Citi appreciates the work of the Committee on Payments and Market Infrastructure ("CPMI") on the July 2022 consultative report "Facilitating Increased Adoption of Payment Versus Payment" ("PvP Report") and welcomes the opportunity to submit a response. Citi understands the PvP Report represents part of the CPMI's broader engagement relating to Building Block 9 of the G20's roadmap to enhance cross-border payments and considers that the report thoughtfully describes the landscape for PvP, including some of the obstacles that may prevent users from settling certain FX transactions through existing PvP arrangements.

At the same time, we do believe the PvP Report overstates the problem with respect to a large segment of the FX market. First, in estimating the size of the FX settlement risk in the market, the PvP Report looks primarily at the number of transactions executed via non-PvP arrangements and it does not consider the settlement practices applied to these transactions. This is particularly important as there are viable ways to manage FX exposures outside PvP arrangements (i.e. bilateral netting; pre-settlement netting, when carried out frequently). Second, existing PvP arrangements adequately serve the highest value/volume currency pairs, used in more advanced economies, while the emerging market economies ("EME") call for measures to ensure robust settlement finality, technological advancement and coordination between national payment systems, in order to enhance the use of PvP for FX settlement.

In addition, while Citi supports efforts to further the adoption of PvP settlement in appropriate circumstances, the PvP Report should also reflect and acknowledge alternative means of managing FX exposures, as long as they are consistent with the G20's objective of ensuring faster, safer, more efficient and transparent cross-border payments. This is particularly relevant since until scalability can be achieved, there can be significant entry costs to using PvP arrangements.

Adopting a proportionate approach to facilitating the increased adoption of PvP, will give a number of PvP arrangements, that are already under development and that could help close the identified gaps, time to materialize.

Citi would welcome the opportunity to provide a progress update on the Regulated Liability Network (RLN)[1] *initiative (initially submitted to CPMI in November 2021). The RLN is the proposal of a new public/private sector developed Financial Market Infrastructure (FMI) through which tokenized regulated liabilities of central banks, commercial banks, and E-money issuers can be exchanged for PvP.*

In response to the initial CPMI call for consultation on PvP arrangements, in November 2021, Citi proposed the creation of this new FMI through a global public/private partnership that tokenizes "regulated liabilities" to support broader adoption of PvP mechanisms for any regulated liability that exists in the network. In essence, RLN tokens will be digital records of the liabilities of central banks, commercial banks, and E-money issuers, based on existing national currency units.

The RLN is a Distributed Ledger Technology (DLT) network representing the liabilities of different institutions. The tokens represented on the network would have the same legal value as fiat currency represented on traditional relational databases. Tokenization of such liabilities is designed to be "always on", programmable, and support instant settlement. Importantly, the RLNs founded on national currencies

[1] *For additional background on RLN, please see Citi's article on "The Regulated Internet of Value": https://www.citibank.com/tts/insights/articles/article191.html*

and supervised by local regulators will be, by their nature, interoperable. The RLN can support PvP, with foreign exchange services available between participating regulated institutions on the RLN.

In addition to these high-level observations, Citi has responded below to a number of specific consultation questions the CPMI outlines on page 6 of the PvP Report.

- ***Do you agree with the analysis of the causes of non-PvP settlement and do you find that some causes are more important than others?***

We believe the PvP Report accurately captures the main reasons why FX transactions, predominantly in EME settle outside a PvP arrangement. In line with the PvP Report, when PvP arrangements provide fitness for purpose and efficiency, market participants are inclined to use PvP settlement. In order to have a functional PvP service, certain attributes need to be met: (1) higher level of settlement finality (2) PvP arrangements need to be compliant with PFMI standards (3) it is imperative for a PvP service to be able to address a wide range of currencies (4) multilateral netting is specifically important for EME – otherwise, the number of time payments in EME, where liquidity is tight, would block the market and cause settlement failures. Last but not least, firm support and cooperation between the central banks and regulators in EME is imperative.

- ***Do you agree with how the proposals for new solutions could increase the adoption of PvP and do you find that these new solutions, together, if launched successfully, can mitigate FX settlement risk?***

In order for a solution to be used by market participants, it must prove fit for purpose and efficient, as identified in the report. In addition, isolated changes to the current set-up, such as extending operating hours are unlikely, to lead to significant benefits without the cooperation of market participants, which might need to invest in internal system upgrades and operational processes to utilize such developments. As stated in our response for the previous question, broad adoption, market support and the ability to cover a wide range of currencies are critical in achieving network effect. Therefore, we are inclined to believe that a successful implementation would require the right solution (rather than multiple), that needs to capture a broad pool of currencies in order to achieve the much needed network effect.

