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Digital Fiat Currency, SDR and New Cross-Border Payment System*

Emerging economies have played more and more important roles in the world, and have become a significant drive in the reform of global financial governance to push it towards the direction of inclusiveness and resilience. As a key part of the international financial architecture, the dollarized cross-border payment system has not been changed correspondingly. Along with the rapid development of digital currency, the digital fiat currency (DFC) endorsed by national credit shows great potential in improving the current cross-border payment system. We propose that the new system based on DFC can be done in three patterns and the third one is most feasible: IMF-leading pattern, countries-leading pattern and the coexisting pattern. The new system will effectively reduce the transmission time and cost of cross-border payment services due to DFC's peer-to-peer mode. Moreover, as the new system becomes more open, more flexible and more inclusive, all the developing countries will get fair and easy access to these services.

1. The Changes of Global Financial Governance and the Limitations of Current Cross-Border Payment System

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Since the global financial crisis in 2008, emerging countries have taken a bigger and bigger share in the global economy. In 2016, China was the world's second largest economy, and India and Brazil also rank in the world's top 10 largest economies. Accordingly, emerging economies have increasingly called the tune on global financial governance. In 2010, the IMF agreed wide-ranging governance reforms to reflect the increasing importance of emerging economies (Rato, 2011[†]). More than 6 percent of quota shares have been shifted to emerging economies. China is the third largest member country in the IMF now, and the four BRIC countries (Brazil, Russia, India, and China) are all among the 10 largest shareholders in the IMF (figure 1). In 2015, the Executive Board of IMF decided to include Chinese RMB into the basket of Special Drawing Rights (SDR), and RMB has become the third important currency in the new SDR basket since it took effect on October 1, 2016.

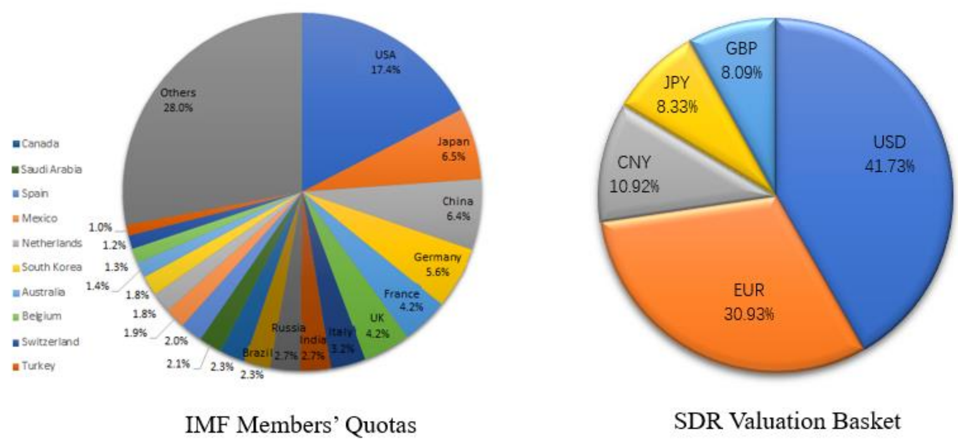

Figure1. Current Structure of Global Financial Governance within IMF Framework

Along with the more diversified international monetary system, the cross-border payment system has still been dominated by US dollarized system. Society for Worldwide Interbank Financial Telecommunication (SWIFT) is the world's leading provider of secure financial messaging services connecting more than 11,000 financial institutions in more than 200 countries and territories. As a global member-owned cooperative, however, SWIFT is still under the absolute control of developed economies. Considering the governance of SWIFT, within the Board composed of 25 independent Directors, only 4 are from emerging

† Rodrigo Rato, A new role for the IMF in the aftermath of the crisis, European View, June 2011, Volume 10, Issue 1, pp 87–94.

countries. As for the Executive Committee, all the members are from developed countries. Clearing House Interbank Payment System (CHIPS) is the world's largest private-sector U.S.-dollar funds-transfer system, playing the central role in cross-border and domestic U.S.-dollar payment settlement and clearance. It was founded by the New York Clearing House Association in 1970.

