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Could Cryptocurrencies or CBDCs Replace the Recent Monetary Systems?

The monetary system hinges on trust. It requires sound and robust institutions (...). The present system is by no means perfect (...). But cryptocurrencies with their promise of fully decentralized trust are not the answer.

Claudio Borio (2018)

Introduction

The global banking crisis of 2007–2008 eroded the trust in the current bank-based monetary system. The erosion of trust in commercial banks (mainly due to their irresponsible mortgage lending) and central banks (due to their benign neglect attitude to the developing unsustainable property booms) opened the way for claims that the existing monetary system should be replaced by cryptocurrencies (Nakamoto 2009).

Nonetheless, the last decade does not prove that cryptocurrencies might replace the recent monetary system. They found their role rather in being popular speculative assets traded on unregulated illiquid (prone to price manipulation) markets or in being the means of payment which are increasingly used – due to their anonymity – for illicit operations as e.g. tax evasion and money laundering (Grym 2018, Roubini 2018).

The eroded trust in the existing monetary system paved the way not only for the emergence of cryptocurrencies. It brought also a return of the narrow banking concept; this time in the form of the proposal to issue deposit money by central banks (Central Bank Digital Currencies). While the CBDC proposal is widely discussed (IMF 2018), it possess the two unavoidable deficiencies. It lacks a rational money allocation mechanism and poses evident risks to financial stability.

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The structure of the paper is as follows. Section 1 reminds briefly the main characteristics of the current monetary system. Section 2 describes the main shortcomings of the cryptocurrencies which put in doubt claims that they might replace the existing monetary system. Section 3 discusses whether cryptocurrencies have a chance to evolve into a stable and reliable monetary system. Section 4 analyses the risks related to the issuance of the Central Bank Digital Currencies (CBDC). The last section concludes.

1. The characteristics of the recent monetary system

The existing bank-based monetary system is the outcome of a long evolution. The most important innovation was when commercial banks started to issue paper and deposit money against their liquid reserves being a fraction of their balance sheet. The next significant innovation were clearing houses which enabled swift interbank settlements. Bank runs brought the necessity of establishing central banks playing the role of lenders of last resort (Bordo 2014). This was enabled by the governments which gave central banks the right for unlimited issuance of liquid reserves having the status of legal tender (Bordo 2007). To make banks safe for their customers, the deposit insurance schemes were established.

The outcome of the evolution is the current monetary system which is based on deposit money created by commercial banks, and liquid reserves and cash issued by central banks.¹ The third pillar is the legal system which shields the monetary system against illegal activities like forgery, tax evasion, money laundering etc.

Deposit money creation results from banks extending loans (McLeay et. al. 2014). Deposit money is created when a loan is extended and it is destroyed when the loan is repaid. From technical point of view deposit money is created out of nothing – just by bank entering the same amount on the asset and liabilities side of their balance-sheets (Tobin 1963). Only after creating deposit money a bank is looking for additional liquid reserves, e.g. through borrowing them from the central bank or on the interbank market (Goodhart 2009).

If commercial banks are able to create loans and deposit money technically out of nothing, the great advantage of the recent monetary system is that it can adjust the supply of credit and money to the needs of the economy. If deposit money creation results from banks extending loans, the existing banking system allocates the newly created money in economically rational way. It goes to those who are efficient enough to repay loans.

Central banks role is to set interest rate at a level which adjusts the credit and money supply to the demand for money consistent with the economy's potential rate of the GDP growth. During the last four decades, central banks were very successful in stabilizing inflation.

¹ It is worth to remind that a central bank does not play any active role in issuing cash. Central bank only enables commercial banks to draw cash from their current accounts to satisfy the customers' demand.

Among the most important reasons of the recent global banking crisis was that banks were financing their mortgage loans with short-term interbank deposits which were created with the same ease as deposit money (Singh and Stella 2012). Regrettably, central banks did not hike sufficiently interest rate level in reaction to property prices inflation as they were lulled by the dominant assumption of the mainstream economics that stable inflation is a sufficient symptom of equilibrium (“The Economist” 2018). This, combined with reckless banks’ lending policy, led ultimately to potentially the most serious banking crisis in economic history.

