



# CBDCs in Latin America and the Caribbean

Online Roundtable Discussion on CBDCs in Emerging Countries: Opportunities and Challenges

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*The views expressed in this presentation are not necessarily those of the Bank for International Settlements.*

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# Content

- Views of LAC central banks towards CBDCs
- Potential benefits of CBDCs for LAC economies
- Potential costs and risks

# CBDCs in Latin America and the Caribbean: Central Banks' views

Central bank's work on CBDC advances further

Share of respondents



The use of this map does not constitute, and should not be construed as constituting, an expression of a position by the BIS regarding the legal status of, or sovereignty of any territory or its authorities, to the delimitation of international frontiers and boundaries and/or to the name and designation of any territory, city or area.

¹ Share of respondents conducting work on CBDC. ² Global results corresponds to the 65 countries answering the survey in 2020 for Boar, C and Weherli, A, (2021): "Ready, Steady, Go", BIS Working paper N°114.

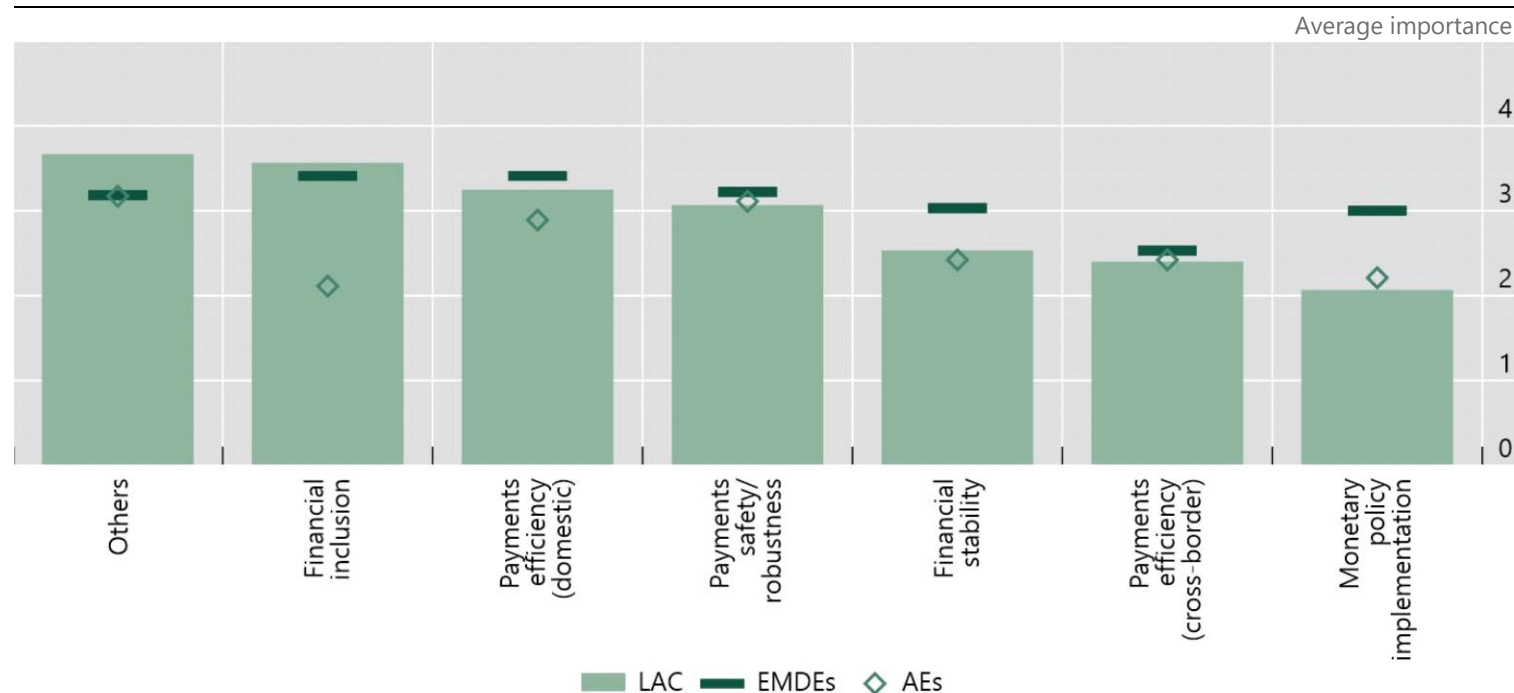
Source: BIS central bank survey on CBDC; R Auer, G Cornelli and J Frost (2021): Rise of the central bank digital currencies: drivers, approaches and technologies, BIS Working paper N° 880, August.

- 21 central Banks surveyed: 2020-2021
- Clear interest in CBDCs: 85% engaged in CBDC research.
- Higher interest in retail CBDC compared with the global average
- One of the most dynamic regions in the world

# CBDCs in Latin America and the Caribbean: Central Banks' views

- Main motivations are to improve financial inclusion and the efficiency and safety of domestic payments
- Related motivation: To anticipate entries by private cryptocurrencies or stablecoins into local economies.
- Reduce – not replace – cash use is also a motivation: Cost of production and distribution

Motivations for issuing a retail CBDC



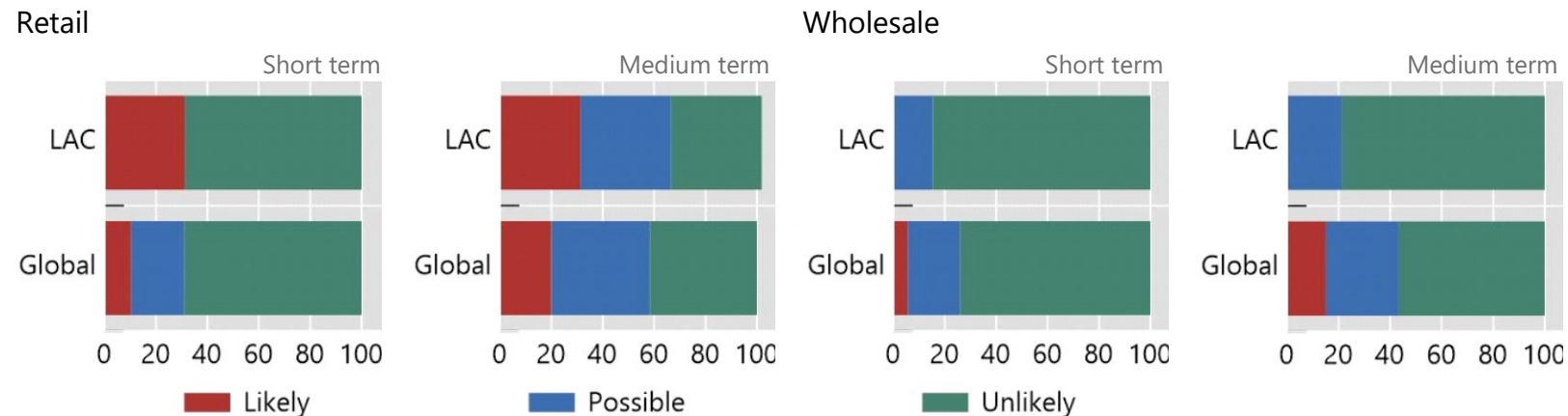
Scale: 1 = not so important; 2 = somewhat important; 3 = important; 4 = very important.

