

International Monetary Fund

From the Selected Works of Warren Coats

September, 2018

Free Banking in the Digital Age

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Available at: https://works.bepress.com/warren_coats/45/

RECENT DEVELOPMENTS

Free Banking in the Digital Age?

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1. INTRODUCTION

A number of central banks are considering issuing digital currency either in place of the paper currency they now issue or in parallel with it. The advantages of central bank digital currency (CBDC) over paper currency for the issuer is the much lower cost of supplying and maintaining the currency (printing, storing, transporting, safekeeping and replacing old and damaged notes). For the users, there are the benefits of much greater speed and lower cost of making payments of currency across distances. The use of paper currency (cash) in economies with proliferating electronic means of payment (Visa, PayPal, Zella, popmoney, etc.) has been and will continue to fall. In addition, digital currencies can and do extend digital payment services to the unbanked. This note explores some of the policy issues raised by CBDC, by which I mean digital claims on the currency issued by the official monetary authority, whether directly or indirectly.

Payment with digital currency involves transferring ownership of a claim on the issuer without needing to or providing any information about the payer, in particular without providing information about the payer's bank account if she has one. In this respect it mirrors the payment of traditional paper currency. A primary issue for a central bank when considering issuing a digital currency is whether it should be offered wholesale or retail, i.e., offered only to banks and maybe other financial firms, or offered to the general public. If a central bank offered CBDC directly to the general public it would transform and greatly expand the role of the central bank and could potentially end the role of commercial banks in the payment system.

Offering CBDC only to banks and other financial firms would offer little that is not already available via central banks' acceptance of deposits from these entities, which of course are digital. In fact the distinction between digital currency and traditional deposits is not always clear or important.¹ Currently Fedwire settles payments between account holders, including government

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¹ Michael D. Bordo & Andrew T. Levin, "Central Bank Digital Currency and the Future of Monetary Policy" (2017) Hoover Institution Economics Working Papers, online: < https://www.hoover.org/sites/default/files/research/docs/17104-bordo-levin_updated.pdf > .

agencies, in domestic and foreign banks licensed in the U.S. It does not settle USD payments between accounts in non-resident banks and resident banks. Such payments could occur with CHIPS (Clearing House Interbank Payments System) correspondent banks, but could also potentially be made by the transfer of a central bank digital currency.

If a digital currency is issued to the general public by banks in the two-tier fashion of today's bank money, in which banks maintain deposits of national money with their central bank to secure the deposits of national money held by banks for the general public, there is an issue of what assets banks should hold or be required to hold against their deposit or currency liabilities to the public. Digital currency issued to the public by the central bank would have no default risk, whereas digital currency issued by banks or other entities, being a liability of the issuing bank, would have default risks.

It is also possible to permit non-banks to issue digital currency as has been done very successfully in Kenya by a phone company.² Over half of Kenya's population participates in this so-called mobile phone money service. Public acceptance of a digital currency requires that its claim on central bank money is credible. Safaricom, the issuer of Kenya's digital currency, M-Pesa, backs the deposits of participants 100% with Kenyan shilling deposits with banks. While M-Pesa balances are generally paid from one person or firm to another, they can be withdrawn via an agent at their face value in shilling currency issued by the central bank at any time.

A study issued by the Bank of International Settlements explores issues raised by central bank digital currency (CBDC) more generally.³

2. BACKGROUND

A review of the free banking era in the U.S. (1837-1913) provides a useful framework in which to analyze the options and implications of digital national currencies. Banks in that period could issue their own U.S. dollar denominated banknotes. Because banks lend some of the money deposited with them — so-called fractional reserve banking — issuing their own currency when their depositors wished to withdraw cash, was stabilizing as explained below. The issue of whether CBDC should use block chain (DLT) or centrally administered ledgers will not be considered here as DLT is too expensive and inefficient to take seriously as an option at this time.⁴ Project Jasper of the Bank of Canada

² Warren Coats, "The Technology of Money", *Cayman Financial Review* (18 January 2012) online: <<http://www.caymanfinancialreview.com/2012/01/11/The-Technology-of-Money/>> .