In general, the current dollarized cross-border payment system is a valuable and powerful one to facilitate the global transaction of US dollar. However, the highly centralized cross-border payment system lacks competition and can hardly improve its efficiency and reduce its cost. Service providers have no incentives to improve their technologies and services. The financial institutions connected to present systems are also satisfied with the relative monopoly situation and enjoy the high price they charge to consumers. But for users, the drawbacks of present systems such as opacity, high cost and long transmission time are obvious, which even caused the attention of the World Bank and G20. In 2008, the World Bank began to survey and publish the prices of remittances worldwide through the Remittance Prices Worldwide database (RPW) and created the Global Remittances Working Group to facilitate and coordinate international efforts to make remittance markets more efficient and less costly (World Bank, 2011[‡]). Since 2010, the reduction in the cost of remittance services has become an important issue concerned by the G20 which established a Development Action for Remittances in that year.

2. The Opportunities and Challenges that Digital Currency brings to the Cross-Border Payment System

Digital currency has already been used in international transactions recently and brings opportunities to the improvement of the cross-border payment system. As figure 2 shows, if users from country A want to transfer their money to country B, they may exchange their domestic fiat money (currency A) into a digital currency (e.g. currency 1) in digital wallets through online interfaces or other means (the spokes). The digital currency is usually in the form of tokens based on distributed ledger technology. These tokens are then transferred across borders through a secure network (the hub) to the payee's digital wallet, and are finally exchanged into the foreign fiat money (currency B) through the same means

[‡] World Bank, Reducing Transfer Costs of Migrant Remittances: Designing and Implementing Policy Reforms and Monitoring of Data, 2011. Available at http://siteresources.worldbank.org/INTECA/Resources/June2ECARemittance.pdf

mentioned above (He et al., 2017[§]). Nowadays, many innovative companies, such as Oklink (HK), Coinpip (Singapore) and Abra (US), have entered this field and become cross-border payment service providers using various kinds of digital currencies. The distributed ledger technology may ensure the transaction process to be traceable and tamper-resistant, and the decentralized network supported by this technology can dramatically increase the efficiency of cross-border payments. The transmission time can be shortened from 3-5 days traditionally to within 1 day (He et al., 2016[**]), and the cost can be reduced to 1% or even less compared to 7.21% currently (Goldman Sachs, 2014[††]; World Bank, 2017[‡‡]).

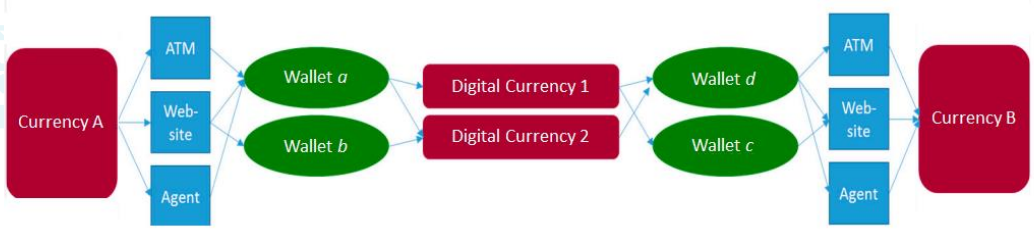

Figure2. Hub-and-Spoke Cross-Border Payment Networks Based on Digital Currency

Source: He et al. (2017)

However, digital currency also brings challenges to the regulation of cross-border payment activities. Almost all the digital currencies widely used nowadays are outside the traditional regulation systems, so have caused a series of concerns about money laundering and terrorist financing, consumer protection, tax evasion, and capital flight (He et al., 2016). First, given the pseudo-anonymous nature, cryptocurrency is an ideal instrument for illicit entities to conceal or disguise identities during cross-border transactions, and hence do increase difficulties in anti-money laundering/combating the financing of terrorism (AML/CFT). Second, as a new emerging financial business, the consumers are vulnerable due to the unregulated intermediaries and service providers, as well as scams and hacker

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§ Dong He, Ross B Leckow, Vikram Haksar, et al., Fintech and Financial Services: Initial Considerations, Staff Discussion Notes No. 17/05, June 19, 2017. Available at http://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2017/06/16/Fintech-and-Financial-Services-Initial-Considerations-44985

** Dong He, Vikram Haksar, Nadim Kyriakos-Saad, et al., Virtual Currencies and Beyond: Initial Considerations, Staff Discussion Notes No. 16/03, Jan 2016. Available at https://www.imf.org/external/pubs/ft/sdn/2016/sdn1603.pdf

†† Goldman Sachs, 2014, "All About Bitcoin," Global Macro Research Top of Mind, March 11, 2014.

