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Is Central Bank Digital Currency A Threat To Cryptocurrency?

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Executive Summary

As most central banks across the world aimed to issue central bank digital currency often called fiat money, other investors in the crypto market were worried about the consequences it would have on the business environment. While it seems like a fierce competition between private big techs, crypto miners and central banks, the consumer market is skeptical about the efficacy of central banks to issue digital currency as a means of payment in the consumer financial retail market.

In this paper, we questioned whether central banks' have misplaced priority to enter the consumer fintech market by providing retail Central Bank Digital Currencies (rCBDCs) or its high time CBDCs represented the digitized version of a nation's fiat currency issued by a respective central bank on a distributed ledger or blockchain technology. Again, the report examines whether CBDCs pose a threat to the cryptocurrency market by providing a legal framework and securing users' money with an asset which is problematic in the open cryptocurrency communities.

The researcher reviewed extant literature from BIS, Crypto Reports, and central banks' financial reports to analyze how CBDC poses a threat to cryptocurrencies. The study found that CBDC is set to overcome illicit cryptocurrency activities, provide digital security to fiat money and empower cross-border payment systems. Besides, the report acknowledged the significance of cryptocurrency in providing commodity money for wider global transactions and eliminating financial institutions from the credit system. The paper recommends that swift monetary policy is required to establish equilibrium grounds and address cryptocurrency and CBDC disparity.

Keywords:

Cryptocurrency
Central bank digital currency (CBDC)
Blockchain technology
Fiat money
Cross-border payment
Retail CBDC

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Introduction

Cryptocurrency emergence and increasing popularity across the globe have given central banks around the world a run for their money. Consequently, central banks have been speeding up the process of upgrading their infrastructure to create their sovereign digital currencies. Currently, about 86% of global central banks are conducting research on CBDCs, exploring key design features and models (Auer et al., 2020). In Africa for instance, about thirteen (13) countries in Africa have reported their plans to use digital currency, while Nigeria launched its digital currency (e-Naira) according to a comparative study by Agpaytech Research. Why has the speed and interest from central banks to have their digital version of cash soared recently? Couldn't central banks have partnered with the crypto developer than to have the state-back digital currencies?

The cryptocurrency statistics are scary to central banks and the need for immediate solution to enter the digital currency market. For instance, between 2012 and 2021, the price of Bitcoin increased by over 540,000% and more than 300 million people around the world use/own cryptocurrencies in 2021. Besides, the global crypto market cap is $1.03 trillion and the market volume is $89.31 billion as of July 21st, 2022. Approximately $112 billion is traded in cryptocurrency per day, and bitcoin's dominance is currently 42.27%. Furthermore, there are more than 4,000 different types of cryptocurrency (coinmarket cap, 2022).

The Rise of Central Bank Digital Currency

Many countries worldwide are researching, piloting, and implementing diverse versions of Central Bank Digital Currency (CBDC). According to a survey from late 2020, 86% of global central banks are conducting research on CBDCs, and as of July 2021, 56 central banks have publicly communicated their research or development efforts (Boar & Wehrli, 2021; Auer et al., 2020). Moreover, central banks are moving into more advanced stages of CBDC engagement, progressing from conceptual research to experimentation. About 60% of central banks (up from 42% in 2019) are conducting experiments or proofs-of-concept, while 14% are moving forward with development and pilot arrangements (Boar & Wehrli, 2021). There are now four live retail CBDCs in the world, in The Bahamas, the Eastern Caribbean, Nigeria, and Jamaica. There are 29 pilots and 72 central banks have communicated publicly about their CBDC work (Auer et al., 2022).

Motivations for central bank digital currencies, especially in emerging markets and developing economies, range from main efficiency gaps in the domestic payment infrastructure to broadening financial inclusion (Mancini-Griffoli et al., 2018). CBDC helps discipline the market power of banks, reduce the illicit use of money, and improve competition and the payment system (Soderberg, 2022; Garratt and Lee, 2021). Mikhalev et al. (2021) described CBDC as a new form of electronic money that, unlike well-known cryptocurrencies, e.g., Bitcoin or Ether, is issued by central banks of certain countries. A CBDC is virtual money backed and issued by a central bank. While central banks from China, Ghana, South Africa, South Korea, etc., are piloting their digital currencies, Nigeria, Bahamas, United Arab Emirates, and the Eastern Caribbean Countries have launched their digital currencies.

Table 1 provides details of central banks' status on CBDC adoption since 2014. While many CBDCs are in the piloting phase, the Bahamas Sand Dollar and Nigeria's e-Naira, and Dcash from the Eastern Caribbean Central Bank (ECCB) are among the official fiat money that has been launched. The majority of the CBDCs are now being piloted (e-Cedi, e-CNY, etc.).

Table 1: Global CBDC status

Digital currency	Country / Region	Central Bank(s)	Announcement Year	Status	Technology	DLT / non-DLT
Sand Dollar	Bahamas	Central Bank of Bahamas	2017		NZIA Cortex DLT	DLT
Jasper	Canada	Bank of Canada	2016	Pilot	R3 Corda	DLT
e-CNY	China	People's Bank of China	2017	Pilot	-	Non-DLT
DCash	Eastern Caribbean Economic and Currency Union (OECS/ (ECCU	Eastern Caribbean Central Bank ((ECCB	2017	Launch	Hyperledger Fabric	DLT
France CBDC	France	Banque de France	2021	Pilot	-	DLT
France CBDC	France	Banque de France	2019	Pilot	-	DLT
France & Singapore CBDC	France & Singapore	Banque de France & Monetary Authority of Singapore	2021	Pilot	-	-

France & Tunisia CBDC	France & Tunisia	Banque de France &Banque Centrale de Tunisie	2021	Pilot	-	-
E-cedi	Ghana	The Bank of Ghana	2021	Pilot	Filia	Non-DLT
JAM-DEX	Jamaica	Bank of Jamaica	2021	Pilot	-	-
e-Naira	Nigeria	Central Bank of Nigeria	2021		Hyperledger Fabric	DLT
Digital Ruble	Russian Federation	Bank of Russia	2019	Pilot	-	-
Aber	Saudi Arabia	Saudi Arabian Monetary Authority	2019	Pilot	-	DLT
Khokha	South Africa	South African Reserve Bank	2016	Pilot	-	DLT
South Korea CBDC	South Korea	Bank of Korea	2020	Pilot	-	DLT
Aber	United Arab Emirates	United Arab Emirates Central Bank	2019	Pilot	-	DLT
e-Peso	Uruguay	Central Bank of Uruguay	2014	Pilot	-	-