Source: Boar and Wehrli (2021); BIS survey on CBDC in LAC.

## The likelihood of CBDC issuance

- Despite being one of the leading regions in the world, most central banks are not planning to issue a CBDC soon
- Much less interest in issuing a wholesale CBDC

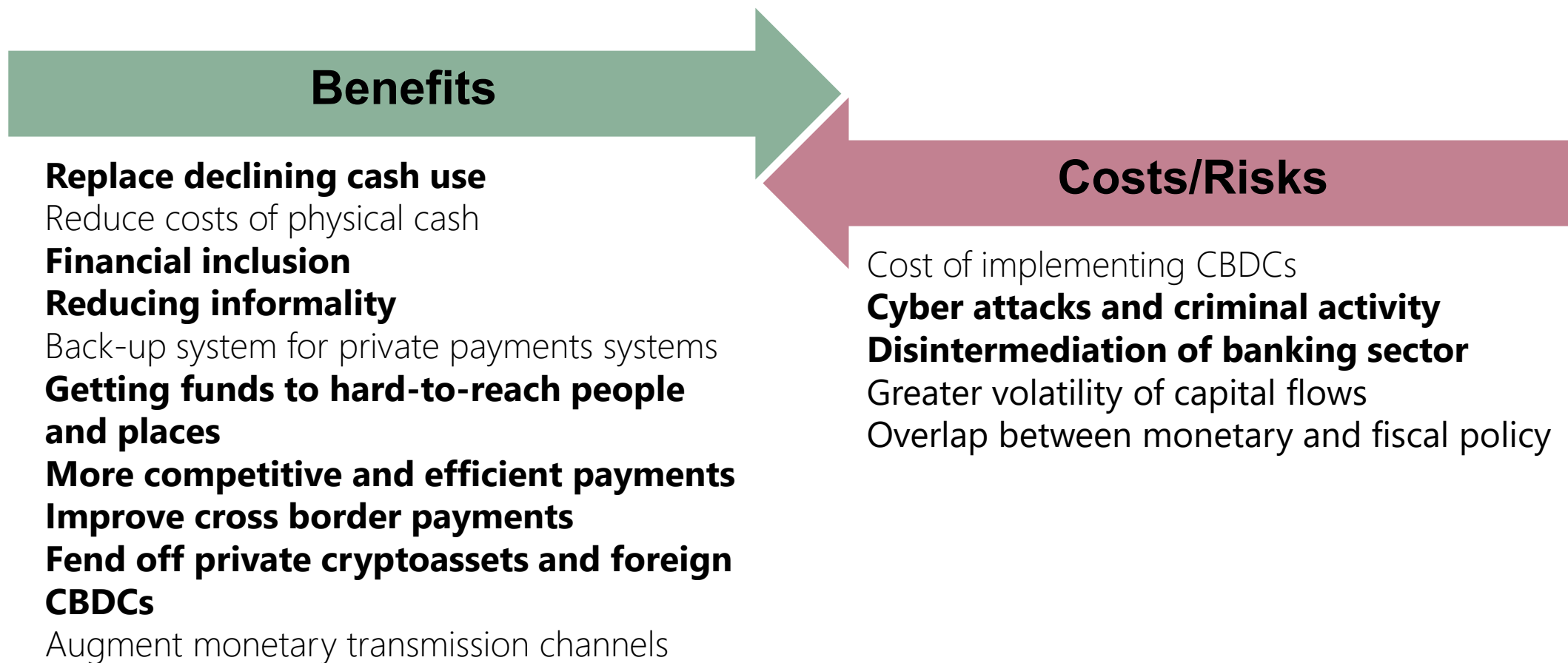
Share of respondents



Short term: 1–3 years; Medium term: 1–6 years. In all graphs "Likely" combines "very likely" and "somewhat likely". "Unlikely" combines "very unlikely" and "somewhat unlikely".

Source: BIS central bank survey on CBDC.

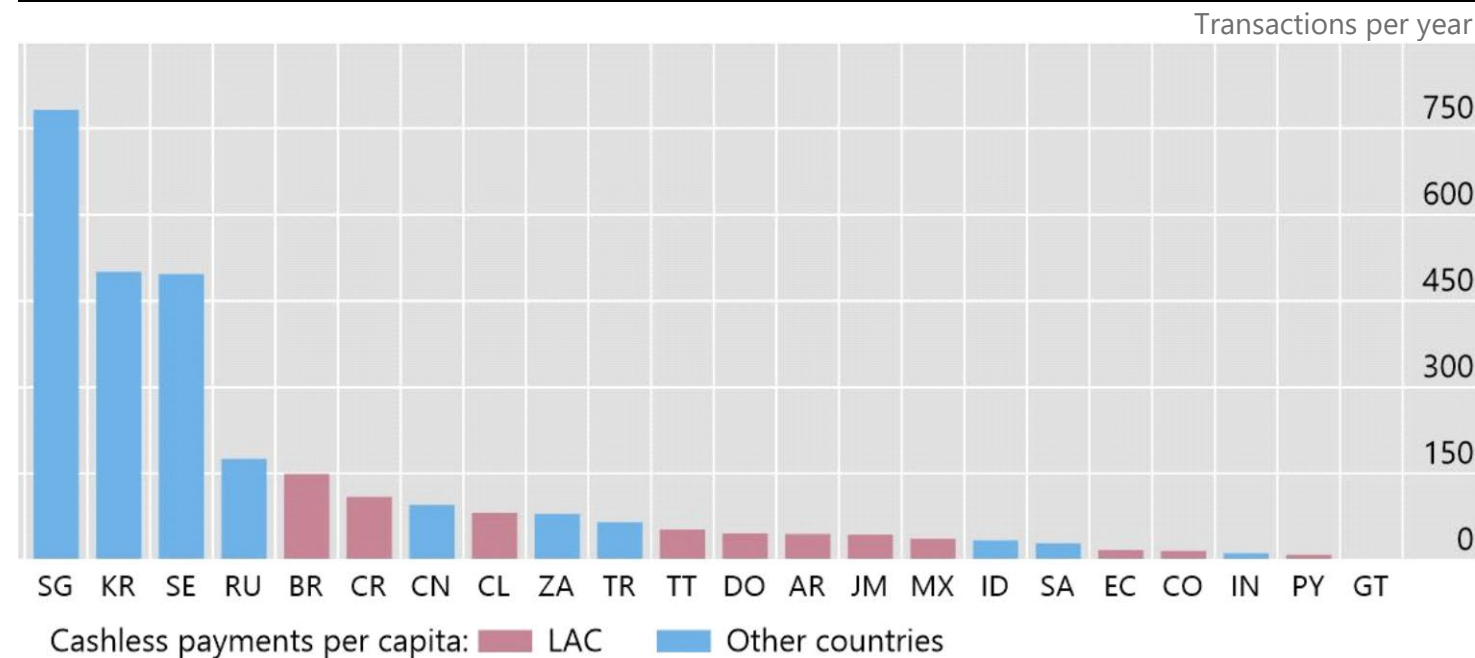
## Potential benefits and costs of CBDCs for LAC economies



## Declining cash use? .... Nope!

- Key selling point of CBDCs in advanced economies – issue digital central bank liability to replace declining cash use.
- Rationale less relevant to LAC.
- Cashless electronic payments not that popular in LAC (red bars), even compared with other EMDEs (blue bars).

