CAPCO

DREX

BRAZIL’S DIGITAL LEAP FORWARD

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Drex, Brazil's official digital currency, marks a significant evolutionary step in the nation's journey towards a digitalized economy. In this second paper in our series on Drex, we examine what lessons and best practices can be learned from global endeavours in the central bank digital currency space.

Initially dubbed the 'Digital Real', Brazil's new central bank digital currency (CBDC) was christened Drex in August 2023 by the Central Bank of Brazil (BCB) – 'D' for digital, 'R' for real, 'E' for electronic, and 'X' representing modernity and connection, reflecting the last letter in Pix, Brazil's instant transfer system launched in 2020. With its value pegged to that of the Brazilian real, 1 Drex will always equate to 1 Real.

Drex's inception aligns with the BCB's vision of reducing banking operational costs, including the issuance of paper currency, while simultaneously expanding accessibility to the financial market. However, it is more than just a digital currency – Drex also aspires to be a unified settlement platform for money and financial assets, including stocks, bonds, and property titles.

This integration will ultimately serve as a foundation for the introduction of new financial products, swift investments, and innovative financial instruments. Standing on the cusp of this digital revolution, Brazil joins nearly 130 other nations exploring similar digital currency initiatives, with countries like China already making headway with their Digital Yuan.[1]

DREX: A PRACTICAL OVERVIEW

Drex stands to reshape the financial landscape for Brazil's citizens, offering a blend of speed, global usability, and reduced transaction costs. Consider the scenario where transferring vehicle ownership is as simple as a few taps on a mobile phone, doing away with the traditional hassles of paperwork and other bureaucratic interactions. Drex aims to make this vision tangible, leveraging its digital infrastructure for swift payments and documentation.

Moreover, the current constraints imposed by traditional 'banking hours' will be eliminated. Brazilians will be able to engage with financial products like mutual funds, stocks, or bonds around the clock, ensuring they can execute financial decisions promptly. Real estate, often perceived as an elusive investment, becomes more attainable and inclusive as properties become subject to fractional tokenization. Through Drex, purchasing small shares of such tokenized real estate becomes feasible.

The advantages of Drex extend into deeper financial integrations. Its robust security infrastructure is designed to deter fraudulent activities, ensuring safer transactions for users. Stockholders, for instance, can leverage their holdings as immediate collateral for loans, offering liquidity without necessitating the sale of shares. The 'stamped digital money' is an innovative financial mechanism designed to ensure that funds lent for targeted industries, such as agriculture, are spent exclusively for their designated objectives. This system embeds a form of digital verification or "stamp" within the currency itself, which can restrict its use to certain transactions, thereby fostering accountability and preventing the diversion of funds to unintended uses. This approach not only promotes transparency in financial operations but also bolsters the efficiency and effectiveness of sector-specific financing.

Drex's potential synergy with decentralized finance (DeFi) platforms has the potential to usher in a new era of lending, where individuals can engage in peer-to-peer transactions, possibly sidestepping traditional banking systems and their associated costs. As the digital world evolves, Drex's compatibility with the internet of things (IoT) could lead to seamless device-to-device transactions, such as a smart TV autonomously handling movie rental payment.

THE GLOBAL SURGE OF CENTRAL BANK DIGITAL CURRENCIES

The digital currency landscape is rapidly evolving globally as many nations embrace the potential of CBDCs. A recent study by the Atlantic Council of the United States underscores this momentum, noting that 130 countries collectively accounting for 98% of global GDP are exploring CBDC initiatives.[2]

Drex is just one of the 32 currencies in development as of June 2023. To date, 11 countries, including Nigeria and a consortium of Caribbean nations, have launched their own digital currencies. A further 21 countries are piloting projects, another 45 are in research phases, and 19 of the G20 nations are making significant strides in their CBDC endeavours. From the anticipated launch of India's digital currency in 2024 to China's expansive pilot reaching 260 million people, the world is on the verge of a financial revolution that promises to redefine traditional banking and monetary systems.[2]

GLOBAL ENDEAVOURS: ASPIRATIONS, PROGRESS, AND CHALLENGE

Nigeria's eNaira. N igeria's push into the digital currency realm with the eNaira has been met with challenges. Launched in October 2021, the eNaira saw a surge in wallet registrations, reaching 13 million by March of the subsequent year. However, given Nigeria's vast population of approximately 224 million, this adoption rate was still modest as 13 million wallets in March 2023. The Central Bank of Nigeria has been proactive, updating the eNaira app to support contactless payments in a bid to enhance its appeal. Yet, the nation's predominantly cash-driven informal economy, valued at around $220 billion, and infrastructural limitations pose significant barriers to widespread eNaira adoption.[3]

India's CBDC ambitions. The Reserve Bank of India (RBI) set an ambitious target for its central bank digital currency, aiming for one million daily transactions by the end of 2023. While the promise of swifter and more secure payments is enticing, concerns loom over financial privacy due to the inherent traceability of every CBDC transaction and potential conditions imposed on its usage.[4]

