

A Survey of Central Bank Digital Currencies (CBDCs) in the Caribbean

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1. Introduction

A central bank digital currency (CBDC) is a digital version of cash issued by a central bank that can be used to make electronic payments. It is legal tender, and complements physical cash through its advantages of security, speed, low cost, and convenience. CBDCs differ from other private forms of digital payments because they are guaranteed by the central bank. A well-functioning CBDC meets a clearly identified demand and operates on a secure and resilient digital payments platform. Also, it is supported by the key financial institutions and other payment service providers (PSPs) and enjoys broad support from the public, business, and government.²

A central bank may consider issuing digital currency in response to various factors. These include the ongoing shift away from central bank issued physical cash (public money) to digital payments on private sector platforms (private money). While this shift has been accompanied by innovations benefitting users, it also carries risks related to the financial soundness of banks and other PSPs, technology failures, and the exposure of platforms to security threats. Moreover, as payments become increasingly digitized central banks may wish to maintain an appropriate balance of public and private moneys to preserve their role as an anchor for the payments system and to maintain stability.³

The world's first CBDC (the Avant) was issued by the Bank of Finland in 1992. It was issued in the form of a smartcard and used for small transactions. However, the Avant ceased to be a CBDC in 1995 when its operations were sold to a group of commercial banks (Box 1). In recent years, Caribbean countries have been among the first to issue CBDCs. The Bahamas launched its SandDollar in October 2020, becoming the first nationwide CBDC in the world (Atlantic Council, 2023). This was followed in 2021 by D-Cash, issued by the Eastern Caribbean Central Bank (ECCB) for the member countries of

¹ The author is grateful for comments on an earlier version of the paper from Lynsey Ward and Yvonne Cooper of the Central Bank of The Bahamas, Keith Dublin, and Sherwyn Williams.

² This paper discusses only retail CBDCs, which are held and used in payments transactions by individuals and businesses. Wholesale CBDCs are those used in transactions among central banks and other financial institutions.

³ Bank of England and HM Treasury, 2023.

the Eastern Caribbean Currency Union (ECCU). Jamaica launched its Jam-Dex in July 2022. Barbados and Belize have begun to explore their own versions of digital currency, while research is ongoing in Trinidad and Tobago. In June 2023, 130 countries were exploring CBDCs, up from 35 in May 2020. Of these countries, eleven have launched a CBDC.⁴ Despite the growing interest in digital currencies, some countries, like Canada, have concluded that there is not yet a sufficiently robust case for introducing a retail CBDC. The UK House of Lords reviewed the case for a CBDC in that country and concluded that it was a “solution in search of a problem”.⁵

This paper reviews the status of initiatives in three Caribbean countries which have launched CBDCs. The review is conducted against the background of the payments environment in the region. The need to enhance that environment and expand financial inclusion in the three countries have been the major factors driving the exploration of digital currencies.

2. Payments in the Caribbean

Interest in CBDCs in the Caribbean stemmed from ongoing efforts to modernize the payments system in an environment in which there is growing demand for fast, secure, and low-cost digital payments. Also, some central banks have sought to promote financial inclusion by working to expand payments services into rural and remote areas (BIS, 2020). Moreover, quick access to cash and payments is essential to help strengthen resilience and speed recovery following hurricanes and other natural disasters. Across the region physical cash remains dominant because of its universal acceptance, but its advantages are offset by the risk of robbery and theft, as well as the cost of printing, storage, transport, and insurance.

The use of checks is commonplace in urban areas, but their more widespread use as a means of payment is weighed down by the cost of converting them into cash, including the time needed to travel to a bank and wait in cashier queues. In some countries this cost has risen following the closure of some foreign bank branches as a result of de-risking and low profit margins.⁶ Depositing checks in some countries also requires

⁴ The Atlantic Council (2023) lists the status of countries' efforts on digital currencies.

⁵ House of Lords (2022).

⁶ For a discussion of the de-risking problem in the Caribbean, see Allan Wright (2015): 'De-Risking', IDB Policy Brief Number 257, available at: [De-risking | Publications \(iadb.org\)](https://publications.iadb.org/)

access to a bank or ATM, with settlement taking 3-4 business days.⁷ Moreover, even in one of the most financially developed countries, The Bahamas, about one-fifth of the population does not have a bank account.⁸ In addition, opening a bank account is difficult for individuals and small business owners who cannot meet banks' know your customer (KYC) requirements.

