SPEECH

Stablecoins, Central Bank Digital Currencies, and Cross-Border Payments: A New Look at the International Monetary System

Remarks by Tobias Adrian at the IMF-Swiss National Bank Conference, Zurich, May 2019

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Just a year ago, the talk was all about cryptoassets: Bitcoins and its multiple evolutions. We have moved on, since then. Now, we must reckon with eMoney, a new form of digital currency with the potential to be much more disruptive.

Today, I will define eMoney, then discuss its implications in a closed-economy setting. I will suggest that its adoption may be extremely rapid — but that it may raise significant risks. Policies to counter these risks — as in a sleight-of-hand magic trick, you will see — yield a synthetic version of central bank digital currency (CBDC) with various advantages relative to the full-service version just discussed, and studied in a recent IMF publication (https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2018/11/13/Casting-Light-on-Central-Bank-Digital-Currencies-46233).

Then, I will consider the open-economy extension of these ideas. While eMoney brings key advantages to cross-border payments, it may pose risks to the stability of the international payments system. It could also encourage dollarization.

As policymakers, we must turn our attention to the international monetary system, toward new solutions — including technological ones — and enhance global cooperation by upholding the role of the IMF as the caretaker of this fragile system, though one with great opportunity.

What is eMoney?

eMoney is a means of payment and a store of value fully backed by fiat currency. It is the digital equivalent of a pre-paid card. eMoney, in my definition, can be issued as tokens or accounts, settled in a centralized or decentralized fashion. eMoney thus also includes a version of "stablecoins" that is fully backed or collateralized by fiat currency — what some call "digital fiat currency." eMoney can be traded through an app on your cellphone, between individuals and businesses alike with ease and immediate effect.

Think of WeChat Pay and AliPay in China, M-Pesa in Kenya, Bitt.com in the Caribbean, and USD-coin by Coinbase and Circle. Other major tech companies are also rumored to introduce their own form of eMoney very soon. eMoney, in its various forms, covers more than 25 currencies to date, and that number is growing rapidly. Adoption rates are impressive. In Kenya, for instance, 90 percent of the population over 14 years of age uses M-Pesa. In China, transactions in eMoney reached $18.7 trillion — more than all transactions handled worldwide by Visa and MasterCard combined. Furthermore, many operators now offer debit cards that can be used with stablecoins, turning them into an efficient means of payments for most merchants.

Advantages of eMoney

Why is adoption of eMoney so rapid and widespread? First, because its value is stable relative to fiat currency. The exchange rate is 1 to 1 (or very nearly), not 6,000 to 1 one day and 3,000 to 1 the next, as for some crypto-coins. In fact, eMoney works exactly like a strict currency board, with each unit of eMoney — token or account entry — fully backed by fiat currency. You pre-fund your eMoney holdings, and your funds are stored in a trust account.

But why use eMoney and not fiat currency, since the first is merely a digital representation of the second?

- First, for convenience. eMoney is better integrated into our digital lives, and often issued by companies that fundamentally understand user-centered design and integration with social media.
- Second, for transaction costs. Transfers in eMoney are near-costless and immediate, and are thus often more attractive than card payments or bank-to-bank transfers.

- Third, for trust. In some countries where eMoney is taking off, users trust (https://www.bain.com/insights/many-consumers-trust-technology-companies-more-than-banks-snap-chart/) telecom and social media companies more than banks.
- Fourth and finally, for network effects. Social media and other digital-economy giants contemplating the introduction of eMoney have enormous installed bases through which new payment services can rapidly spread, driven by strong network effects.

Risks to eMoney

eMoney is probably coming to a phone near you. And with it, a world of convenient, costless, and immediate payments at the touch of your fingers. . . . Sounds rosy, but there are problems related to customer protection, safety of the payments system, and ultimately financial stability.

The first risk is to the *value of eMoney*. If it is issued over and above the funds held in the trust account, there could be a run on eMoney, and a significant loss of wealth. We know how destabilizing large devaluations following failed currency boards are.

The second risk is to the *security of the trust account*. Despite the allusion to "trust," funds could be invested in risky or illiquid assets or encumbered as collateral. Redemption of eMoney into fiat currency may not always be possible.

