

# Central Bank Digital Currencies and International Payments

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# Agenda for this presentation

1. How cross border payments actually work
2. Research design
3. Findings
4. Further reflections

Including on implications for RTGS systems

Long paper 84 pages, material not covered in this presentation:

- review of policy initiatives to improve cross-border payments
- review of various CBDC initiatives
- an overview of payments innovation, network effects and adoption

## Recently published discussion paper

He, Chusu and Milne, Alistair K. L. and Zachariadis, Markos, *Central Bank Digital Currencies and International Payments* (May 17, 2022). SWIFT Institute Working Paper No. 2020-2, Available at SSRN: <https://ssrn.com/abstract=4112382>

## And on agenda item 4. some related papers

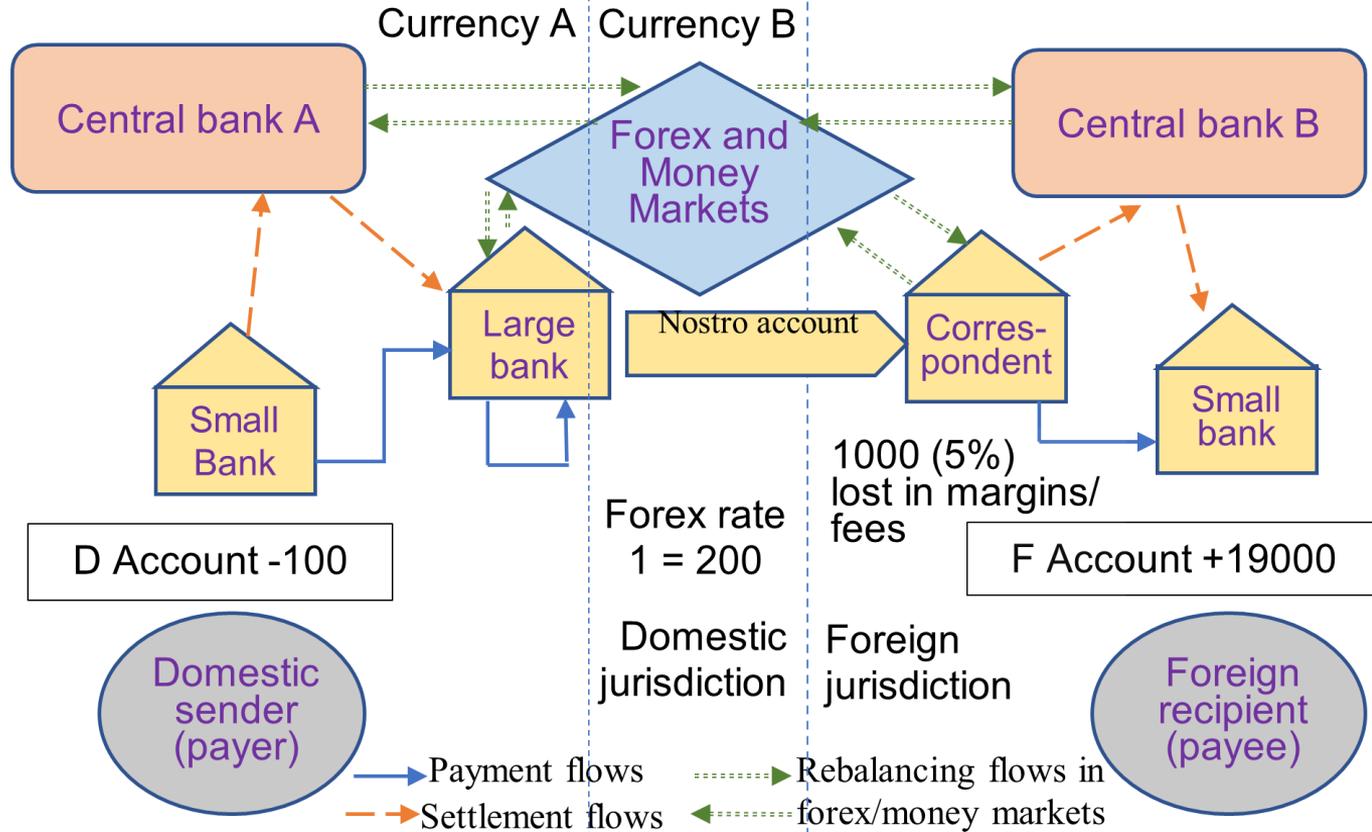
*The Nexus international payments platform: is it business model viable?* (He, Milne and Zachariadis 2022), Forthcoming: Journal of Payment Systems and Strategy