Data on other means of payment are incomplete. Survey data from the IMF show that credit card use is highest in Barbados and The Bahamas, and lowest in some Eastern Caribbean countries such as Dominica and Grenada (Table 1).⁹ Visa and Mastercard user fees for merchants in the Eastern Caribbean range from 3.40-3.65 percent, while charges for point-of-sale machines can reach up to 3.5 percent per transaction on top of rental fees.¹⁰ These fees act as a constraint to the acceptance of these cards by small businesses.

The infrastructure for mobile and digital payments has improved in recent years. Use of mobile phones is almost universal across the Caribbean. Current information on internet use is not available, but in 2017 an average of 58 percent of the population were users, compared with an average of 71 percent for all upper middle-income countries. The most recent partial data (2020) show that the percentage of users ranged from 50-60 percent of the population in Grenada and St. Lucia to 87 percent in The Bahamas (Table 1).

Private mobile and digital payments in the region are dominated by a few companies, including Wi-Pay and Caribe-Pay. Registration for these services is online, and account holders fund their mobile accounts with direct salary and other deposits, check deposits, transfers from other users, or from credit or debit cards. Using mobile phone apps, account holders can make bill payments to participating businesses, and payments can be made to individuals using their email address or phone number. Payments and receipts are registered immediately in the account holders' balances. Individuals and businesses do not need to have bank accounts or internet access. Payments can also be made using pre-loaded cards which can be read at POS terminals. Terminals can

⁷ The number of bank branches per 100,000 adults ranges from 6 and 8 in Jamaica and Guyana, respectively to more than 20 in Grenada, The Bahamas, and St. Kitts and Nevis. (IMF, 2022), while the number of ATMs per 100,000 adults ranges from 21 in Guyana to 124 in The Bahamas (IMF, 2020).

⁸ IMF (2019)

⁹ IMF survey data show that in The Bahamas 290 per 1,000 adults had access to credit cards, while in the 2018 Financial Literacy Survey conducted by the central bank 48 percent of respondents reported access.

¹⁰ Antoine (2021).

function in the event of power cuts through battery backups. In the case of Caribe-Pay merchants pay a fee of 1 percent per transaction, with a minimum total monthly transaction fee of US\$20. In addition, the minimum monthly fee for its POS terminal is US\$20.¹¹

The Caribbean: Selected Payments Indicators

	Credit cards per 1,000 adult:	Bank branches per 1,000 sq. km	Bank branches per 100,000 adult	ATMs per 1,000 sq. km	ATMs per 100,000 adult	Internet users % of population
Antigua & Barbuda	162	34	19	95	54	73
The Bahamas	290	8	25	39	124	87
Barbados	570	77	14	167	30	82
Belize	n.a.	2	18	6	48	51
Dominica	93	11	11	27	28	70
Grenada	61	56	22	103	41	57
Guyana	n.a.	1	8	1	21	37
Jamaica	179	13	6	84	40	68
St. Kitts & Nevis	150	58	28	150	73	81
St. Lucia	n.a.	33	13	107	43	53
St. Vincent & the Grenadine	n.a.	36	16	n.a.	n.a.	56
Trinidad & Tobago	208	24	11	97	44	71

Sources: IMF: Digital Access Survey 2022; World Bank: World Development Indicators, September 2022.

3. Operational aspects of Caribbean CBDCs

At the core of CBDC operational arrangements is a software platform that registers the issuance of CBDCs to authorized financial institutions (AFIs) and PSPs. The platform also holds the ledger of transactions, and in some countries, such as The Bahamas, maintains a centralized register of wallet holders (BIS, 2020). The arrangement in which the central bank issues CBDC to authorized institutions, which, in turn, handle the applications from individuals and business for CBDC wallets, is sometimes termed the “hybrid” model.

Customers wishing to hold CBDC apply for an account and wallet to an AFI or PSP, using apps provided by these institutions or the central bank. AFIs and PSPs ensure that KYC guidelines are met, keep customer records, and monitor transactions for money laundering risks. Applicants with bank accounts are automatically eligible for wallets linked to their accounts. Applicants without bank accounts are vetted by AFIs and PSPs, subject to lower KYC requirements (such as a form of identification, address, or e-mail address), and are allowed lower transaction and holding limits than holders of bank accounts. According to the Jamaican central bank lower KYC requirements aim at

¹¹ <https://caribepay.com/Home/business>

helping reduce resistance against entering into the formal sector, and ID requirements for the unbanked are being met through the issuance of a national ID card (ITU, 2022).¹²

Once approved, applicants for wallets can be issued CBDC up to the limits determined by the central bank in each category/tier. Typical categories include:

- Individual holders without bank accounts (sometimes referred to as Basic, Tier 1, or Custodial);
- Individual holders with bank accounts (Premium, Tier II or Non-custodial); and
- Businesses, which are obliged to have a bank account.

