- many in the emerging world
- ECB : report and discussion on Digital Euro

questions (poll)

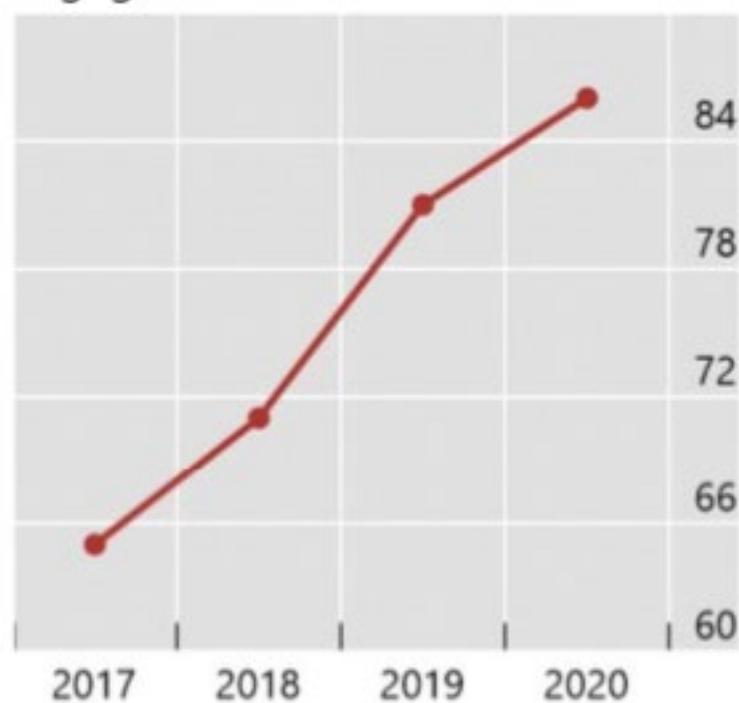
- is monetary sovereignty threatened by private digital currencies ?
- will digitalization allow China to catch up with the US as an international currency
- data and monetary sovereignty (money is information)
- will digital money define / consolidate social arrangements (surveillance, privacy)
- will differences in data / privacy regimes shape the future IMS ?