Source: CBDC tracker.com (Retrieved 18 July 2022)

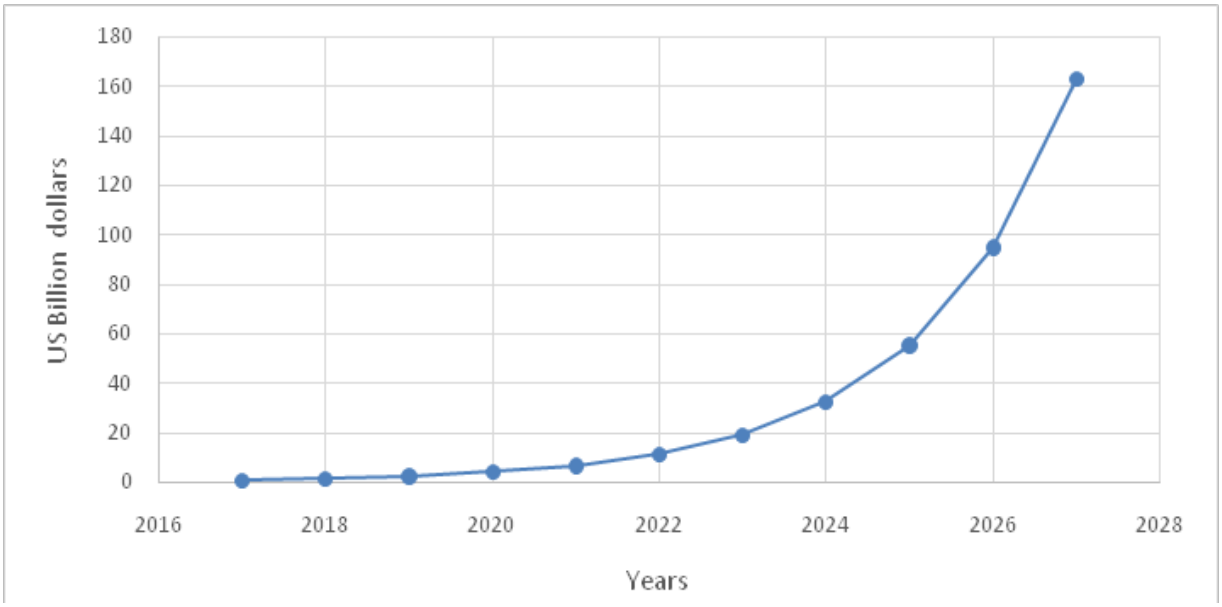
Digital Money Revolution: Cryptocurrency

Cryptocurrency has emerged to create a decentralized banking system, where no financial institution controls the money. Cryptocurrency is a kind of virtual currency that uses cryptography to protect transactions (Brincat, et al., 2019). This Blockchain paradigm is popular for financial transactions but is also becoming popular for non-financial purposes, popularly for wireless networks. Before the introduction of cryptocurrency, two factors determine the success of an electronic transaction namely; financial institution and internet connection. With the introduction of cryptographic payments like Bitcoin and Ethereum, the role of financial institutions has been successfully eliminated (Igboanusi, et al., 2021).

Cryptocurrency usage is growing faster than ever before. Chainalysis reported that the total volume of transactions grew to $ 15.8 trillion in 2021. Estimates state there could be over 4,000 in circulation in 2021. The majority of these are relatively small and do not play a big role within the crypto market. Indeed, various rankings – such as a market

cap comparison between several cryptocurrencies, mention Bitcoin (BTC), Ethereum (ETC), and Ripple (XRP) as the top three digital currencies (Statista.com). Bitcoin might be the headline cryptocurrency for many, but the market for digital currencies relying on blockchain technology is much bigger than that. Take, for instance, Ether: Initially released in 2015, the cryptocurrency is based on the open-source Ethereum blockchain – currently the more commonly used name for the coin – has become one of several virtual currencies with the most transactions on the ledger by 2021. The crypto market usage of the blockchain technology is expected to reach over 162 billion by 2027 according to statista.com. Currently, more private and public institutions are becoming familiar to the technology moving from the wait-and-see approach to research and implementation stage.

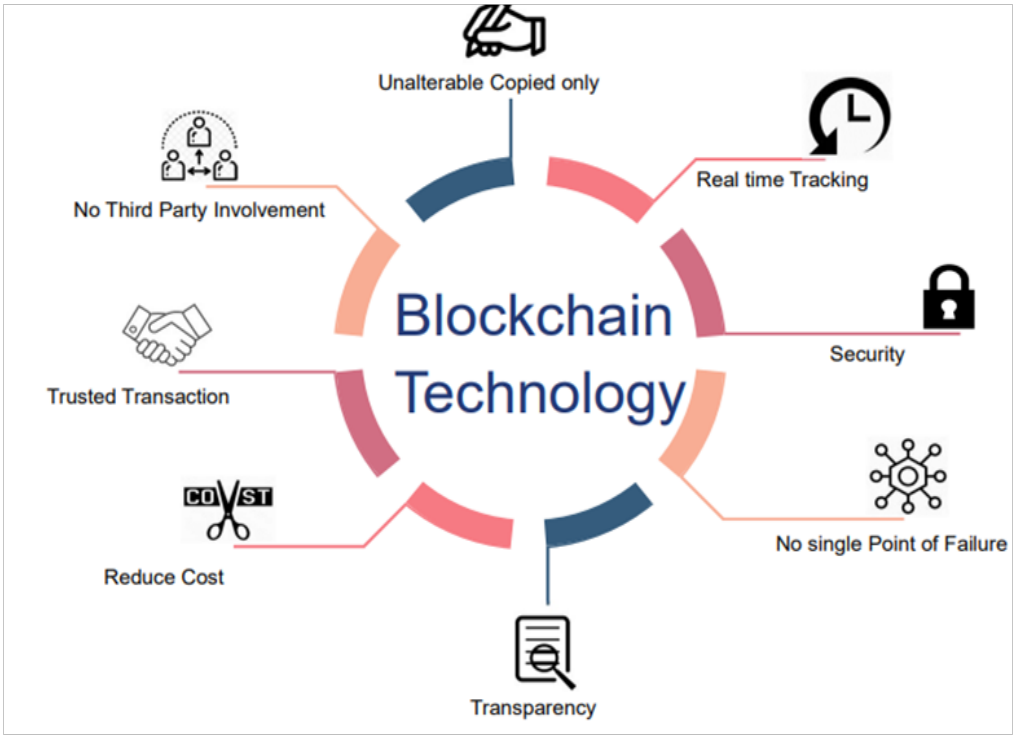
Figure 1: Blockchain technology market size worldwide 2017-2027



Source: Statista

When planning to invest or trade in cryptocurrencies, people can either mine the currency themselves or buy from an exchange. Public and private blockchain-based currencies are being developed and utilized by private individuals, companies and even nation-states. These developments are signaling the early stages of an entirely new financial industry and the entrepreneurial opportunities that come with it. As the market capitalization and institutional support for cryptoassets grows, banks that develop the infrastructure for cryptoasset banking services (including custody, payment processing and lending offerings) will be well positioned to serve customers participating in this new and exciting asset class.

