



Digital innovation and the future of money

Business Perspectives Seminar: Fintech

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Digital innovation and the future of money

Money and history

Central banks and trust

Today's payment system

Digital innovation

History repeats itself

Central bank digital currency
(CBDC)

Concluding remarks





Money and history

Major stages in the evolution of money

1

From barter to the creation of money

Money is one of mankind's greatest inventions

2

Money in kind

Scarce objects

Problems: high transaction costs, volatility in value, excessive scarcity reduces flexibility

3

Asset-backed money

Banknotes and coins

Public and private issuers

Full backing that ends up being diluted

Problems: tendency to issue excessively without backing, abuses, financial and economic crises

4

Fiat money

Major institutional innovation: central banks

Single national currency issuer, strong institutional, operational and legal backing

Problems: at the outset, episodes of abuse



"The State shall have a central bank which shall be autonomous in the exercise of its functions (...) Its primary objective shall be to ensure the stability of the purchasing power of the national currency".

-Federal Official Gazette, Mexico, 1993

Central banks and trust



Today's payment system

Public-private partnership of money

Central bank balance sheet

Foreign reserves	Banknotes and coins
Securities	Bank deposits
Others	

Daily clearing on the central bank's balance sheet

- Finality
- Liquidity
- Last resort

Use of secondary money

- Cheques
- Credit/debit cards
- ATMs
- Transfers
- *SPEI*
- *CoDi*

Regulation



Digital innovation

Digital revolution, where is the key?

Technological capacity to
efficiently and cheaply:

- Capture data
- Process data
- Store data
- Transmit data

Money is information

Easiest entry of disruptive innovation into the
financial system is through:

- Payment systems
- Digital currencies



Recent innovations in payment systems

Central bank-led developments

- RTGS systems (SPEI)
- Quick payment systems (CoDi)

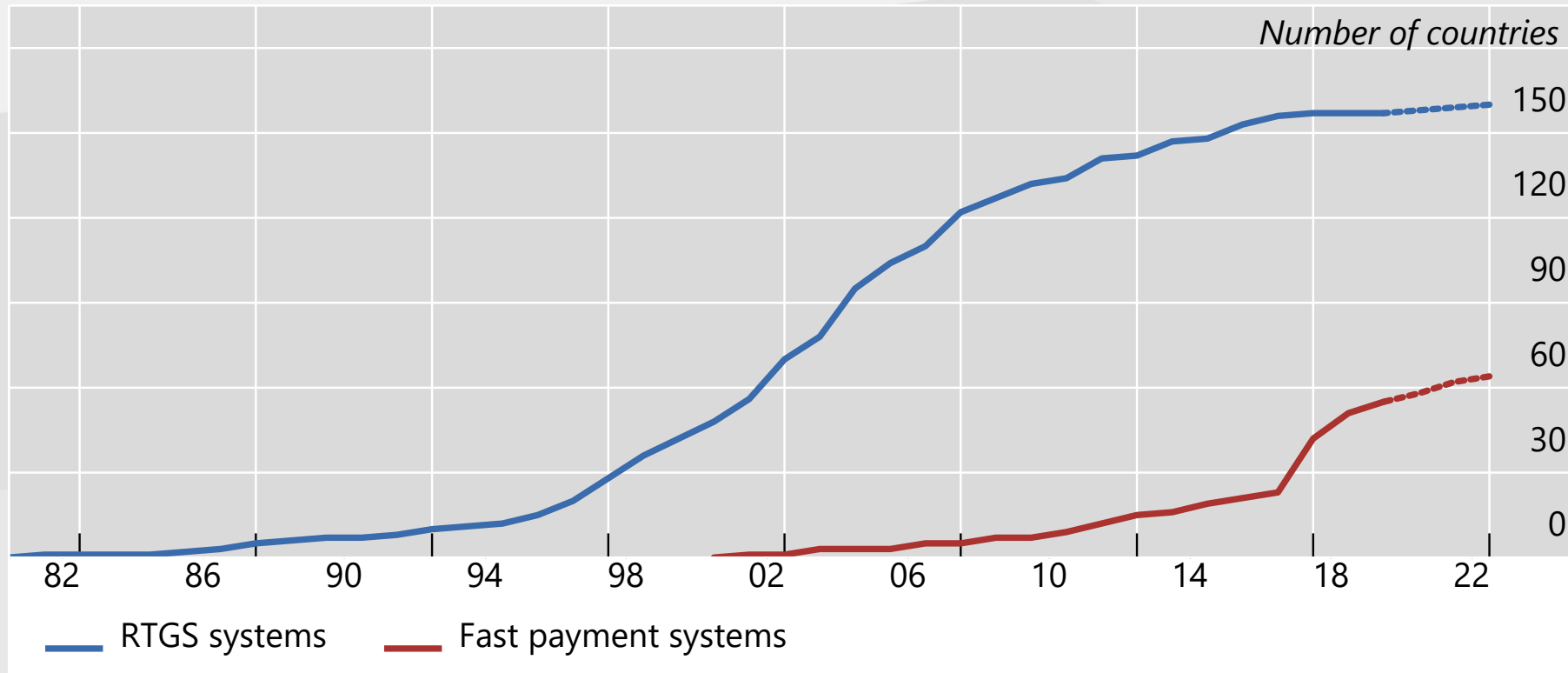
Other innovations (fintech)