China's digital yuan. China's foray into CBDCs with the digital yuan has seen substantial transaction volumes, nearing 1 trillion yuan. However, this figure represents a mere 0.16% of the country's total money supply. Despite its growing adoption, the digital yuan's reach remains limited when set against China's vast 1.4 billion population. Its primary application has been in domestic retail payments, with some pilot tests extending to Hong Kong.[5]

Sweden's e-krona. The Riksbank's latest report on the e-krona project explores the delicate balance between flexible governance and the need for control in its CBDC design. It points out that while a more relaxed governance model permits participants to innovate freely in user interface design, it also necessitates careful consideration of regulatory and security implications. The central bank's inclination towards using distributed ledger technology (DLT) for the CBDC system stems from DLT's inherent programmability benefits. Collaborative efforts with the Bank for International Settlements (BIS) have also been initiated to explore cross-border payment functionalities. However, despite their extensive research, Riksbank remains on the fence regarding the e-krona's official launch.[6]

THE BAHAMIAN EXPERIMENT: A CAUTIONARY TALE?

The Bahamas' pioneering venture into the realm of central bank digital currencies with the Sand Dollar in October 2020 offers valuable insights into the challenges and intricacies of implementing a CBDC. Intended to enhance financial inclusion and fortify monetary resilience, especially for the nation's isolated islands, the Sand Dollar's journey has been less than stellar. Its adoption remains marginal, constituting a mere 0.1% of money in local circulation.

This tepid response can be attributed to a combination of factors. A significant portion of the population remains unaware or sceptical of its utility, technical limitations hinder offline transactions (vital during disasters), and the recent bankruptcy of locally based crypto exchange FTX has further dampened public trust in digital currencies.

While the Sand Dollar's design aimed to balance regulatory concerns with user privacy, its limited adoption to date raises questions about the readiness and feasibility of CBDCs in certain contexts. The Bahamian experience serves as a testament to the importance of comprehensive planning, robust public outreach, and the addressing of technological constraints when venturing into the digital currency domain.[7]

CBDCs: A GLIMPSE INTO POTENTIAL OVERREACH

The United States has not yet launched a CBDC. There is growing interest in this technology from both the public and private sectors, while the Fed is still evaluating the potential impact of a digital dollar. Currently there are several studies, pilot tests and experiments underway to determine the technology's opportunities and limitations.[8]

The Federal Reserve's recent discourse on central bank digital currencies paints a sober picture of the potential pitfalls of transitioning to a digital monetary system. At the heart of this concern is the inherent programmability of CBDCs. Unlike the relative anonymity of physical cash transactions, CBDCs could allow central banks unprecedented access to transactional data, revealing the identities of all parties involved. While proponents argue that this could be a tool against financial crimes, the track record of governments in effectively curbing such activities remains questionable. The potential for misuse is vast, risking the financial privacy of countless individuals.

Beyond mere transactional oversight, the programmability of CBDCs could enable governments to exert granular control over how, where, and when money is spent. Imagine a scenario where money becomes akin to state-issued tokens, restricted by predefined conditions, limiting its universality. The potential implications are manifold: from tracking every financial move, reversing, or blocking transactions at will, to direct implementation of monetary policies and instant tax deductions. Such a system could even allow for the outright confiscation of private funds.

While the allure of CBDCs and their potential benefits are undeniable, these aspects pose serious questions about the erosion of individual privacy and freedom. Echoing the sentiments of renowned economist Friedrich Hayek, the true value of money lies in its ability to grant individuals the broadest spectrum of choices, a principle that could be at stake with unchecked CBDC implementations.[9]

NAVIGATING SHARED CHALLENGES AND UNCERTAINTIES

Looking across the challenges faced by many countries trying to implement central bank digital currencies, the following themes appear to be recurrent.

Lack of awareness. A significant barrier to CBDC adoption is the general lack of understanding about what these digital currencies are and their potential benefits. As noted above, countries like Nigeria and the Bahamas have seen limited uptake despite proactive public education.[10]

Infrastructure constraints. Foundational infrastructure, such as reliable internet connectivity and widespread smartphone usage, is crucial for CBDCs to flourish. In regions where these are lacking, the rollout and acceptance of CBDCs face hurdles, necessitating infrastructural development. For example, in Africa only 43% of the population has access to the internet, while in South Asia, only 41% of the population has a smartphone.

Closer to home, In Latin America only 69% of the population has access to the internet – though smartphone penetration is higher at 77%. This positions Latin America more favourably for CBDC adoption than Africa or South Asia.

Based on the evidence that developed countries boast 99% of internet access and more than 81% of smartphone penetration, according to the International Telecommunications Union, it is reasonable to conclude that at least 80% of the population needs to have access to the internet and a smartphone for CBDCs to be widely adopted. [11, 12]

Regulatory uncertainty. The evolving nature of CBDCs means that a clear regulatory framework is often absent, which makes businesses and individuals hesitant to embrace them. The onus is on individual nations to accelerate their work on crafting comprehensive regulations to provide clarity and foster trust.