Central bank engagement on CBDCs is rising

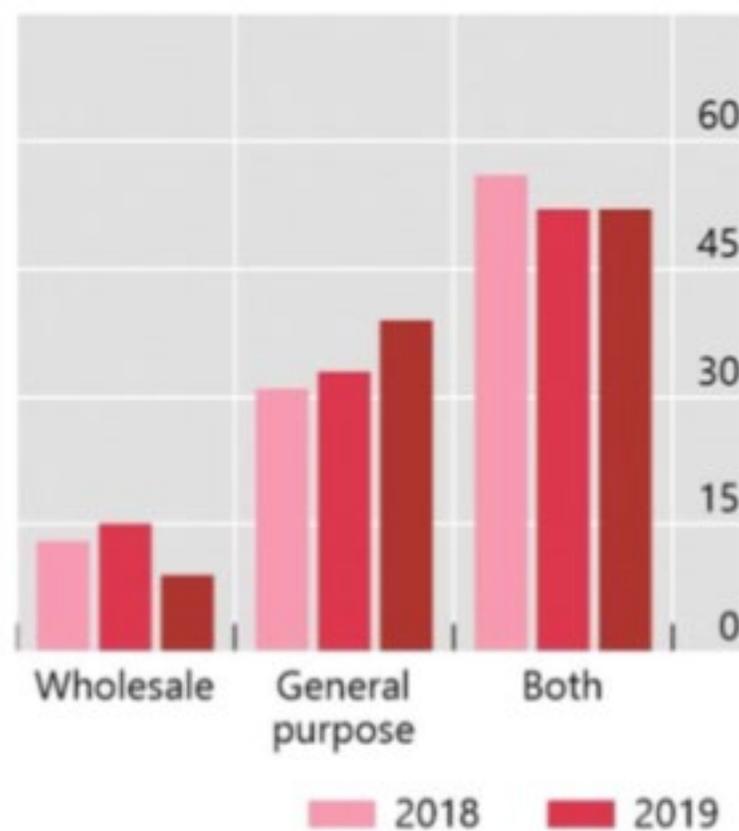
Share of respondents

Graph 5

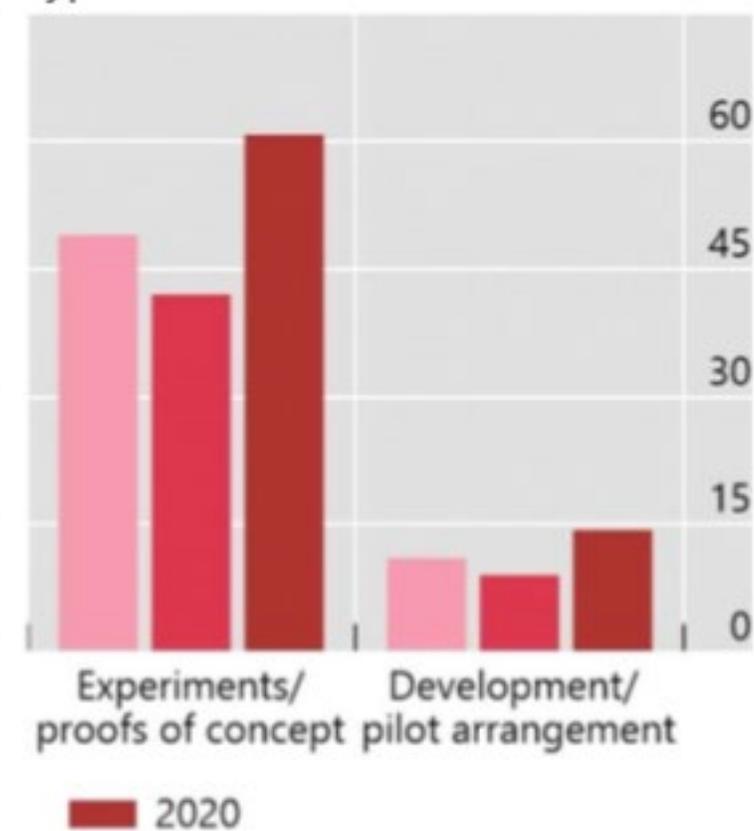
Engagement in CBDC work



Focus of work¹



Type of work in addition to research¹



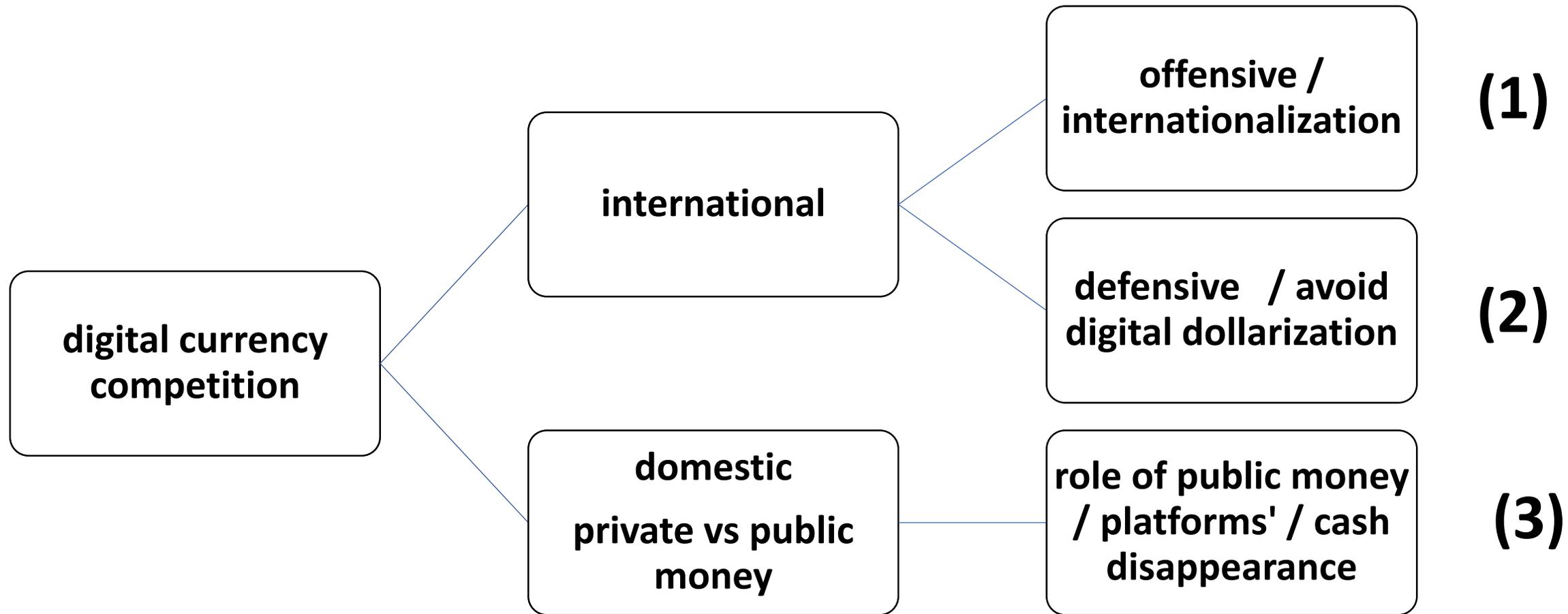
¹ Share of respondents conducting work on CBDC.

