

Task Force 3: Future of the Global Economy



CBDCs: A Gateway to Finance for MSMEs: Paving a Practical Path to Prosperity

Mei Lin Fung, Chair and co-Founder (with Vint Cerf) of the People Centered Internet
Patrizia Bussoli, GEO Finance Community and Bea Finance SCF, Italy
Jascha Stein, Particip.ai

Abstract

Central bank digital currencies (CBDCs) pave the way for the digitization of the monetary system and thus form the prerequisite for enabling simple and people-centric digital lending. There are 4 countries which adopted CBDCs, 36 with pilot projects and over 70 doing research and development (CBDC Tracker 2024). Because the benefits of CBDCs extend beyond the financial sector, CBDC costs and benefits go beyond transmission of monetary policy. CBDCs must be examined in terms of the impact on the whole economy which ultimately is impacted by the depth and breadth of capital markets. Accessibility of digital assets for micro, small and medium enterprises (MSMEs) is a key part of the process in evolving CBDCs supporting a more equitable prosperity as AI widens divides (Fung 2023).

MSMEs account for most of global employment. Unfortunately, insufficient access to finance by MSMEs was worsened by the Covid pandemic. Digital access to microcredit through credit scoring based on the digital footprint, pioneered by the publicly listed enterprise Micro Connect in Macau, is an effective and efficient way to facilitate MSMEs access to international finance. To expand beyond Macau, requires two conditions: digital public infrastructure that supports MSMEs and a legal framework with national and cross border recognition. In effect, access to loans for MSMEs can be simplified and expanded if digital assets can be used to secure loans. Digital asset registries, similar to land title registries, are an initial step in establishing market prices for digital assets. Just as land title registries have evolved over time, digital asset registries must also develop to meet the financing needs of MSMEs. The Puerto Rico Mercantile Bank International is taking first steps in this direction.

We recommend the G7 initiate and oversee a network of CBDC/Digital Asset Registry (DAR) Sandbox's coordinated and promoted at an international level to strengthen MSMEs. This will connect research projects on CBDCs, monetary policy transmission and MSME financing and digital asset registries. Registries of digital assets should be set up and recognized at the international level.

The expansion of practical research can enable countries, especially developing countries, to launch CBDC/DAR Sandbox's with the multilateral development banks to learn from each other and work closely with BIS and the IMF.

Introduction

This paper addresses the role CBDCs have in the mechanism of transmission of monetary policy, emphasizing how jointly CBDCs and marketplaces for digital assets would increase MSMEs financing opportunities, creating investment and new jobs. This development should counterbalance the possible risks brought by the changes in banks and central banks' balance sheet structure at the time of CBDCs introduction.

MSMEs account for over 50 per cent of global employment (Faye and Goldblum 2022). Nevertheless, the current insufficient access to finance for MSMEs on a global level is estimated at 4.8 trillion US dollars (SME Finance Forum 2024). Faye and Goldblum (2022) estimated that every additional million US dollars in financing in developing countries MSMEs can create on average 16 jobs over two years, leading to greater local prosperity. These estimates do not account yet for the impact of potential structural change in the firms' model.

New types of digital assets pave the way for the creation of a new credit market which facilitates lending to companies through the non-banking sector (Singh et al. 2022). In presence of CBDCs and new digital assets, credit liquidity should increase access to finance by MSMEs. Greater liquidity within the system, properly monitored by regulators, should shorten the period of financial stress, sustain employment, and provide the conditions for quicker recovery.

The development of CBDCs¹ will have implications on monetary policy transmission, both on the overall functioning of a national and the global economic system, with effects on national interest rates and key economic variables such as investment, consumption, inflation, and employment nationally, and ripple effects globally. CBDCs design “should align with central bank mandates to achieve price stability (low and stable inflation) and to help manage economic fluctuations” (Das et al. 2023: 2). In turn, changes in the global and domestic macroeconomic environment “may affect both the tightness of financial conditions (upon issuance) and the transmission of monetary policy through the main channels: the interest rate channel, bank lending channel, asset price channel, and exchange rate channel” (Das et al. 2023: 2).

Recognizing new types of digital assets can pave the way for the creation of a new credit market which facilitates lending to companies through the non-banking sector (Singh et al. 2022). The development of digital assets jointly with the introduction of CBDCs should work mainly through the channel of asset prices, counterbalancing the expected systemic risk derived by the decrease in banks deposit.