- Bank payment systems (*apps*)
- Private services providers
(mobile payments, platforms)



Real-time payment systems supported by central banks

Diffusion of payment technologies¹



¹ The dashed line corresponds to projected implementation.

Source: CPMI, *Developments in retail fast payments and implications for RTGS systems*, forthcoming.



Innovation in digital currencies

Collection of items from Yap, Micronesia
2020, Museum of Applied Arts &
Sciences, accessed 1 February 2021

Three recent representative phenomena in digital currencies

1

Bitcoin – among others (cryptocurrencies)

- No backing
- Unclear issuance rules, based on technological arrangements
- Highly volatile in value, little use as a means of payment (money laundering)
- Similar to money in-kind

2

Asset-backed coins (stablecoins)

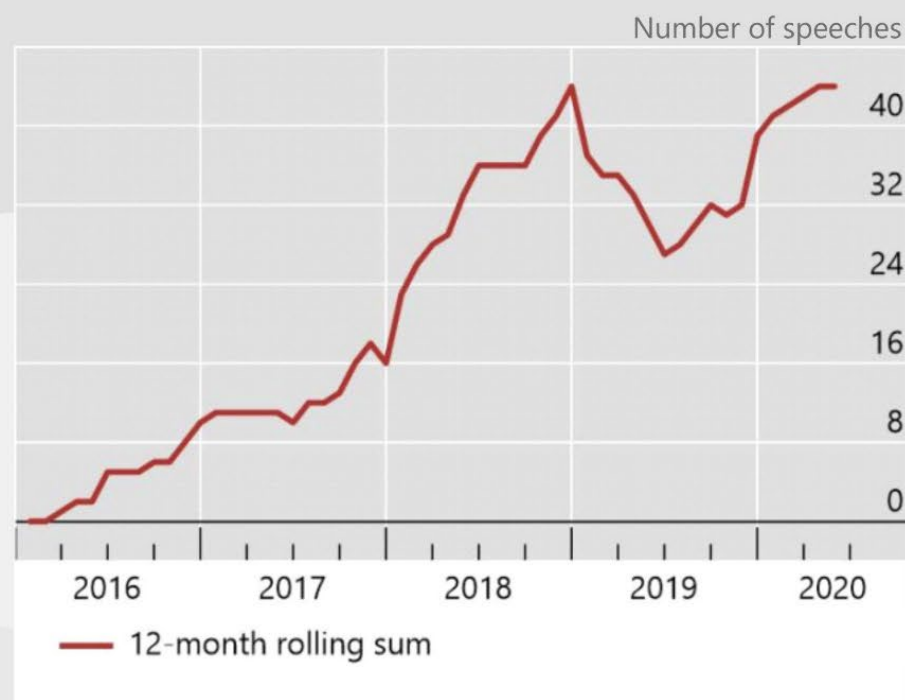
- Example: Libra / Diem
- "Imports" stable value of domestic currency and other financial assets
- Historical problems related to inadequate backing
- Anti-money laundering and anti-terrorism rules