three steps

- i. concepts and forms of currency competition
- ii. private / public currency competition and digitalization
- iii. international competition between sovereign currencies in a digital world

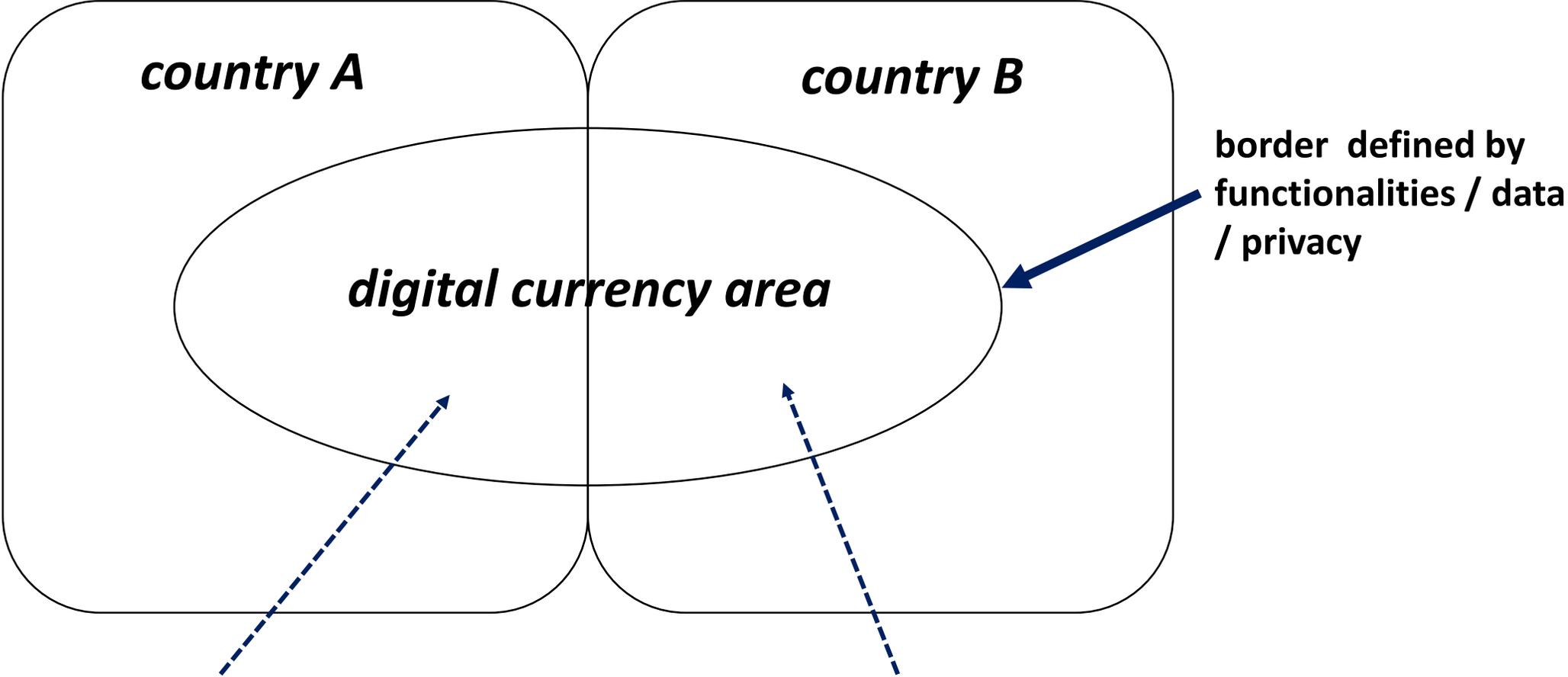
three dimensions of currency competition

