



Giesecke+Devrient
Creating Confidence

Financial inclusion across borders with retail Central Bank Digital Currencies

Whitepaper



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Introduction

There is a remarkable divergence within the use cases for cross-border payments, specifically in those that intend to solve existing inefficiencies by means of a central bank digital currency (CBDC). While the quantum of literature is growing in cross-border payments and settlements, the well-advanced projects predominantly refer to wholesale CBDCs.¹ The Committee on Payment Market Infrastructure (CPMI) of the Bank for International Settlements (BIS), along with the Financial Stability Board (FSB), developed a G20-accepted roadmap for enhancing cross-border payments. Nineteen building blocks have been approved.² The building blocks locate CBDC as one of the possible solutions to the critical mission of achieving measurable improvements within a few years.



Giesecke+Devrient found a lack of meaningful research on cross-border retail CBDC. This is especially true for those countries with the most pressing need for such a remedy, as they have the most pain points in cross-border payments.

CPMI clearly mentions the retail, cross-border, and CBDC areas in the first building block, “Develop common cross-border payments vision and targets,” and in the last focus area, “Explore the potential role of new payment infrastructures and arrangements.” In its dialogues with over a hundred global central banks, G+D is often asked about cross-border use cases, and whether its CBDC solutions can incorporate these. G+D has been consistent that cross-border retail use cases are in its development roadmap.

Comparatively few cross-border retail CBDC experiments have been developed and conducted. Known trials include those between France and Tunisia, and between China and Hong Kong, as well as the recently announced “Project Icebreaker” between the central banks of Israel, Norway, and Sweden in collaboration with BIS.

¹ Project Jasper-Ubin, Aber, Stella, mBridge (previously called Inthanon-LionRock and have been extended with two more central banks), Dunbar, Jura and Mariana.

² Committee on Payments and Market Infrastructures – Enhancing cross-border payments: building blocks of a global roadmap – Stage 2 report to the G20 – Bank for International Settlements. →

Challenges

Perhaps it isn't a coincidence that this has been so overlooked. The obvious reason is a high level of complexity. There are numerous other challenges as well.

The three most important challenges:

1. The regulatory landscape,
2. Volatile and less liquid foreign exchanges and,
3. Interoperability between the different public legacy and privately operated infrastructures.³

There are significant other challenges as well. These include the potentially large informal markets, and consumer attitudes to cash, which are hard to measure, making it even harder to forecast any trends. Informal flows are also likely to hide illicit activity, and are not regulated or monitored.

There are several reasons pushing consumers toward informal providers, namely:

- High cost of using formal channels
- Lack of pricing transparency
- Lack of official documentation such as ID or proof of address
- Inconvenient operating hours and queues
- Lack of disclosure on how long a transfer will take.⁴

On the regulatory side, the collection of data about remittances is a big challenge. This is being addressed by the United Nations (UN).⁵ This data is mostly collected by central banks through balance-of-payments reporting. However, balance-of-payments reporting is not standardized across countries, which makes it difficult to build a coherent picture of the market. In some countries, there are up to 5,000 codes to choose from, which affects data reliability. Moreover, the high prevalence of informal flows distorts the true size of the market.⁶ What is more, we still have to take into consideration the long list of pain points that cross-border payments may suffer from (see above).



³ The future of cross-border payments – Report by OMFIF – December 2021.

⁴ Exploring barriers to remittances in sub-Saharan Africa series. Volume 2. Market barriers to remittances in sub-Saharan Africa (SSA). June 2018. →

⁵ Central banks and UN working to improve remittance data. →

⁶ Exploring barriers to remittances in sub-Saharan Africa series. Volume 2. Market barriers to remittances in sub-Saharan Africa (SSA). June 2018. →

Currently, even in countries with well-established correspondent banking systems, remittances take too long, are costly, and are non-transparent. These inefficiencies are even more acute in emerging markets that may lack an efficient correspondent banking network due to significant de-risking (for example, less service at wire transfers, credit card settlements, and providing hard foreign currency to local banks by global banks).⁷ This was accelerated by the Great Financial Crisis.

Scope and definitions

In this paper, we define cross-border payments as those where the payer and payee reside in different jurisdictions. The payer and payee can be debited and credited in different currencies, but this is not a necessary condition. We identified several use cases where a cross-border retail CBDC could be deployed: among others, remittances, tourism, and cross-border retail investments.



