

The Faster Payments Council (FPC) Cross-Border Payments Work Group is proud to present the second issue of the Work Group's Bulletin focused on Central Bank Digital Currencies (CBDCs) and their effect on cross-border faster payments.

This series of Bulletins is designed to educate the payments industry on the developments of new payment methods supporting cross-border faster payments and provide an ongoing source of information on their benefits, risks, and other considerations.¹

Bulletin.02 presents a model cross-border transaction flow. This model will be referenced in future bulletins as a common framework.

In this edition:

- [Correspondent Banking Model](#)
- [Money Movement](#)
- [Questions to Consider](#)

Introduction

Will cross-border payments be faster, cheaper, easier, and more accessible if supported by a CBDC? Cross-border payments are complex for a variety of reasons. CBDCs hold the opportunity to address some of those reasons, but much depends on implementation choices made by various central banks and associated authorities, regarding whether and how digital versions of their fiat currencies are implemented.

It is possible CBDCs will affect cross-border payments in part rather than in their entirety. And the flow of cross-border transactions can vary greatly. In this Bulletin, we propose a working model of an end-to-end cross-border payment that has been published by the Bank for International Settlements. This model will provide a consistent transaction structure for reviewing various scenarios in which CBDCs might influence cross-border transactions. We will use this structure as various scenarios are explored throughout this series of Bulletins.

A Global Frame: The Correspondent Banking Model

To examine the impact of CBDCs on cross-border payments, a simple cross-border correspondent banking payment flow is presented as a baseline. This flow is intended to be generic and serve as a guidepost for further exploration.

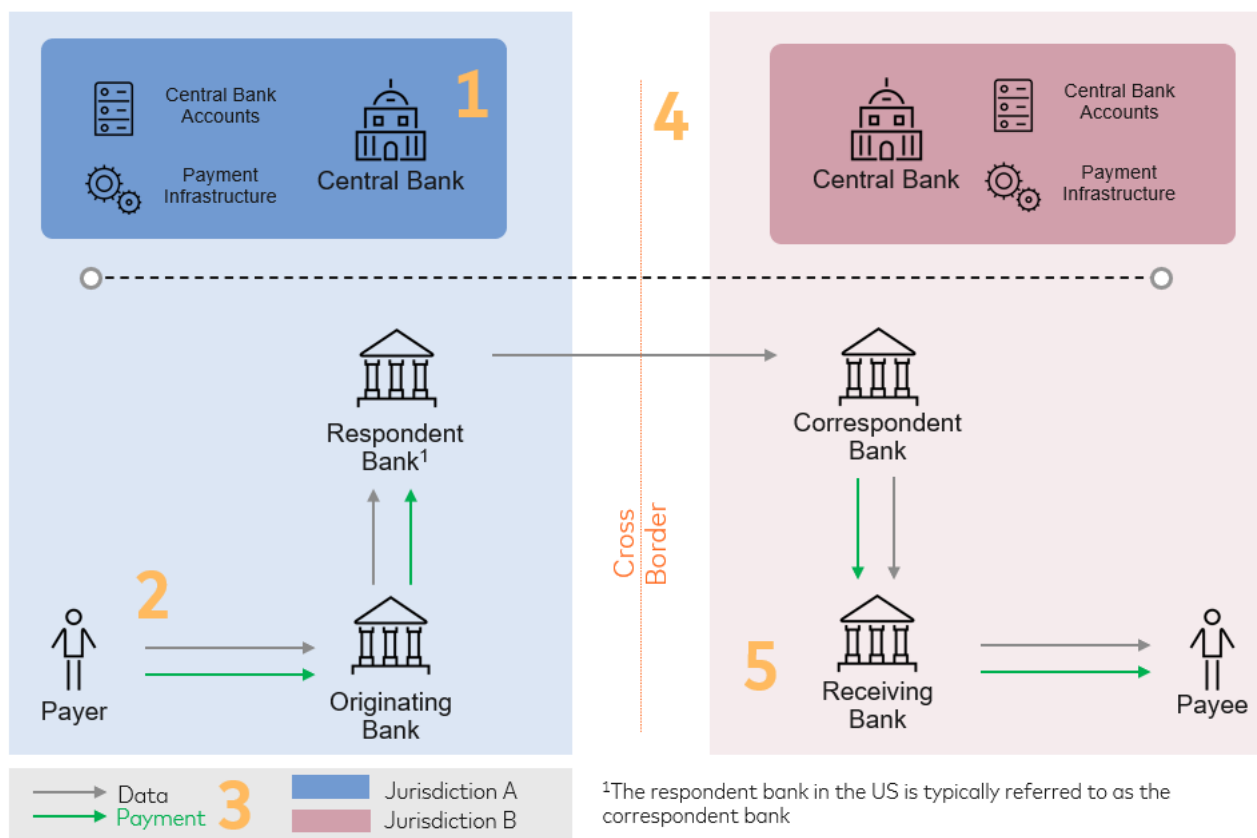
The proposed discussion model leverages a familiar correspondent banking model that can be found in the Bank of International Settlements (BIS) paper 115² titled, "Multi-CBDC arrangements and the future of cross-border payments" (graph #2 [Figure 1]). It is important to level-set this series by describing a typical 'happy path' for a correspondent banking flow while still leaving sufficient areas of exploration for future Bulletins. The introduction of a CBDC into the transaction will uncover many benefits, challenges, and impacts to the current infrastructure and it is important to anchor this analysis to a peer reviewed construct.

