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Central Bank Digital Currency: A boon to the global trading system?

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Introduction

The debate over Central Bank Digital Currencies, or CBDC, has become more prominent among policy makers and in the media since the publication of the Hinrich Foundation's primer report on the subject. According to the Bank of International Settlement (BIS), more than 80% of central banks around the world are now studying the feasibility of this new form of digital central bank money.

Developments in China are gaining particular attention. China's CBDC, known as Electronic Payment / Digital Currency (EPDC), has undergone significant trials. Local governments in Chengdu, Shenzhen, and Suzhou have issued millions of dollars' worth of the digital currency through a lottery. E-commerce giant JD.com also participated in the trial by allowing some purchases to be paid with the digital yuan. The trial has added private bank Zhejiang E-Commerce Bank in Zhejiang province to its roster of seven banks to test the digital yuan.

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For cross-border transactions, the People's Bank of China (PBoC) has combined with the Hong Kong Monetary Authority, the central bank of the United Arab Emirates, and the Bank of Thailand to explore the potential for making CBDC inter-operable between platforms. The goal: to facilitate cross-border payments using multiple digital currencies.[1]

These recent developments prompt the question: Will central bank digital currencies help to advance or hinder future global trade?

China's digital yuan

China's EPDC is not the first CBDC. In late 2020, the Bahamas launched the Sand Dollar, the world's first digital currency, after years of development.

The digital yuan is different from Bitcoin. The CBDC will be legal tender in the same way as physical cash and holders will be able to meet tax liabilities using digital yuan. For now, the currency will operate on a "two-tier system", with the PBoC distributing the currency to domestic commercial banks who pass it on to customers. Users hold a digital wallet on their phones or electronic devices and transact for goods and services by passing the electronic currency to one another.

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China's EPDC is the first to be trialed in a major global economy. More accurately, the EPDC takes on considerable significance as a potential currency for the world's second largest economy, largest trading nation, and manufacturing powerhouse. For more than 120 nations, China is their most important economic partner in terms of trade. China is also arguably the global leader in financial technology. China has been a rapid adopter of electronic payments. As of December 2020, about 852 million people in China used mobile payment methods for hundreds of billions of transactions.

Authorities are keen to stress that the motivation behind its development is primarily domestic. These objectives can be broken down into three parts. The first objective may be to provide competition to the oligopolistic e-payment systems that currently dominate retail payments in China – Alipay and Wechat pay. These private payment systems have about a 90% market share of China's e-payments market and are perceived as posing a threat to the State-run financial system. Their monopolistic behavior has also been criticized as potentially damaging to consumer interests.

The second objective may be to harvest information pertaining to the macro economy that in turn can be used to better fine tune macroeconomic stabilization policy. This may well include, but is not limited to, information pertaining to the credit worthiness of both individuals and companies. This would be useful to banks, the majority of which are state-owned, in managing their loan portfolios. This will, to some extent, level the playing field between the private e-pay companies and the state-owned banks.

Thirdly, one goal may be to increase financial inclusion, by making a state-sponsored means of electronic payment widely available at zero (or near zero) cost to users.

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There are two international dimensions of China's CBDC. The first relates to relatively small payments associated with, for example, tourism or e-commerce. The success of Alipay and UnionPay in internationalizing their systems in the wake of increased overseas travel from China is perhaps indicative of the digital yuan's prospects. The currency might gain acceptance abroad to facilitate payments by Chinese visitors or workers employed overseas by China's Belt and Road infrastructure projects. A configuration approximating to a renminbi (RMB) bloc might emerge in countries with deep economic and investment relationships with the People's Republic of China.

The second international dimension is potentially more significant for trade as well as geopolitics. China's CBDC may be used wholesale for the settlement of large trade or investment related transactions. Underlying the desire to internationalize the RMB – that is, the expansion of its role in international transactions and potentially as a reserve currency – is the possible aim to supplant the US dollar as the global reserve currency. Although Chinese money stock is now larger than that of the United States – in 2019, China's M2 stood at the equivalent of USD28 trillion versus USD16 trillion in the United States – foreign exchange reserves remain the overwhelming asset on the PBOC's balance sheet and these continue to be dominated by US dollars despite some diversification.