We focus on the global remittance market in this analysis. We have thoroughly researched the remittance market from the perspectives of emerging economies. The African continent exhibits very particular stresses that have deep impacts on remittances; examining it at a granular level enables us to identify concepts that can be argued economically. The paper brings some high-level approaches that could work with G+D's technological solution. It must be stated that extensive stakeholder consultations and further desk research are indispensable for long-term results.

In the final part, we conclude with our findings. We welcome participants from the public and private sector for discussions.

⁷ The future of cross-border payments – Report by OMFIF – December 2021.

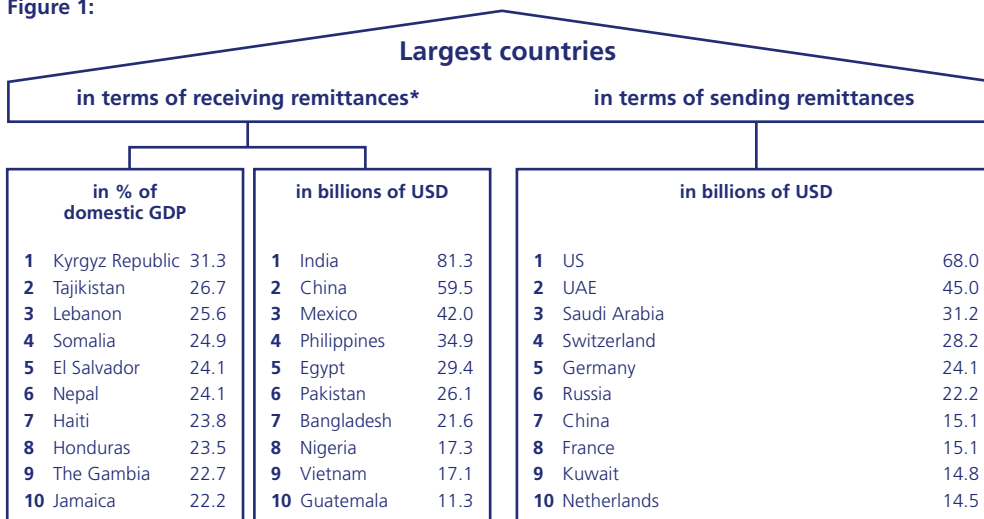
1 — The global remittance market

According to OMFIF, remittances to low- and middle-income countries in 2020 amounted to \$540 billion. These flows are expected to grow in the coming years (albeit at small single-digit rates). Per OMFIF, remittances are the non-commercial transfer of money from migrant workers to friends and family back home.

Not all published statistics about remittances agree, of course. So let's highlight the following from the report published by OMFIF DMI last December, titled "Evolution or revolution – Time for renewal in global cross-border payments."⁸ Around 200 million migrant workers across 40 countries transfer money to 800 million people in 125 countries. These money flows are important both from micro- and macroeconomic perspectives. Inbound remittances can make up around 60% of household income for the receivers, and are the single most important source of foreign currency for numerous low-income countries. Half of the total value of remittances is received in rural areas, where much of the population is poor and often unbanked. These various issues around remittances fit organically under the umbrella of financial inclusion; G+D has been promoting this for a while now with regard to domestic retail CBDCs. According to OMFIF, migrant workers send home between \$200 and \$300 every one or two months.

The following figure summarizes the largest receiving and sending countries in relation to remittances in absolute and percentage terms.

Figure 1:



*focusing on emerging markets

It might astonish some readers that certain emerging countries receive remittances totaling over 20% or even 30% of their GDP. This is presented on the left in Figure 1. These countries are spread across the globe: Asia (Kyrgyz Republic, Tajikistan, Lebanon, Nepal), Africa (Somalia, The Gambia), and Central and South America and the Caribbean (El Salvador, Haiti, Honduras, Jamaica). Some would argue that many of these countries have smaller



Between \$200 and \$300

The amount migrant workers remit home every 1–2 months.

Figure 1:
Largest countries in terms of receiving and sending remittances globally (2020)*

*Sources: World Bank, Tradingeconomics, Statista; authors' calculation

⁸The future of payments 2021 – OMFIF DMI. →

gross domestic products. However, it is inescapable that the inbound transfers from individuals abroad still make up from a fifth to almost a third of their economic outputs; this is hugely significant.

In the middle column, we see that India, China, and Mexico are the leaders in receiving remittances. Some countries from the emerging markets receive between 10+ billion and 30+ billion US Dollars inbound remittances, which are also extensive amounts. Due to the size of their economies, however, these flow numbers might be dwarfed in relative terms.