Introducing the Amended Correspondent Banking Model

The BIS model has been amended slightly to leave room for different payment types, constructs, technology, and distribution models. A few elements are added to the process to help simulate a variety of functions that might be impacted as a result of new technologies (e.g., Central Bank and payment infrastructures). Using this reorientation will allow for the exploration of what the effects of a CBDC could look like against the participants within the model.

A Drill-Down of the Proposed Model

Figure 1



1. Central Bank and Associated Infrastructure

The breakout of the Central Bank is important as we explore the monetary policy effects of new technologies. Money supply, distribution and rate setting functions of Central Banks could change with the introduction of a CBDC.

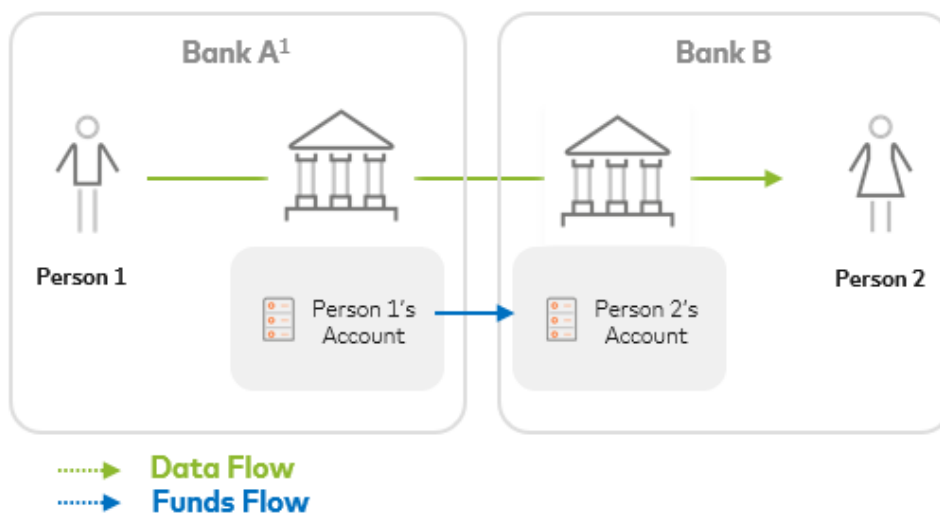
- 2. **Remitter or Sending Side** – The correspondent banking ecosystem relies on a network of banks to facilitate the movement of data and funding for payment activity. The sender (and by extension receiver) could need new technology, regulatory considerations, and Know Your Customer (KYC) mechanisms to participate in these new networks.

