Digital money and financial stability

Tao Zhang considers the implications for monetary and financial stability of new forms of digital money
When I tried to select the topic that may best link all the elements in financial risks, innovation and inclusion post-COVID, I thought about cross-border payments, digital money, and their impact in the post-COVID world. Let me start with why we care about cross-border payments.

Many consider cross-border payments as ‘plumbing’ and normally keep it hidden. It is actually at the centre-stage in policymaking today. Cross-border payments are at the heart of the international monetary system, as well as the lives of the most vulnerable. And yet, cross-border payments have limitations, especially for lower-income countries and emerging markets. Cross-border payments remain slow, opaque, costly, and inaccessible to many.

Remittances still cost 7 percent on average, more than twice the target set by the UN Sustainable Development Goals. Meanwhile correspondent banks—those providing access to cross-border payments—are 22 percent fewer since 2011. And, they may not even be accessible to part of the 1.7 billion people worldwide who are unbanked.

So, as you can expect, in the COVID-era, those hit harder are countries with a higher share of unbanked population, greater reliance on remittances, lower access to correspondent banks, and less liquid foreign exchange markets.

Several key frictions explain the limitations of cross-border payment systems. These limitations have been widely recognized for some time, but not enough has been done to date. Countries tend to under-invest in solving issues of interoperability and in creating public goods that can be made available across borders—the international version of the collective action problem.

**Can digital money come to rescue?**

It looks hopeful. While the potential, exploratory solutions could bring significant efficiency gains, it could also affect monetary and financial stability.
In short, it is very timely to discuss this issue. We are living through a phase of unprecedented global drive to improve the efficiency of cross-border payments. For example, Facebook’s Libra pledges to improve cross-border payments. Many countries are working with CBDC, or Central Bank Digital Currency. The international community has worked tremendously on this topic, including the G20, the Financial Stability Board, the Committee on Payments and Market Infrastructures, the Bank for International Settlements, and of course the IMF.

Therefore, much of my article is drawn from these discussions and developments, especially the IMF publication *Digital Money Across Borders: Macrofinancial Implications*.

Recently, seven advanced economy central banks, including the US Federal Reserve, issued a report articulating their views on fundamental principles and core features of CBDC design.
I will start with what is CBDC and a brief overview of global trends in the exploration of CBDCs. I will then look at the potential macro-financial implications that the adoption of CBDCs in cross-border payments may present, focusing on four selected key policy areas.

After that, I will outline the policy challenges that country authorities and international community could face as they aim to realize the benefits of CBDCs and mitigate the risks when considering CBDCs in cross-border payments.

**What are CBDCs?**
CBDCs are a digital form of fiat money issued by a central bank. There are two variations of CBDC prototypes—wholesale and retail (general purpose)—but I will limit the discussion to retail CBDCs, defined as a widely accessible digital form of central bank fiat money that is legal tender.

Thus far, no central bank has issued a retail CBDC, but several central banks (the Bahamas, the Eastern Caribbean, China, Sweden, and Uruguay) have started to run CBDC pilots. Some countries—such as the United States, Canada, Australia—which have not yet decided to issue CBDCs are also undertaking experiments as a contingency.

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Now let’s look at how CBDCs are adopted/envisaged to be adopted for cross-border payments.

Cross-border use of currencies generally falls into two categories, namely the use of currency for international transactions, and domestic use of currency issued by a foreign entity. In the first category, international currencies serve as a medium of exchange, store of value, and unit of account and are used for international
trade, international finance, and foreign exchange reserves. In the second category, a foreign currency displaces a domestic currency for domestic transactions, a situation commonly referred to as currency substitution.

Traditionally, the economic weight of a country and broader geopolitical factors have been major drivers of the international use of currencies. Network effects or externalities reinforced by synergies across monetary functions also have a strong effect on the international use of a currency.

Once a currency is established internationally, the fact that it is used by many entities increases the likelihood that others will adopt it.

So, why are CBDCs being considered for the cross-border adoption and use?

The most notable reason is their ability to lower transaction costs and increase accessibility/financial inclusion. Access to foreign currency can be challenging to establish, especially in rural areas in developing countries. CBDCs have the potential to overcome some of these impediments as they can designed either as direct claim on the issuing central bank, or some form of digital cash that can be transferred peer-to-peer without going through a bank.