Figure 2: Key blockchain features to payment



Source: Central Bank of Egypt

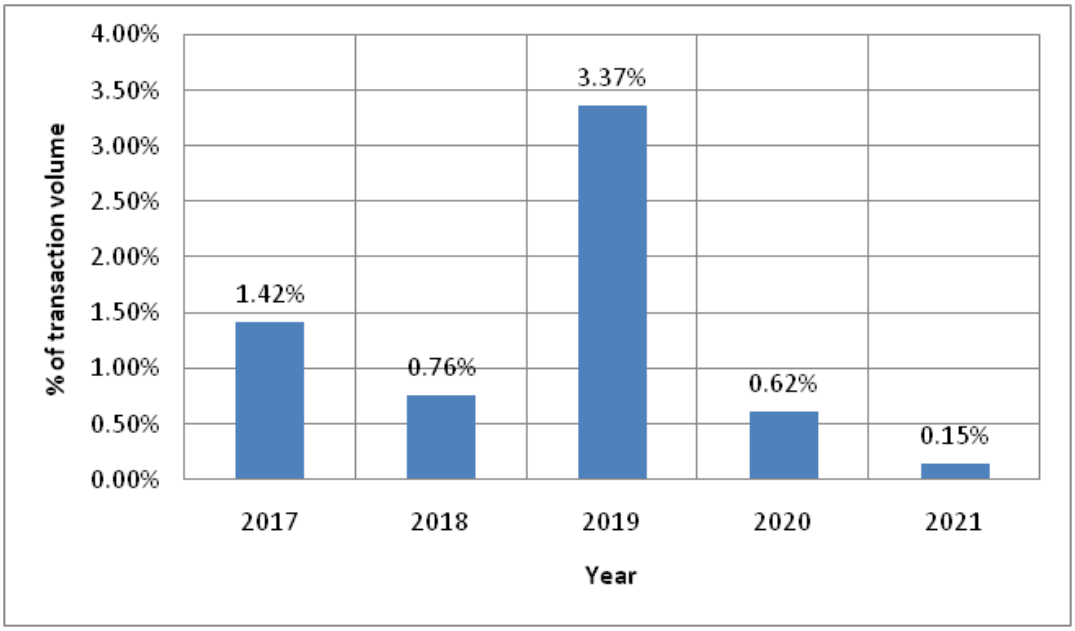
Crypto Crimes: A Course for State-Back Digital Currency

While it is difficult to find a consistent legal approach to regulate cryptocurrency and combat global and domestic crime activities, state central banks have opted for their digital currency. With the state-backed currency crime activities, terrorist funding, scamming, proper KYC, and AML measures will be instituted and monitored to safe guide users. The course for CBDC priority is due to the fraud and other scamming-related facts. For instance, scamming revenue rose 82% in 2021 to $7.8 billion worth of cryptocurrency stolen from victims (Chainalysis, 2022).

Although cryptocurrency has supported the financial industry through its blockchain technology, several crypto crimes justify the imminent research and piloting of CBDCs. Cryptocurrency-based crime recorded $ 14 billion in 2021, whereas $ 7.8 billion was found in 2020. Chainalysis reported that cryptocurrency thefts contributed $3.2 billion to the

overall amount in 2021, while 72% percent of this stolen money was acquired from Defi protocols. The crypto crime report shows that the illicit transaction activity reaches an all-time high in value, but an all-time low in a share of all cryptocurrency activity (Chainalysis Report, 2022). While those figures are probably not near reality, illicit activity's share of cryptocurrency transaction volume has never been lower.

Figure 3: Illicit share of crypto transaction volume

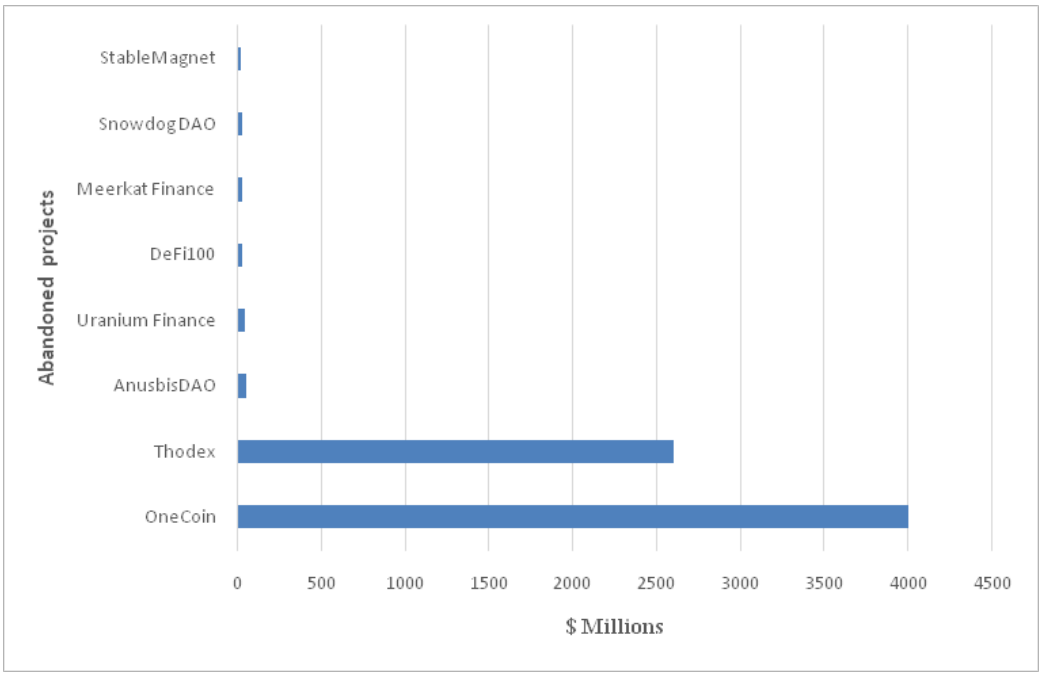


Source: Chainalysis, 2022

In 2021, the total illicit addresses represent 0.15% of cryptocurrency transaction volume. The higher crime value for 2019 was associated with the PlusToken Ponzi Scheme, and except for 2019, crypto crime related is decreasing. Besides, many countries are now beginning to recognize and adopt crypto as legal tender (e.g. Central African Republic and El Salvador). As cryptocurrency usage increases regulations are being put in place to govern them.