If China succeeds in supplanting the US dollar, it would increase the seigniorage that accrues to the Party-State and challenge what is often referred to as America's 'exorbitant privilege'. Linked to this is, presumably, the goal of immunizing the Chinese economy and important trading partners and political allies such as Iran and North Korea from the possibility of economic sanctions.

What is wrong with current arrangements for cross-border payments?

Following the start of advancing globalization in the 1980s, the world witnessed the rapid growth of trade, foreign direct investment, international portfolio investment, and remittances. The international e-commerce sector can now be added to this list of drivers of growth of cross-border transactions. E-commerce has led to an explosion in the size of the cross-border movement of money.

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According to the Bank of England, the size of the cross-border payment market is about USD150 trillion, or about 1.8 times of global GDP.[2] Furthermore, the size will increase to about USD250 trillion over the coming five or six years. Given the size of flows involved, modest improvements in efficiency could have a large impact, be they involve lower costs, greater security, or speed. This is why the G20 has prioritized cross-border payments as an area for investigation and improvement.

The current system is based on a network of correspondent banks, the SWIFT messaging system, and a variety of payment and settlement systems such as

CHIPS. The multi-layered system has evolved over the decades. Currency does not cross borders. Instead, accounts are debited and credited in each jurisdiction upon receipt of instructions. Transfers between large economies and in liquid freely traded currencies can be very quick and efficient. A USD and Euro transfer, for example, will be cheap and fast. Problems arise and costs escalate as the chain of intermediaries lengthens. Transferring money between Brazil and Thailand may involve several correspondent banking relationships.

In the aftermath of the 9/11 attacks on the United States and again after the global financial crisis of 2009, regulations that impact international money flows have been tightened. Efforts to monitor global payments related to counter terrorism financing initiatives and anti-money laundering policy, together with tough punishments for banks found in breach of the rules, have resulted in greater friction and a reduction in the number of correspondent banks.

The risks of the cross-border payments industry have increased. Consequently, the rewards of the industry need to be greater to compensate for the risks, or banks withdraw from the market. In 2020, Westpac Bank in Australia was fined AUD1.3 billion for breaches of Anti-Money Laundering rules. In 2014, BNP Paribas was fined nearly USD9 billion for processing cross-border payments on behalf of clients that were in breach of US economic sanctions against Iran, Sudan, and Cuba.

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The global financial crisis has also impacted trade financing and cross-border payments. Following the bail-out of various banking systems, regulators were keen to ring-fence banks to limit the costs to taxpayers of future crisis. This has increased the capital intensity of international operations and influenced the reduction in the correspondent bank network.

The cost of cross-border financial transactions is high, relative to domestic transfers. According to McKinsey, cross-border transactions account for about 16% of total transactions by value. However, the revenue from such transactions accounts for 27% of the total revenue of the payments industry.

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Therefore, international transactions are on average 70% more expensive than domestic transfers. At the extreme, the IMF estimates the average cost of a remittance payment to be 7% of the transfer value – and can be as high as 15% to 20% in some corridors. Remittance payments tend to be small, which makes the costs relatively high. For economies such as the Philippines or Bangladesh, where remittances are large relative to the size of the economy, these payments impose a serious cost.

In contrast, business to business transfers, which constitute about 80% of cross-border payments by value, cost about 0.1% of the transfer value. For the banks, this amounts to approximately USD125 billion in revenue stream.

It can be argued that, broadly speaking, the main outstanding issues with high value cross-border payments between developed markets is their potential to be cheaper and faster. It has long been the case that small and medium-sized enterprises, or SMEs, account for a smaller share of cross border payments than they do of overall economic activity. This may be indicative of barriers that smaller scale presents to international trade. The most costly and lengthy transfers tend to be of small value and along under-serviced corridors to emerging economies. This is where potentially the greatest gains lie.

There is little point in reducing trade barriers on a multilateral basis through the WTO or plurilaterally through regional trade deals if the financial infrastructure to facilitate associated payments is not in place or is too costly.