‡‡ World Bank, Remittance Prices Worldwide, Issue 23, September 2017. Available at https://remittanceprices.worldbank.org/sites/default/files/rpw_report_september_2017.pdf

attacks. In addition, transactions based on digital currencies are often irreversible, and the decentralized nature means no authority will assume the risk when errors occur, so consumers have to bear the loss themselves. Third, the application of cryptography algorithm, the mode of peer-to-peer transaction and the convenience of cross-border transfer make digital currency a high potential to be a means for tax evasion. Fourth, as the transactions always bypass traditional payment systems, digital currency may serve as a instrument to escape from capital control and make present regulation inefficient.

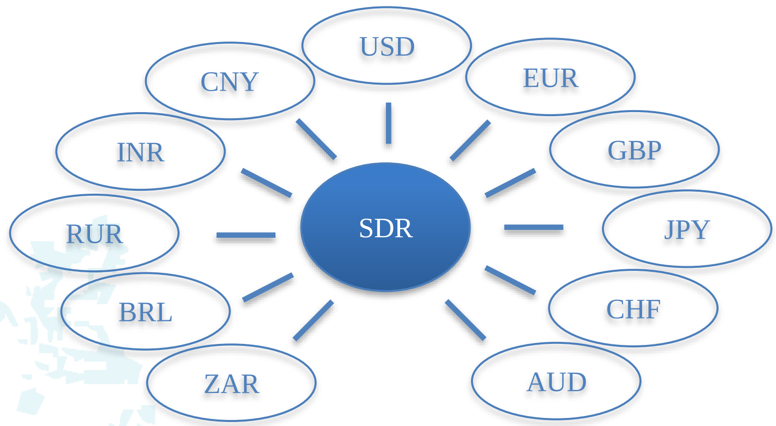
The above challenges are mainly due to the decentralized nature of transactions which are based on privately issued digital currency, so the role of central banks and the obligation of service providers are blurred. However, once central banks may issue fiat currencies in digital form (i.e. DFC) and incorporate them into regulation systems, the above problems will be readily solved. It is obvious that DFC will be a better choice to improve the cross-border payment system.

3. New Cross-Border Payment System Based by DFC and SDR

(1) IMF-leading pattern: new centralized but more efficient system

The cross-border payment system based on DFC can be done in three patterns. The first pattern is led by the IMF and set up for all the member countries. The SDR can be redesigned as a kind of DFC to be used in the new multilateral payment system. SDR is the IMF's unit of account which was created in 1969 and have become an international reserve asset but has not been widely used. If digital SDR can be applied, it will work as a medium of exchange, thus having all the three basic functions of money and become a real currency. Under this pattern, all the member countries will be included in the digital SDR-based multilateral network. Users around the world may exchange the fiat money of their country into digital SDR, then the digital SDR could be transferred to other countries and be exchanged into the fiat money of the recipient country, as shown in figure 3. IMF may also build the new payment system directly from one national digital currency to another national digital currency, not using SDR as a medium currency. It is obvious that the former model with digital SDR is much more simple, as the latter one involves thousands of currency pairs[§§].

Figure3. New Cross-Border Payment System under the IMF-Leading Pattern



Source: Drawn by the authors

The IMF-leading pattern has the advantages of completeness and efficiency. As IMF is a multilateral financial institution with 189 member countries and SDR is valued by five major currencies, this is definitely the most complete and powerful pattern. But this pattern also has disadvantages because IMF is in the absolutely dominant center. Since there are no other DFC-based cross-border payment systems competing with the IMF, the IMF system will also face the problem of low efficiency and high cost to some extent.

(2) Country-leading pattern: fully distributed, competitive and flexible system

The second pattern is led by some individual countries, and other countries can voluntary participate. The countries that have financial capacity may build consortium systems based on DFC, and other countries may freely decide whether to join these systems depending on their interest. This pattern has great potential in building regional payment systems especially. For example, country D and Y who are two countries with great financial power in Europe and Asia, both plan to build a consortium cross-border payment system based on DFC and want to invite other countries to join. As shown in figure 4, for small countries

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[§§] Assume that 100 currencies will be payed through the IMF system, C_{100}^{2} (100*99) kinds of the payment platforms have to be made in the whole system. If we use SDR as a medium digital currecy, only 100 payment platforms have to be made.

like A and F, whose most economic relationships are within the Europe, they will probably prefer to only join the system led by country D. While for countries that have plenty of economic relationships outside their own regions, such as country C in Europe and country I in Asia, they will like to join both the systems established by country D and Y. Finally, for country D and Y, they can also choose to connect to each other's system.