The right-hand column shows that the largest senders of remittances in absolute terms are countries from North America, the Middle East, and Western Europe. They might send cross-border retail transfers in the amount of tens of billions of US dollars into other countries, probably with a large overlap with those which might be the largest receivers. As is well known (and outlined above), cross-border payments suffer from a long list of inefficiencies. Remittances are certainly not exempt. However, there is a gap in the literature about the potential for CBDC arrangements as a potential remedy for retail cross-border (including cross-currency) payments, on top of wholesale payments. CBDCs could provide safer settlement and less counterparty risks compared with privately issued digital currencies or e-money.

In the next section, we will focus on Africa. We chose it as a basis of analysis because it is the most expensive region in terms of cross-border retail transfers.

2 — Africa has the most pain points

We will be elaborating on three significant domains in more detail below, using the sub-Saharan region in Africa as our field of study.

Remittances

According to the brief prepared by the Global Knowledge Partnership on Migration and Development for the World Bank,⁹ remittance inflow saw a strong gain in sub-Saharan Africa (14.1%) of approximately US\$49 billion, in 2021, following an 8.1% decline in 2020.

In 2022, the volume of remittances to sub-Saharan Africa would increase by 7.1%. Migrants are likely to send money to home countries that are suffering extraordinary increases in prices of food and other staples, because of the global supply chain disruption caused by the Russian invasion of Ukraine.

The cost of sending money globally across international borders in 2021 continued to remain high, averaging 6% during Q4. Sub-Saharan Africa continues to be the most expensive region to remit to.



⁹ Migration and Development Brief 36 – A War in a Pandemic: Implications of the Ukraine crisis and COVID-19 on global governance of migration and remittance flows, May 2022. KNOMAD, the Global Knowledge Partnership on Migration and Development for the World Bank. →

*estimated

Though intraregional migrants in Africa constitute more than 70% of all international migration from or within the continent, intraregional remittance costs are quite high due to the small quantities of formal flows, and utilization of black-market exchange rates.

Some of the report's findings were startling: the fee for remitting \$200 from Tanzania to neighboring Uganda would cost the Ugandan migrant 29.7%.

Sending and receiving funds in the region is not only costly in terms of price for the consumer, but also in terms of access of remittance service points. Those in rural areas often have to travel long distances, spending up to an entire day in a queue to pick up over-the-counter remittances. To reduce the fees for consumer, the cost of doing business over the entire remittance value chain needs to be reduced, while ensuring improved access at the first and last mile for consumers. The remittance value chain requires a fine balance between cost, price, and access from a consumer perspective.¹⁰

Figure 2 illustrates the ten biggest remittance recipients in sub-Saharan Africa, 2021. We would expect the governments of these countries to endeavor toward making remittances more efficient, especially in terms of cost efficiency.

Figure 2:



Figure 2:

The 10 biggest
remittance recipients
in sub-Saharan
Africa, 2021¹¹

¹⁰ Exploring barriers to remittances in sub-Saharan Africa series. Volume 2. Market barriers to remittances in sub-Saharan Africa (SSA). June 2018. →

¹¹ KNOMAD/World Bank staff; World Development Indicators; IMF Balance of Payments Statistics

Common currency unions

The idea of common currency unions gained popularity in Africa, with the objective of boosting regional integration, particularly intraregional trade and investments.

A currency union (also known as a monetary union) is an intergovernmental agreement that involves two or more states sharing the same currency. These states may not necessarily have any further integration (such as an economic union, which would have, in addition, a customs union, for instance, or a single market).

Currently, there are two existing regional currency unions in Africa, using the West African CFA franc¹² and the Central African CFA franc. Additionally, the Common Monetary Area (CMA) links four countries in Southern Africa based on the South African rand.

The African Union's plans for further integration encourage the development of more such regional unions as an intermediate step to full monetary union. One proposed currency is the eco, a common currency for the members of the Economic Community of West African States (ECOWAS) that agreed to launch it in 2027.

Another well-known idea of an economic and monetary union for the African Union is the African Monetary Union (AMU) which would be administered by the African Central Bank. Such a union would call for the creation of a new unified currency, similar to the euro; this hypothetical currency is sometimes referred to as the afro, or afriq.