*Defining digital assets:* (Milne 2022), the SWIFT institute.  
<https://swiftinstitute.org/research/defining-digital-assets/>

*Argument by false analogy: the mistaken classification of Bitcoin as token money* (Milne 2021, SSRN) ([https://papers.ssrn.com/abstract\\_id=3290325](https://papers.ssrn.com/abstract_id=3290325) )

# 1. How cross-border payments actually work

# International payments do not exist!



Reality

Figure 2 of He, Milne and Zachariadis (2022)

Key point – in international payments **money is not transferred**

## 2. Research design

## 20 interviews with payments professionals

Each interview lasted at least 45 minutes, often longer

These were then transcribed and the transcription sent to the interviewees to add comments/ correct our summary. Around 100 pages in total.

### Our research questions

1. How do existing cross-border payments arrangements work?
2. Can CBDC help in cross-border payment? How?

<b>Category (by main professional experience)</b>	<b>Number</b>
<b>International banks</b>	5
<b>International card schemes</b>	2
<b>Non-bank payment service providers</b>	3
<b>Regulators and infrastructure providers</b>	7
<b>Payment technology consultants</b>	3
<b>Total</b>	20

# Definition of CBDC

- *we adopted the widest possible definition, any form of direct access to central bank balance sheet*
  - Retail: end customer
  - Wholesale: financial services institutions
  - In many respects indistinguishable from bank money
- Do not assume distributed ledger technologies or any particular systems architecture (e.g. hybrid v. direct)

1. Small business payments
2. Larger corporate transactions
3. International retail purchases
4. Remittances

Also possibility of transformative change

# Questions (scenario specific)

- A. What is your understanding of CBDC
  
- B. (for each of the four payment scenarios) What are the concerns (cost, speed, etc.) for payers/payees under current arrangements? How might these be improved/ transformed by access to CBDC, allowing for possible CBDC design choices?

*Underlying all these scenarios is the possibility that CBDC issue might support radical simplifications of the current complexity of international payments, disrupting the role of incumbent intermediaries and other service providers and replacing them with more direct exchange.*

- C. To what extent do you agree that this is a possibility? How does this depend on CBDC design choices? Is there a greater or more limited role for smaller institutions?

## 3. Findings

# 1. Small business payments

- Existing arrangements bank to bank via SWIFT messaging; increasingly non-bank alternative foreign exchange as well
- Delays, costs and lack of transparency have been a major concern
- Wholesale CBDC offers the possibility to tackle high costs and poor service quality *through greater market competition in correspondent banking service provision.*
- Benefits of Retail CBDC not so obvious.  
But could help in encouraging associated innovation e.g. adoption of global identity standards. These could lower the costs of compliance and reduce the delays that arise when there are mistakes in payment instructions

## 2. Larger corporate transactions

- Customers with regular payments of \$100,000 or more.  
Prompted much less discussion
- The principal challenge is not so much international payments as international liquidity management.  
They hold many currencies, effectively internalising the role of Large bank in Figure 2
- Costs, speed and transparency, not really a concern.
- Possibly, the holding of wholesale CBDC could be of interest to some of these large businesses  
especially if this eases their ability to lend and borrow in wholesale money markets .