³ "Central Bank Digital Currency", *Bank for International Settlements* (March 2018), online: <<https://www.bis.org/cpmi/publ/d174.pdf>> .

⁴ Warren Coats, "Bitcoin, Cybercurrencies, and Blockchain" (12 March 2018), *Warren's space* (blog), online: <<https://wcoats.blog/2018/03/12/bitcoin-cybercurrencies-and-blockchain/>> .

concluded that: “the versions of distributed ledger currently available may not provide an overall net benefit when compared with existing centralized systems for interbank payments. Core wholesale payment systems function quite efficiently.”⁵

The report does not exclude the possibility that future versions might overcome existing defects and have net advantages for some applications.

The feature of so called free banking that is relevant here was the ability of commercial banks to issue their own currency (banknotes). These banknotes did not represent private currencies in the way bitcoin does. In the case of the United States, all bank issued currency was denominated in US dollars and redeemable for gold (or silver) at its fixed price for the dollar. Historically banknotes were originally created by goldsmiths in post Medieval England — first as warehouse receipts to depositors of cash — and then as a form of lending as an alternative to having the borrower’s account credited. For an interesting account see the article by Benjamin Geva.⁶

Banks generate most of their income by lending at interest or investing the money deposited with them by the public. As a result, not all of the money deposited is available to pay out to the depositors should they all want their money back (as cash or by transfer to another bank) at the same time (a so-called bank run). Only a modest amount of depositors’ money (it is actually the bank’s money once it is deposited) is available in the bank in the form of cash or deposits at the central bank. These so called reserves must be, and virtually always are, sufficient to satisfy the cyclical (monthly and seasonally) variations in the public’s preferences for cash over deposits. This system is referred to as fractional reserve banking because the amount of bank “reserves” are less than the amount of their deposit liabilities. The difference in the amount of deposits and of reserves consists of bank loans and investments in less liquid assets.

In today’s banking systems all banknotes (cash) are issued by a central bank. Thus when a deposit is withdrawn for cash, the bank’s assets (cash) and deposit liabilities both fall by the same amount. If a bank does not hold sufficient cash or deposits with the central bank to satisfy these periodic demands, the bank is said to be illiquid. When banks were able to issue their own currencies (Citibank dollars and Chase dollars) only the mix of bank liabilities changed (from deposits to cash) with no change in their assets. Their total liabilities and assets remained the same. This was a very desirable feature of note issuing banks and eliminated the risk of illiquidity from cash withdrawals. These banks might still suffer illiquidity from deposit transfers/payments to entities with deposits in other banks.

⁵ James Chapman *et al.*, “Project Jasper: Are Distributed Wholesale Payment Systems Feasible Yet?” *Bank of Canada Financial System Review* (June 2017), online: < <https://www.bankofcanada.ca/wp-content/uploads/2017/05/fsr-june-2017-chapman.pdf> > .

⁶ Benjamin Geva, “Banking In The Digital Age — Who is Afraid of Payment Disintermediation?” *European Banking Institute* (23 March 2018), online: < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3153760 > .

In the free banking era when the public came to doubt the solvency of their bank (loan and investment losses that exceeded a bank's capital—i.e., when the value of a bank's assets falls below the value of its deposit and other liabilities) it was pointless to withdraw deposits as the bank's own banknotes because the bank did not have sufficient assets to redeem them. Bank runs in such cases would take the form of converting deposit or cash claims on the bank into claims on another, hopefully sounder, bank. Those who failed to do so before the insolvent bank was closed and liquidated would lose part of their claim, i.e. they would be forced to absorb their share of the bank's asset shortfall (its negative capital).

Thus a ten dollar bill issued by Citibank and one issued by Chase, being claims on two different banks, could have different values (even if redeemable in theory for the same amount of gold) if the public lost confidence in the solvency of one or the other. Merchants needed to pay attention to whose banknotes they were accepting.