Even apart from cryptocurrency creators with malicious intent, businesses in the decentralized finance or Defi space are valuable targets for hackers, scammers, and fraudsters due to their unregulated nature. Moreover, cryptocurrency developers abandoning a project or token draining all funds, and disappearing has been worrying to investors and a threat to the financial system. According to blockchain data provider Chainalysis, cases of cryptocurrency founders draining their projects of invested money and vanishing without a trace were responsible for $2.8 billion in losses. (statista.com). Can central banks trust crypto developers with our public monies? This chart shows the biggest rug pulls by estimated cryptocurrency USD value stolen.

Figure 4: Crypto developers abandoning projects



Source: Statista

The Argument: Retail CBDC and Cryptocurrency

In the financial market sector, the role of central bank money is increasingly threatened by the digital revolution. Galhau (2022) opined that the decline in the use of cash in transactions poses a threat to central bank money for the public. The consumer market is ever-changing and increased reliance on digital payment solutions is a wake-up call for central banks to be innovative and live up to the digital age. One main leading challenge is the rise of the crypto-assets and stablecoins competing against both central bank and commercial bank money and getting attention from users in the consumer market.

The Rationale perspective

The rationale for issuing a retail central bank digital currency (rCBDC) could range from digitalization economy motive, financial inclusion, the taste of digital payment, and the necessity to refine the retail payment market (Morales-Resendiz et al., 2021). Central banks have not openly spoken against the widespread of cryptocurrency but rather seek to address and advise users on security and guarantee issues surrounding several unauthorized crypto usages. Moreover,

none of the CBDCs seek to replace cash but to offer a legal digital currency complement within the approved jurisdiction. Again, the sharing economy and eCommerce businesses have made it utmost imperative to provide cash-like digital currency to make payment and settlement more convenient and reliable. Another key significance is the option for central banks to choose between either account-based or token-based CBDC.

On the contrary, widespread cryptocurrencies such as Bitcoin, Ethereum, Litecoin, etc., emerged to create a decentralized banking system, where no financial institution controls the money (Igboanusi et al., 2021). While the introduction of cryptographic payment eliminated the role of financial institutions. But the need for instantaneous connection to the internet to enable Blockchain transactions is still a limitation of the current architecture. And this makes CBDC more advantageous.

The governance mechanism

Over the years, the consumer financial markets have been dominated by traditional financial institutions (e.g. commercial banks and credit unions) and recently incorporated entities leveraging on technology (big-techs, fintech). The technological-enabled innovations were used to support or provide financial services, and have developed in recent years, transforming the financial landscape and creating many financial services; they are particularly engaged in the provision of payments, clearing, and settlement services, as well as in credit intermediation (IFC Report, 2020).

All this while, the central banks were governing the financial systems of their jurisdiction by authority, provisions, enabling and regulating all the financial structures. Currently, the central banks' decision to issue the digital form of the currency means that the market structure and governance approach also need to be modified to include self-governing in case the direct retail CBDC is adopted. In this case, the match-maker becomes a partner, investor, and at the same time a referee. Meanwhile, scholars have advised that the rCBDC implementation must not interfere with the central bank mandates, given the technology and operational challenges that such a system could represent (Seyed and Rivadeneyra, 2020)

Table 2: CBDC and Crypto market governing differences

Mechanism	***Central bank governing mechanism for digital currency***		
	Direct retail CBDC	***Hybrid CBDC***	***Cryptocurrency***
Providing	Host	Host	
	Owner	Owner	-
	Distributor	Investor	-
Regulating	Matchmaker and regulator	Regulating intermediaries	Overseer
	Self-authority	Enabler	Authorizing
Governance	Self-governing and sharer to intermediaries	Self-governing and governing intermediaries	Governing intermediaries
	Establishes self-monetary policies	The policy covers self and intermediaries	The policy covers the financial market
Collaborating	Issuer	Partner	Referee
	Negotiator	Negotiator	Arbitrator

Source: Agpaytech

Guarantees: credit risk and safety

The rationale for issuing retail CBDCs by most central banks remains clear; to preserve the role of public money in a digital economy and improve financial accessibility while providing a safe and robust financial system. The central banks have reinforced their monetary policies to ensure that safe, convenient and accessible digital means of payment are available to the public. This objective has become essential because of the risk for fiat money to be replaced by non-regulated monies like Bitcoin. This goes to differentiate that cryptocurrencies do not have a central issuing or regulating authority whereas although some stablecoins are tied to a reserve asset such as a currency (US Dollar).

Therefore, the issuance of digital currency will outcome cryptocurrency limitations and provide legal and authoritative background eliminating the fear and risk that many people have perceived. While users lost a huge sum of monies due to market fluctuations, the CBDC will be the same as the cash version making it secured and tied to the nation's currency. Moreover, cryptocurrencies utilize DLT to allow remote peer-to-peer transfer of electronic value in the absence of trust between contracting parties. Usually, electronic representations of money, such as bank deposits, are exchanged via centralized infrastructures, where a trusted intermediary clears and settles transactions.

Issuing, ownership,and regulation

The models in which the CBDC are their liability, just like cash means they issue digital currencies, unlike cryptocurrency which is issued by private investors. It is possible, though, for central banks to let a private company own the technical systems that enable CBDC issuance. For instance, in the Uruguay e-peso pilot, a private vendor owned and operated a technical system that converted pesos created by the central bank into e-pesos, effectively making the issuance of e-peso a two-stage process (Kiff et al., 2020). However, users are more particular about who owns and controls or gives authorization to which currency. The legal backing of CBDC from centralized authority and its wide recognizable make it a threat to other unregulated digital currencies.

Interestingly, every sovereign state wants to have absolute control over its financial system than allow private money regulators to dominate the issuance and regulation of its currency. According to Soderberg et al. (2022), CBDC is more regulated because the central bank owns the infrastructure of the entire ledger and updates it (for example, the Bahamas Sand Dollar). In certain cases, the central bank owns the ledger, but private intermediaries update it. In addition, it could be that a private intermediary owns part of the ledger and updates that same part of the ledger, conditional on the central bank's approval (in the Swedish e-krona proof of concept, the intermediary can update the ledger after the central bank's notary node has checked that no double-spending has taken place). These systematic checks make the CBDC more regulated and put confidence in the public to use it as a cash complement.