3. **Data vs. Funding Leg** – In a traditional correspondent banking model the data and remittance information travels from bank-to-bank with specialized instructions for the debit and credit of appropriate accounts. The funding leg will travel through correspondents and in many cases need to facilitate foreign exchange (FX) functions. With the introductions of new digital currencies, we will explore how this model could change in the future.
4. **Cross-Border Use-Case** – Jurisdictional considerations and a varying degree of regulatory gradients between markets will need to be recognized.
5. **Beneficiary and Currency Recipient** – Digital forms of money, Virtual Asset Service Providers (VASPs) and new custodial models will challenge the Correspondent Banking Model and need to be analyzed.

Money Movement

Keeping Figure 1 above in mind, here is a basic money movement flow that will provide context into how cross-border funds move. In a cross-border transaction, the flow of money movement can occur in a variety of different ways. The following example describes a typical funds flow assuming a 'happy path', where the transaction flows with minimal complexity and no errors.

Figure 2

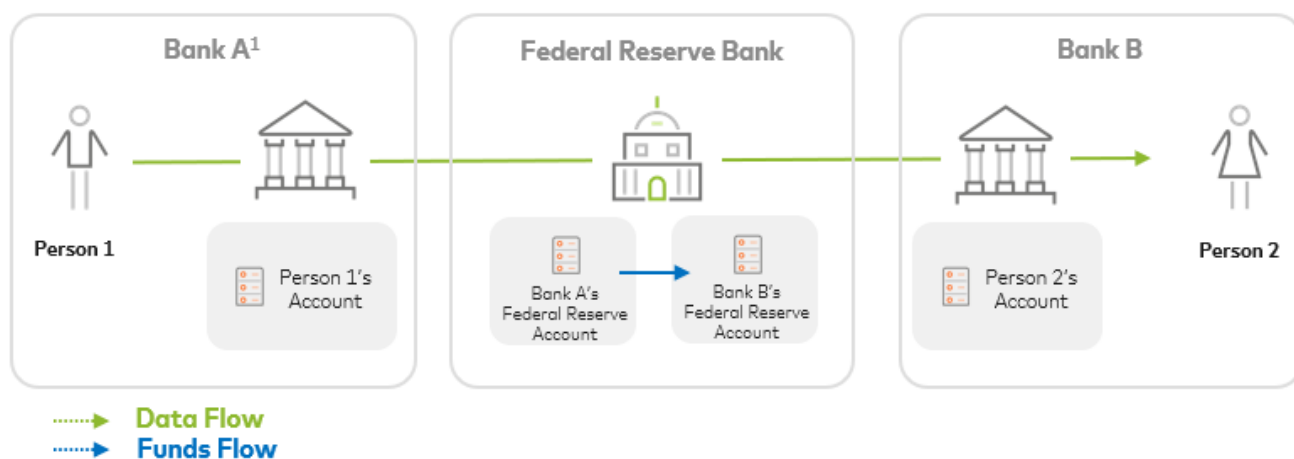


¹Bank A as a sender could be any form of depository financial institution in their respective jurisdictions; for instance, in the US, a bank or a credit union.

In the simplest transfer transaction (Figure 2), Person 1 at Bank A wants to move funds from his or her checking account to the checking account of Person 2 at Bank B. For the moment, assume both banks are in the U.S. Bank A could remove the cash from Person 1's account and manually deliver the cash using paper money and coins to Bank B for deposit to Person 2's account. The delivery could be by messenger, courier, armored car, etc. Over the years this process has been simplified

through the use of electronics and accounts at the Federal Reserve and similar U.S. institutions. Bank A can make the transfer by removing the funds from Person 1's checking account and crediting its account at the Federal Reserve (Figure 3). It can then instruct the Federal Reserve to move the funds to Bank B's account via Fed Wire. The Federal Reserve can then notify Bank B about the change in its account balance. Bank B can remove the funds from its Federal Reserve account and credit Person 2's account.