Security concerns. The inherent digital framework of CBDCs exposes them to a spectrum of cyber threats. Although Drex leverages the robust security features of blockchain technology, they are not impervious to risks. These risks encompass potential breaches by malicious entities aiming to interrupt transaction flows, deploy harmful software to compromise devices, or illicitly acquire keys to wallets. The security architecture must, therefore, be dynamic and resilient, continuously evolving to counteract the sophisticated and ever-changing landscape of cyber threats.

Financial stability risks. The introduction of CBDCs could destabilize the traditional financial ecosystem, and as seen in countries like Sweden and the US, there is already a conscious effort underway to avoid this eventuality. [6,9]

Demand and acceptance. Beyond the technical and regulatory challenges, there is the fundamental question of demand. Countries are already strategizing on how to boost demand for CBDCs, ensuring they are not merely a novel alternative but a widely accepted financial instrument. It is also worth noting that in a global economic downturn, individuals may be more hesitant to adopt new financial products and services.

In summary, the journey to CBDC implementation is replete with complexities. However, the shared nature of these challenges across countries offers opportunities for collaborative problem-solving, setting the stage for a more integrated global financial future.

DREX: DRAWING LESSONS FROM GLOBAL CBDC EXPERIMENTS

As it prepares for Drex's arrival, Brazil has a clear opportunity to draw insights and lessons from CBDC experiments elsewhere, and determine clear best practices.

Awareness and education. CBDCs need to be trusted by the public to be widely adopted. Governments need to be transparent about how CBDCs will work and how they will be regulated. Before Drex's full-scale launch, Brazil should invest in comprehensive public education campaigns, demystifying the digital currency and elucidating its benefits. This will not only foster trust but will also ensure that users are equipped to navigate the new platform effectively.

Infrastructure development. A robust and reliable technological infrastructure is the bedrock of any successful CBDC, as without this foundational support even the most advanced CBDC can flounder. Brazil must provide widespread internet connectivity and smartphone accessibility, as well as offline transactions, especially in its remote regions – to ensure Drex's launch is as inclusive as possible.

While Brazil has made significant progress in expanding internet connectivity and smartphone accessibility in recent years, there is still a significant digital divide between urban and rural areas, as well as between different age groups. In 2021, 90% of Brazilian homes had internet – but the delta between urban centres (96%) and rural areas (74.7%) is pronounced. Likewise, 84.7% of Brazilians had smartphones, but ownership is higher in urban areas (89.4%) and among those aged between 16 and 24 years (96.3%) compared to the elderly (62.6%).[14]

A clear regulatory framework. The uncertainties surrounding CBDC regulations in various countries highlight the need for Brazil to establish a clear, comprehensive regulatory framework for Drex. Such clarity can expedite adoption rates, as businesses and individuals operate with confidence, knowing the legal boundaries and protection measures are in place. For example, implementing strong anti-money laundering (AML) and counter-terrorism financing (CFT) measures, would help to prevent CBDCs from being used for illicit activities.

Fortified security protocols. The potential vulnerabilities of CBDCs to cyber threats necessitate state-of-the-art security measures. While blockchain offers inherent security advantages, Brazil should invest in continuous cybersecurity research and development, ensuring Drex remains impervious to evolving external threats. This includes implementing strong authentication mechanisms, encrypting data, and conducting regular security audits.

Financial stability and integration. Brazil should meticulously plan Drex's integration into the existing financial ecosystem to ensure stability. Collaborative engagements with commercial banks, marketplaces, and other financial entities are crucial. By studying the approaches of countries like Sweden and China, Brazil can strategize on seamless integration without destabilizing its financial landscape.

Demand generation and acceptance. Beyond the technical aspects, Brazil must strategize on bolstering Drex's demand, especially when used in conjunction with asset tokenization (see below). Collaborations with retailers, service providers, and even governmental agencies for public transactions can drive Drex's acceptance. Additionally, incentivizing Drex-based transactions, at least in the initial phases, can catalyse its adoption. Implementing effective demand generation and acceptance strategies will be crucial to ensuring Drex's success.

Asset tokenization. While still in the early stages of development in Brazil, asset tokenization has the potential to revolutionize the Brazilian financial system. There is growing interest in this technology from both the public and private sectors. The Brazilian Securities and Exchange Commission (CVM) is currently running a regulatory sandbox that allows companies to test their asset tokenization platforms and products in a regulated environment. A few companies are developing asset tokenization platforms in Brazil. Some of these companies include Tokenize, Hash Dex, Liqi, B2B Digital and Foxbit. These companies are working to tokenize a variety of asset classes, including real estate, stocks, and bonds.[15, 16, 17]

In essence, while the path to a successful CBDC is filled with challenges, Drex is in an advantageous position, benefitting from being able to learn from other countries' experiments, successes and mistakes. By assimilating these lessons and continuously improving based on real-world feedback, the Brazilian market can ensure that Drex is not just a technological wonder in theory, but rather a widely embraced financial instrument that augments the nation's digital future.

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