As highlighted by Das et al. (2023: 21), in normal times, “the effects of CBDCs on monetary policy transmission are expected to be relatively small”. “Strengthening of transmission channels via increased competition and wholesale funding relies on a significant substitution of bank deposits for CBDCs, which may not materialize” (Das et al. 2023: 3). We suggest this will be affected by the degree of digitization in the economy. A global common terminology and financial sandbox framework for CBDCs, gaining knowledge from parallel experiments in different countries is needed to develop evidence-based macroeconomic understanding of CBDC’s impact on the national and global money supply.

Lack of research guidance for central banks to understand how the use of transaction data for financing MSMEs can reduce default rates is due to insufficient research on the effects of CBDCs and digital assets. Shanghai Stock Exchange’s suspension of the 34.5 US dollars initial public offering (IPO) of Ant Group, formerly known as Ant Financial in 2020, can be attributed to this.

This gap can be addressed with research projects on CBDCs and digital asset registries guided by the common objective of strengthening MSMEs access to finance. The leading role by the G7 in setting such a research agenda will strengthen economic systems and improve cross border payments coordination, which in turn will preserve global financial stability, particularly in times of stress.

¹ The hypothesis used in the paper is of non-interest bearing CBDC, since this is the base case considered by the major economies who are dealing with the study of the introduction of CBDCs (or have just introduced).

1. CBDCs

CBDC is electronic money issued by a central bank which is available to a wider range of users than the current digital form of monetary base for commercial banks. Like cash, CBDCs add to banks' reserve deposits as central bank liabilities. The central bank can provide a CBDC directly to all the residents of a country, as it does with government-sponsored paper money. In this case, the country's money supply is the sum of the CBDC held (i.e. the monetary base or narrow money supply). Alternatively, the central bank may distribute CBDCs in a tiered system; that is, CBDCs are distributed to financial institutions, just like bank reserves, and financial institutions can distribute them according to their credit and deposit arrangements with clients.

1.1 Transmission effect

Das et al. (2023: 5) explains the introduction of CBDCs will have a domestic "level" effect at the time of introduction, since it will generate "a tightening or loosening of financial conditions from the changes in the macroeconomic environment". This adjustment will be a "one-time" effect. Even when CBDCs are fully integrated into the economy, CBDCs will continue to generate a transmission effect since CBDCs change how the macroeconomic environment can potentially strengthen or weaken the transmission channels of monetary policy. Transmission will prove to be stronger (weaker) if a given change in the monetary policy stance has larger (smaller) effects on macroeconomic variables in an economy with CBDCs than in an economy without them, all else being equal. CBDC changes the impact of a given monetary policy intervention on output, employment, and inflation.

In periods of financial stress or in a low interest rate environment, the impact of CBDC on monetary transmission could be more significant: "there is greater risk of a flight to safety from retail bank deposits into CBDC" due to the possibility of bank failure (Das et al. (2023: 3). CBDCs could weaken the links between banks and the real economy, and, in absence of a liquid digital market, deepen financial stress.

The coexistence of CBDCs and the digital credit market can be a factor of protection within national boundaries. However, the degree of internationalization of domestic companies and of the financial sector, the integration of domestic companies to international supply chains, requires parallel research into the effects of CBDC introduction especially for neighbouring countries. In fact, at times of stress, CBDCs availability and their interoperability at the cross-border level can increase liquidity for financial institutions. Research into establishing a framework for cross-border payments can lower the risk of domestic and global supply shocks.

Various studies show that the introduction of a CBDC has the potential to affect the operational framework of monetary policy and the conditions in interbank markets if it brings about a sufficiently large decrease in excess reserves due to the reduction in bank deposits. This, in turn,

may have important macroeconomic implications, both in the long run and in the transitional CBDC adoption phase.² Therefore, relatively large levels of CBDC adoption come hand in hand with a ‘deposit crunch’ on the banking sector. Whether this implies a ‘credit crunch’ depends at least on two elements.

First, whether CBDCs are directly available to all residents (such as ‘narrow money’) or distributed in a tiered system, as bank reserves, will make a difference. In the first case it becomes a resilient condition for the economy in the presence of bank failures, despite the fact it could exacerbate the run-on bank deposits. In the second case, the tiering system reinforces the reliance of bank lending as a “multiple” of banks’ reserves and equity. In both cases, the attention will be, as it is, on the optimal amount of CBDCs to be available in the system. In both cases, a BIS study by Abad et al. (2023) show that a deposit crunch does not lead to a credit crunch since the lack of reserves in the system will be compensated by the direct access to central bank funding.³