Use of cashless payments<sup>1</sup>



<sup>1</sup> Data for 2017.

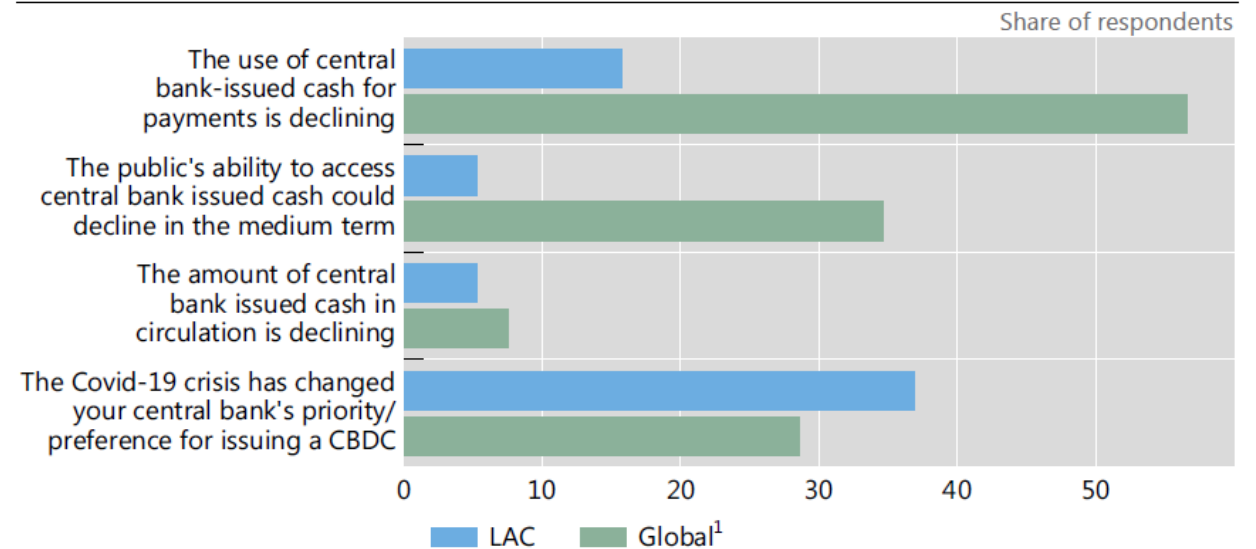
Sources: CEMLA, Yellow Book statistics; CPMI, Red Book statistics.



## Declining cash use? .... Nope!

- Confirmed by our survey: LAC central banks don't see cash use declining now or in medium term.
- So declining cash use not a first-order rationale for CBDCs in LAC.

### Central bank responses to assertions about cash use



<sup>1</sup> Global results correspond to the 65 countries answering the survey in 2020 for Boar, C and A Weherli (2021): "Ready, Steady, Go", *BIS Working papers*, no 114.

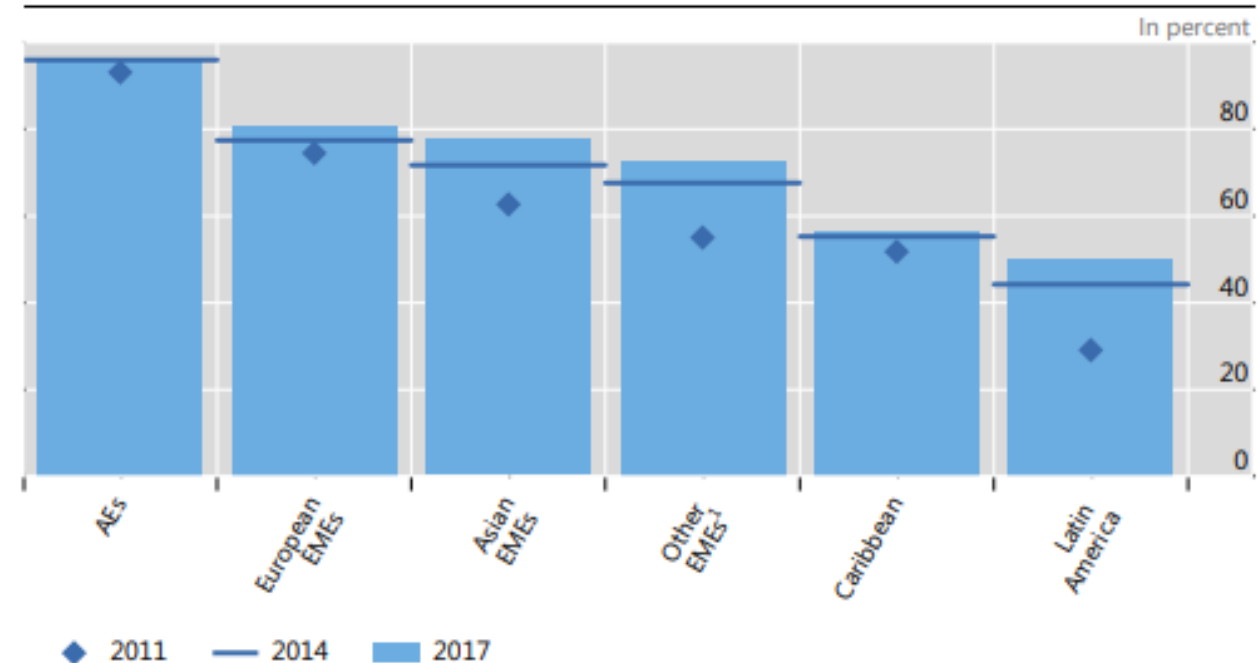
Source: BIS central bank survey on CBDC.



## Promoting financial inclusion? ... yes

- In our survey, most salient motivation for central bank interest in CBDCs.
- Especially relevant to LAC, given low share with transaction accounts.
- 69 percent have cellphones, only 49 percent have bank accounts.
- Popularity of M-Pesa in Kenya.
- Needs to be complemented with government outreach.