Innovation in payment system

Central banks are striving to innovate the financial landscape through technology-driven solutions. A private sector-led digital currency motivated the need for a state-back digital form of cash to provide similar services and feel secure and up-to-date in the financial market. Whiles the traditional financial institutions are the backbone of today's digitalization, it's high time such institutions merged services with big techs and fintech to provide convenient and needed services to their client.

While it's on record that major financial technologies in the global payment sector have been initiated by private entities. Today, the global monetary and payment landscape appears to be on the edge of far-reaching change. The ongoing digital revolution, characterized by the emergence of new financial and payment business models, and a new generation of general-purpose technologies that could potentially bypass central intermediaries, and provide security is on the up rise.

The increasing digital policies of national banks in the LAC countries are mainly due to more cash usage which is limiting online business and giving rise to cryptocurrencies. For instance, according to the World Bank Global Findex 2018, barely 20% of the poorest

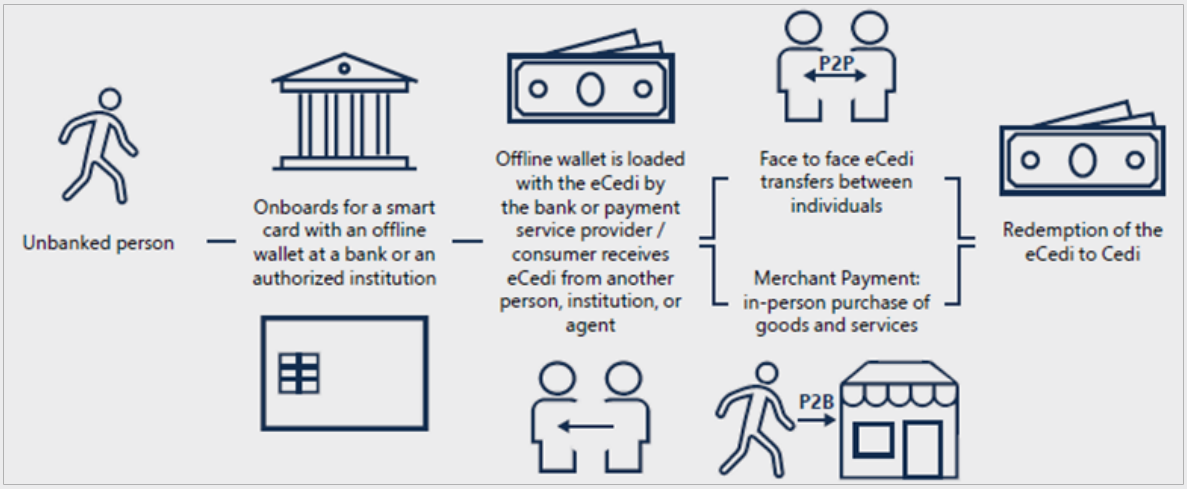
population in LAC holds or uses a debit card, while the percentage for advanced economies (AEs) surpasses 80%. Moreover, only 10% of the population in LAC have accessed their accounts using mobile phones or the internet, and only around 5% have a mobile money account (Committee on Payments and Market Infrastructures, 2018).

Off-Line Capacity

The ability to pay when not connected to main telecommunication systems is important to increase resilience in crises, such as during natural disasters and armed conflicts. CBDC has the choice to offer an offline functionality (token-based) as opposedto an account-based. Token-based CBDCs are cryptographic tokens that can be stored locally on a card, on a phone, or a smart device and can be passed on from one user to another (Bank of Ghana, 2022). According to Igboanusi, et al. (2021), the off-line capacity is hence linked to the policy goal of resilience and is especially important in disaster-prone or geopolitically tense areas. The Peoples' Bank of China similarly stressed that off-line functionality is important in areas with patchy telecom access, which also often correspond to areas of low financial inclusion.

For instance, the eCedi's conceptual similarity with cash makes offline (no internet) transactions highly relevant. From a perspective of technology, it is feasible to implement an offline eCedi with a smartcard (potentially with a smartphone) using standard interfaces like NFC or Bluetooth. Transactions for offline payments are therefore instantly settled without accessing a backend system.

Figure 5: CBDC Offline wallet on a smart card (eCedi scenario)



Source: Bank of Ghana (2022)

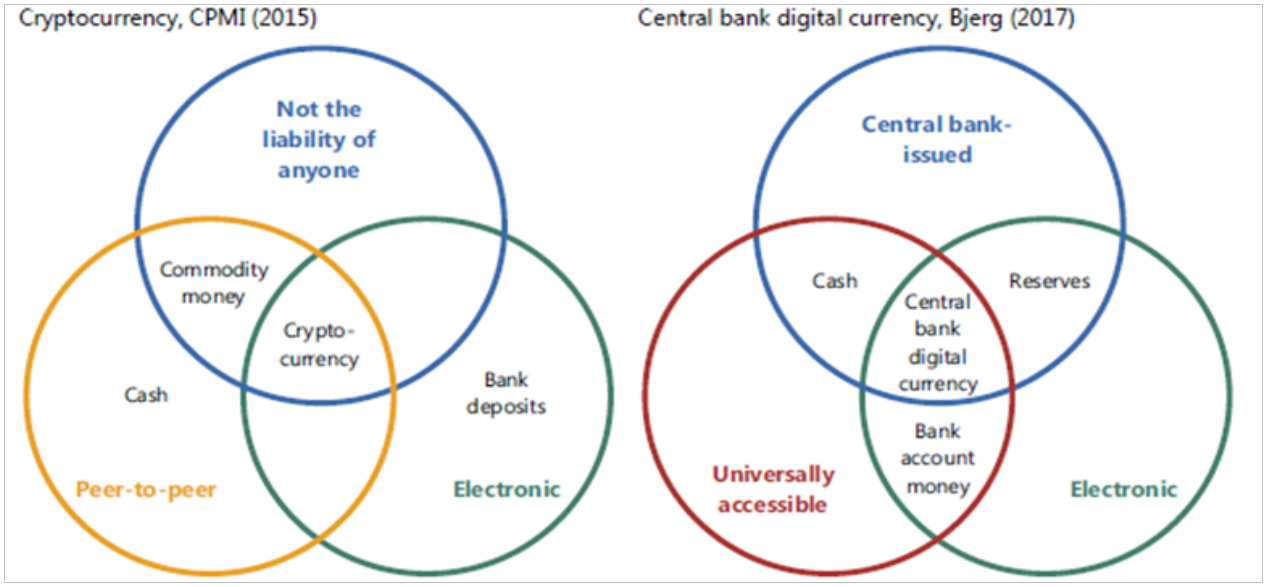
Note: The scenario in figure 5 illustrates that an unbanked person gets registered for a smart card with an offline wallet at the authorized institution, the individual can load money through an agent which can later be transferred among individuals, merchants for payment or withdraw from eCedi to Cedi.