Second, the development of a financial market for the trading of digital assets, not included in the BIS study mentioned above, will favour a more resilient capital market for MSMEs. Even in the presence of lower reserves within the system, there will be less need to rely on the central bank’s credit facility, because of selling of digital assets (such as revenues). The creation of digital assets will overtake other markets, such as mini bonds markets, improving liquidity access for MSMEs, and reducing the weight of debt. The massive amounts of data to assess firms’ creditworthiness jointly with the creation of digital assets will limit the reliance on physical collateral in solving asymmetric information problems in credit markets (Gambacorta et al. 2020). Ant Group’s data shows that big-tech credit issuance does not correlate with local business conditions and house prices but reacts strongly to changes in firm characteristics, e.g., transaction volumes and network scores used to calculate firm credit ratings. There is a new role for banks as well. With intelligent application of data analytics and machine learning, innovative banks can offer the services of a “tech company” in the “body” of a bank, as shown by, for example, Singapore’s DBS.⁴

Disentangling the bank deposit risk from the risk of credit crunch means the need to coordinate the international payment system and this will ultimately reinforce the global supply chain.

² This part of the analysis relies on Alberola-Ila and Mattei (2022).

³ For CBDC adoption levels exceeding 10 per cent of GDP, there are no reserves left to absorb the contraction in bank deposits. Instead, banks replace the lost deposits – and thus continue to preserve most of their lending to firms – by increasing their recourse to the central bank’s credit facility. At those levels of CBDC demand, the corridor system gives way to a ‘ceiling’ system, characterized by scarce (in fact, zero) reserves and interbank rates pushed against the lending facility rate. While small compared to the impact on the banking sector, the effect of CBDC on real outcomes is nonetheless far from negligible.

⁴ Indeed, Frost et al. (2019) and Agarwal et al. (2022) have already hinted that banks can replicate big-tech companies’ capabilities by investing in machine learning and intelligent data analytics.

1.2 The International payment system

Using CBDCs, countries could potentially engage in point-to-point cross-border payments with significantly higher speed, improved safety, and reduced costs. The BIS pilot project mBridge provides an important example. The main challenge is to determine which country's legal system applies for such cross-border payments. This situation also raises the question whether the IMF should play an expanded role in reconciling legal differences between countries related to specific cross-border payments or even cross-border payments in general.

2. Private sector initiatives to increase MSME access to finance

There are currently several initiatives to simplify MSMEs' access to credit by digital means. For example, Alibaba and Tencent in China can finance the working capital requirements of 10's of millions of MSMEs at a 1 per cent default rate made possible by the digitization of transactions enabled by the mobile phone (Yiping 2020). Micro Connect's daily revenue obligations (DROs) are traded on the Micro Connect Stock Exchange at Macau whereby Chinese MSMEs can get finance. Such private sector initiatives must be supported by a stable public regulatory framework to ensure that the interests and rights of all stakeholders are protected. CBDCs and digital asset registries are good opportunities for the G7 to spearhead research on sandbox frameworks for the purpose of increasing MSME financing.

In March 2023, under Charles Li, the former CEO of Hong Kong Exchanges and Clearing, Micro Connect officially launched the Micro Connect Financial Assets Exchange (MCEX) on the Macau Stock Exchange as the world's first exchange to trade DROs (Micro Connect 2023; Ledger Insights 2023). DROs aim to bridge the financing gap for China's MSMEs and connect these enterprises with global capital. DROs are described as "non-equity, non-debt" instruments that allow institutional investors (e.g. banks, insurance companies, and pension providers) to buy into the future revenue of these businesses. Investors receive a share of the company's daily revenue, making it a direct and diversified way to tap into the daily cash flows of businesses within China's consumer economy. Facilitated by MCEX's digital infrastructure, this model provides transparency and real-time access to revenue data. Restricting DRO trading to institutional investors ensures a level of exclusivity and control over the market, while also highlighting the need for a robust risk prevention mechanism as the business model matures.

With the potential to reshape the global financial market, DROs mark a departure from traditional financing mechanisms. Over 70 million MSMEs in China having an estimated annual funding need of around 12 to 13 trillion yuan could benefit. MCEX facilitates grassroots entrepreneurship, increases job opportunities, and prosperity beyond the urban centers.

Furthermore, it enables Macau to diversify its economy beyond gaming and tourism, leveraging its position within the Greater Bay Area and its international free port status. This development also positions Macau as a burgeoning international financial center in the digital age, promoting its economic diversification and the development of its financial sector with unique characteristics.