A more sustainable global trading system requires greater participation from developing countries. Costly, slow, and risky international payments present a barrier to trade and subsequent integration into the global economy. There is little point in reducing trade barriers on a multilateral basis through the WTO or plurilaterally through regional trade deals if the financial infrastructure to facilitate associated payments is not in place or is too costly to be effectively utilized.

Sources of friction in international payments

The international payments system has several sources of friction. Understanding these frictions is a prerequisite in determining to what extent new technology might reduce them and whether CBDC will be a part of the solution. The major sources of friction and subsequent high costs and slow delivery, as identified by the BIS, are:

- Fragmented data standards that lead to a lack of interoperability between participants
- Oversight regulations pertaining to anti-money laundering and countering the financing of terrorism
- Complexities revolving around data protection standards in different jurisdictions
- Different operating hours across different time zones
- Outdated legacy technology platforms
- Barrier to entry
- Funding costs / capital intensity

The G20 has challenged the Committee for Payments and Market Infrastructure (CPMI) of the BIS and the Financial Stability Board (FSB) to prepare a plan to overcome the frictions in the cross-border payments system and increase its utility. Their reporting has three sections: the first identifies the problems; the second identifies 19 building blocks for an updated eco-system, and the third outlines a road map for achieving the goals.[3]

There are five focus areas in the building blocks:

- The public and private sector's joint commitment to enhance cross-border payments
- The coordination of regulatory, supervisory and oversight frameworks
- Improvement of existing payment infrastructures and arrangements to support the requirements of the cross-border payments market
- Strengthening of data quality and straight through processing by enhancing data and market practices
- Exploration of the potential role of new payment infrastructures and arrangements

According to the CPMI and FSB reports, incremental changes to the existing infrastructure and design could be expedited over the next one or two years. However, a fundamental change in the technology used, such as distributed ledger technology (DLT) and therefore possibly CBDC, is some way off.

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China's distinction as the only major economy to pursue a CBDC on a trial basis is no surprise. It is not impossible to have a new multilateral cross-border payment system, or indeed more than one. The current system operates on several "rails" and the future is likely to be the same with competing technologies. The question is: If in ten years the CBDC is widely used in multiple jurisdictions, will it help overcome the frictions in the system?

Distributed ledger technology & CBDC

As is already well understood, digital central bank money already exists – almost everywhere – in the form of bank reserves at the central bank. What is commonly thought of as CBDC is perhaps less of a break with the past than is often thought. In addition, commercial bank money is also digitalized.

What is driving retail CBDC, as being trialed in China, is a combination of the growth in e-commerce, the proliferation of private electronic payment vehicles, and the advances in ledger technology (distributed or centralized) for record keeping. This is taking place against a backdrop of wide adoption of smartphones by the population.

It is worth noting that China's two-tier CBDC does not use blockchain as its ledger technology. Advances in ledger technology have the potential to improve the efficiency of the cross-border payments systems. However, there is a good argument for saying that incorporating the benefits of ledger technology does not in itself require a retail CBDC. Banks already have access to central bank digital money, while consumers have access to digital commercial bank money. One consideration would be to widen access to central bank digital money to a variety of non-banks involved in payments such as money transfer operators.

The number of private companies deploying DLT or other technologies to make cross-border payments more efficient is multiplying. Fintech company Ripple has been operating in the Mexico-US corridor using DLT, with considerable cost and time savings. Circle pay is deploying DLT for peer-to-peer payments. SWIFT is exploring DLT to overhaul B2B payments.

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The design of retail CBDC involves making choices; for example, account based versus tokenized. The design choices impact directly on the utility and character of the end product. If financial inclusion is the sole goal of the CBDC, a tokenized form that avoids the need for financial intermediaries altogether would be the best choice. From a security and law enforcement perspective, however, cash-like anonymity without the bulk of physical cash or the risk of destruction by fire or water poses a serious problem.

If reducing frictions in cross-border payments is the goal, the FSB and CPMI reports call for paying closer attention during the design stage of a CBDC for its potential interoperability. Yet hard design choices are made with tradeoffs. Different societies with different priorities and values may well opt for very different designs. The degree to which this reduces the use of CBDC in cross-border payments is, at present, unknown.