Unlike cryptocurrency, all transactions must be made with an internet connection limiting offline or token-based transactions. This feature makes it unfit for economies with a larger rural population without access to proper telecommunication services. However, while crypto experts are researching introducing a token version of cryptocurrencies, total elimination of the internet is impossible. On-going blockchain research enables offline transactions by introducing a token manager into the blockchain network and applying the token and smart contract features. It elaborated and implemented the Blockchain aspect of a new payment technique for cryptocurrency termed Pure Wallet (PW). This involves the conversion of cryptocurrency into a digital token which is used for transactions during an offline state (Igboanusi, et al., 2021).

The Decision-Based Taxonomy

Based on Bech and Garratt's (2017) comparison of cryptocurrency and central bank digital currency, we summarized the properties of these two new forms of currency under four themes (issuer, form, accessibility, and transfer mechanism). In figure 6, [left panel] shows the electronic money issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community. While [right panel] illustrates the CBDC that can be spent in a particular geographical location at participating organizations. The key and differentiating features are summarized in table 3.

Figure 6: Taxonomy of digital currency



Source: Bech and Garratt (2017)

In table 3, the report differentiated the cryptocurrency from the central bank fiat money based on the currency taxonomies provided by Bech and Garrat. money type, liability, reserve, accessibility, account-based, deposit approach, accessibility method and price vitality.

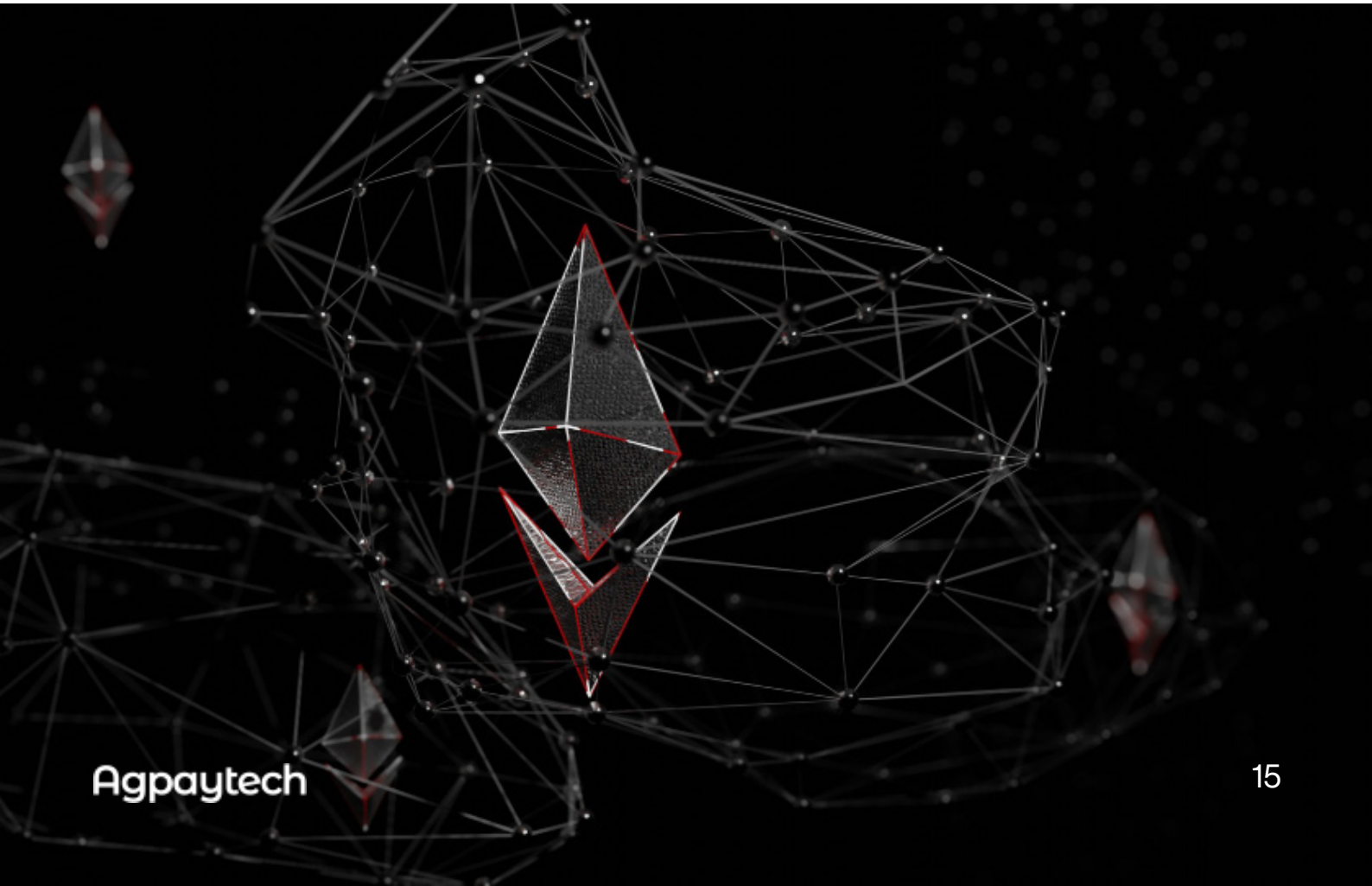


Table 3: Differences between Cryptocurrency and CBDC

Property	Cryptocurrency	Central Bank Digital Currency
Money type	Commodity money derives its value from the substance or the potential use of the money itself, which has intrinsic value	Fiat money: CBDC is fiat money that has its value due to decree and legislation by the government
Liability	Not the liability of anyone	It is a central bank's liability, to own and control and monitor all
Reserve	No reserve (no asset holdings)	Has reserve (has precious metals or asset reserve)
Accessibility	Globally accessible system but not mainstream adopted	Jurisdiction accessibility but mainstream adopted
Account	Crypto project account based The account is a project address and the private key is the proof of identity needed to make a transaction (cryptographic technique)	The central bank or Bank account money Users open an account with a bank and obtain a PIN or secret code to make the transaction
Deposit approach	Crypto developer account deposit	Central or Commercial bank deposit
Accessibility method	Highly dependent on the internet	Internet (account-based) and offline usage (token-based)
Price vitality	High price vitality	Low price vitality

Source: Agpaytech

Retail CBDC: A Misplaced Priority in the Consumer Fintech Market

The question of whether CBDC is a misplaced innovation in the context of the retail market or consumer Fintech market is controversial. A historical revolution of money was spearheaded by state or traditional banks until the advancement of technology led to electronic money and more convenient payment systems. This means that money has been controlled by the states whiles being distributed by private intermediaries as seen in many countries. In such a process, the central banks provided the mechanism for governing and governance structure to avoid fraud, counterfeits, and other criminal activities.