The third risk is to the *interoperability of eMoney and thus to market contestability*. We noted earlier the strong network effects in payments. If eMoney issued by different providers is not interoperable, only the largest providers will survive. The fat cats will eat the nimble and potentially more innovative mice. Even regulation mandating common technological standards will not resolve the issue. It was easier to get cell phones from different providers to talk to each other. In the case of eMoney, interoperability requires a common settlement platform — a way to seamlessly, cheaply, and securely transfer funds between trust accounts. You will not be able to redeem the eMoney I send you for fiat currency unless a corresponding amount of fiat currency is transferred from my provider's trust account to yours.

Tackling risks to eMoney—a potential role for central banks?

While eMoney inexorably grows — potentially booms — in front of our eyes, major risks also rise. How do we tackle them?

One way is for central banks to get involved. Other approaches are also possible; less impactful, though perhaps safer. We will face difficult choices ahead as policymakers. But we will have to make them.

Central banks could offer eMoney providers access to their reserve accounts, under strict conditions, of course. Through effective supervision, central banks could check that eMoney issuance is fully backed; there goes risk number one. Moreover, eMoney holdings would become extra safe and liquid for customers, especially if reserve accounts were protected from other creditors of eMoney providers in case of bankruptcy. That would take care of risk number two, minus the hassle of claiming one's funds. Finally, central banks would ensure interoperability between eMoney issued by different providers by offering a common settlement platform between trust accounts; down with risk number three.

Mind you, other risks would be introduced. Most notably, the risk of a potential and partial disintermediation of commercial banks if some depositors preferred holding eMoney. But let us leave that for discussion.

Synthetic CBDC

I would instead like to draw your attention, dear colleagues, to the fact that while we were focused on alleviating risks — on protecting consumers and financial stability, all laudable goals — we inadvertently created CBDC! A new version, that is, which we call "synthetic CBDC."

Yes, if eMoney providers can keep client funds as central bank reserves, and if these are protected from other creditors, then, by proxy, eMoney users can hold, and transact in, a central bank liability. Isn't that the very definition of CBDC?

Synthetic CBDC has notable advantages relative to the full-fledged version from the previous presentation, in which the central bank creates tokens or offers accounts to the public. Synthetic CDBC outsources several steps to the private sector: technology choices, customer management, customer screening and monitoring including for "Know Your Customer" and AML/CFT (Anti-Money Laundering and Combating the Financing of Terrorism) purposes, regulatory compliance, and data management — all sources of substantial costs and risks. The central bank merely remains responsible for settlement between trust accounts, and for regulation and close supervision including eMoney issuance. If done appropriately, it would never need to lend to eMoney providers, as their liabilities would be fully covered by reserves.

A synthetic CBDC is essentially a public-private partnership that encourages competition between eMoney providers and preserves comparative advantages. The private sector concentrates on innovation, interface design, and client management. And the public sector remains focused on underpinning trust.

Open-economy complications

Check-mark? Have we finished work and can now stroll along the inviting Mythenquai just outside? Not so fast. Things get a little more complicated as we consider cross-border payments.

Clearly, eMoney could bring enormous benefits to cross-border payments, which currently tend to be slow, opaque, and expensive. The token version of eMoney could also facilitate cash payments in cross-border financial trades once assets migrate to the blockchain (allowing seamless "delivery versus payment"). But these gains must be weighed against risks. An example may help.

The case of a person in Zurich, transferring Swiss franc eMoney to a friend in, say, Italy, is simple. Marlis clicks a button, and Francesco gets the funds.

But suppose Francesco wants to receive euro-based eMoney. To simplify matters, suppose both use the same platform — a fictitious "*Pay-n-Chat*." Then *Pay-n-Chat* Switzerland would draw down Marlis' Swiss franc account, and credit *Pay-n-Chat* Italy, which would issue euro-based eMoney to Francesco.

The only problem is that Francesco's eMoney is now backed by Swiss franc reserves held at the Swiss National Bank. Clearly, this is purely fictitious: I am not insinuating the SNB would actually do this.

As in the popular game of whack-a-mole, the risks we had formerly buried now rise again.

Is Francesco's eMoney fully backed? Yes, *Pay-n-Chat* could continuously hedge its foreign exchange risk. But it has now become a lot harder to be transparent about it. And transparency is key for trust. And trust is key for adoption.

Redemption risk has also re-emerged. What happens when Francesco wants to redeem his eMoney in euros? *Pay-n-Chat* Italy may be able to draw down reserves it holds with the ECB — again, a fictitious example. Or *Pay-n-Chat* Switzerland could sell Swiss francs for euros and send those to *Pay-n-Chat* Italy. Cumbersome, expensive, potentially slow. Exactly the costs these companies are trying to avoid.

