



Task Force 1
Macroeconomics, Trade, and Livelihoods:
Policy Coherence and International
Coordination



THE CASE FOR HARMONISING CENTRAL BANK DIGITAL CURRENCIES FOR CROSS- BORDER TRANSACTIONS

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Abstract



Cross-border transactions face serious inadequacies, such as high costs, low speed, limited access, and insufficient transparency. Network effects^a caused by entrenched legacy systems prohibit radical upgrades in cross-border payment infrastructures. In the long term, a novel multilateral solution with

a ‘clean slate’^b advantage should be a more pressing priority than tweaking legacy systems for improved efficiency. More than 100 countries worldwide are in various stages of developing central bank digital currencies (CBDCs). A collective action to harmonise domestic CBDCs for cross-border transactions is needed to avoid losing the ‘clean slate’ advantage.



a Network effects refer to the incremental benefit gained by many existing users to a service.


b ‘Clean slate’ refers to the benefits of a new technical infrastructure that is not burdened by legacy arrangement or technologies.



The Challenge

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The global financial technology revolution has considerably improved the speed, vitality, and efficiency of domestic financial payments. However, the cross-border payment landscape is unable to tap into these benefits substantially due to a variety of factors. These include long transaction chains, uneven regulatory regimes, complex processing of compliance checks, the difference in the operating time between domestic systems, enforcement of capital controls, fragmented data formats, unclear foreign exchange rates, legacy technology platforms, funding costs, weak competition, and liquidity and settlement risks.

Under the corresponding banking system, payments often travel through several institutions and jurisdictions with dissimilar financial regulations and reporting standards. This increases the costs as several institutions add their fee along the transaction chain. Adherence to compliance checks across jurisdictions makes the process cumbersome and often takes days to complete. The involvement of multiple stakeholders also makes the process opaque and difficult to track. A private

sector report, suggests that global corporates incur significant transaction costs of US\$120 billion annually, excluding additional expenses resulting from forex (FX) conversion, trapped liquidity, and delayed settlements.¹

Regulatory requirements, standards, and data formats vary considerably across borders. Certain standards require more information than others, while some data formats are challenging to translate. The complexity increases as the number of intermediaries grows. This widespread disparity hampers automation, increases the cost of design and may result in delays or even the rejection of payments. SWIFT Global Payments Innovation and ISO 20022 standards are welcome measures to enhance the efficacy of existing payment systems, but they fail to address the broad spectrum of frictions in cross-border payments. These innovations will yield better results if integrated with a broader comprehensive central bank digital currencies (CBDC) arrangement.

A considerable portion of cross-border settlements occur in commercial bank credit, which carries the risk of illiquidity and insolvency. The risks are aggravated with larger amounts and



longer settlement periods, especially using cross-currency pairs that are not traded very often, exposing the payments to liquidity and counterparty risk. Improved arrangements like continuous linked settlement (CLS),^c which settles on a payment versus payment (PvP)^d basis, has bettered the system, but CLS has not shown enough potential for improved scalability.

Faced with higher regulatory requirements and imposition of penalties, correspondent bank networks have declined by about one-fifth after the 2007–2008 global financial crisis. Business and risk considerations are significantly shrinking the traditional corresponding bank relationships.² Smaller banks and payment service providers (PSPs) unable to handle increased compliance costs may struggle to survive without cheap and viable alternatives.

Today, most cross-border transactions are settled in a few major international currencies. As a result, emerging

market and developing economies (EMDEs) often face monetary policy spillovers from jurisdictions where these currencies originate. This might infringe on the monetary sovereignty of EMDEs. It could also hinder the access to liquidity for EMDEs during times of global uncertainty or stress in bilateral ties.

The global momentum towards CBDCs is expanding at an exponential pace. What raises concerns is the significant fragmentation in the technologies, standards, and protocols envisaged by different countries. According to a survey by the Bank of International Settlements (BIS) among central banks, cross-border payments have become the number one motivation for wholesale CBDCs and a greater motivation for retail CBDCs for both advanced economies and EMDEs.³ Unless a degree of harmonisation is incorporated at the early stages of the design of CBDCs, it could become a herculean task to achieve interoperability with multiple technologies, standards, and protocols.

c CLS is a multi-currency FX transaction settlement system launched in September 2002; presently, it is handling 18 currencies.

d PvP is a settlement mechanism that ensures the final payment in one currency happens if and only if the payment in another currency or currencies takes place. It ensures both sides of the transaction are settled simultaneously.