The constant development of the digital economy takes the discussions around regional currency unions to a new level. For example, the board of the Bank of Central African States (BEAC) has urged the central bank (serving six central African countries in the Central African Economic and Monetary Community, or CEMAC) to introduce a common digital currency that can be used across its member states.¹³ It detailed how the use of a digital currency would modernize payment structures and promote financial inclusion in the region.

The proposal came after the central bank strongly opposed the Central African Republic's decision to adopt Bitcoin as legal tender in April this year. The central bank labeled the Bitcoin adoption decision as "incompatible with the agreements and conventions governing the Central African Monetary Union and the Statutes of the Bank of Central African States."

The Central African Republic adopted Bitcoin as its official currency alongside the CFA franc. The presidency announced on April 28 of this year that the nation had also legalized the use of cryptocurrencies. On May 10, the Cameroon-headquartered BEAC urged the Central African Republic to nullify the law. The central bank said the move could adversely affect monetary stability of CEMAC.

The central bank mentioned that the CAR's decision to make Bitcoin legal tender could put it in competition with the Central African CFA Franc, the region's France-backed currency.¹⁴



A currency union
involves two or
more states sharing
the same currency

¹² Franc of the Financial Community of Africa, originally Franc of the French Colonies in Africa.

¹³ Central African Regional Bank Seeks Common Digital Currency. Bloomberg. Retrieved July 22, 2022. →

¹⁴ Crypto Expert Explains the Fear and Excitement in CAR of Accepting Bitcoin as Legal Tender. BlockchainNews. Retrieved May 13, 2022. →

Figure 3:



Figure 3:

Common currency unions

— Countries planning to launch a common currency eco

— CMA countries based on the South African rand

Countries that lead retail CBDC development in the region

Many countries across sub-Saharan Africa are actively looking at CBDCs. They aim to expand the horizon of financial inclusion, and promote innovative digital financial services. In doing so, they seek to mainstream a safe, sound, reliable, and secure payment and financial system. (Some of these countries are illustrated in Figure 4.)

At the same time, the motivation for CBDC implementation varies from jurisdiction to jurisdiction, from reaction to privately issued digital currencies, enhancing consumer adoption of digital payments, and operational costs shortage.

In West Africa, Nigeria and Ghana appear to be driving retail CBDC development. In 2021, the Central Bank of Nigeria (CBN) launched the very first CBDC in Africa, the eNaira, following a ban on crypto transactions within the banking sector.

Bank of Ghana started exploring the launch of its digital currency in 2019. In 2020, it confirmed that it would go on to experiment with the eCedi Project in partnership with G+D.

Following the publication of the Design paper on the eCedi (with the contribution of G+D), the bank launched a practical pilot project in 2022.

In Southern Africa, The South African Reserve Bank is taking the lead in exploring both retail and wholesale CBDCs.

Other African countries currently in the exploration and design phases of their CBDC projects include Eswatini, Rwanda, Namibia, Kenya, Tanzania, Madagascar, Morocco, Mauritius, Egypt, Zambia, Tunisia, Sudan, and Uganda.

Significantly, many African central banks mention the topic of cross-border retail CBDC as an important aspect and motivation; this includes retail payments and remittances across borders.

Bank of Ghana mentions in the Design paper on the eCedi that the efforts to accelerate the integration of the African economies, particularly under the African Continental Free Trade

Figure 4:



Figure 4:
Leaders in retail
CBDC development
in Africa

Countries currently
exploring and
designing CBDCs

Nigeria and
Ghana lead the
CBDC race

Area (AfCFTA), make this a key consideration in the eCedi design. Thus, eCedi has been designed with the global CBDC standard in mind (once introduced). Participation in international projects around cross-border CBDCs would also be considered.¹⁵

Similarly, the eNaira in Nigeria pursues the seamless facilitation of a multi-currency cross-border payment process. This would in turn stimulate a flow of foreign remittance.

According to the governor of the Central Bank of Kenya, Dr. Patrick Njoroge, the bank has plans for CBDCs; he argues that CBDCs can enhance the efficiency of cross-border payments, as long as countries work together. CBDCs can slash the time needed for cross-border payments in addition to cutting costs significantly.¹⁶

Digital accelerants

Potential for cross-border retail CBDCs in sub-Saharan Africa lies across three factors

1. Intra-regional remittances continue to be inefficient
2. There is a regional trend toward common currency unions
3. Current and planned retail CBDC development in the region suggests an exciting direction

The size of remittances and the estimated cost savings with cross-border retail CBDCs

As discussed above, Africa has possibly the most challenges to address in terms of cross-border retail payments. The following table gives a detailed insight into the sizes of remittances, and the estimated costs and potential cost savings that could be achieved with a CBDC solution that incorporates cross-border considerations.