In The Bahamas, there are plans for the government and the National Insurance Board (NIB) to be added as a category of large-volume transactors. This will allow these bodies to receive and make payments in digital currency (Central Bank of The Bahamas, 2019). In Jamaica also, government welfare and other transfer payments will be made via CBDC wallets.

Wallets can be funded at authorized issuers/agents by exchanging physical currency notes, or by transfers from a bank account. In Jamaica there are plans for funding through smart automatic banking machines (ABMs). A wallet holder can make payments to another wallet holder using apps provided either by the authorized financial institution or by the central bank, which require passwords or face-recognition identity confirmation. Wallet holders will be able to convert CBDCs into cash at PSPs or smart ABMs (JIS, 2021).

In The Bahamas and Jamaica CBDC transactions can be made only in domestic currency to other residents and businesses. In The Bahamas, transactions can also be made by visitors to the country. In the ECCU transactions in the common digital currency can be made with residents in all member countries, and CBDC transactions carry no fees and no required minimums for transaction values or wallet balances.¹³ In The Bahamas, peer-to-peer transactions do not carry fees, but there are fees associated with merchant accounts, which are lower than fees associated with credit or debit card transactions. Countries are exploring ways to enable CBDC transactions offline (for example, through card-based systems (Kiff, 2022). This would be essential for private payments and

¹² <https://www.itu.int/hub/2022/01/bank-of-jamaica-cbdc-rollout-moves-ahead/>

¹³ The BIS and the central banks of Hong Kong, Thailand, China and the UAE are working to develop a cross-border, blockchain-based, multi-CBDC platform, known as mBridge that would connect separate digital currencies in a single common technical infrastructure. The aim is to allow low-cost and fast cross-border payments in real time, including peer-to-peer and foreign exchange transactions (BIS Innovation Hub, 2022).

government transfers in the event of power and internet failures, or natural disasters. Data on registered users of digital currency indicate that the uptake has been small in the Eastern Caribbean, with about 4,000 individual users in the ECCU as at March 2022. At the end of 2022 there were a total of 99,980 SandDollar merchants and wallets in The Bahamas, while in Jamaica, more than 180,000 individuals and 3,900 businesses were registered to conduct transactions in JAM-DEX.¹⁴

An important goal in all countries is to achieve inter-operability among the different digital platforms of AFI and PSPs (Rolle, 2022). Inter-operability is defined as the capacity for a transaction originated on one digital payments platform to be completed or settled seamlessly on another. This would allow a free flow of payments and is essential for broad acceptance of CBDCs by the public (ITU, 2022). The Jamaican CBDC, Jam-Dex, is already inter-operable across all payments platforms. Some central banks, including in Jamaica, are working on initiatives to integrate CBDC into the national payments architecture by connecting wallets to bank accounts through the automatic settlement system. This process of integration has been completed in The Bahamas.

4. Potential Benefits and risks of CBDCs

Benefits

A key benefit of CBDCs is that they have the potential to deliver faster, more efficient, and less costly payments, which is a major goal of the central banks' reform efforts. Faster speed is achieved because CBDC payments are direct person-to-person transactions, which are settled on the central bank ledger in central bank money, eliminating the need for intermediaries, such as banks. Faster settlement helps improve cash flow for small businesses. Lower costs are possible because to date CBDC transactions between individuals carry no fees, while fees on CBDC transactions with businesses are small in comparison with those on debit and credit card transactions, which can range from 1-5 percent. In addition, businesses have to pay rental and/or maintenance fees on POS units. As noted, cash payments involve costs of time, storage, and handling.

¹⁴ This compares with a population in the ECCU of about 700,000, in The Bahamas of 407,000, and in Jamaica of 3 million. <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=JM>

Box 1: The experience of an early CBDC

An early form of CBDC was introduced in Finland in 1992. It was developed by the central bank as a means of improving the payments system, which operated in a fragmented market characterized by several separate and incompatible platforms. The intention was that the Avant, the name of the currency, would serve as a simple, fast, and no-cost means of payment for small transactions, alongside debit and credit cards, which would continue to be used for larger value transactions. The CBDC was managed by a wholly owned subsidiary of the Bank of Finland's printing works.