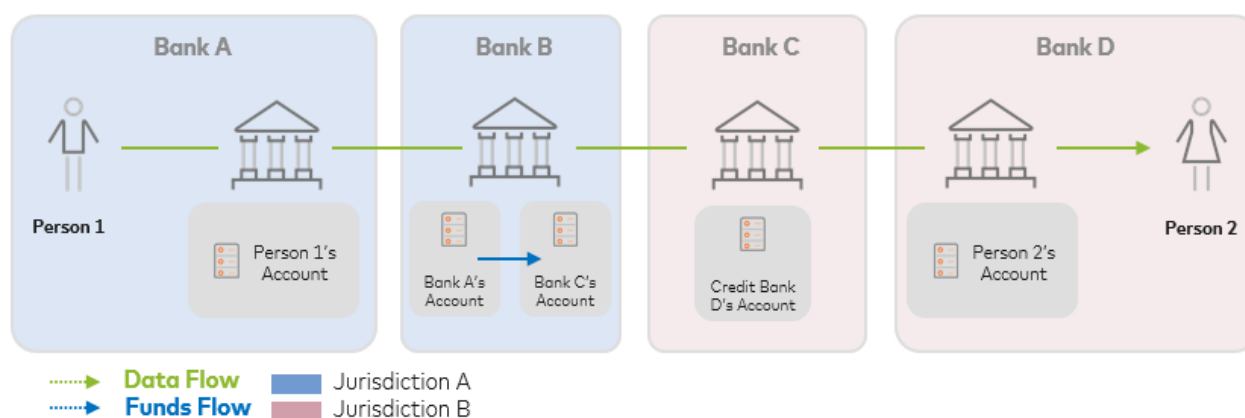
Figure 3



If the assumption about both banks being domiciled in the U.S. is removed, Bank A could still debit the funds from Person 1's account. As in the days before the cross-border and cross ocean telegraph, Bank A could put paper money and coins, or gold bars, on horseback, on a stagecoach or on a ship destined for Bank B's country. Once the physical money or gold was received, Bank B could convert it to the local currency and credit Person 2's account. Obviously, this is a risky and cumbersome way to move money and one that takes a considerable amount of time. Therefore, to support trade and other activities, other methods were devised including correspondent banking.

In the simplest form of correspondent banking, Bank A has an account and money in Bank B. Therefore, Bank A can remove the funds from Person 1's account and instruct Bank B to remove the funds from Bank A's account and credit Person 2's account. In the old days Bank A might have used regular mail or a telegram to notify Bank B about the transfer. In recent years it might use a system such as SWIFT³ to notify Bank B.

Figure 4



The process can get quite complicated when Person 2 does not have an account in a bank where Bank A has a relationship and an account. For example (Figure 4), if Person 2 has an account in Bank D and Bank A only has an account in Bank B, Bank A must find a path to Bank D. It might know Bank B has a relationship and funds in Bank C and Bank C has an account in Bank B. It might also know Bank C has a relationship with Bank D and Bank D has an account in Bank C. Therefore, Bank A would send a message to Bank B to remove funds from Bank A's account at Bank B and credit Bank C's account. It would also ask Bank C, using funds credited to its account at Bank B, to credit Bank D's account. And finally, it would ask Bank D to credit Person 2's account. The bank-to-bank notification can be done through systems such as SWIFT, SEPA⁴, and Target2⁵.

This process tends to have a significant number of errors (wrong account numbers, etc.) and tends to have significant delays in the recipient receiving the funds. The delays can be caused by time zone differences, working hour differences, errors, etc. Also, except when the most modern systems are used, the sender does not necessarily know the fees or the currency conversion rate each bank will use. Therefore, it can be hard to predict exactly the amount that needs to be sent for the recipient to receive a specific agreed amount.