The proliferation of non-compatible systems will also make it expensive and challenging to switch platforms or integrate more complex interoperability features at a later stage. This will make way for digital fragmentation. Ensuring scalable and seamless cross-border and cross-currency interoperability is


crucial for improved efficiency in future payments and expanding consumer choices and preferences. Network effects prohibit any meaningful change from the existing systems unless a new multilateral system is established with the active participation of central banks backed by sovereign governments.



The Role of the G20

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In 2020, the G20 endorsed a roadmap for enhancing cross-border payments.⁴ The roadmap has identified 19 building blocks (BBs) for improving cross-border payments. BB 17 deals with “considering the feasibility of new multilateral platforms and arrangements for cross-border payments,” and BB 19 deals with “factoring an international dimension into CBDC design.”⁵ During the Italian presidency in 2021, the G20 recognised quantitative targets for measuring and defining progress on cross-border payments. The Indonesian presidency in 2022 placed significant emphasis on CBDCs as a priority agenda within the finance track. This brief builds upon the policy measures endorsed by the G20 during past presidencies by adhering to a roadmap that remains “flexible and adaptable over time as the work progressed and the cross-border payments landscape evolved.”⁶

Central banks’ interest in CBDCs has increased substantially since 2020. Over 100 central banks across the globe are at various stages of CBDC development and issuance.⁷ A total of 61 countries have either started developing, piloted or launched their CBDCs. The CBDC landscape has reached an inflexion point where concrete policy measures are warranted for building a seamless and scalable arrangement for future cross-border transactions. The G20 should aim to provide guidance for reaching a broad consensus on the “minimum interoperability requirements” to be considered for a potential CBDC payment system or payment arrangements.⁸

Multilateral multi-CBDC (mCBDC) arrangements^f have the potential to start with a ‘clean slate’ advantage, but this benefit does not last forever. Since many major economies have

e A payment system is a set of instruments, procedures, and rules for the transfer of funds between or among participants, where the system includes the participants and the operating entity. A payment arrangement is a broader term including decentralised networks of participants who collaborate to send and receive payments without a multilateral or overarching agreement. For more details, see: Raphael Auer, Philipp Haene, and Henry Holden, “Multi-CBDC Arrangements and the Future of Cross Border Payments,” BIS Papers No 115, March 2021, 3, <https://www.bis.org/publ/bppdf/bispap115.pdf>

f Multi-CBDC arrangements connect different jurisdictional CBDCs through a common technical infrastructure.



moved from research to development, piloting and issuing CDBC systems, BIS experts suggest that it is an opportune moment to factor in cross-border


features into CBDC designs. This proactive approach will help ensure interoperability in the future.⁸



Recommendations to the G20

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Reaching a consensus among stakeholders on ‘minimum interoperability requirements’ for multi-CBDC arrangements

According to the 2023 Financial Stability Board (FSB) report, the Committee on Payments and Market Infrastructures (CPMI) is mandated to convene the Community of Practice forum “to exchange information and experiences among interested central banks on developing or upgrading their payment systems, factoring an international dimension into fast payment systems (FPS) and central bank digital currency (CBDC) systems, and considering other innovative developments.”⁹ This forum—or any other relevant forum—must be utilised to reach consensus on “minimum interoperability requirements” for a new multilateral payment infrastructure involving CBDCs and provide concrete policy directives. The forum should receive inputs from relevant international organisations and private sector entities for technical assistance. The G20 must provide the necessary mandate to the forum to take up focused and concerted action.

The FSB report has identified three priority themes for focus in the next stage of the G20 Roadmap: payment system interoperability and extension; legal, regulatory, and supervisory frameworks; and cross-border data exchange and message standards.

The “work on exploring the potential role of new payment infrastructures” has not received due thrust in the report. Since over 100 central banks are already in various stages of CBDC development, it will be prudent to channel the evolving momentum for developing a new payment infrastructure. The G20, through the FSB, must prioritise and infuse more stimulus into this emerging technology landscape.