1. private – private (Banks vs Big Tech)
2. private - public : competition in payments and / or competition as a unit of account (where did Libra cross the line)
3. public public competition between sovereign currencies



headlines are on (1) but (2) and (3) actually raise more immediate and challenging policy issues

Digital Currency Areas : (much) easier to pay inside than outside – irrespective of macro / structural situations

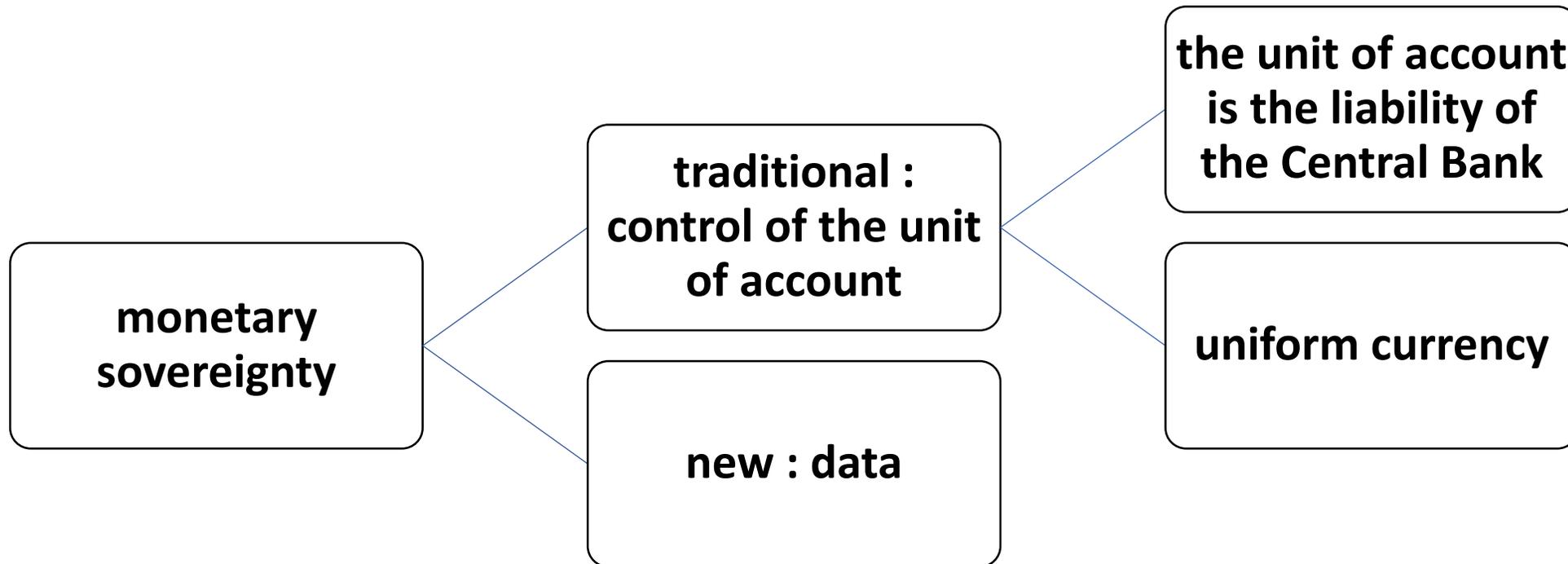


if denominated in currency A, then B exposed to "digital dollarization"

if denominated in is own unit of account both A and B exposed to currency substitution