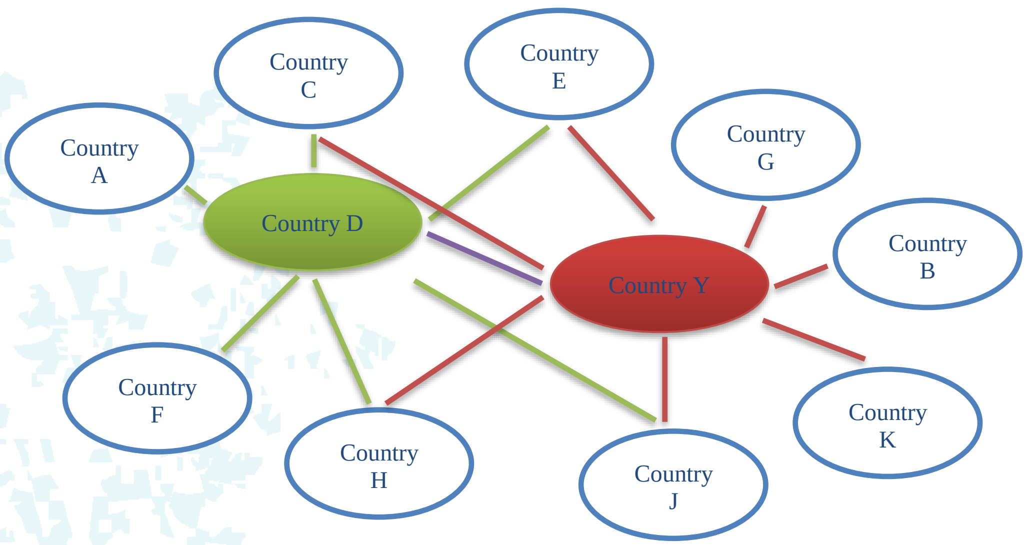

Figure4. New Cross-Border Payment System under the Countries-Leading Pattern

Source: Drawn by authors

The country-leading pattern has the advantages of flexibility and competitiveness. Under this pattern, all countries have opportunities to build their own DFC-denominated systems or have free choices to join various cross-border payment networks. As more countries construct their cross-border payment systems and compete with one another, related technologies and services will be improved rapidly. It is obvious that this pattern provides a fully distributed way to build cross-border payment system which is much more competitive and flexible than the IMF-leading pattern.

(3) Coexisting Pattern: feasible, inclusive and resilient system

The third is a coexisting pattern, which means both the IMF and the countries with capabilities may establish cross-border digital currency payment systems at the same time.

Thus, there will form multi-level payment networks satisfying the transaction requirements at global, regional and bilateral levels. Under this pattern, countries can be divided into three groups. The first group involves small countries like X in figure 5. Since these countries have only a few external economic relationships, it may not be beneficial for them to join the consortium systems built by individual countries. But as long as they are members of the IMF, no matter how minor they are, they will be included in the IMF-leading system and can transfer money to any other countries around the world through the SDR-based network. The second group includes countries as A, K and E. These countries have relatively wide economic relationships with other countries in one or several regions, but do not have enough capabilities to construct their own cross-border payment systems. Hence, they will probably like to join both the IMF-leading system and some countries-leading systems, so their residents will have more options when they need to conduct cross-border transactions, and can easily pick up the most efficient and cheapest one. The third group contains countries like D and Y, which have strong economic power and would like to establish their own DFC-based cross-border payment systems. These countries will be both users and competitors of the IMF's SDR-based system, and they will actively update the technologies and services of cross-border payments due to the competition pressure they exert on one another.

Compared with the previous patterns, this coexisting pattern provides the most feasible and inclusive way to construct new cross-border payment systems. No country will monopolize the international remittance markets, and every country will find its position in such systems. Once the system built by one country occurred accidents or got attacks, the systems established by IMF or other countries could be temporary backups and would maintain the normal operation of international transactions. Such cross-border payment network system is open, inclusive and resilient.