Features for cross-border functionality must be integrated into a CBDC at an early stage to avoid complexities at a later stage. Many design considerations of CBDCs are yet to be decided, allowing central banks to start on a ‘clean slate’. A structured and broad international collaboration will ensure that CBDC ecosystems are flexible enough for interoperability and coexistence, aligning with other domestic needs. However, the ‘clean slate’ opportunity

has an expiry date that could be lost unless there is concerted multilateral action at the right time.

Enhancing the scope of BB 19 and instituting an action plan towards multi-CBDC arrangements

BB 19 of the G20 Roadmap broadly deals with factoring an international dimension into the CBDC design, which includes: stocktaking and analysis of different CBDC designs; development of options for access or interlinking; design, study, and dissemination.

BIS and various stakeholder central banks have conducted many projects for mCBDC arrangements (such as Project mBridge,¹⁰ Project Dunbar,¹¹ and Project Icebreaker¹²). Private players like SWIFT and VISA have worked on similar projects and proposals, such as the SWIFT sandbox project¹³ and Universal Payment Channels.¹⁴ These projects have indicated the viability of mCBDC arrangements for various use cases.

In view of the outcomes of the projects, the scope of BB 19 can be enhanced, involving additional stakeholders to arrive at a thorough and exhaustive design solution. To achieve cross-border compliance in anti-money laundering/combating the financing of terrorism (AML/CFT) aspects, regulatory features, and data protection standards, a higher degree of harmonisation among CBDCs is necessary. Stakeholders like the Financial Action Task Force, Basel Committee on Banking Supervision, and other relevant standards-setting bodies must effectively coordinate AML/CFT and regulatory aspects in ongoing mCBDC projects. Further work is required on delivery versus payment (DvP)⁹ transactions, network access of stakeholders including onboarding and offboarding, monetary sovereignty, and dispute resolution. The G20 must take steps for effective coordination of various aspects of CBDC interoperability by instituting a focused action plan.

g Delivery versus payment is a securities settlement process that requires that payment is made either before or at the same time as the delivery of the securities.

Stocktaking of advantages of CBDCs in cross-border transactions and comparing various models of multi-CBDC interoperability

The use of CBDC payment arrangements could considerably reduce friction in cross-border payments. Since CBDC arrangements are envisaged to work 24/7, issues relating to reduced settlement time frames due to differences in time zones can be easily overcome. If flexibility for interoperability is established at an early stage of design, friction from interfacing with fragmented data formats and legacy technology platforms can be eliminated. Projects like mBridge¹⁵ have integrated liquidity management provisions and FX dealing on the platform. Since FX transactions could happen on-platform on a PVP basis, the requirement for a long chain of intermediaries is eliminated. Privacy controls can be integrated into the system on a ‘need-to-know’^h basis.

Notably, mCBDC arrangements have the potential to reduce transaction

costs significantly due to the absence of intermediaries. Atomic paymentsⁱ on a PVP basis will transform cross-border payments into almost instantaneous transfers. Funding costs will also be substantially reduced due to high speed and improved settlement finality. Better financial inclusion can be achieved since all the banks and PSPs that the central bank approves can access the proposed platform. Increased competition by allowing more private FX players on the platform can further reduce costs. Capital flow management can also be integrated into the design of CBDCs, creating room for better control by central banks.

BIS has elucidated the three models for CBDC interoperability through various working papers.¹⁶ These are:

- The compatible model: Ensuring compatibility by using common standards, such as message formats, cryptographic techniques, and data requirements.
- The interlinked model: Links CBDC systems to facilitate

h ‘Need to know’ refers to only transacting parties and their respective central banks are privy to transaction details. For more details, see: BIS Innovation Hub, Project mBridge: Connecting Economies through CBDC, October 2022, 33, <https://www.bis.org/publ/othp59.pdf>

i Atomic settlement refers to exchanging assets between two parties in a single transaction, typically instantaneously and often without intermediaries.

communication, guarantee compliance, include FX provision, and ensure settlement. A hub-and-spoke option is the most accepted solution among different interlinked models where a common hub connects separate CBDC systems.

- The single system model: CBDCs use a single common technical infrastructure and potentially also a common rulebook and common participation requirements.