2.1 Prosperity data networks and data cooperatives: Improving MSME financing with precise data

Digital initiatives, where the bank is not the lender, can use the digital footprint of an MSME to check creditworthiness (Berg et al. 2018). Proposed in the Japan G7 Think7, Prosperity Data Networks (PDNs) and Data Cooperatives (Fung et al. 2023) are key elements in evolving MSME financing. PDNs are advanced digital platforms that aggregate and analyze vast amounts of economic, transactional, and behavioral data. These networks enable a more comprehensive understanding of the financial health and creditworthiness of MSMEs. By leveraging big data analytics and AI (Fung and Stein 2023), PDNs can predict market trends, more accurately assess risks, and identify new financing opportunities for MSMEs, thereby bridging the existing financing gap.

Data cooperatives (Stein et al. 2024), on the other hand, play a crucial role in opening data ownership and control. Run by their members (often including MSMEs), these cooperatives ensure that data is not just a tool for large companies, but also empowers smaller businesses. Through data cooperatives, MSMEs can securely share and access collective data pools, gaining insights that were previously out of reach due to limited resources. This shared data economy not only improves the credit assessment capabilities of financial institutions, but also promotes a more participative financial ecosystem.

Integrating PDNs and data cooperatives with CBDCs and digital asset registries could significantly improve MSMEs' access to finance. The real-time and comprehensive data provided by PDNs can help central banks and financial institutions tailor CBDC policies and digital asset registry frameworks to better meet the needs of MSMEs. Furthermore, the participative nature of data cooperatives ensures that MSMEs have a voice in how their data is used, improving transparency and trust in the digital finance landscape. This synergy between digital finance tools and collaborative data platforms represents a promising pathway to participative and sustainable economic growth for MSMEs.

The key aspect of the introduction of CBDCs to increase credit availability for MSMEs depends on the digital infrastructure. India has shown the value of providing digital financial infrastructure as a public good. (D'Silva et al. 2019). Attention therefore is required on the conditions needed to create an adequate digital financial infrastructure to make these developments inclusive.

3. Policy recommendations for the G7

The effect of national policy actions and subsequent global ripple effects of CBDCs are just beginning to be seen. Global CBDCs initiatives and policy coordination are so far fragmented, lacking common terminology and interoperability, so it is difficult to compare and learn from the effects of policy interventions and regulatory decisions in different countries.

Our recommendations in support of the public imperative of increasing access to finance by MSMEs, are to coordinate research funding aligned in common categories:

The role of CBDCs in the mechanism of transmission of monetary policy, definition of CBDCs in terms of money aggregates, impact on reserves and implications for monetary policy decisions:

- Benefit and costs with respect to alternatives (stable coins, cryptos) to pave the way for regulatory decisions by G7 central banks.
- Benefits and costs of CBDCs with respect to banks deposits, in light of the full chain of impact, to assess whether the impact on bank deposits is positive or negative in terms credit creation for the economy.⁵
- The impact of CBDCs on banks balance sheet in terms of assets and liabilities compositions, starting from the consideration of whether digital wallets could be placed within the system.

The role of digital asset registries in increasing finance for MSME's:

- Implications on banks resiliency, creation of systemic risks, and credit origination in using CBDCs as a means to favour tokenization of assets for SMEs.
- Examine CBDCs in terms of the new supply chain for credit and in terms of overall liquidity within the system and impact of function of the financial sector and in MSME financing.

Legal framework for international payments using CBDCs

- What are the channels through which payments data can be transferred, within national and cross-national borders.
- Benefits and costs of CBDCs used for international payments system.
- What are the steps for setting up new global regulatory framework for CBDCs.

Capability Maturity Model for CBDC/DAR Sandboxes

- Financial readiness indices reflecting the capabilities within different countries for setting up CBDC sandboxes to increase MSME financing.
- Digital readiness indices, especially critical are resilient Cyber Security protections.

⁵ A new study by ECB shows the CBDCs could increase on banks deposits (Caccia et al. 2024).

Regional CBDC/DAR Exchange (Cross Border) for Learning and Sharing knowledge of CBDC's and digital asset registries:

- Potential role for multilateral development banks and the IMF and BIS.
- Digital public infrastructure for CBDCs and digital asset registries with common terminology and paving the way for regional interoperability.
- Repository of national Use Cases and Legal Case discovery and Precedent tracking.

The convergence of CBDCs and digital asset registries hold the key to unlocking a new era of economic growth and innovation, particularly for MSMEs. By fostering an environment that encourages global research coordination for financing MSMEs, local businesses can be significant contributors to economic development and innovation. The emergence of Micro Connect in Macau, the Mercantile Bank International in Puerto Rico and the digital public infrastructure initiatives in India serve as beacons for this promising future. The G7 can lead research to make sure we progress safely.

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