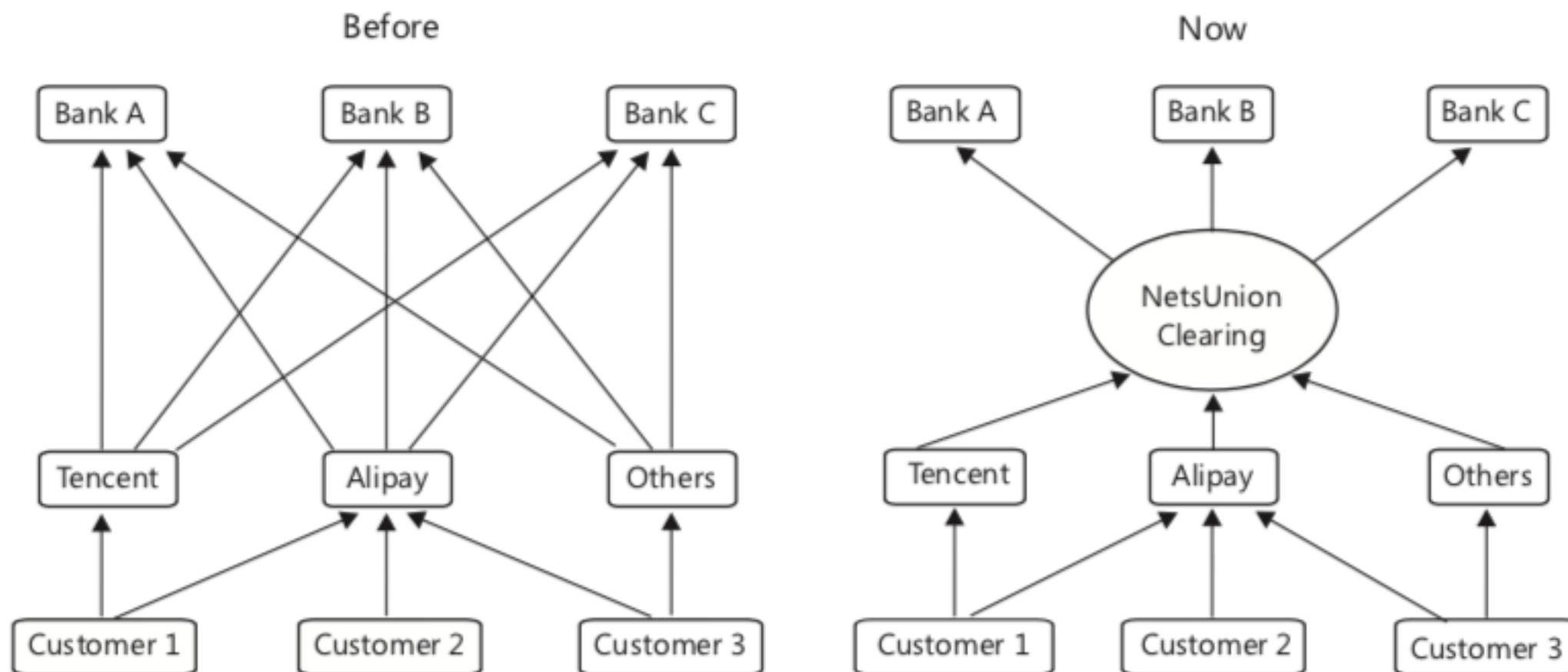
II- competition / complementarity between public and private money

- monetary systems are based on the complementarity between public (base) and private (broad, bank) money – and competition between private money issuers (under regulation). Governments have been happy with this arrangement for many decade
- three reasons digitalization may destabilize that equilibrium :
 1. data
 2. a cashless society :
 3. uniform currency