Though the single system model is the most technically efficient, governance challenges and upfront costs may prevent many jurisdictions from adhering to a common platform immediately. Jurisdictions should be free to choose the level of interoperability that fits within their comfort zones, provided they are able to comply with the ‘minimum interoperability requirements’. The mCBDC platforms are envisaged to protect the monetary sovereignty of each jurisdiction and must adhere to the ‘do no harm’^j principle, which implies minimum or nil intrusion into a country’s sovereignty.

Establish harmonisation on legal status of CBDC and agree on a ‘common viable legal arrangement’

The prevailing uncertainties in the legal status of CBDCs could create barriers to the global adoption of an mCBDC arrangement. Questions regarding whether a CBDC should be classified as a currency, a representation of funds, a debt, or a central bank account require clarification.

A robust legal structure is needed to support the value transfer dimensions of the mCBDC arrangement. It should include the participants’ rights, responsibilities, and liabilities that guarantee the legitimacy and finality of the value transfers. Aligning the proposed arrangement with jurisdiction-specific legal requirements and interfacing with different jurisdictions are critical legal challenges that must be resolved. Some of these requirements include regulations on data privacy, capital FX controls, and AML/CFT

j The ‘do no harm’ principle refers to designing CBDC ecosystems that support public policy objectives and do not impede central banks’ ability to carry out their mandates. For more details, see: Options for access to and interoperability of CBDCs for cross-border payments, Bank of International Settlements July 2022, 8, <https://www.bis.org/publ/othp52.pdf>



guidelines. The modular approach^k adopted in some mCBDC projects has the potential for efficient interfacing with distinct legal and governance settings. The decoupling and modularisation of critical features helps the whole system to comply and adapt to unique jurisdictional requirements. The modular functionality improves flexibility and protects jurisdictional autonomy even while being part of a common payment infrastructure.

Though the level of integration may vary depending on the specific interoperability model chosen by each jurisdiction, it is prudent to arrive at a ‘common viable legal arrangement’ for building a seamless value transfer system cutting across borders with future prospects. This could be assimilated with the ‘minimum interoperability requirements’ while agreeing on the broad contours of CBDC interoperability.

Developing interconnectivity for a sustainable future

Aiming for a broad-based cross-border payment arrangement with a vision for the future should be an overarching priority. Although dedicated solutions are emerging for specific friction points, such as the International Monetary Fund’s X-C platform¹⁷, policymakers must maintain sight of a long-term, all-encompassing, and comprehensive solution. The proposed mCBDC arrangement should be flexible and accommodative to future use cases. It should efficiently utilise the programmable features of smart contracts to better pursue international monetary policy goals. Provisions for other potential innovations such as global stablecoins could be blended into the prototype for any evolving future utility. Such a system will be sustainable, catering to the requirements of the

^k In a modular approach, different modules such as payment, foreign exchange, capital management, and compliance are decoupled and modularised to accommodate the evolving needs from different jurisdictions. For more details, see: BIS Innovation Hub, Project mBridge: Connecting Economies through CBDC, October 2022, 24, <https://www.bis.org/publ/othp59.pdf>

present without compromising on the demands for the future.

The superior features of distributed ledger technology (DLT)^l could be utilised for greater efficiency, transparency, and resilience in the proposed mCBDC architecture. Various mCBDC projects have established the viability of using ‘permissioned’^m distributed ledgers in a cross-border CBDC system. DLT ensures decentralisation and geographic distribution of the digital ledger. This unique arrangement makes up for the mutual trust deficit in an international environment. It also achieves inherent

resilience, which could counteract malicious corruption of any nodes.

Private participation may be encouraged to the maximum extent in features that do not pose a threat to currency sovereignty. Active participation by private players and commercial banks will reinvigorate the project with innovations in products and services. The superior technical capabilities of the private sector can assist in the building of the project’s infrastructure. A coordinated and timely multilateral effort could cement the foundations for a sustainable and robust cross-border payment architecture for future generations.

Attribution: Arul Kurian, “The Case for Harmonising Central Bank Digital Currencies for Cross-Border Transactions,” *T20 Policy Brief*, June 2023.

l Distributed ledger technology refers to the protocols and supporting infrastructure that allow decentralised nodes to validate transactions and update records in a synchronised way across a network.

m Permissioned implies that validation of transactions on the ledger is allowed only by permissioned nodes—i.e., the central banks—and is not available to all entities in the network.

Endnotes

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