So, what might *Pay-n-Chat* do? Focus on just the main currency pairs for which there are large and relatively balanced capital flows to maximize the matching of eMoney with local currency reserves. But this could imply a fragmentation of the international payment system; much like paving highways while neglecting country roads — those leading to many smaller countries around this world.

Another risk that resurfaces is to market contestability. In our example, *Pay-n-Chat* Italy extended credit to *Pay-n-Chat* Switzerland; a mere accounting trick to balance the company's books. But had the transfer involved two separate entities, it would have induced credit risk. Clearly, then, transfers will be cheaper if they remain within the same company. Size will matter. Just like in the correspondent banking world, this favors a concentrated market structure.

Not only have we stepped back into several of the risks we had formerly identified — and thought we had solved — but entirely new risks also arise, even supposing we could fix those above.

Dollarization risk

One is the risk of facilitating dollarization. In most cases, the Fund is concerned about dollarization as countries lose monetary policy control, and as financial systems become more exposed to exchange rate shocks, while the central bank is constrained in providing liquidity. Dollarization is found to restrain financial development and long-run growth.[1] (file:///C:/Users/kakuamoah-boateng/OTmp/Stablecoins CBDCs and Cross-Border Payments -- Tobias Adrian -- Speech Text.docx#_ftn1)

Dollarization faces headwinds in most countries. Transaction costs of purchasing foreign currency are typically high, storage is cumbersome and risky if banks do not offer foreign currency accounts, and transactions are limited; many countries do not offer clearing and settlement services in foreign currency.

The availability of foreign currency-based eMoney could lower some of the barriers to dollarization. The headwinds could become tailwinds. eMoney could make storage of foreign currency easier, safer, and cheaper. And, importantly, it could greatly facilitate transactions in foreign currency. In addition, it could drastically lower costs of remittances, which would increase foreign currency inflows.

Would eMoney available across borders spell the end of weak currencies? It would certainly put a lot more pressure on countries with weak institutions and policy frameworks. From a world of grey tones, where those muddling through persist, we might face greater contrast; one either makes it or is taken over by foreign eMoney.

A role for the IMF

Let's take stock. Uncertainty as to the course of technology and its impact on the financial sector; risks to the international payment system, of fragmentation and instability; risks of dollarization; dangers of weak institutions and policy frameworks. . . . Each calls the IMF into action.

The best defense against loss of monetary autonomy, of excessive dollarization instigated by foreign eMoney, is good policy. IMF surveillance can help. And requests for technical assistance in this area are already on the rise, in number and urgency. We must be ready to answer these calls.

Clearly the IMF can also help with its analytical capacity, to identify disruption, fathom future scenarios, and evaluate how policy choices can favor the more attractive ones.

And the IMF's convening power may be needed more than ever, to bolster the international payments system. But this time, also with new technologies.

For instance, the risks and drawbacks to cross-border payments, which we discussed earlier, could be surmounted by greater coordination between countries. What if central banks, which may help eMoney providers develop on domestic markets, also favored their expansion into cross-border payments? What if they settled transactions by exchanging reserves among each other? Of course, only after further analysis of the benefits and risks — including credit risk — of such bold operations.

Could an international institution — such as the IMF — facilitate these operations by running a common platform, mutualizing credit risks, or at least establishing guidance and regulation? Or could new eMoney be created, with 1-to-1 backing by a basket of fiat currencies, to settle transactions between central banks? Some have called this the eSDR or dSDR.

Clearly, this is still hypothetical. But given the speed at which we're traveling, we must at least map out the terrain that lies ahead before picking a path.

Wherever we go, the M for "monetary" in IMF is bound to get a new polish as we focus on the new *monetary* challenges to the international *monetary* system. The years to come will be especially exciting for the global financial architecture!

Thank you very much.

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[1] (file:///C:/Users/kakuamoah-boateng/OTmp/Stablecoins CBDCs and Cross-Border Payments -- Tobias Adrian -- Speech Text.docx#_ftnref1) See for instance Sebastian Edwards and I. Igal Magendzo (2001), "Dollarization, Inflation and Growth," NBER Working Papers 8671, National Bureau of Economic Research, Inc.

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