3

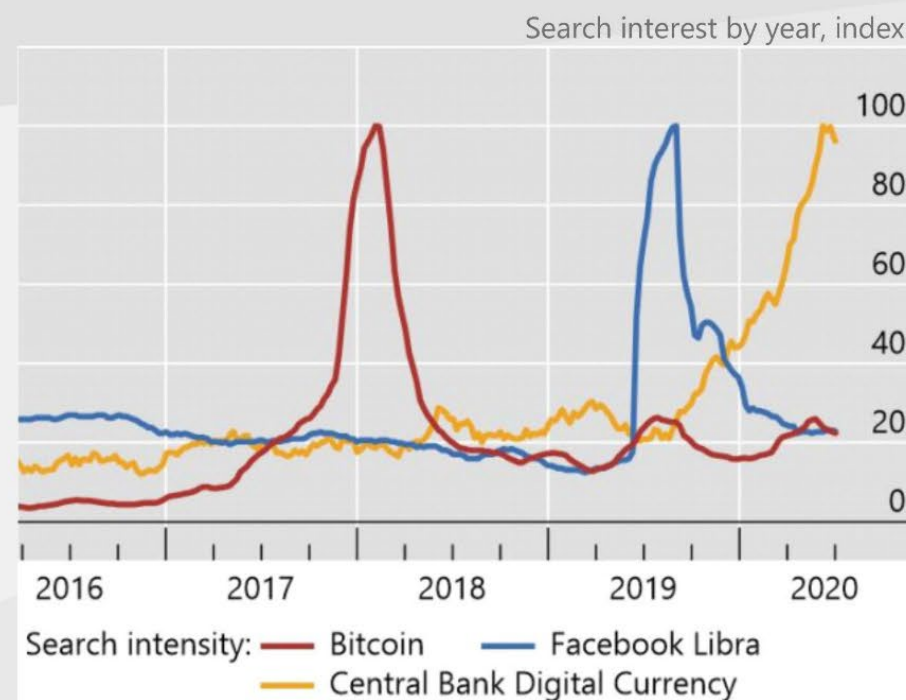
Central bank digital currencies (CBDCs)

Interest in central bank digital currencies is increasing

Timing of speeches and reports on CBDC¹



Google search interest over time²



¹ 12-month moving sum of the count of central bankers' speeches resulting from a case-insensitive search for any of the following words/phrases: CBDC; central bank digital currency; digital currency and digital money. ² 12-week moving average of worldwide search interest. The data have been normalised to the 12-week moving average peak of each series. The search was run on search terms "Bitcoin" and "Facebook Libra" and topic "Central Bank Digital Currency". Data accessed on 16 July 2020.

Sources: [Central bankers' speeches](#); central banks' websites; Google Trends; authors' calculations.

What are CBDCs?

- A new type of central bank liability.

Central bank
balance sheet

Foreign reserves	Banknotes and coins
Securities	Bank deposits
Others	CBDC

Possible representations

1

Accounts at the
central bank

Individuals (retail)

Intermediary (wholesale)

2

Tokens

Retail

Wholesale

They intend to be a technologically superior representation of the national currency.

Key issues to be addressed

1. Sovereign decision of each country
2. Degree of anonymity – data privacy
3. Anti-money laundering, anti-terrorism controls
4. Competition: central banks and commercial banks
or
Public-private partnership with multiple intermediaries
5. Monetary policy transmission
6. Impact on financial stability
7. Financial inclusion
8. Cyber security
9. Extreme technical efficiency – no margin of error
10. International cooperation
 - International payments (remittances)
 - Capital flows