Digital currency holdings were stored on the card, which was used to make payments through point-of-sale (POS) terminals. In this sense, Avant was a token-based CBDC. This is distinct from an account-based CBDC (as well as debit and credit cards) where the issuer holds records of individual balances. The use of the card allowed transactions to be made offline. At its peak, the Avant was used for payments at kiosks, shops, and on public transport. The protection of cardholders' privacy was an important objective. The central bank was not allowed to track transactions nor individual balances of cardholders; it monitored only aggregate card balances.

The currency was not designated by the central bank as legal tender, in part because the bank did not feel that it was appropriate to oblige all merchants to buy expensive card-reader systems. After three years of operations and following the introduction of a fee to cover the re-loading of cards, the central bank decided to spin off the Avant to a group of commercial banks. The bank came to the decision that its fundamental role was that of regulator, and not a payments system operator. As a result, in 1995 Avant ceased to be a CBDC as it was no longer backed by the central bank, but by a group of commercial banks. It became another payments product alongside debit and credit cards.

Source: Grym (2020).

CBDCs can help widen the net of financial inclusion, defined not only as access to a bank account, but also as greater access by more people to a more secure and efficient means of making and receiving payments (Lee and Wessel, 2018; Birch, 2022). Across the Caribbean, large portions of the population are financially excluded in these ways, and in Jamaica the majority of the population are excluded.¹⁵ Expanding the opportunities for financial inclusion through digital payments can help increase opportunities for saving and borrowing by previously excluded segments of the population, raise productivity, and boost economic growth (Mckinsey Global Institute, 2016).

A related advantage of CBDCs (together with other private digital platforms) is that they allow transparency of income and expenditure, as well as better record-keeping, which

¹⁵ <https://www.reuters.com/business/finance/jamaica-digital-currency-due-national-roll-out-coming-months-central-bank-2022-01-31/>

can support requests for credit by individuals and SMEs (AFI, 2022). In addition, CBDC platforms can promote efficiency by encouraging innovation and promoting more competition among private providers of payments services (Ingves, 2018).

For the public sector, CBDCs can contribute to the digitization of the economy and help speed up tax and other payments as well as the delivery of government transfers and relief payments, particularly at times of natural disasters. In addition, information on digital transactions can help support nimbler fiscal and monetary policy responses by providing more timely signals about the state of the economy and business activity.¹⁶

Risks

The major concern regarding CBDCs is that they may trigger financial instability if depositors switch significant amounts of funds from banks into CBDC wallets. This could occur, for example, if there is concern about the stability of one or more banks, government policy, or the state of the economy (BIS, 2020). It could also occur in conditions of political uncertainty. Large and rapid shifts could make liquidity management more difficult for individual banks and complicate the transmission of monetary policy. In the Caribbean environment, there could also be a destabilizing shift of resources from banks and other financial institutions to digital currencies ahead of natural disasters like hurricanes. To mitigate these risks, Caribbean central banks which have introduced CBDCs have placed limits on the size of wallets, retained the power to suspend deposit withdrawals, and mandated that no interest be paid on wallet balances.

Other concerns relate to the risk of technical problems or breakdowns caused by software issues. An example of this was the suspension for several weeks beginning in January 2022 of the CBDC issued by the ECCB. According to the bank, the suspension was caused by expired identity certificates on the blockchain that protects the system's security.¹⁷ While the suspension affected only the processing of new transactions, interruptions of this nature may cause some reluctance to hold the CBDC, as well as reputational risks to a central bank. These risks can be mitigated by contingency plans to address potential operational stoppages or failures of banks, other PSPs and technology partners (IMF, 2022). Reputational risks to the central bank may also stem from the misuse of CBDC for money-laundering or other illegal activities. An additional

¹⁶ For a comprehensive discussion of the potential benefits and risks of CBDCs see Alfonso and others (2022), and Lee and Wessel (2018).

¹⁷ Wall Street Journal, March 22, 2022: "Surveillance Risks Shape How Central Banks Test Digital Currencies" <https://www.wsj.com/articles/surveillance-risks-shape-how-central-banks-test-digital-currencies-11647941400>

major risk is the attraction to cyber-criminals of the large databases held by AFI, PSP, and central bank digital platforms. Related to this, the public may perceive that privacy risks would be unacceptable if CBDC transactions data were used by governments, for example, as a means of verifying tax liabilities.