Of the African countries in the table below, 21 receive remittances ranging from 3% to 25% of their domestic GDPs. In absolute terms, Egypt and Nigeria receive several tens of thousands of USD per year. The top nine countries in the table receive individual transfers totaling over 10% of their GDP. We provide a rough estimate of the cost of remittances here, and the savings that could accrue to African nations if they were to adopt retail cross-border CBDCs. Keep in mind that the cost of remittance can vary significantly across regions and countries; amid the lack of reliable and available data, an estimated average global cost of 6% to send money internationally has been applied. This estimate is on the safe side, since some intraregional costs of sending money within Africa can reach from 8% to almost 30%.

The costs could be quite remarkable for Egypt and Nigeria, totaling potentially over 1 billion USD. Other countries like Ghana, Morocco, or even Kenya could have several hundreds of millions in USD costs as well. Based on the valuable data from the project report of mBridge,¹⁷ the cost savings with CBDC in cross-border payments could reach almost 50%, compared with the currently existing correspondent banking infrastructures. Although it is



Cost savings with CBDCs in cross-border payments could reach almost 50% compared with traditional banking infrastructures

¹⁵ Design Paper of the Digital Cedi (eCedi) – Bank of Ghana. →

¹⁶ Kenya explores Central Bank Digital Currency for cross-border payments. →

¹⁷ Inthanon-LionRock to mBridge (multiple CBDC Bridge): Building a multi CBDC platform for international payments →

hard to measure the exact costs of payments across borders in different regions, and mBridge statistics are based on cross-border wholesale payments, we use this estimation as a starting point due to the lack of available data.¹⁸ Considering lack of research on cross-border retail CBDC, we use this model with the full awareness that an independent calculation or estimation should be done as a next step. The cost savings also vary across countries, depending on the size of the economy and the remittance inflow. The numbers suggest that, from a few million USD (in the case of smaller countries), to even hundreds of millions in cost savings might be achievable.

For smaller countries, these figures could be comparable in terms of their domestic GDP. The potential cost savings might reach over 0.5% of GDP for the top four countries in the table above. For every country in the table, the potential cost savings could be at least 0.1% of GDP.

These cost savings could be achieved with the assumption that the given country establishes a cross-border CBDC interconnection with every other country from where it receives remittances from migrant workers.

Figure 5:

Country	Inbound remittance* (GPD %)	Cost of remittance ** (mn USD)	Cost savings with CBDC *** (mn USD)	Cost savings with CBDC *** (% GDP)
Somalia	24.9	73.5	36.8	0.7
The Gambia	22.7	25.9	12.9	0.7
Lesotho	20.9	23.2	11.6	0.6
Comoros	18.6	13.6	6.8	0.6
Cape Verde	14.4	14.7	7.3	0.4
Guinea-Bissau	12.2	10.5	5.2	0.4
Liberia	11.0	20.0	10.0	0.3
Senegal	10.5	156.9	78.4	0.3
Zimbabwe	10.1	101.6	50.8	0.3
South Sudan	9.5	23.2	11.6	0.3
Togo	8.6	39.1	19.5	0.3
Egypt	8.1	1764.7	882.3	0.2
Morocco	6.5	440.2	220.1	0.2
Ghana	6.1	264.8	132.4	0.2
Mali	5.7	60.3	30.2	0.2
Tunisia	5.6	131.8	65.9	0.2
Sierra Leone	4.4	10.2	5.1	0.1
Nigeria	4.0	1037.5	518.8	0.1
Niger	3.8	31.2	15.6	0.1
Madagascar	3.7	30.5	15.2	0.1
Kenya	3.1	183.8	91.9	0.1

Sources: World Bank, Tradingeconomics, Statista; authors' calculation

Cost savings could approximately range between

0.1% and

0.7% of GDP.