Share of adults with access to transaction accounts



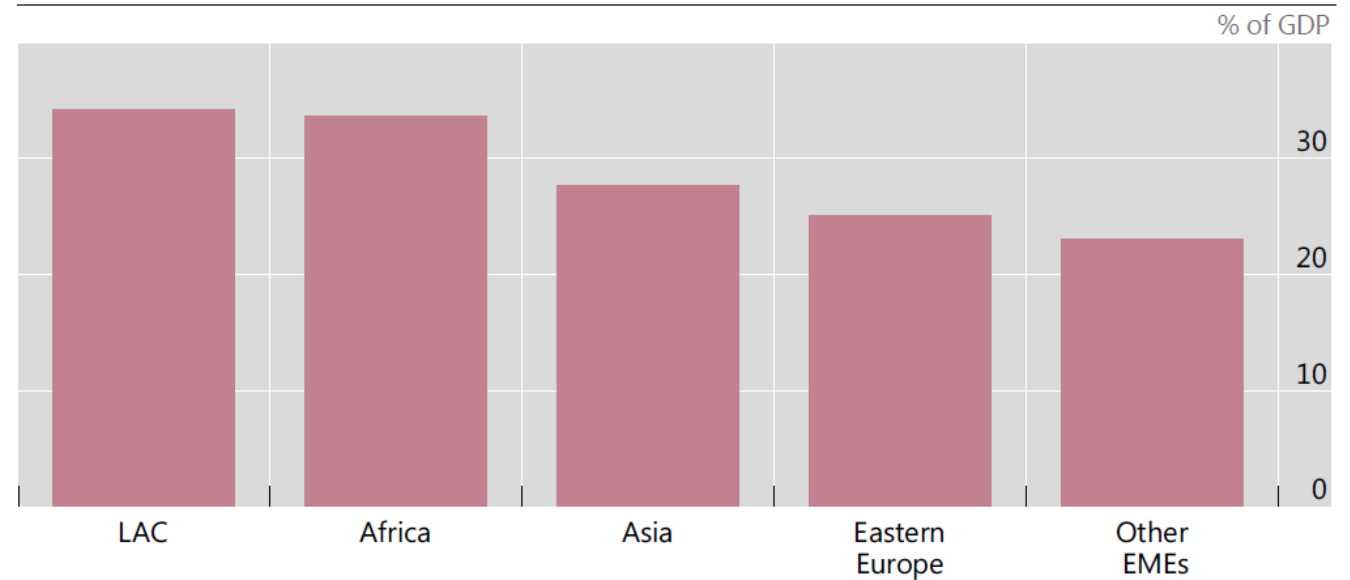
<sup>1</sup> Middle East, Russia and South Africa.

Sources: CEMLA, Foro de Pagos Yellow Book statistics; CPMI, Red Book statistics; World Bank, Findex.

## Reducing informality? ... yes, hopefully

- LAC economies have large informal sectors.
- Restrain economic development: reduce taxes, discourage investment, constrain firm size.
- Informal sectors run on cash.
- If CBDCs widely adopted, could encourage informal retailers to accept, push them into the formal sector.

Shadow economy<sup>1</sup>



<sup>1</sup> Index to measure shadow economy used by Auer, Cornelli and Frost, originally calculated by Leandro Medina and Friedrich Schneider

Source: R Auer, G Cornelli and J Frost (2021): Rise of the central bank digital currencies: drivers, approaches and technologies, BIS Working paper N° 880, August.

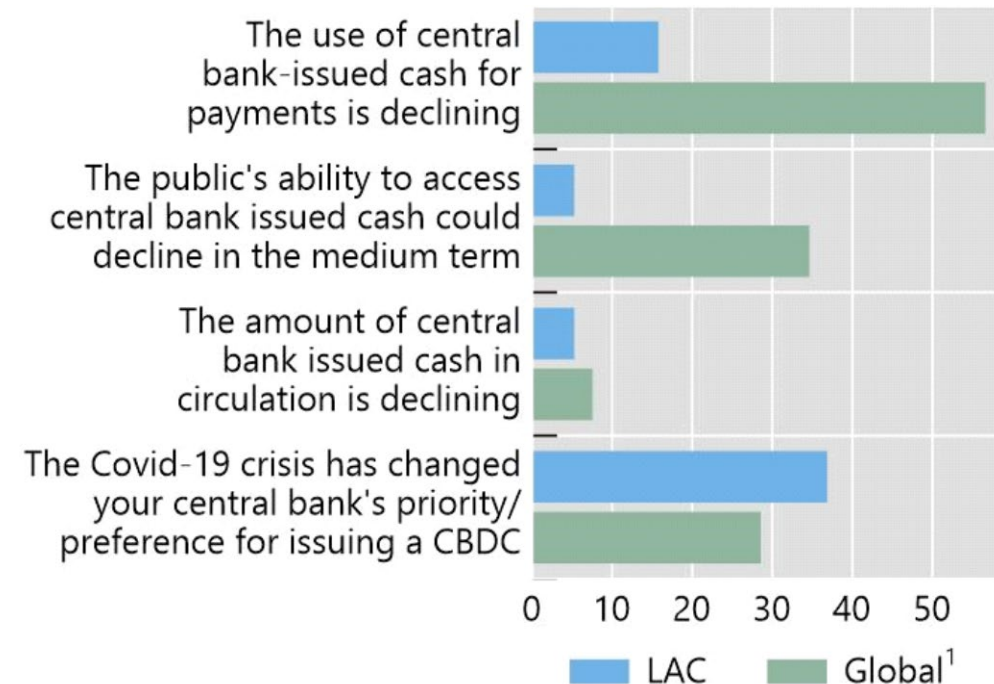
## Getting funds to hard-to-reach people and places? ... yes

- Emergencies such as hurricanes.
  - Hurricane Maria in Puerto Rico 2017: cash shortages
  - Bahamas adopted CBDCs to get payments services to far-flung islands.
- Covid-19: another kind of emergency.
  - Governments struggled to distribute relief payments quickly and efficiently.

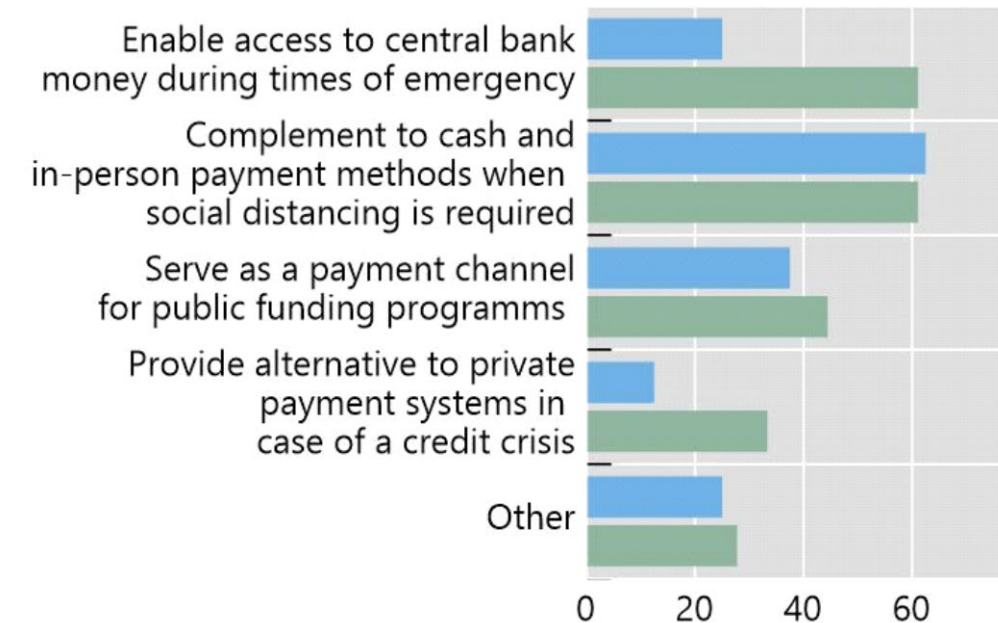
# Getting funds to hard-to-reach people and places? ... yes