Although many of the current CBDC projects and pilots are domestically focused, various bilateral experiments have demonstrated the feasibility of using CBDCs for cross-border payments. Here we consider three scenarios of CBDCs to be adopted in cross-border payments.

Scenario 1: niche use for cross-border payments
A CBDC is used as the preferred means for small-value transactions, such as remittances across borders—due to its
low cost and efficiency, or due to legal and regulatory limits that are placed on the purpose and amounts that can be transferred internationally.

The CBDC would not be held for very long—in most cases for the duration of the transaction—and in some cases as a store of value. The CBDC would be exchanged for local currency to make purchases domestically, and the CBDC would not supplant the local unit of account.

**Scenario 2: greater currency substitution in some countries**
Under this scenario, for example, a foreign CBDC pegged to an existing fiat currency induces greater use of foreign currency in countries with high and volatile inflation and unstable exchange rates.

In those countries, use of the CBDC or a global stablecoin is intensive and replaces the domestic currency significantly: as a store of value (in and of itself, or to access assets in that currency), as a means of payment for many but not all transactions (including some regional cross-border trade), and as a common (though not necessarily ubiquitous) unit of account.

**Scenario 3: global adoption with multi-polarity**
This is a scenario of competition between a few major CBDCs that represent independent units of account. In the case of CBDCs, there may be ‘currency blocs’ within which countries choose one common CBDC for both international and domestic transactions.

**Macro-financial Impacts of CBDCs in cross-border payments**
The impacts of CBDCs occur primarily across 4 areas: monetary policy; financial stability; capital flow management; and the international monetary system.
Monetary policy

Most of the concerns about monetary policy focus on the effect of currency substitution/dollarization.

Domestic use of foreign CBDCs can impair monetary policy transmission by increasing currency substitution. It is well known in economics theory that currency substitution reduces monetary authorities’ control over domestic liquidity by limiting the component over which the authorities have direct influence.

Though substitution into CBDCs is no different from traditional ‘dollarization’ that occurs in countries that have suffered from high inflation and large exchange rate volatility, the convenience and easier accessibility of CBDCs enables substitution at a faster pace and larger scale.

If CBDCs are used for specific international transactions, such as remittances, the direct impact on monetary policy may be limited. However, there could be indirect effects if digital currencies reduce transaction costs or regulatory barriers which result in increased remittance flows.

In such a case, currency substitution could still be significant and impair monetary policy effectiveness of recipient countries. In a non-CBDC world, empirical evidence shows that there is a close link between the domestic availability of a foreign currency and substitution into that currency.

In Cambodia, US dollar usage rose rapidly within a few years, as large foreign aid flows provided ample dollar liquidity. Initially, the dollars were mostly used for payments, but consumers began to save in dollars—thus the dollar migrated from being a payment instrument to a store of value.
If countries with weak fundamentals use a foreign currency, including by granting legal tender status to CBDCs, currency substitution could be sizeable and monetary policy effectiveness could be significantly eroded.

CBDCs could also have impact on choice of exchange rate regimes. If several globally adopted CBDCs would come to co-exist (Scenario 3), the monetary policy implications will depend on whether this multipolarity takes the form of country currency blocs or currency competition within each country.

For instance, multipolarity could imply that each country witnesses the domestic use of multiple currencies. Such an environment could complicate exchange rate anchoring, if the domestic currency is still in use. Moreover, households and firms would need to monitor several exchange rates and frequently adjust price quotations, in such an environment.

And finally, cross-border use of a CBDC could also complicate the conduct of monetary policy in the issuing country if external demand for the CBDC results in large capital flows. The impact would be more pronounced if the financial markets are shallow relative to the size of the economy.

2) Financial stability
The financial stability implications of a CBDC largely depend on the design, scale of adoption and financial system structure of the countries concerned.

Greater currency substitution induced by foreign CBDCs could add additional pressures on funding and solvency risks relative to those typically observed in partially ‘dollarized’ economies. The CBDC could increase the degree of currency substitution in countries that already use a foreign currency, as frictions in access and transacting in this currency are likely to decrease.
Some commentators have argued that CBDC could lead to disintermediation even in normal times and higher ‘run risks’ in times of stress in the issuing countries. IMF staff have argued that such effects would depend on specific features of the CBDC and can be mitigated by design choices.