Interoperability and the geo-economics of cross border payments

The recent reports into the frictions of cross-border payments continuously refer to the problems of interoperability between systems. There are multiple references to a "common vision"; "common standards", "standardized protocols", and so forth. When value is being transferred between one domestic system to another, clearly interoperability is key. Indeed, the BIS Innovation Hub has modeled three scenarios for interoperability. The first makes multiple CBDC systems compatible. The second links different systems. The third creates one system for multiple CBDCs.

The potential "elephant in the room" here is that there is no common vision of what the world should look like from a cross-border payments perspective. The rise of geo-economics – the use of economic tools to pursue geopolitical ends –

means that cross-border payments and the international financial architecture are potentially being fought over for geo-strategic reasons.

The PRC, Russia, and even the EU have made no secret of their concern over the perceived control of SWIFT and the rails along which international payments flow by the United States, in addition to the country's frequent willingness to impose economic sanctions. This perceived power imbalance has served as motivating factors in attempts to build an alternative infrastructure.

If the digital yuan and its payments system were to provide increased efficiency, faster settlement, and lower transaction costs with clearing through a central bank potentially with payment guarantees, it could be the case that it outcompetes the incumbent system of international payments and its associated instruction network. Hence, geo-political rivalries and a clash of ideologies are bifurcating the global economy. It would be naive to assume that the international payments infrastructure will prove to be an exception.

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On the contrary, China, Russia and other nations may prefer for the international payments system to evolve beyond the control of any one country and for its operation to allow anonymous use with access to the US dollar. Conversely, the United States likely prefers an architecture that cedes control and visibility to them and allows the continued use of economic and monetary sanctions. This clash of interests suggests that several ecosystems will continue to exist, possibly in complete isolation from one another.

Such a development has broad implications for the way cross-border payments evolve and well-meaning attempts to reduce frictional costs. Geopolitical considerations will no doubt be a feature when it comes to data sharing and the enforcement of different jurisdictions regulations and law. Efforts to simplify regulations related to Know-Your-Customer guidelines, Anti-Money Laundering, and Counter-Terrorism Financing enforcement might depend on cooperation and trust that are simply not existent.

That said, in the absence of comparable competitors in the digital currency space, China is stepping forward to propose rules and standards. Mu Changchun, Director General of PBoC's Digital Currency Institute, proposed at a BIS seminar in March 2021 for interoperability and 'synchronized' information flows between CBDC systems of different jurisdictions and exchange.

Those countries that currently find themselves excluded from cheap and fast cross-border payments may well find super-powers falling over themselves to improve their access as multiple networks compete for dominance.

Competition might prove to be a boon to third countries. In any payments system, network effects are crucially important. Those countries that currently find themselves excluded from cheap and fast cross-border payments may well find super-powers falling over themselves to improve their access as multiple networks compete for dominance or at least market share in the global payments market.

Conclusions

The G20 have prioritized making the cross-border payment system more efficient, especially for emerging economies that have found themselves disadvantaged by high costs and slow delivery times. International payments that are faster, cheaper, and more secure, and broader and more inclusive access should bring substantial benefits to those countries where payment costs represent a big barrier to international trade.

As the private sector is demonstrating, distributed ledger technology can reduce frictions associated with information flows and potentially reduces costs. It is not yet clear whether retail CBDC will act as a major enabler of better international payments for large scale business to business transfers. It is more likely that CBDC, in a similar format to that developed by China, will become a means of payments in industries such as travel and retail e-commerce.

Such networks, however, may find their efficiency compromised by geopolitical considerations and the battle for control over cross-border payments.

New payments platforms and networks are likely to develop in the coming years and, to some extent, replace some of the multilayer system that has evolved in past decades. Such networks, however, may find their efficiency compromised by geopolitical considerations and the battle for control over cross-border payments.

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About the author

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Notes

1. BIS innovation hub report, https://www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm
2. Bank of England report, https://www.bankofengland.co.uk/payment-and-settlement/cross-border-payments
3. The FSB and CMIP reports, https://www.fsb.org/2020/04/enhancing-cross-border-payments-stage-1-report-to-the-g20/; https://www.bis.org/cpmi/publ/d193.htm; https://www.fsb.org/2020/10/fsb-delivers-a-roadmap-to-enhance-cross-border-payments/

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