Share of respondents

## Agreement to statements on cash use



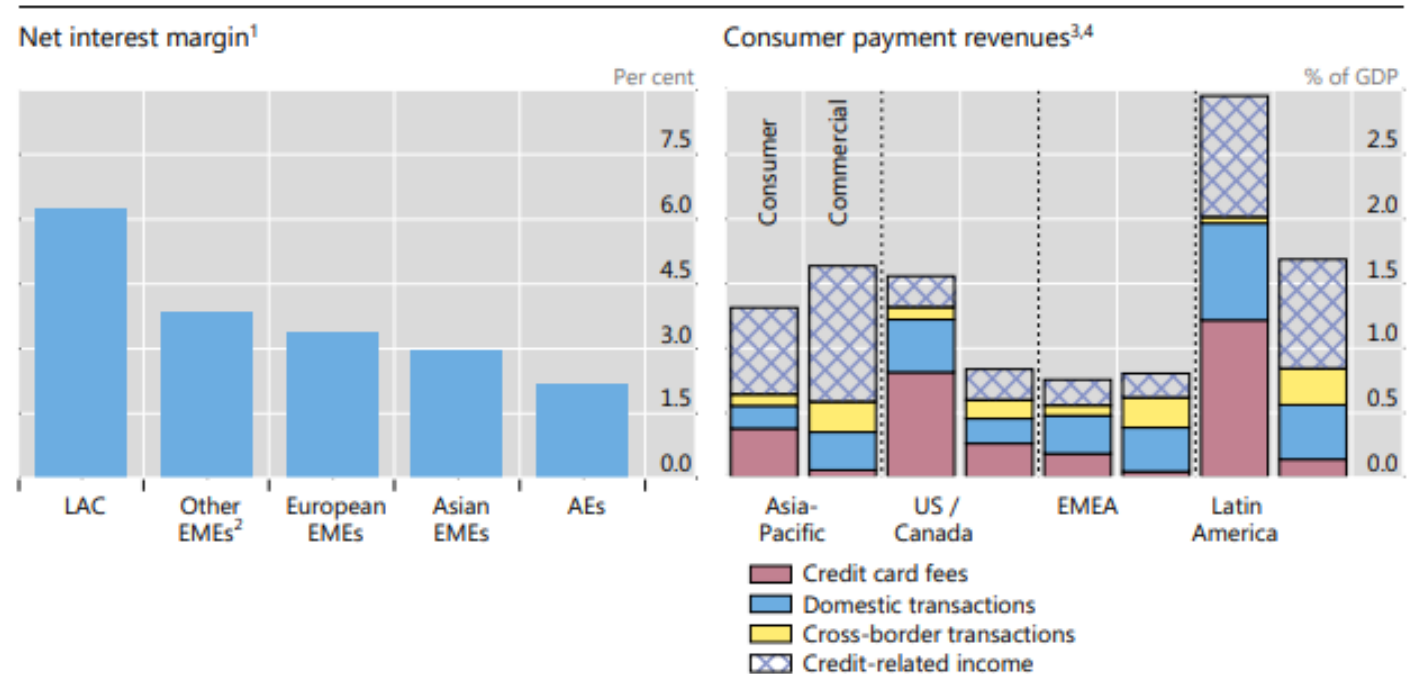
## Reasons for altered stance on CBDC due to Covid-19



Source: BIS central bank survey on CBDC.

## Promoting more efficient and competitive payments systems? ...yes, probably

- LAC banking and payment systems: concentrated, uncompetitive, inefficient, and high prices



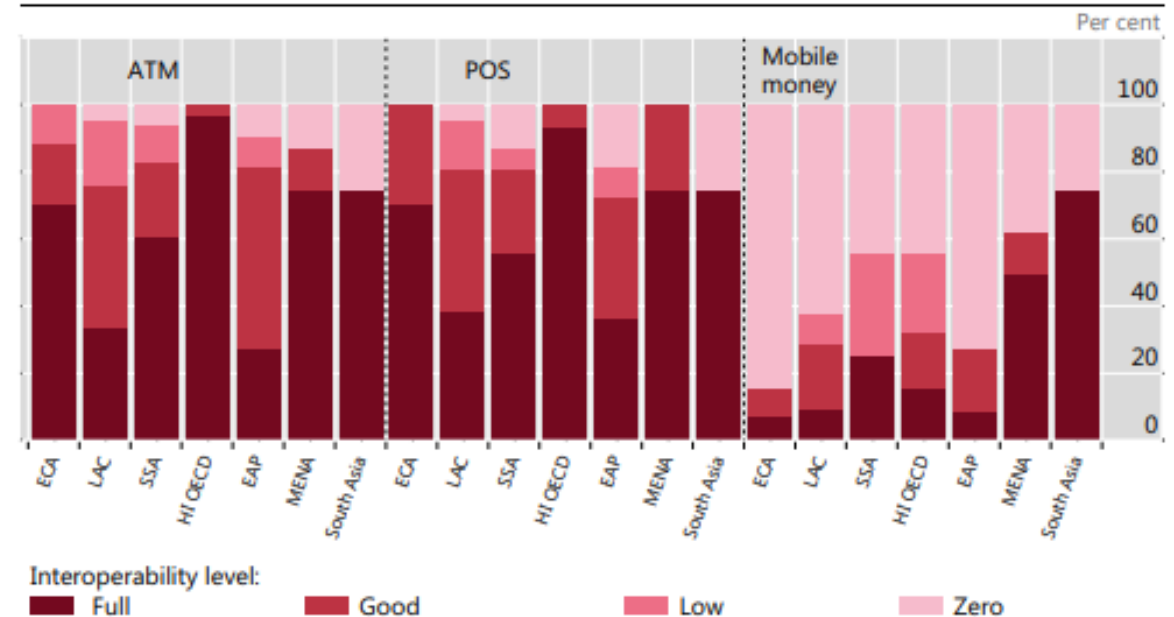
<sup>1</sup> Data for 2017. <sup>2</sup> Middle East, Russia and South Africa. <sup>3</sup> Data for 2018. <sup>4</sup> The regional GDP equals the sum of individual countries' GDP.