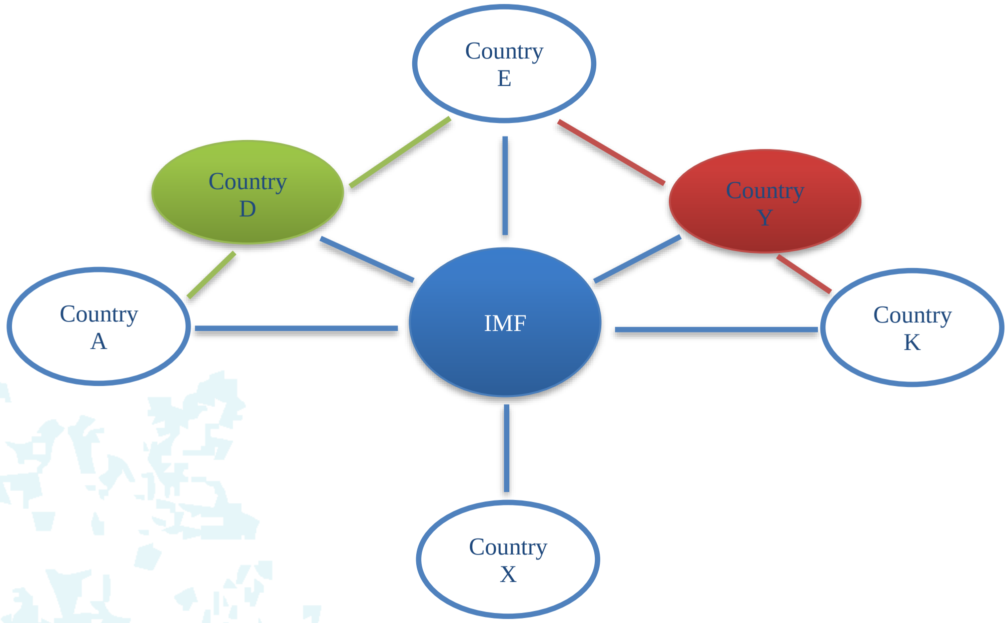

Figure5. New Cross-Border Payment System under the Coexisting Pattern

Source: Drawn by authors

4. Regulations on DFC-based Cross-Border Payment System

As a newly emerging technology, the application of DFC may cause some concerns on financial stability, so regulation is an indispensable issue and should be considered at all levels.

At global level, G20 can play the leading role and IMF can be responsible for implementation. G20 is an important platform for developed countries and emerging countries to negotiate and cooperate with each other on global issues, so it should take the lead in building the regulatory framework of DFC-based cross-border payment systems. As mentioned earlier, G20 has been committed to cost reduction of international remittance since 2010, so it has the incentive to improve cross-border payment system and to deal with the risks emerged during this process. When G20 reaches the consensus, the IMF can take the responsibility to put them into practice, e.g. buiding the new system, setting up multilateral regulatory principles to clarify each country’s rights and obligations, giving advices on index system and common standards for member countries to refer, sorting out risks related to DFC-based cross-border payments and introducing guidance to prevent these risks.

At regional and bilateral levels, countries should also actively strengthen regulatory cooperation. If two or more countries join the same country-leading payment network, each country's jurisdiction must be well defined to avoid confliction. It is necessary for these countries to carry out cooperative research on the features of cross-border capital flows regularly and to establish information sharing mechanism through which they can rapidly get the users' identities and detailed transaction data once some suspicious transactions in terms of tax evasion and capital flight are discovered. As for illegal cross-border funds movements such as money laundering and terrorist financing, countries should also set up the mechanism for joint investigation and prosecution.

At national level, each country should enhance the supervision on the whole circulation of DFC. Central banks should play the main role in DFC regulation, and timely adjust the policies and measures in accordance with DFC's development. As for the change of market structure due to the emergence of new service providers, central banks should improve licensing regime and prudential supervision correspondingly. Since services migrate from intermediaries to networks in the DFC era, regulators should pay more attention on activity-based regulation and less on entity-based regulation (He et al., 2017). In order to solve the regulatory difficulties induced by pseudonymity and anonymity, real-name account registration should be required while the information need to be stored in back-end database for privacy.

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