In a scenario of several major CBDCs co-existing (Scenario 3), currency competition within a jurisdiction could make local financial conditions more volatile. Low switching costs between the CBDCs could make the participation in a currency bloc or digital currency area unstable. On the other hand, competition could foster discipline in monetary management in order to maintain the attractiveness of the currency in the longer term.

3) Capital flow management/capital account restrictions
Capital flow management measures and other capital account restrictions have been used by many countries and could be circumvented by CBDCs. If so, countries could face a starker ‘policy trilemma,’ that is, the inability to have all three of the following at the same time: a fixed foreign exchange rate, free capital movement, and an independent monetary policy. This would complicate the conduct of both monetary and exchange rate policy.

However, it is also possible that CBDCs could allow for a greater control of capital flows, depending on how they are designed and the degree of cooperation between the issuer and recipient country.

4) International monetary system
In general, it is very hard to forecast how the international monetary system might evolve with the advent of CBDCs. Changes to the international monetary system are likely to be slow, as the adoption of reserve currencies is typically accompanied by structural changes involving the establishing of policy credibility, rule of law, and deep and liquid markets in the same denomination.
In the longer term, the existence of widely available CBDCs, and strong network externalities, could accelerate shifts in reserve currency status. Digitalization could facilitate cross-border use of currencies, reshaping the demand for and supply of safe assets.

In terms of demand, an uneven pace of technological advances across countries or currency blocs, emergence of alternative cross-border payment ‘rails’, or a shift to trade-invoicing and financial intermediation denominated in a CBDC or global stable coin, could reposition reserve currencies.

In terms of supply, new digital platforms could emerge and achieve global scale, offering alternative networks that CBDCs may tap into in order to spur adoption upon issuance.

Adoption and use of CBDCs may alter the incentives for both reserve holders and issuers. The official sector uses reserves as safe stores of value and for ready access to international liquidity.

or reserve holders, key drivers of the currency composition of reserves are the size and credibility of the issuers, the currency’s usefulness in trade and financial transactions, including foreign exchange intervention, and inertia as safety is reinforced by coordination of beliefs.

Niche adoption of CBDC (Scenario 1) would most likely have limited implications for reserves as the unit of account of trade and financial transactions would not change. In this case the CBDC would serve purely as a conduit for completing cross-border payments, and their value would not become an important relative price that affects economic decisions. Central banks will thus see little need to adjust the composition of their reserves.
Greater currency substitution induced by CBDC (Scenario 2) would lead central banks to increase foreign reserves for precautionary motives. For reserve holders, increased adoption of a foreign CBDC in trade and financial transactions, especially if paired with greater exposure of financial institutions to exchange rate volatility, may shift reserves into the unit of account of the CBDC.

While the qualitative impact is akin to traditional currency substitution, a potentially faster roll-out of CBDCs might lower the inertia in reserve holdings observed so far.

However, the confidence in reserve issuers, for example their ability to ensure cybersecurity or provide emergency liquidity, would still matter greatly.

For issuers, the incentives to supply more safe assets may vary. If internationalization is a policy objective, issuers would at least partially accommodate the shift in demand. Otherwise higher demand could lead to a shortage of safe assets, causing possible side effects such as depressed risk premiums and higher leverage in the financial system.

If a few CBDCs become widely adopted and compete, reserve holdings could become more diversified. With many reserve issuers, total issuance is high but individual issuance is low which protects the issuer’ domestic financial stability.

However, with few issuers, coordination worsens, and instability ensues as investors can quickly substitute away from one reserve asset and towards another.
In a multipolar world, reserve composition could be diversified between or within countries—depending on whether currency blocs form or currencies compete within each country.

When a country adopts a single CBDC, then reserves of the country will mostly be denominated in its currency bloc’s unit of account. In contrast, use of multiple currencies by residents could diversify reserve holdings also within countries.

Finally, the issuance of CBDCs across borders also raise broader issues for the international payment ecosystem. The reason is obvious, as CBDCs could give countries the ability to transact separately. This would lower demand for correspondent banking services and SWIFT international financial messaging and payment systems.

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