5. Central bank issues

Introducing a CBDC has major implications for a central bank. These include development and administrative costs, the organization and oversight of CBDC operations, and adapting the legal and regulatory framework to incorporate CBDC. The main costs are associated with the adoption of a software platform, the conduct of a pilot, and the staffing of the CBDC unit. To manage CBDC operations The Central Bank of The Bahamas (CBOB) has established a new Digital Currency (SandDollar) Adoption Unit to oversee the operations of the CBDC. In Jamaica, a committee has been set up at the central bank to oversee CBDC operations and risks. The ECCB has not yet made organizational changes to handle its operations, which are managed by 12 staff (Soderberg and others, 2022).

Legal changes required include revisions to the central bank legislation. The Central Bank of The Bahamas Act of 2020 expands (i) the definition of money to include CBDC, and (ii) the regulatory scope of the Bank to cover oversight over issuance of the currency and relations with stakeholders. Also, the Bahamian Dollar Digital Currency Regulations of 2021 update the legal framework for PSPs with respect to their CBDC-related services. In addition, the central bank consults regularly with the National Payments Council (NPC) on matters related to digital and other payments.¹⁸ The NPC includes representatives from banks, credit unions, money transfer and payments services businesses, as well as the government and the NIB. In Jamaica, amendments to central bank legislation in June 2022 recognized Jam-Dex as legal tender, with the Bank of Jamaica as the sole issuer.

¹⁸ A copy of the NPC legislation is available at: <https://cdn.centralbankbahamas.com/download/015717900.pdf>

6. Conclusion

The launch of CBDCs by three Caribbean central banks and ongoing research and exploration by others have converted the Caribbean region into one of the most active in the development of digital currencies. Since the first launch by The Bahamas was only in late-2020 it is too early to fully assess the experience. However, it is important to take note of what has emerged so far from the experience, and how this is likely to influence the evolution of finance and payments in the region.

The main motivation for adopting CBDCs was that they would provide a public good by helping expand financial inclusion and introducing faster and lower-cost payments backed by the central banks. For The Bahamas and the ECCU in particular, which comprise several islands spread over large expanses of the Caribbean Sea, the expectation is that CBDCs will help promote financial integration, inclusion, and economic development through better payments arrangements. The Caribbean region is highly diversified in geography, size, and population distribution, which points to the need for each CBDC to be designed to address specific gaps in the payments infrastructure and in financial inclusion.

To date, the path toward these goals in the three launch countries has been uneven. Except in Jamaica, the uptake of CBDC by consumers to date has been small relative to other payments options. Participation rates of traditional banks and credit unions have also been low. Also, the central banks have borne the costs of development, operations, and oversight. However, it is too early to tell how the demand for the digital currencies from the public will evolve, and how sustainable it will be for the central banks to continue to absorb these costs without introducing fees. In addition, there have been difficulties with the launch at the ECCB, which had to cease operations for several weeks because of technology-related issues.

Despite these challenges the launch of CBDCs by the three central banks now means that structures are in place to permit free and fast payments throughout those countries. These digital currencies can help fill the gaps in the pre-CBDC payments systems, particularly those gaps affecting the unbanked, those living in rural or remote areas, and persons who depend on government transfers. In doing so, digital currencies provide a public good that can help promote financial inclusion, small business growth, and economic development. They may also spur innovation among private PSPs.

Central banks which have launched CBDCs or are conducting pilots will have to continue to communicate with the public about the potential benefits of CBDC and actions being taken to mitigate risks to wallet holders and the financial system. Central banks will also have to review continuously CBDC operations and rules, including those related to limits on wallet balances and transaction amounts, to ensure that they adapt in line with the evolving demands from the public and financial institutions. In addition, monitoring of bank liquidity and shifts in balances between banks and CBDCs will be essential for preserving financial stability.

Countries in the region that may be considering CBDCs will need to make their own assessments of whether there are indeed gaps in financial inclusion and payments costs and effectiveness that can be filled by CBDCs. Such assessments will benefit considerably from the experience of the three central banks which have launched digital currencies. Some countries may determine that gaps can be addressed at lower cost and reduced risk to the central bank and to financial stability by collaborating with existing banks and other PSPs. It will be interesting to follow how these different paths influence countries' financial development and social progress.

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