# 3. International retail purchases

- the world of card payments, Visa, Mastercard etc.
  - International tourists/ travellers *or* cross border retail purchases
  - A more complicated version of Figure 2 !
- Issues
  - Speed of payment not an issue
  - Transparency matters occasionally
    - e.g. if there is a dispute or suspected fraud
  - Large costs but only the foreign exchange costs visible to the payee
    - Alternative forex providers are beginning to offer lower cost services
- Retail CBDC
  - May help with lack of acceptance at POS, if available to tourists
    - *Example – eCNY during the 2022 winter olympics*
  - More broadly potential concerns with market power of card associations (but this is not a specifically cross-border issue)
- Wholesale CBDC
  - May facilitate business models of alternative forex providers

## 4. Remittances

- The ‘poster child’ for claims about low cost CBDC
  - *Crypto esp Bitcoin does support low cost remittance in some contexts!*
- Issues
  - Slow speed
  - High costs – especially for “cashing out”
    - Especially for cashing out
    - And compliance with AML and sanctions
  - Issues being addressed, especially through the range of new providers
- Retail CBDC
  - Broad adoption, as an e-money, will reduce costs of “cashing out”
- Wholesale CBDC
  - Can again help new providers compete

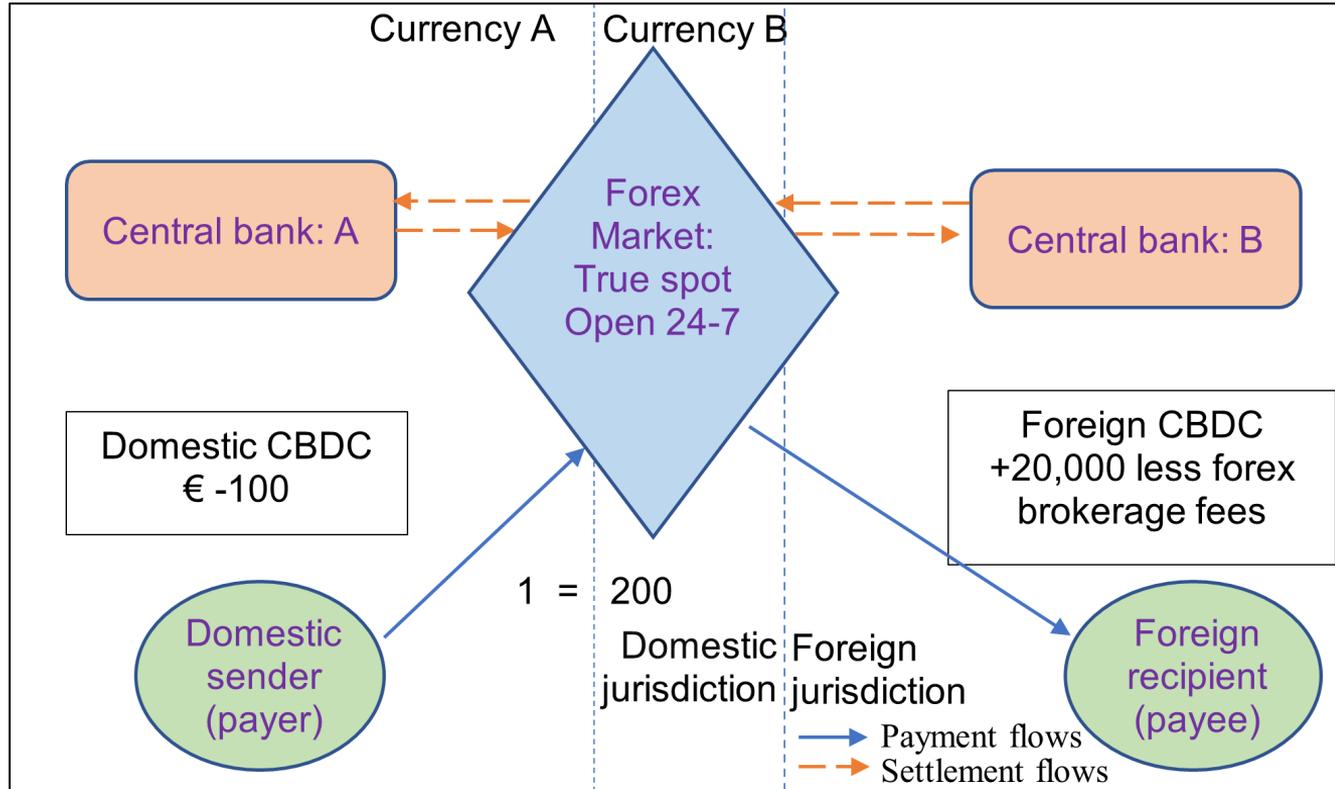
## 5. Transformative change?