- ***Do you agree with the analysis of the barriers to increased adoption of PvP? Which barriers do you find most significant, and do you observe any additional barriers that are not identified in the report?***

Ultimately, in order to increase adoption of PvP, the market requires comprehensive rulebooks to enforce settlement finality and collaboration between the public and private sector to achieve a large enough network and scale. Several factors mentioned in the PvP Report contribute to this, but would need to be considered holistically and not in isolation. For example, we recognize there are challenges for PvP providers to transact with real-time gross settlement systems during operating hours that meet market participants needs. Consequently, extending RTGS operating hours[2], to operate settlement services in the

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[2] *Increasing RTGS operating hours can bear significant benefits, such as increased opportunities for payment-versus-payment (PvP) settlement of foreign exchange (FX) transactions (including same-day PvP), the establishment of liquidity bridges and the ability to perform additional settlement cycles for ancillary payment financial market infrastructures (FMIs) involved in cross-border payments. These benefits tie in with other building blocks (BBs) in the G20 cross-border payments programme: facilitating increased adoption of PvP mechanisms (BB9), liquidity bridges (BB11), interlinking of payment systems (BB13) and new multilateral platforms or arrangements for cross-border payments (BB17). This also supports the importance of considering building blocks in tandem rather than in isolation, as it is through a combination of enhancements that theG20's cross-border payments target across cost, speed, transparency and access can be achieved.*

liquidity sweet spot for the respective EME currencies is beneficial. However, extending RTGS operating hours in isolation, without aligning the local markets, the nostros, the money markets, makes it not practically usable by international banks. In addition, the lack of robust settlement finality protection and differences in regulatory requirements, that PvP providers find challenging to reconcile, serve as barriers to increased adoption of PvP in certain jurisdictions. In addition, if the respective market lacks the necessary depth in terms of volume and liquidity, it makes it difficult to attract PvP providers. Consequently, alternatives and novel solutions to PvP arrangements could fill the gap, until such time as PvP settlement is practicable and fit for purpose.

- ***Do you agree with the possible roles for private and public sector stakeholders in addressing the barriers? Do you find that the private sector could take on other roles in facilitating increase adoption of PvP and how could the public and private sectors work together to take this forward?***

A closer public/private sector collaboration is required in order to better understand the full spectrum of drivers. While regulatory requirements may turn on the heat, market participants will still remain challenged in terms of how to deal with sensitive transactions, intraday liquidity and the challenges posed by intraday funding. Implementing settlement finality protection in domestic legal frameworks would help - robust settlement finality protection as a pre-requisite for expanding PvP to additional currencies. Some domestic legal regimes may not adequately provide for finality protection and may also define the points of irrevocability and finality in different ways so conflicts of law could emerge. What central banks can do is to explore the implementation of settlement finality protections in domestic legal framework by setting clear global standards on finality and providing local technical assistance to domestic jurisdictions. It is recommended to shift the focus to innovative solutions. For example, the operationalization of DLT is allowing market participants to settle on a PvP basis, with finality in commercial bank money – this should attract a lot of attention and support from the public sector.

The RLN – a future PvP solution:
Citi proposes the creation of a new FMI through a global public/private collaboration that tokenizes 'regulated liabilities' to help support broader adoption of PvP mechanisms for any regulated liability that exists in the network (i.e., the Regulated Liability Network or RLN). In essence, RLN tokens will be digital records of the liabilities of central banks, commercial banks, and E-money issuers, based on existing national currency units.

The inherent programmability, instant settlement and 'always on' nature of tokenized money has the potential to enable progress and economic growth. The RLN initiative has the following objectives that would incentivize and broaden user participation:

- *RLN can reinforce national autonomy and sovereignty over digital money by only expressing national currency units*
- *RLN will deliver tokenized instant digital payments under supervision of national authorities and in line with agreed CPMI-IOSCO Principles for Financial Market Infrastructures (PFMIs)*
- *RLN can provide an API enabled base layer for financial innovation by banks, fintechs and bigtech helping to deliver greater efficiency*
- *When broadly deployed RLN will encompass the liabilities of multiple central banks, enabling the creation of 'Global RTGS' capability, meaning 24*7 real time settlement in central bank money in multiple national currencies*

- *As a basis for further innovation and progress, the RLN can be leveraged to tokenize other regulated financial and non-financial assets. It can, for example, be used to deliver federated Digital Identity, creating potential for significant GDP gains (opportunity)*

Progress of the RLN concept:
A Proof Of Concept (PoC) has just been completed in the UK with sponsorship from the UK government. This PoC focused on cross currency and cross border transactions and involved a range of industry participants. The UK PoC tested a range of scenarios including:

- *Real-time corporate transfer between clients of banks in separate jurisdictions*
- *Execution against a real-time FX rate provided by one of the banks*
- *The use of a correspondent bank in at least one of the jurisdictions*
- *The use of a central bank for interbank transfers in at least one of the jurisdictions*
- *Issuing and redemption of tokens to and from the banks traditional account-based system*

The testing was successfully concluded earlier in September2022 and a report summarizing the exercise is expected to be available over the coming weeks.

A US-based PoC is planned for the 4 Quarter of this year. The working group for this experiment includes a broad range of significant industry participants. The PoC will focus on the technological feasibility of the solution, the legal permissibility and finally the business applicability of this capability.

- *Technological: A variety of Simulated transactions will explore a range of test cases. A working group of corporations will observe and provide input on the organizational and functional design of the RLN*
- *Legal: An analysis of the legal permissibility of the RLN will establish whether any legislative action is required for the RLN settlement mechanism*
- *Business: Participating organizations will construct business cases enabled by the RLN capability.*

Outside of these focused areas of experimentation, the RLN concept is generating interest in other territories also. In particular the RLN was a finalist within the competition hosted by the Singapore Monetary Authority and is being reviewed by Hong Kong and Australia in a similar context.

Summary:
The RLN construct represents an opportunity to address the PvP challenge across the financial system. RLNs can be created in any market and offer the opportunity of interoperability across territories. RLNs can operate under the existing regulatory framework and can scale as desired by the market.