

The Promise of Digital Currencies
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In a world where most large value payments are made via electronic messages of one sort or another, it is still the case that relatively few transactions are completed in real time. Ideally, once a contract is concluded, payment and settlement would be made with a single instruction, to deduct an amount from the payer's account, wherever that were located, and credit that amount to the account of the payee. If this were done in real time, the fact that the transaction might involve two or more financial institutions, jurisdictions or currencies would not matter. It would substantially reduce "Herstatt risk" named after the small German bank that failed on 26 June 1974 before a large number of international transactions were completed, causing an abrupt shortage of liquidity in New York for several days. Much of today's international bank regulations owe their existence to efforts to reduce Herstatt risk. Modern rules of the game, like macro-prudential rules on the size of international financial flows could be easily programmed in.

Up to the present, it is fair to say that this potential remains unfulfilled, and very few payments of any size are completed and settled in real time, despite the widespread use of what are misleadingly called real time gross settlement systems. Typically the process goes through a chain of instructions, to pass the agreed value from the payer's account to the destination account, in a process which, from the prospective of the end customers at least, is seldom completed in the same day.

The use of blockchain technology may have the potential for payments that would truly be settled in full, at the total of the agreed value (less built-in transactions costs) in real time. The payer would see a deduction of the full amount of the transaction from their account on sending an electronic message, and that amount would appear in the destination account as soon as the message reaches the payee's banker. Protocols could be set up to deal with exchange rates, Internet delays, time zone differences, etc. Blockchain has the advantage,

compared to other digital means of payment, that the "currency" is a verification process; separate verification, which is a major cause of delays in the settlement of transactions, becomes redundant.

To my mind, it is this promise to speed up payments, to fully exploit the potential of global telecommunications, which is the most exciting aspect of Blockchain. The fact that the blockchain can be an open independently verifiable process sets it apart from the rest. I am less convinced that the blockchain needs to be a separate currency. At least in its infancy a blockchain currency would be inferior to preexisting currencies as a stable store of value and its rigid supply rules could create the kind of ad hoc deflationary pressures that led us away from metal-based currencies in the first place. But as a non-currency means of exchanging value in a quick and secure fashion it seems to be without parallel and a number of central banks, including the Central Bank of Barbados are already looking at ways in which it might be used as a short cut to real time settlement.

There are many obstacles, conceptual and practical, in the way of realisation of this vision. In the case of a transfer from one currency to another, how is that transfer validated, in terms of the liabilities of the Central banks in the payer's and receiver's currencies? Since the transfer is digital, is validation even necessary? If not, what are the implications for the supplies of money in the two areas, and, perhaps the relationship between the monetary base (which would not change) and broad money (which would change)? If the velocity of money rises would it push us first to an inflationary excess of liquidity? Much thought must go into clarifying the implications for money and the effect of money on the economy in the digitised world.

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