Figure 5:

The size of inbound remittances in Africa and the potential cost savings with cross-border CBDCs

*Based on 2020 GDP data

**Calculated with the 6% average cost of sending money globally across international borders in 2021

*** Cost savings with cross-border CBDC is based on the estimation from Project mBridge, which outlines that the costs of cross-border payments can be reduced by up to 50%

¹⁸ Applying wholesale CBDC cost estimation to retail CBDC: the paper of "Inthanon-LionRock to mBridge – Building a multi CBDC platform for international payments" by BIS Innovation Hub Hong Kong (September 2021) utilizes data from McKinsey combined with data obtained from participant banks in the second phase of Inthanon-LionRock project, and outlines the PwC estimations about correspondent banking fees that can be broken down as the following: 35% nostro-vostro liquidity, 30% Treasury operations, 15% FX costs, 10% compliance, 5% Payment operations, 3% Overhead, and 2% Network management. Assuming that we take this breakdown into consideration, it may be expected that settlement, compliance and regulation, and FX could be the major cost items for retail cross-border payments as well. The cost breakdown might be not the same for wholesale and retail transactions, but we would assume that the overall size of retail costs might be close to the one of wholesale. Finally, mBridge estimation has been made for banks in the Southeastern Asia region, and current analysis is focused on Africa, which might be a more expensive region in terms of transaction costs.

What is the importance of these cost savings? Funds sent home by migrant workers could be raised by several, even hundreds of millions of dollars, which translates into a range of 0.1% to 0.7% of domestic GDP in the case of the receiver countries in Figure 5. The cost of cross-border fund transfers could be halved, approximately, compared with the current exorbitant figures. Migrant workers could send more money to their families in view of the saved amount. It could be argued that the larger amounts being sent home could raise the tax base and domestic disposable incomes in the receiver countries, contributing to a higher rate of growth in the economy. Furthermore, cross-border remittances are usually an important source of foreign currency for the receiving country. The larger inflow of foreign currencies can have a positive impact on the current account balances as well.

For some of these countries, the current account deficits could be more effectively financed by a larger amount of net income abroad. More effective deficit financing could improve external balance, which in turn could attract more investable capital in the long run. Improved external balance and enhanced effectiveness of settlement in payments could provide a positive economic spiral. We should not forget the effect of innovation and attracting capital with a CBDC system, which can give another angle on economic development. This could be a leapfrogging opportunity for developing economies.

On the other hand, the implementation costs and return on investment for such CBDC projects are difficult to measure. The existing domestic payment system developments could provide some indication or benchmark. However, other measures on top of a pure cost-based approach should also be taken into account, when trying to address the return ratios for the central bank and commercial banks. The increase in consumer welfare or social measures should enrich the return assumptions in the long run.

It is also important to note that during our research for African countries, we found that inbound remittance data are mostly available, in contrast to the outflow data, which is largely missing. We can consider that the origin of remittances could be the Middle East, the US, Europe, and other African nations. However, data for intra-regional flows is almost non-existent.

In Figure 5, we highlighted the countries that are members of ECOWAS. Due to their large share in remittances, it might be reasonable to think about how they could improve cross-border retail payments and settlements, including connections to each other. We believe that the highest efficiency can be achieved via cross-border CBDC that is configured for retail usage. These transactions could be executed near real time, directly and with a significant cost reduction, with 24/7 operating hours, and with data fragmentation eliminated.¹⁹ These would be requirements for the domestic retail design as well.

There will be more questions and considerations to find the best-fitting solution from economic, technological, and even policy standpoints. The ones above are a starting point, so that we can all explore the most value in them.



Retail CBDCs could enable direct and efficient real-time transactions

¹⁹ Multi-CBDC arrangements and the future of crossborder payments, BIS Papers No 115, March 2021. →

3 — A way forward?

From our perspective, it is important for African central banks currently considering the design characteristics of their domestic CBDCs to ensure that potential cross-border functionalities are front-of-mind.

Considering the trend toward regional unions in Africa, it would be beneficial to facilitate the discussions between the central banks about using their CBDCs for remittances and other cross-border use cases. Such interactions and dialogues would facilitate the development of joint design characteristics and architectures for the domestic CBDCs in these countries. Thus, it would improve the potential cross-border interaction.

In search of an optimal solution for such interactions, different approaches to CBDCs' interoperability can be considered.

1. An interlinked model proposed by BIS²⁰ can be considered even under the conditions of a monetary union, where the administering central bank would take the role of the "common service" provider, allowing domestic CBDCs to transact with each other with no need to become direct participants in each of them. Or, bilateral arrangements can be established with an intermediary for each one.