Sources: Beck et al (2000); McKinsey (2019b); World Bank *Global Payment Systems Survey* (GPSS).

# Promoting more efficient and competitive payments systems? ...yes, probably

- Concentration not the only concern: another is fragmentation
- Payments providers may offer systems that aren't interoperable – ie, difficult to conduct payments across different services – and that could raise costs, too.
- LAC already lagging in operability for mobile money services.

Degree of technical interoperability by region



EAP = East Asia and Pacific; ECA = Europe and Central Asia; EMEA = Europe, Middle East and Africa; HI OECD = High-income OECD; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SSA = Sub-Saharan Africa.

Sources: Beck et al (2000); McKinsey (2019b); World Bank Global Payment Systems Survey (GPSS).

# Promoting more efficient and competitive payments systems? ...yes, probably

- CBDCs may be able to address both concentration and fragmentation.
  - Can design common platform, open to private payments providers, and supervised to ensure fair competition.
  - Could ensure both free entry into market, and
  - Interoperability among payments systems.
- What about retail fast payments systems?
  - PIX in Brazil account for 70 percent of digital transactions.
  - Also CoDi in Mexico.
- CBDCs have three advantages:
  - No need for intermediary credit – can streamline payments, including cross-border
  - Common platform for payments provides could support more dynamic, innovative sector.
  - Could embed programmable contracts to automate financial transactions.



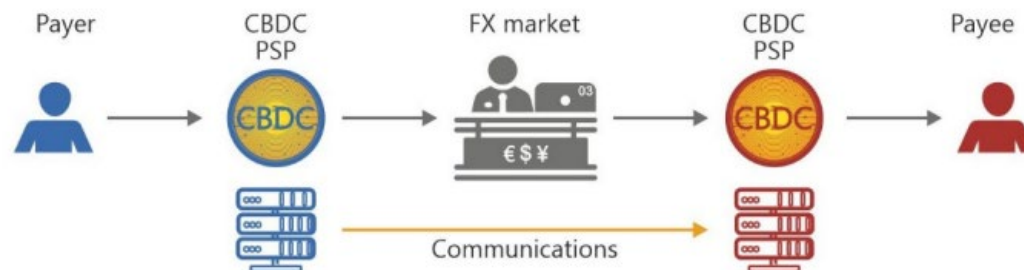
# Improve efficiency and lower cost of cross-border payments? Yes, probably

- Key issue for BIS, G20, FSB.
- Especially important for LAC, given high dependence on remittances.
- Long chains of correspondent banking links drive up costs
- BIS Innovation Hub: Multiple CBDC (mCBDC) arrangements to reduce links.

**Today's arrangement**



**mCBDC arrangement**

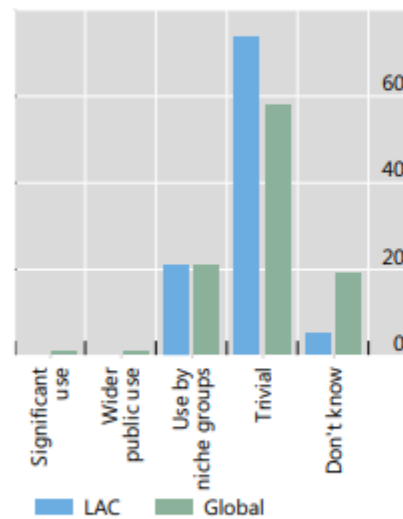


# Fending off private cryptoassets and foreign CBDCs?...it depends

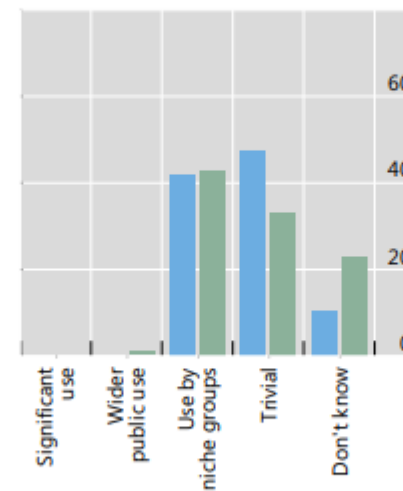
## Private digital tokens<sup>1</sup>

Share of respondents

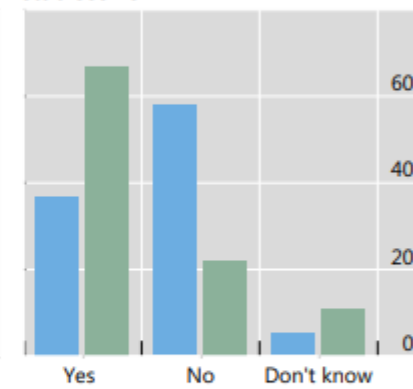
Use of cryptoassets for domestic payments



Use of cryptoassets for cross-border payments



Ongoing analysis of potential impact on monetary and financial stability of stablecoins



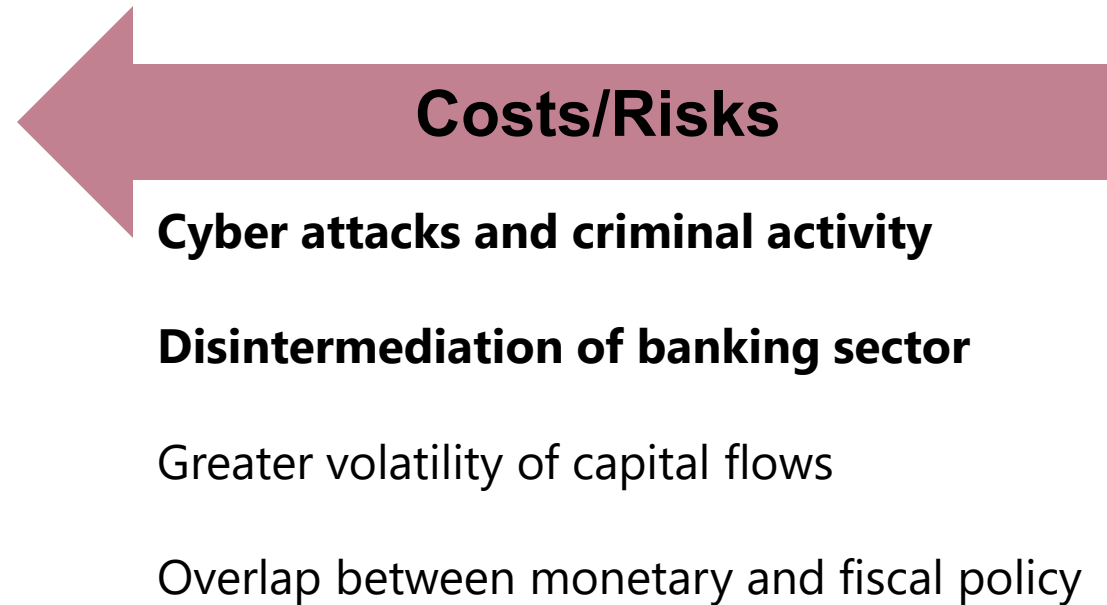
<sup>1</sup> Global results corresponds to the 65 countries answering the survey in 2020 for Boar, C and A Wehrli (2021): "Ready, Steady, Go", *BIS Working papers*, no 114.