1. digital money and data

- money as information / memory
- data collection at the core of the business model of platforms as money systems
- policymakers increasingly aware of the money - data nexus
- introduction of central clearing in digital money by China in July 2018
- letter by German Chancellor and three PM on March 3
 - " *data has become new currency which is mainly collected and stored outside Europe*"
- data and privacy regimes will shape international financial and monetary relations



2. some interesting questions in a cashless world where the general public has no access to public money

- no more public money in the hands of the general public (public money is only in the form of bank reserves)
- to whose communication will the general public pay attention
- in which currency is public debt paid back ? Does it affect its pricing
- is the currency still "uniform" : how strict and permanent equivalence between different forms of private money

3. uniform currency

- all monetary instruments denominated in the same unit of account are equivalent : have the same value irrespective of time and place
- a condition for efficiency of monetary policy
- tends to be taken for granted; but
- what if no public money generally accessible (how to "price" private money)
- digitalization offers infinite versatility and possibilities in the forms of money : "programmable money"

for Governments

- immediate pressure comes from the domestic front : the Ant financial saga
- cannot be defensive only : impede technology . Monetary authorities must give people access to money " in line with their preferences"
- therefore increased regulation AND Central Bank Digital Currency AND acceleration of fast payments

the Governments strike back

- China :
 - introduction of central clearing for digital money networks (Alipay and Tencent – Wechat) in July 2018. Data monitoring ?
 - the downsizing of Antfinancial (involving of the President)
- Libra
 - multiple pushbacks by regulators
 - the new unit of account (basket) is abandoned. Diem (new name) will be denominated in sovereign currencies

CBDCs : maintain access to public money

Carstens

- *In the context of declining cash use and a lack of universal access to the banking system, many central banks see CBDC as a means to ensure that the public maintains **access to a safe, publicly issued payment option** to complement cash.*

Digital Euro

- *giving Europeans easy access to a safe central bank money (.. in a digital payments society (ECB report)*
- *it would also contribute to financial sovereignty and strengthen the international role of the euro (Panetta, October 2020).*

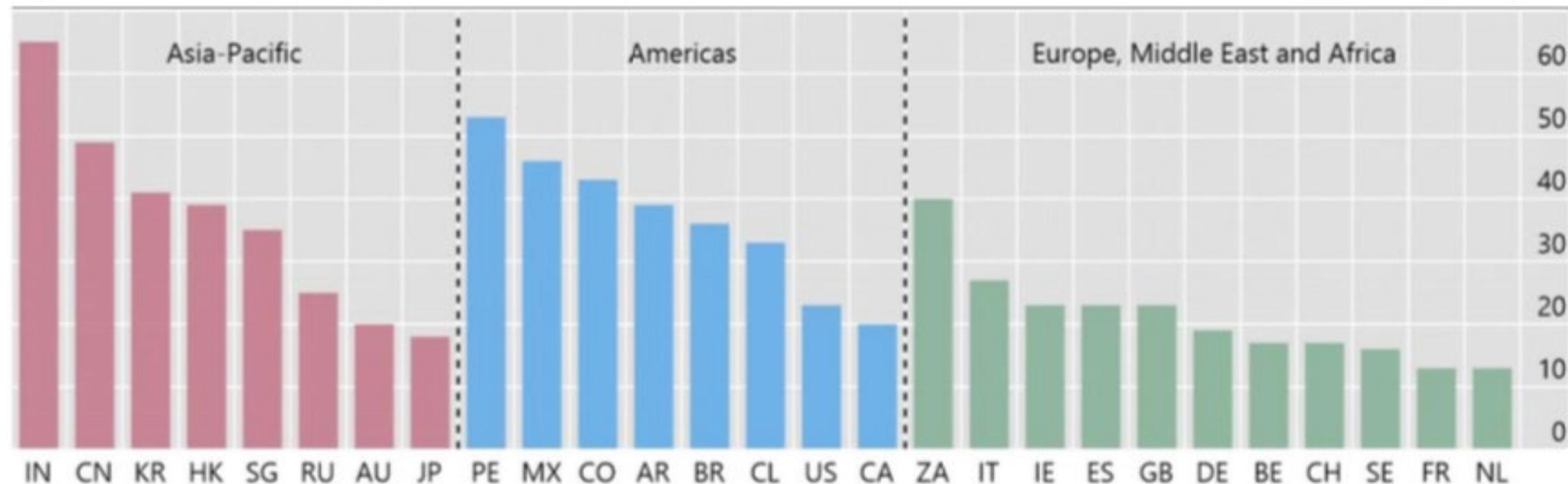
Governments / Central Banks will face trade offs and social choices