- Only if there is a change to the architecture of Figure 2
- We discuss two possibilities
  1. Wholesale CBDC – held by financial institutions worldwide & directly exchanged
    - Allowing 24/7 cross currency liquidity management
    - Near real-time settlement

Note that currently no demand – the CLS-now service has not taken off

2. Retail CBDC – held directly or indirectly by natural and legal persons worldwide & directly exchanged
  - With financial institutions acting as brokers
  - Illustrated on next page

# A CBDC based redesign?



Future reality?

Figure 3 of He,  
Milne and  
Zachariadis  
(2022)

But (i) many  
variations  
possible (ii)  
major change in  
business models  
(iii) a key issue is  
adoption

Summary of SWIFT paper:

what is the CBDC opportunity in x-border payments?

# The CBDC opportunity in X-border payments?

What is the difference between a physicist and an economist?....a physicist cannot talk to his atoms. An economist can talk to households and firms. Useful: the devil is in the detail

Main lesson from our paper. Focus on *architecture not building materials* (e.g. DLT)

Two paths for CBDC and better international payments

1. Existing architecture, widening access to central bank balance sheets using **wholesale CBDC**

Widely adopted retail CBDC or other domestic e-money may also help  
**m-CBDC not relevant**

2. A new architecture (where mCBDC is relevant) e.g.
  - (a) direct real time exchange of wholesale CBDC replacing current forex market
  - (b) direct real time exchange of retail CBDC
- (b) will still involve intermediaries as brokers/ account providers

(also see follow up in JPSS, focus on business models). Further issue liquidity.

4. Further reflections (if I have time ... and I will then be controversial... )



1. DLT = Shared database, no single controller, immutable records
2. Either *permissionless*  
(the cryptophunk dream, must use blockchain)
3. Or *permissioned*  
(practical reality, completely different)  
closer to conventional database  
in most use cases (e.g. CBDC) DLT v. conventionally  
managed database is a secondary issue

# Widespread terminological confusion

- Useful terms

Notes & coin (one definition of currency)

Fractionally v. fully reserved money

Single v. multiple record systems

Promise to pay v. directly held money

Automatically executed contracts

Payment schemes (and their supporting information exchange)

- Unhelpful terms  
(confused or poorly understood)

Digital assets (I have a lot more on this)

Virtual currency

Digital currency

Token money

Atomic settlement

Smart contracts

Legal tender

If you cannot express your self without these terms, you have not understood what you are saying

# Implications for G20 work on x-border

- G20 Roadmap for Enhancing Cross-border Payments – first consolidated progress report Oct 2021

*Focus area A: Committing to a joint public and private sector vision to enhance cross-border payments*

The vision is regulatory reporting ! (very much a regulator's vision 😊)

- We have not even begun to discuss the architecture of cross-border payments...
  - implications for RTGS – much less netting/ fractional reserving
- Whatever the direction of travel we must pay attention to the viability of business models (see further JPSS paper)
  - Mostly likely this means focusing on standards development not creating new platforms

# Thank you!

<https://www.lboro.ac.uk/departments/sbe/staff/alistair-milne/>

[https://papers.ssrn.com/sol3/cf\\_dev/AbsByAuth.cfm?per\\_id=148057](https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=148057)

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