Major international challenge – role of the BIS

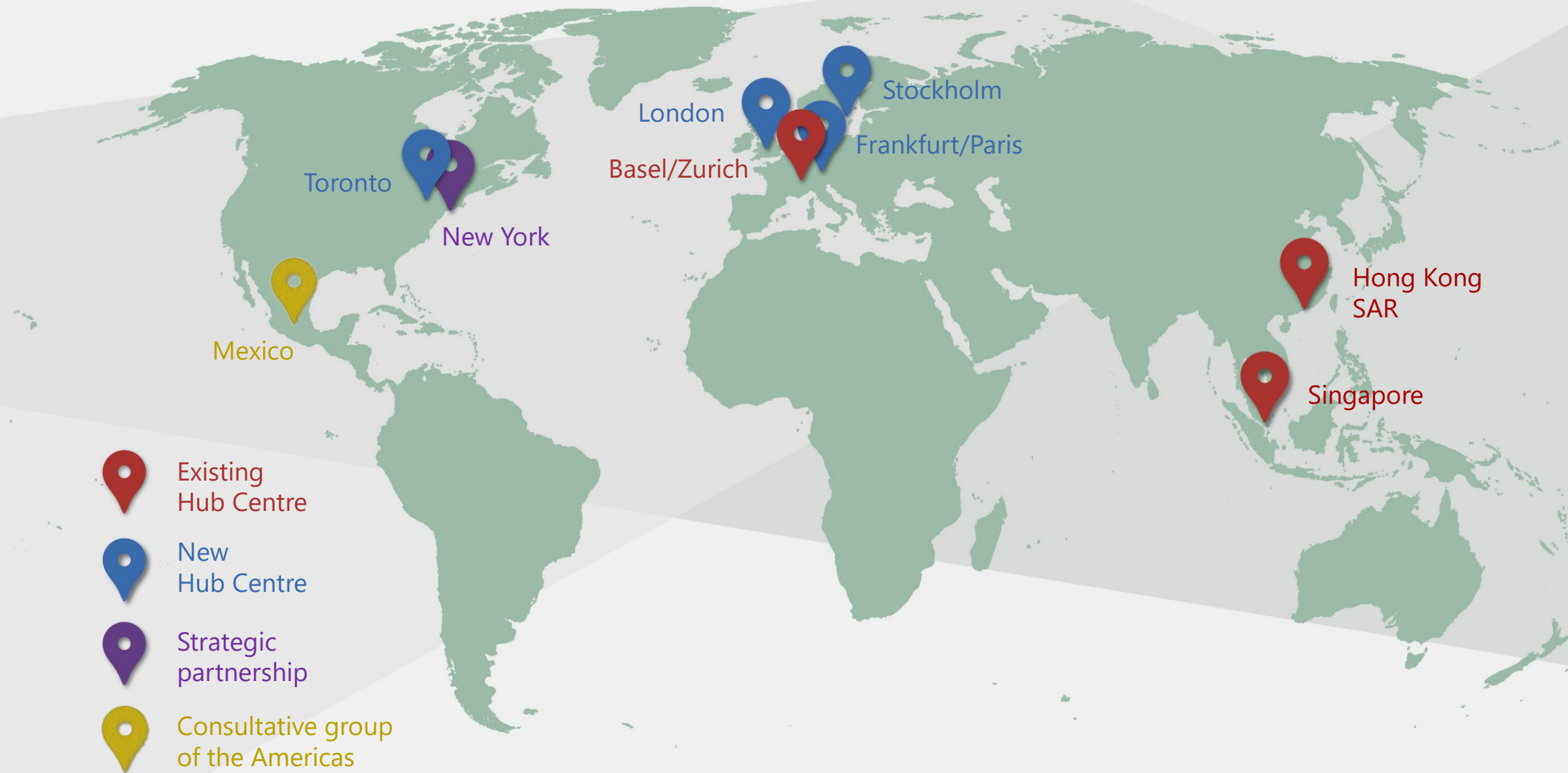
Coordination and cooperation function



Innovation and knowledge dissemination efforts



BIS Innovation Hub Centres



Concluding remarks

Not all innovations are equal

Encourage innovation in what money *can do*, not in trying to reinvent it

Evolution, with trust