- Big Tech, banks and Central Bank money
- privacy for small payments (granted by cash but CBDC ?)

Preferences regarding privacy vary across countries

In per cent

Graph 8



Agree or strongly agree to share the data¹

¹ The question in the survey reads, "I would be comfortable with my main bank securely sharing my financial data with other organisations if it meant that I received better offers from other financial intermediaries"; for Belgium, the figure covers Belgium and Luxembourg.

Source: S Chen, S Doerr, J Frost, L Gambacorta and H S Shin, "The fintech gender gap", *BIS Working Papers*, forthcoming; EY, *Global FinTech Adoption Index 2019*, June 2019.

Ill-sovereign money and international currency digital competition

- from an analytical perspective, international is a "pure" environment

International money has no supernational legal framework to which analysts can refer to establish its properties. Its natural domain is divided amongst autonomous national jurisdictions. yet, the classical need for a numeraire, medium of exchange and store of value is felt at the international level (McKinnon 1989)

- no state power of money
- no legal tender
- no taxes to be denominated in a designated currency

a thought experiment (the functions of money)

- one currency has an established position as an international store of value / safe asset / reserve currency
- another currency has comparative advantage in issuing digital money on large networks with already hundred of million participants
- which currency will " dominate" as a unit of account (invoicing) - and influence global monetary and financial conditions

money is about scale (externalities)

For international money, they come in two forms :

- network externalities : money as a medium of exchange
- liquidity externalities : money as a store of value (reserve currency)

question : will digitalization, through (cross border) networks enhance the first externality and reduce the dominance of reserve currencies in the international monetary system

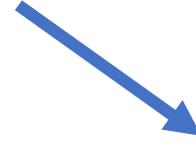
limited number of international currencies



scale / size



network effects



financial markets – liquidity safety



payment / invoice



reserve / store of value



unit of account /
currency zones

the dominant currency paradigm (Gopinath Stein)

- a dominant currency imposes itself as an international unit of account (invoice, funding)
- complementarity between store of value and medium of exchange well established
- causality : dominance comes mostly from the medium of exchange (trade) function (with I feedback with the store of value function : trade financing is cheaper if safety premium attached to the dominant currency)
- support Eichengreen : logical sequencing (1)invoicing and settling trade (2)use in private financial transactions (vehicle currency) (3) use by Central Banks as reserves

discussion

1. store of value as a "buffer" between transactions may be driven by currency as invoicing
2. but what about precaution motives ? Here, liquidity externalities play a major role : may reverse the causality. Accumulate reserves (safe assets) as precaution and then complementarity pushes
3. being the ultimate safe asset gives power to drive the global financial cycle
4. however, having a payment / money network may allow to escape political dominance (sanctions)

China

- China most advanced in pilot CBDC
- Alipay and Tencent develop international operations but in domestic currencies (not RMB)
- China progressively setting up a payment infrastructure for international RMB (clearing banks, bilateral swaps, SWIFT)
- China overseas lending by official entities is still 70% denominated in USD and only 10% in RMB

some conclusions

- in the immediate future, strategies of currency competition through digitalization will be essentially "defensive"
- EMEs will be the most active, because already exposed to currency substitution (especially if capital account is open). What's App money in India and Brazil
- if history is any guide, close interaction between political influence and the use of currency in payments (if not a store of value)
- all the more so that data / privacy regimes will play a key role in shaping the map of international money and finance