Source: BIS central bank survey on CBDC.

## Fending off private cryptoassets and foreign CBDCs?...it depends...

- Central banks concerned that private stablecoins will divert demand from own currencies
  - Leading to capital flight, loss of monetary control, loss of seignorage
- Considering issuing own CBDCs to counter threat from stablecoins, foreign CBDCs.
- Will that work?
  - If jurisdictions are macroeconomically/financially stable but have slow, high-cost payments systems: maybe yes
  - If jurisdictions have high inflation/non-credible policies, leading to currency substitution: probably not

## Potential benefits and costs of CBDCs for LAC economies



# Potential costs and risks of CBDCs

- **Cyber attacks and criminal activity**
- **Disintermediation of banking sector**
- Greater volatility of capital flows
- Overlap between monetary and fiscal policy

# Cyber attacks and criminal activity

- CBDCs subject to same risks as private electronic payments:
  - Cyber attacks,
  - Illicit use for money laundering, tax evasion, etc.
- Two risks for central banks:
  - Reputational risk if CBDCs are hit
  - Political risk if central banks forced to intrusively monitor private CBDC accounts
- Means of addressing these risks:
  - Account-based rather than token-based CBDCs – to reduce criminal risk
  - Hybrid CBDC model:
    - Central banks issues CBDCs
    - Private banks distribute to retail customers, open CBDC accounts, monitor for compliance

# Disintermediation of banking sector

- Worries that CBDCs could siphon off money from bank deposits
  - In normal times, could force banks into the wholesale funding market, raising costs, reducing credit, increasing risk-taking
  - In crisis times, could lead to runs on banks that further destabilize financial system
- But several ways of addressing risks
  - Pay low/no interest on CBDC accounts
  - Caps on CBDC holdings (as in the Bahamas Sand Dollar)
  - If run into CBDCs occurs, central banks can relend funds to private banking system








# Design choices and challenges

- 5 LAC experiments, 3 ongoing
- All ongoing use hybrid model
- Both centralized and DLT
- Bahamas/ECCB: caps on holdings, no interest paid
- Central banks lack direct access to users' personal data
- No cross-border use

Features of major CBDC projects in Latin America and the Caribbean

Table 5

	Ecuador 	Uruguay 	The Bahamas 	East Caribbean 	Jamaica 
Architecture	Direct <sup>1</sup>	Hybrid	Hybrid <sup>2</sup>	Hybrid <sup>3</sup>	Hybrid <sup>4</sup>
Infrastructure	Centralised	Centralised	DLT and Centralised	DLT	Centralised
Cross-border use	National use only	National use only	National use only	Use by EC residents only	National use only
Offline use	Available	Available	Possible <sup>5</sup>	Possible <sup>6</sup>	Possible
Users' personal data	Held on the central bank platform	Anonymous but traceable	Can be accessed only by user's wallet provider	Can be accessed only by user's financial institution	Can be accessed only by user's wallet provider
Transaction registry	Held on the central bank platform	Managed by a private company	Central bank keeps the ledger of all individual transactions and holdings	Held on the blockchain	Central bank can access retail ledger but not the user's identity
Current status	Operated between 2014 and 2018	Pilot concluded in April 2018	Live CBDC	Live CBDC	Pilot concluded in December 2021. Rollout planned for 2022

<sup>1</sup> Central bank handles the retail payments and digital wallets. <sup>2</sup> Central bank maintains the ledger of all individual holdings of the digital currency; private providers of digital wallets onboard clients and perform KYC procedures. <sup>3</sup> The CBDC is issued to financial institutions, and they distribute it to their customers on demand. <sup>4</sup> The Bank of Jamaica will issue to commercial banks as well as authorised deposit-taking institutions, building societies, merchant banks and payment service providers (PSPs). These entities will distribute CBDCs to the retail market. The central bank will only have the wholesale ledger of transactions. <sup>5</sup> Users can make pre-set payments when the network in the island is down and wallets update against the network once communications are re-established. <sup>6</sup> The party initiating the payment must have an internet connection. If the receiver is offline, the payment will be still processed and the balances would be updated as soon as they are back online.

Sources: Central banks; A Arauz, R Garatt and D Ramos, "Dinero Electrónico: The rise and fall of Ecuador's central bank digital currency", *Latin American Journal of Central Banking*, vol 2, issue 2, June 2021; R Auer, G Cornelli and J Frost, "Rise of the central bank digital currencies: drivers, approaches and technologies", *BIS Working Papers*, no 880, August 2020, as updated in October 2021.

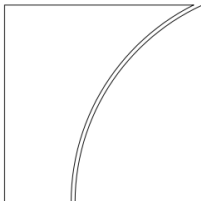
## Conclusions

- Central banks in LAC are very interested in CBDCs.
- Benefits appear to outweigh the costs/risks.
  - Costs/risks can be addressed through careful design and implementation.
- But benefits likely to be incremental, not transformative.
  - Won't revolutionize the economy.
  - Won't address most immediate worries: pandemic scarring, soaring inflation
- So issuing CBDCs not an immediate and pressing priority.
- But central banks can do more than one thing at a time, and careful/methodical consideration of CBDCs can be one of them.

# Some references



BANK FOR INTERNATIONAL SETTLEMENTS



## BIS Working Papers No 989

### Central bank digital currencies (CBDCs) in Latin America and the Caribbean

by Viviana Alfonso, Steven Kamin and Fabrizio Zampolli

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## Retail payments in Latin America and the Caribbean: present and future<sup>1</sup>

*Retail payment services in Latin America and the Caribbean are characterised by high costs and insufficient access for large swathes of the region's population. To overcome these limitations, some of the larger central banks in the region have taken the lead to introduce fast retail payments and develop an open banking ecosystem. Several others have launched central bank digital currency pilots. The shift to digital payments, which is supported by these policy initiatives, is likely to receive further impetus from the Covid-19 pandemic.*

JEL classification: E42, E58.

Despite the widespread adoption of mobile and internet technology, countries in Latin America and the Caribbean (LAC) have not been at the forefront of payment innovation. Relative to other regions, retail payment services in LAC continue to involve high costs for end users and be of subpar efficiency, partly reflecting low competition among financial institutions and limited compatibility among different payment solutions. Along with low income levels, high informality and low financial literacy, high costs contribute to limiting the access to electronic and digital payments for large swathes of the region's population.