Recently, the world has witnessed another dominance of money in the space of digital currency, popularly known as cryptocurrency (a community or privately controlled money). It is factual that crypto-tokens without state backing are unlikely to be qualified as money. As a means of payment, crypto-tokens are not scalable and people have to think about something else. Moreover, crypto has been criticized as unregulated and lacking legal backing.

Then, the concept of central bank digital currencies has also attracted attention. For retail usage, some scholars see less merit because many countries already have efficient, secured, and reliable payment systems that make use of commercial bank balances. Besides, CBDC also poses the risk of an unclear and complicated impact on the monetary transmission mechanism and financial stability. In the case of a financial crisis, public demand for CBDC would replace that for commercial bank deposits, and that would pose a threat to financial stability (Shin et al., 2019).

Moreover, the current retail CBDC pays no attention to cross-border payments which other digital platforms or cryptocurrencies are dominating already. What then are the core benefits of retail CBDC? Overall, about 60% of central banks still see themselves as unlikely to issue any type of CBDC in the foreseeable future (Auer et al., 2020).

Making Case for Consumer CBDC

The need to protect the consumers' interest and provide cash-like peer-to-peer electronic transfers is necessary to enhance alternative payment systems. This has make retail CBDC more important by the central banks to provide secure and faster digital payment alternative for consumers in the ecommerce, trade and remittance space. The call for the consumer or retail CBDC has been grounded on the need to advance in the financial technology system, provide security and provide real-time payment alternative to consumers.

Uniformity amidst of advanced technology

Although technology advancement has transformed money making the exchange easier than before. However, states or government needs to own their money than private developers which has many security and confidentiality implication. This means that improvement in technology should not be a cause to change certain national interest and long-term security consequences. Besides, the future of crypto technology is still yet to be proved over time and economic recessions as central banks have already experienced several shocks in the money and economic market.

Anonymity

Kahn et al (2005) and McAndrews (2017) emphasize legitimate reasons for counterparty anonymity in transactions. Payees and payers may want to reduce the risk of identity theft, the possibility that the counterparty might follow them home and rob them, or innocent annoyances like directed advertising and solicitations (spamming). Similarly, a lack of third-party anonymity may be regarded as revealing too much information about a person's private activities. It is unclear how much consumers value the anonymity of either sort to protect their privacy. Athey et al (2017) look at how much effort people make to protect their privacy concerning digital currencies. This makes it difficult to entrust public identities in the hands of private cryptocurrency developers prioritizing CBDC over cryptocurrency.

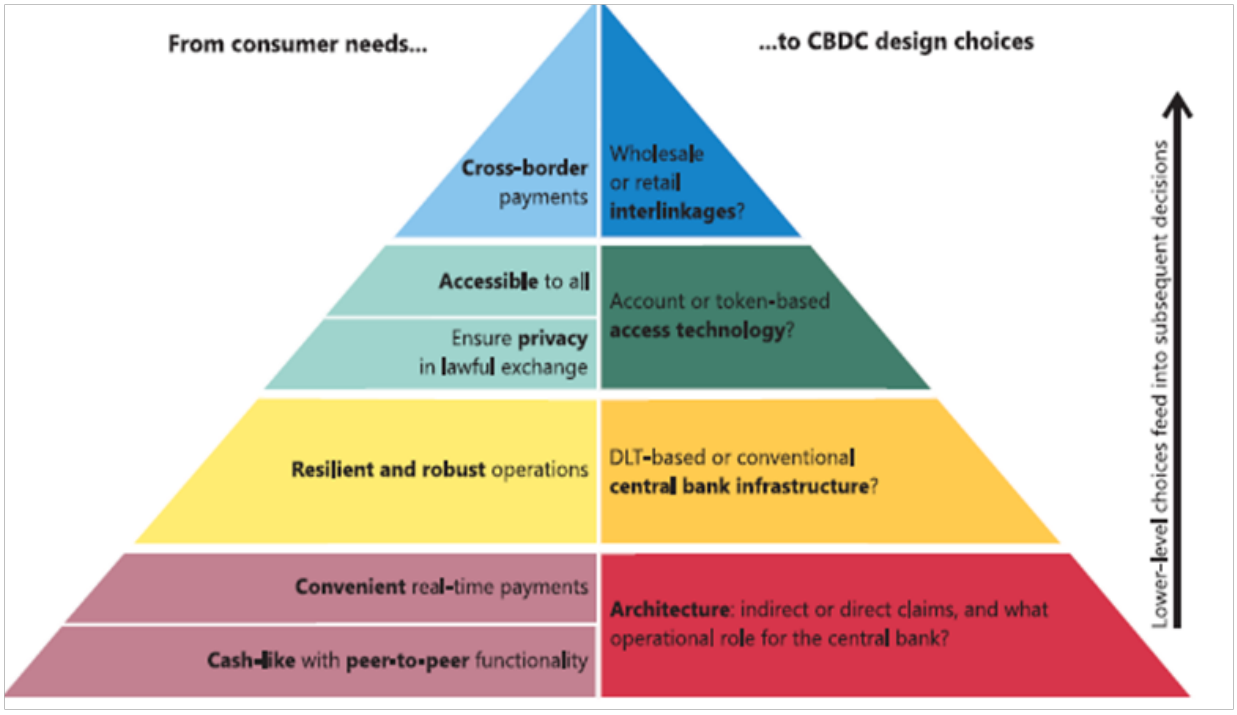
Protecting consumers' payment system

Central banks have a core responsibility to protect the general public from fraudulent or weak monetary activities. While cryptocurrency has dominated the news with scams or illicit transaction reasons, CBDC will provide alternative digital currencies by exhibiting

similar features like cash-like peer-to-peer usability, convenient real-time payments, payment security, privacy, wide accessibility, and ease of use in cross-border payments.

Figure 7 represents the CBDC pyramid that maps consumer needs (left-hand side) onto the associated design choices for the central bank (right-hand side). The four layers of the right-hand side form a hierarchy in which the lower layers represent design choices that feed into subsequent, higher-level decisions (Auer &Bohme, 2020).

Figure 7: Consumer need-based CBDC



Source: Auer and Bohme (2020).