Interlinked model

A common CBDC within the monetary union issued by one administering or several national central banks would simplify this model due to the absence of currency conversion. The CBDC could be backed by the assets of the participating central banks. The share of currency backing could be determined based on foreign trade, GDP figures of the participating countries, or other applicable indicators. Since foreign exchange might be one of the largest economic challenges for establishing cross-border CBDC corridors among countries, a single currency-based CBDC could more effectively bridge the cumbersome access to the global foreign exchange markets.

2. Another important area of discussion is the development of common standards for domestic CBDCs. It would allow private-sector participants accessing foreign CBDC systems, either directly or indirectly, to proceed with cross-border payments. To confirm, a common regional digital currency would make such tasks easier to implement.
3. The development of economic interlinkages and cooperation between countries in the form of monetary unions opens additional opportunities for discussions of a common CBDC platform, for international payments and remittances in the region.



Common standards for CBDCs



Common CBDC platform

In any case, the exemption of a common CBDC opens up several options to execute foreign exchange (FX) transactions. First, market-making could be done by financial institutions

²⁰ Options for access to and interoperability of CBDCs for cross-border payments, Report to the G20, July 2022 →

from their FX inventories and hedging activities, as it is done today in the existing FX markets. Since many currencies in countries with high volumes of inbound remittances are less liquid, the bid-ask spread could be substantial, making the transaction expensive, without any value added in the process. To narrow the broad bid-ask spreads, as a second option, central banks could step in to provide liquidity themselves for FX and complement market failure. The reason why central banks would do this is because they are responsible for the public good. If it could help their citizens on the FX side to significantly reduce costs and achieve a higher level of income and growth, then this too could be an argument. Central banks should not replace private financial service providers, but can cooperate with them on the FX side. As a third option, central banks could use the concept of automated market makers (AMMs) by copying from the decentralized exchanges and enabling automated trading of digital currencies. For that, a liquidity pool would be needed, which would be filled with central banks and financial institutions depending on the liquidity of the given currencies. Syncing the rates of the liquidity pool with the interbank rate could enable profit opportunities for private financial service providers.

A CBDC should not necessarily bring a ground-breaking innovation from the central bank to the surface. A cross-border CBDC could also mimic the mechanism of currently existing solutions like regularly adjusted fixed rates by the central banks, and/or the connection of domestic RTGS systems, where the transactions could happen bilaterally without any intermediary currency.



4 — Conclusion

Active research and development of retail CBDC systems by many African countries, many of which are members of regional monetary unions, opens a window of opportunity for an innovative leap.

Cross-border payments and remittances are obviously a huge challenge in the region currently. Recent market developments considered in this article give solid grounds for hoping that African countries will find revolutionary solutions. Of course, there is a wide range of questions to be discussed: financial stability, legal frameworks, technical standards, and finally specific design and architecture of the solution. The international macro-financial and monetary policy effects should be analyzed in the context of cross-border capital flows. The risks might be mitigated, however, if cross-border CBDCs could incorporate the most appropriate design options, and central banks collaborate with each other in standard-setting and regulation. It is for the central banks to consider whether to focus on the option of an interlinked model, shared standards, or a common platform, or even a single CBDC-based currency. It is highly probable that international cooperation and joint discussions would finally lead to an optimal decision. First-mover advantage could also be considered both in terms of a CBDC-based currency union, and/or cross-border retail CBDC developments.

African Expertise

G+D has experience in the region, and in developing CBDCs.

A huge need for financial inclusion in Africa has been identified and outlined above. The benefits that would accrue from a move toward cross-border retail CBDCs have also been noted.

G+D has been an active participant on the ground in Africa for decades. It partners with numerous central banks to offer a full suite of cash-related services to their consumers. Global trends, including the growth of the digital economy and the move toward the digitalization of cash, have prompted G+D to offer its partners in the region its expertise in designing and delivering CBDCs.

G+D's background and experience make it a key facilitator in designing and implementing secure, universal, and inclusive cross-border digital payments, and a strong collaborator for central banks, once they choose to go down the CBDC path.

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About Giesecke+Devrient

Giesecke+Devrient (G+D) is a global security technology group headquartered in Munich. As partner to organizations with highest demands, G+D engineers trust and secures essential values with its solutions.

The company's innovative technology protects physical and digital payments, the connectivity of people and machines, the identity of people and objects, as well as digital infrastructures and confidential data.

G+D was founded in 1852. In the fiscal year 2021, the company generated a turnover of 2.38 billion euros with around 11,800 employees. G+D is represented by 81 subsidiaries and joint ventures in 33 countries.



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