When you pay someone by transferring some of your bank balance to the payee's bank account (e.g. by writing a check), your bank and the receiving bank must both participate in the same clearinghouse (or have an account with a correspondent bank that participates) enabling their obligations with each other to be settled in central bank money.⁷ This role is now generally performed by each country's central bank and the deposits that banks keep there are called reserve deposits. In some countries a minimum amount is required (a reserve requirement) and in others it is fully voluntary but needs to be sufficient for net payments between banks.

While this fractional reserve system worked well most of the time, banks were occasionally hit with unusually large or panic withdrawals that they were not able to satisfy even when they were fully solvent (had positive capital). A key function of the central banks being established all over the world a century or more ago was to provide temporary liquidity to such illiquid but solvent banks (though it is difficult to evaluate the solvency of a bank in real time — i.e. the soundness of their loans and investments). Thus central banks were so-called Lenders of Last Resort.

In 1933, in the midst of America's Great Depression, a group of University of Chicago economists proposed, among other things, that banks be required to hold reserves (cash and deposits with the Federal Reserve) of at least 100% of their demand deposit liabilities (checking accounts). This is often called "The Chicago Plan." If banks' demand deposit liabilities and their reserve assets are segregated from the rest of their balance sheet it removed any default risk to the public of holding demand deposits at any bank. Instead of the Chicago Plan, the U.S. Congress enacted deposit insurance to reduce the risk of bank runs.

⁷ In the "good ol' days" representatives of all local banks would meet in a room and exchange the physical checks that their customers had written to each other and settling the net differences between each bank via a common correspondent bank.

To review: banknotes issued by banks in the free banking era eliminated the risk of a bank becoming illiquid when its depositors withdrew cash, but imposed on the public the need to judge the solvency of the note-issuing bank before accepting its currency. The risk of losses on demand deposits remained. While that risk could have been eliminated with a 100% reserve requirement (The Chicago Plan), it was eliminated for smaller deposits by deposit insurance.

Central banks around the world now have a monopoly on issuing legal tender currency. This eliminates the default risk of accepting such currency but reintroduces a liquidity risk for banks that promise to convert customer deposits into (central bank issued) cash on demand. This risk is substantially reduced by central banks' lender of last resort function.

3. STRUCTURING DIGITAL CURRENCY

The above considerations can help us evaluate options for central banks wishing to issue digital currencies. So-called "digital currencies" can take different forms. "Digital coins" are the closest digital counterpart to paper currency. Both have unique serial numbers for each unit. "Tokens" or "claim check centralized digital currency" pass from one owner to another P2P via block chain or central registry and can be redeemed for central bank base money at any time. "Deposits" function the same as tokens without pretending that they are not deposits. The distinctions between these are primarily technical and may be of little if any relevance to users. Thus I will use "digital currency" to refer to any and all of them.

Our two-tiered system for supplying money to the public (central banks issue base money that is their own liability and commercial banks create deposit money fractionally backed by central bank base money) has the very considerable benefit of outsourcing the competitive creation and management of money to many banks. Banks develop and service their own relationships with their customers from tens of thousands of offices around the country (speaking now of the U.S.). However, this money creating and payment function performed by banks is also comingled with their lending activity intermediating between savers and borrowers. There are synergies as well as risks from providing both services under one roof.⁸

Should central bank digital currency be provided retail or wholesale? A central bank could issue its digital currency to anyone who signed up (registered, i.e. opened an account directly with the central bank). As all uses of this digital currency would be between participants in the system, transfer would be simple and instantaneous. It would be essentially the same as logging into your current bank account and transferring money to another depositor in the same bank.

⁸ Warren Coats, "Changing direction on bank regulation", *Cayman Financial Review* (22 April 2015) online: <<http://www.caymanfinancialreview.com/2015/04/22/Changing-direction-on-bank-regulation/>> .

In addition to the above advantages of speed and simplicity, this central bank retail approach carries the burden of an enormous expansion of central bank staff to interface with the general public in establishing and managing this new digital currency. Equally troublesome is the likelihood, if not certainty of a “digital run” from bank deposits to the central bank’s digital currency. This would be a permanent shift from banks to the central bank, which would force banks to liquidate a significant share of their assets in order to finance the outflow of their demand deposits into the central bank’s payment system. The transition would need to be carefully managed. The magnitude of the digital run could be limited by limiting the size of CBDC payments. This could leave most business payments with the banking system.