Conclusion

Central banks across the globe are working to safeguard public trust in money and payments making the relationship between central bank digital currency and private cryptocurrency in the financial market a hot issue. Although several cryptocurrency types are in operation but users and states have mixed concerns largely relating to legality, illicit activities, supporting terrorism, improper monitoring, etc. Positively, cryptocurrency has proven to provide faster, cheaper, and more inclusive cross-border payment services for citizens and economies worldwide, supporting economic growth, international trade, global development and financial inclusion. However, few countries have openly and legally accepted some of crypto, majority see it as illegal.

Addressing crypto irregularities

The negativities arising from cryptocurrency has provided feasible foundation to central banks to provide its form of digital currency to supplement the cash and improved features similar to the cryptocurrency. This poses a threat to the cryptocurrency usage in many countries (e.g China). Most illicit crypto activities could be addressed with effective regulations and technology improvement on the usage and KYC compliance. Scholars project the security and necessity for states to issue and control its digital version of cash other than to allow private crypto developers dominates their jurisdiction with different digital currency due to the cryptocurrency scams or fraud activities. This has many data security implications, technology battles, regulation issues coupled with fear, fraud and anonymity concerns likely to occur.

Connecting crypto technology to traditional financial institution (banks)

Blockchain technology is a core, underlying technology with promising application prospects in the banking industry (Guo & Liang, 2016). Blockchains are decentralized and permissionless, which can lead to major disruptions in the financial sector, especially in payment clearing. With significant blockchain-based opportunity available to the financial services industry, the time is now for the industry and government authorities to work together in facilitating widespread adoption of blockchain technology in safe manner with robust consumer protection features. These developments are signaling the early stages of an entirely new financial industry and the entrepreneurial opportunities that come with it. As the market capitalization and institutional support for crypto-assets grow, banks that develop the infrastructure for crypto-asset banking services (including custody, payment processing and lending offerings) will be well positioned to serve customers participating in this new and exciting asset class. The application of cryptocurrency will revolutionize the financial service sector.

Collaborate or compete

Through collaboration between financial services companies and regulators—and the development of standardized solutions—the entire financial services sector should be able to reap the rewards of this next-generation technology. Standardization of industry solutions through the use of both public and private blockchains can eliminate friction in transactions, reduce back-end costs and labor hours and dramatically increase transaction speed and security. In turn, the financial services industry will be able to expand its offerings, create new profit centers and provide new levels of service for customers both existing and heretofore unreached.

rCBDC paying less attention to cross-border payment

The current CBDC projects have failed to address key technological and payment concerns. Its seemed not to have special features or addressing payment challenges but rather a mere duplication of payment channels. There no distinct features that overcome the existing payment challenges (costly, often slow, transparency and accessibility, and efficient cross-border payment). Another key concern is that the current retail CBDC pays less attention to cross-border payments which other digital platforms or cryptocurrencies are dominating already. To make CBDC projects successful and innovative, the cross-border payment feature must be prioritized among centrals banks. This suggests that central banks should focus on a multi-CBDC purpose with an interoperability feature that connects different regional or monetary payment zones across a continent or economic region.

However, most CBDC projects focus on domestic issues and use cases. Given this early state of play, the thinking behind CBDCs for cross-border use is exploratory and will be subject to considerable further economic and practical examination before the investigation of their cross-border use gathers pace. If central banks take the international dimension into account when designing their domestic CBDCs and commit to interoperability, consistent standards, and coordination of CBDC designs, many problems inherent in today's legacy technologies and processes could be avoided. Until then CBDC may not remain a threat to cryptocurrency. Better still, why central banks take huge reserves or deposits from crypto developers, provide regulation and oversight and

Reference

Arner, D, Auer, R., & Frost, J. (2020). Stablecoins: Risks, Potential and Regulation. BIS Working Papers, No. 905.

Athey, S., Catalini, C., & Tucker, C. (2017). The digital privacy paradox: small money, small costs, small talk", Stanford University Graduate School of Business. Research Papers, no 17–24.

Auer, R.,Cornelli, G., &Frost, J. (2020). Rise of the central bank digital currencies: drivers, approaches and technologies. BIS Working Papers, no 880, August.

Auer, R., Frost, J., Gambacorta, L., Monnet, C., Rice, C., & Shin, H. S. (2021). Central bank digital currencies: motives, economic implications and the research frontier. BIS Working Papers No 976

Bank of France (2016). La Banque de France mèneuneexpérimentationde'blockchain' interbancaire", press release, 15 December.

Bank of Ghana (2022). Design paper of the digital Cedi (eCedi)

Bech, M., & Garratt, R. (2017). Central bank cryptocurrencies. BIS Quarterly Review. Paper 55-70

Bjerg, O. (2017). Designing new money: The policy trilemma of central bank digital currency", Copenhagen Business School Working Papers.

Boar, C., & Wehrli, A. (2021). Ready, steady, go? – Results of the third BIS survey on central bank digital currency. BIS Papers No 114.

Brincat, A. A., Lombardo, A., Morabito, G., &Quattropani, S. (2019). On the use of blockchain technologies in WiFi networks. Computer Network, 1389-1286

Chainalysis (2022) 2022 crypto crime report.https://go.chainalysis.com/2022-Crypto-Crime-Report.html

François Villeroy de Galhau, Roads for the future: central bank digital currency (CBDC) and innovative payments, speech, June 2021.

Garratt, R. J., & Lee, M. J. (2020). Monetizing Privacy, Liberty Street Economics, October.

Igboanusi, I. S., Dirgantoro, K. P., Jae-Min, L., & Dong-Seong, K. (2021). Blockchain side implementation of PureWallet (PW): An offline transaction architecture. ICT Express, (7) 327–334.

Mancini-Griffoli, T., M.S. Martinez-Peria, I. Agur, A. Ari, J. Kiff, A. Popescu and C. Rochon (2018). Casting Light on Central Bank Digital Currency. IMF Staff Discussion, Note 18/08.

Monetary Authority of Singapore (2021). A Retail Central Bank Digital Currency: Economic Considerations in the Singapore Context. MAS Building Singapore, 079117.

Morales-Resendiz, R., Ponce, J., Picardo, P., Velasco, A., Chen, B., Sanz, J., et al. (2021). Implementing a retail CBDC: Lessons learned and key insights. Latin American Journal of Central Banking, (2) 100022.

Shin, H.S. (2020). Central banks and the new world of payments. Speech at the BIS Annual General Meeting, Basel, 30 June 2020.

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AGPAYTECH LTD.
3rd floor, 86-90 Paul Street
London, EC2A 4NE, UK
info@agpaytech.co.uk
www.agpaytech.co.uk