The process of keeping funds in accounts in various overseas banks is expensive, time consuming and difficult to manage. The funds can have alternate and more profitable uses, e.g., to support loans at market interest rates which are typically higher than the rates banks pay for funds on deposit. Larger banks typically keep funds on deposit with other banks ("correspondents") to support the payment needs of its clients. Smaller banks, with fewer needs for cross-border transfers, are usually less inclined to maintain these expensive relationships and may use the services of a larger bank to make these payments.

Open Questions to Consider (not exhaustive)

Can CBDCs be designed to answer the following questions and reduce the friction in cross-border payments? There are a number of unanswered questions about money and information movement in the digital world, for example:

1. Would separate correspondent banking accounts be required?
2. Can the information about a transaction, e.g., account number, payment details, etc., move with the funds?
3. Is there an appropriately secure method to move funds with ease and ubiquity (similar to ease and ubiquity of email)?
4. Can an electronic form of money be used to move funds directly from Bank A to Bank D?
5. What could a cross-border payment look like in the future?
6. How can the time to receive and settle a cross-border payment be sped up?
7. How can costs (for both the correspondent bank and consumer) be reduced in the future?

8. What are the possible design elements for CBDCs in cross-border payments?
9. What is the impact to existing payment mechanisms?
10. What are the considerations of a CBDC within the context of cross-border payments?
11. How can fintechs and banks prepare for a more digital future including CBDCs?
12. How will regulation shape CBDCs and implications to all stakeholders?

Conclusion

To appropriately analyze the effects of a CBDC on cross-border payments, this Bulletin.02 presents a baseline of information tied to industry standards so we can discuss the impact of new technologies. Future Bulletins will explore the Open Questions presented above, and more, in the context of the model presented here. Bulletin.03 will focus on the research and pilot projects using CBDCs for cross-border payments in countries around the world.

Cross-Border Payments Work Group Bulletin.02

Thank you to the members of the FPC Work Group who contributed to this edition.

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About the Cross-Border Payments Work Group

The FPC Cross-Border Payments Work Group covers global industry initiatives, gathering information on various models and use cases for real-time payments across borders with the long-term goal of cross-border interoperability. The Work Group is currently focused on Central Bank Digital Currencies and their effect on cross-border real-time payments.

About the Faster Payments Council

The Faster Payments Council (FPC) is an industry-led membership organization whose vision is a world-class payment system where Americans can safely and securely pay anyone, anywhere, at any time and with near-immediate funds availability. By design, the FPC encourages a diverse range of perspectives and is open to all stakeholders in the U.S. payment system. Guided by principles of fairness, inclusiveness, flexibility, and transparency, the FPC uses collaborative, problem-solving approaches to resolve the issues that are inhibiting broad faster payments adoption in this country.

The contents of this bulletin are for educational purposes only and not intended to be an endorsement by the U.S. Faster Payments Council for Central Bank Digital Currency Solutions.

[1] Note: The purpose of this bulletin is to discuss how a CBDC might be used to facilitate cross-border payments. There are many unanswered questions about CBDCs specifically in cross-border payments and their various attributes and potential advantages and disadvantages. This bulletin does not address such questions, and nothing in this bulletin should be read as a recommendation on the introduction of a CBDC in cross-border payments, the attributes of any CBDC in cross-border payments, interoperability of CBDCs in cross-border payments, or any other matter relating to regulatory policy.

[2] Auer, R., Haene, P. & Holden, H. (2021, March 19). Multi-CBDC arrangements and the future of cross-border payments. BIS. <https://www.bis.org/publ/bppdf/bispap115.htm>

[3] Swift. (n.d.). Retrieved December 14, 2022, from <https://www.swift.com/>

[4] European Central Bank. (n.d.). Single Euro Payments Area (SEPA). Retrieved December 14, 2022, from <https://www.ecb.europa.eu/paym/integration/retail/sepa/html/index.en.html>

[5] European Central Bank. (n.d.). What is TARGET2? Retrieved December 14, 2022, from <https://www.ecb.europa.eu/paym/target/target2/html/index.en.html>