There are advantages to a single, monopoly provider of digital currency because payments would take the form of transfers between accounts/participants within the same system (in effect intra-bank). But there would be the usual disadvantages of monopolies as well (e.g. sluggish technical innovation).⁹ Central banks generally have a monopoly in printing paper currency, but their sale to the public is done by competitive commercial banks.

Central banks could leave the provision of digital cash to banks and other qualifying financial firms. This would parallel the two-tier system now in place with central bank base money and commercial bank broad money (deposits of the public). Digital currency would be supplied only by banks, as was the case during the free banking era when individual banks supplied their own currency notes. Thus there would be many digital dollars (Citibank digital currency, Chase digital currency, etc.). As with free banking banknotes, each digital currency would be the liability of the issuing bank. The risk of default for each bank’s digital currency could be eliminated by requiring 100% reserves with the central bank against any digital currency issued and segregating these assets and liabilities from the rest of bank balance sheets. It would also be possible for commercial banks to sell and administer central bank digital currency on behalf of the central bank. Adoption of a full Chicago Plan (100% reserves for both currency and demand deposits and legal segregation from the rest of the bank’s activities) would fully protect all payment system assets (money) from bank failures. Policies would also be needed with regard to close substitutes for demand deposits such as time and savings deposits.¹⁰ Alternatively the risk could be limited via the equivalent of deposit insurance.

⁹ For an elaboration see Geva, *supra* note 7.

¹⁰ Warren Coats, “Book Review: ‘The Money Problem: Rethinking Financial Regulation’ by Morgan Ricks”, *Cayman Financial Review* (26 April 2017) online: <<http://www.caymanfinancialreview.com/2017/04/26/the-money-problem-rethinking-financial-regulation-by-morgan-ricks/>>.

4. NON-CENTRAL BANK DIGITAL CURRENCY

Digital currencies issued by commercial banks would eliminate the risk of “digital runs” on bank deposits to the central bank’s digital currency flagged by the BIS in its report cited above. Non-national digital currencies (or deposits) fixed in value to a foreign currency, to SDRs, or to gold, for example, issued by an entity playing the role of a central bank for that currency (e.g. the BIS) would also minimize the risk of a “digital run” from bank deposits in national currencies. Such digital currencies could also adopt a traditional two-tier model by which commercial banks issue the digital currency to the retail public. In all cases of multiple, individual bank issued digital currencies, arrangements would be needed (as now) to settle payments from holders of digital currency issue by one bank to holders of digital currency issued by a different bank. The transfer of deposits from one issuing bank to another on the books of a common institution (the traditional central bank) is the most likely mechanism for settling such payments as is now the case for deposit payments.

In the digital world the distinction between a digital deposit and a digital currency is notional. Both are liabilities of and claims on the bank or other entity that issued them. Distinctions blur. In addition, digital currency need not necessarily be issued by a deposit-taking bank. M-Pesa is the digital mobile phone currency version of the Kenyan shilling issued by a trust operated by the Kenyan mobile phone operator Safaricom.¹¹ The trust is not licensed as a bank as it does not lend any of the money deposited with it. One hundred percent of the money deposited with M-Pesa is placed with commercial banks. If these deposits were with the central bank, they would be risk free — an example of the Chicago Plan.

5. CONCLUSION

My conclusion from the above considerations is that digital currency should be issued by banks or by entities adhering to the Chicago Plan if and when they prove superior to existing electronic means of payment. Commercial bank digital currency liabilities should be insured or should adhere to the Chicago Plan segregated from the rest of the bank and thus from any losses the bank’s other activities might suffer. If bank demand deposits were also 100% reserved, bank digital currency would feature the same stability benefit as was enjoyed in the free banking era by bank note issuing banks without the default risk of that era. Such digital currency can extend the benefits of digital payments to the non-banked as it has in Kenya and a growing number of other countries. It is a model also well suited to the issue of global, non-national currencies such as market SDRs or gold backed currency.

¹¹ *Supra* note 3.