However, conditions in LAC are ripe for a change. Central banks and other public authorities have recently launched important initiatives to improve national payment systems, which complement developments in the private sector. In recent years, the region has seen a sharp rise in the number of fintech firms offering more convenient ways to pay, and big tech firms have begun to integrate payment services into their e-commerce or social media platforms. However, private sector incentives are not always aligned with social goals. Central banks are the ultimate source of trust in money and payments and therefore play a key role in maintaining the safety and integrity of payment systems as well as ensuring that private sector innovation is channelled towards improving competition, consumer protection and financial inclusion, and preserving financial stability (BIS (2020)).

These efforts to improve payment services have received further impetus from the Covid-19 outbreak. Both the volume and value of digital payments have been rising faster than before the pandemic. Many individuals had a strong incentive or no alternative other than to use digital payments during lockdowns, and governments

<sup>1</sup> We thank Claudio Borio, Carlos Cantú, Stijn Claessens, Angelo Duarte, Jon Frost, Daniel Garrido, Wenqian Huang, Thomas Lammer, Benoît Mojon, Daniel Reiss, Tara Rice, Hyun Song Shin, Takeshi Shirakami and Nikola Tarashev for helpful comments and suggestions. We are also grateful to Cecilia Franco and Rafael Guerra for excellent research assistance. The views expressed are those of the authors and do not necessarily reflect those of the Bank for International Settlements.

Thank you!

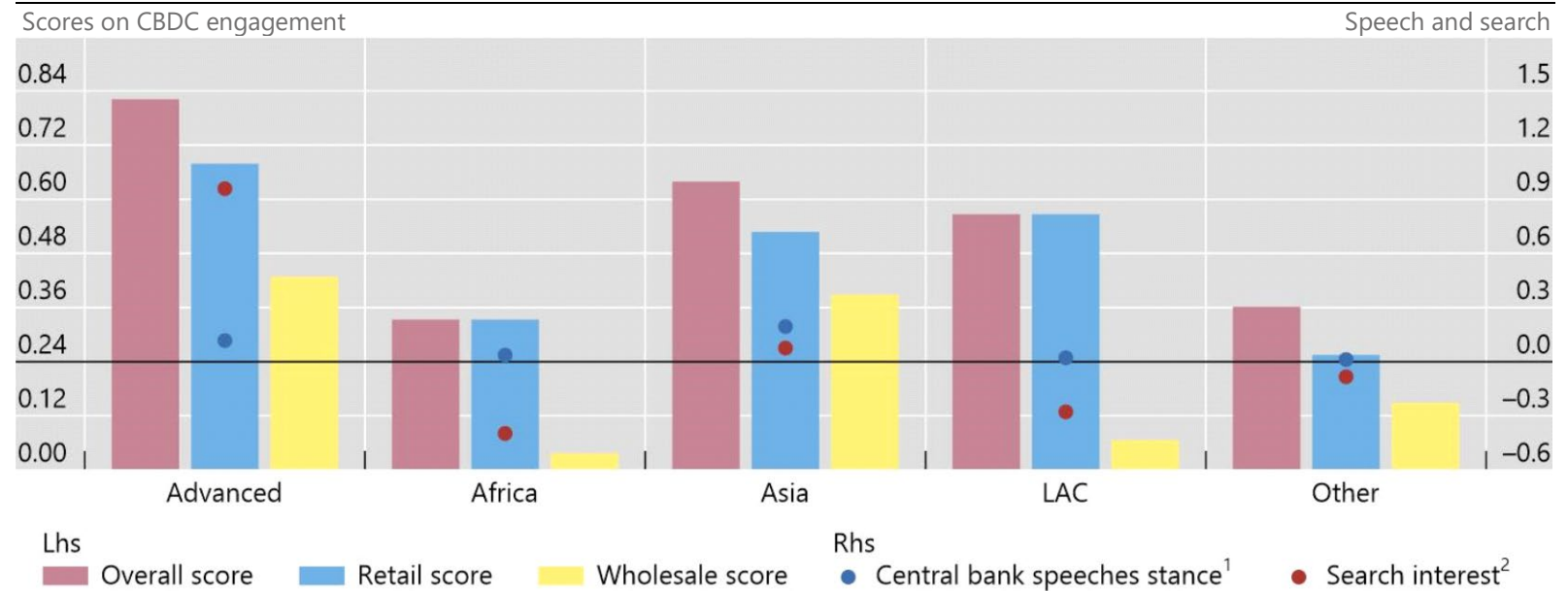
Q&A



# The drivers of central bank engagement in CBDCs

- Measures of interest and engagement in CBDCs in the LAC region are lower than those in AEs but broadly similar to those in other EMDEs.

CBDCs scores and search interest



<sup>1</sup> Data have been normalised and windsorised at 5% <sup>2</sup> Data have been normalised

Source: Auer, R, G Cornelli and J Frost (2020): "The rise of central bank digital currencies: drivers, approaches and technologies", *BIS Working Papers*, no 880, August 2020, updated as of October 2021.



## Ordered probit coefficients for central bank interest in CBDCs

Digital infrastructure	Log (per capita GDP) included as covariate, dummy for LAC and interactions terms	Sample size
Digital infrastructure		
Mobile cellular subscriptions	0.004	163
Region= LAC	1.093	
Interaction LAC	-0.011	
Broadband subscriptions	0.022*	162
Region= LAC	0.09	
Interaction LAC	-0.015	
Innovation capacity		
Innovation output score (WIPO)	0.064***	133
Region= LAC	1.894	
Interaction LAC	-0.058	
Fast payments system	0.724***	165
Region= LAC	0.29	
Interaction LAC	-1.062*	
Institutional characteristics		
Government effectiveness	0.901***	165
Region= LAC	0.172	
Interaction LAC	-0.510	
Informal economy	0.000	119
Region= LAC	-1.718	
Interaction LAC	.039	

Digital infrastructure	Log (per capita GDP) included as covariate, dummy for LAC and interactions terms	Sample size
Development and financial inclusion		
Account ownership	0.015**	133
Region= LAC	-0.637	
Interaction LAC	0.011	
Financial development index	3.642***	151
Region= LAC	0.755	
Interaction LAC	-1.442	
Public interest in CBDCs		
Search interest index	0.406***	165
Region= LAC	-0.19	
Interaction LAC	-0.99	
Cross-border transactions		
Remittances to GDP	-0.076**	109
Region= LAC	-0.693	
Interaction LAC	0.105**	
Trade openness	-0.0046	154
Region= LAC	0.466	
Interaction LAC	-0.012	

\*,\*\* and \*\*\* indicate significance at 10%, 5% and 1% respectively.

## Improve efficiency and lower cost of cross-border payments? Yes, probably

- BIS Innovation Hub: Multiple CBDC (mCBDC) pilot experiments
  - “mCBDC Bridge” experiment with Hong Kong, Thailand, China, and UAE
  - Project Jura to exchange euros for Swiss francs.
- CBDCs won't eliminate all costs of cross-border payments – many legal/regulatory issues
- But they should help.