The crisis of 2007–2009 eroded the trust in bank-based monetary system which facilitated the emergence of cryptocurrencies. The proponents of cryptocurrencies used two main arguments against the existing monetary system. The first was that central banks cannot be trusted because they may debase money by launching QE programs. The second was that commercial banks cannot be trusted because they hold only tiny reserves against their deposits (Nakamoto 2009). Both arguments were not correct. QE (quantitative easing) programs were about massive issuing not money but liquid reserves. The fractional reserve system is not risky for banks’ customers as their deposits are insured. Nonetheless, the popular perception was that QE programs might instigate high inflation and commercial banks are risky if they needed so much taxpayers money to cover their losses.

The fading trust in bank-based monetary system spurred interest in cryptocurrencies. At the beginning, the important cause was the rise of the bitcoin as a popular speculative asset.

2. The shortcomings of the cryptocurrencies world

Block-chain is not about decentralization and democracy; it is about greed.

Nouriel Roubini (2018)

The cryptocurrencies do not possess the characteristics which would be necessary to play the role of money. There is no economically rational mechanism of their allocation. They are just sold to those who want to buy them – mainly for speculative purposes. There is no legal protection for cryptocurrencies holders (*A Criptic Message*, 2018). The cryptocurrencies world lacks mechanisms stabilizing their value.

Putting caps on the volumes of cryptocurrencies issuance is just misreading the experiences of the gold standard system. Inflation was stable at that time not because gold supply was limited. It was due to the fact that luckily the supply of gold and money was growing more or less at the same rate as the demand for money resulting from the long-term GDP growth (Cassel 1936). Additionally, at that time banks were extending mainly working capital loans as to satisfy firms’ demand for money which tended to grow proportionally with the GDP (Haldane and Alessandri 2009).

The efforts to present cryptocurrencies as digital gold excavated by ‘miners’ worked for a while until it became obvious that bitcoin was highly volatile speculative asset. The volatility of many cryptocurrencies turned out to be several times higher than the volatility of stock indices and foreign exchange rates (Danielsson 2018a).

‘Stable’ are those cryptocurrencies which are convertible into dollars one-to-one (the first was Tether). Nonetheless, Eichengreen asks why one would like to exchange dollars (legal tender) into stable crypto-coins which are not legal tender and using them is highly inconvenient. His answer is that due to their anonymity they are popular (like other cryptocurrencies) among those who are involved in illegal transactions like tax evasion, money laundering, terrorist financing etc. (Eichengreen 2019).

The proposals to create stable cryptocurrencies assume also that if their price in dollars would fall, the blockchain issuing a given coin would sell crypto-bonds or crypto-shares offering discounts or dividend payments (Al-Naji et. al. 2017). Yet selling crypto-bonds to defend a cryptocurrency in which they are denominated would be a financial pyramid. Formulating such proposals ignores the experiences of so many currency crises which took place in the 1990.

The architects of the cryptocurrencies world claim that monetary policy could be conducted by algorithms. Milton Friedman’s coefficient k (proposal to increase money supply at a stable rate) was a kind of an algorithm, but because the world is not ergodic, it is not possible to conduct monetary policy without some (not small) dose of discretion.

All in all, if after ten years after the cryptocurrencies emergence, there is still so few efforts and publications how to convert them into stable and reliable means of payments, one may have an impression that all discussions on this issue make rather a side show. The main task of the cryptocurrencies is to provide popular speculative assets and means of payment financing illegal operations (Roubini 2018).

3. Are the shortcomings of the cryptocurrencies world addressable?

Putting aside the large scale of using cryptocurrencies for illegal operations, the problem of their world is that the trust in them is based not on social agreement as is the case with the existing monetary system, but on the trust in technology.

However, one can trust only the block-chain technology due to its transparency, but this is not the case with the rest of the cryptocurrencies world institutions which are nor regulated, neither supervised. Moreover, the price for block-chain transparency is high. The capacity of the block-chain as the payment system is very low – barely few transactions per second (Söderberg 2018, Grym et. al. 2017). Additionally, the fees collected by miners are rising steeply in rush hours.

For this reason central banks in Denmark and Finland do not consider using blockchain system in their payment system (Grym 2018, Gürtler et. al. 2017) while the Swedish Riksbank limited its efforts to issuing a digital complement of cash (Sveriges Riksbank 2017).² Central banks are trustful agents and they can use centralized payment systems which can proceed and settle thousands of transactions per second.

The standard reaction of the architects of the cryptocurrencies world to any criticism is claiming that every problem is addressable due to the new IT technologies (Al-Naji et. al. 2017). In fact, the proposals e.g. to issue stable coins do not prove that cryptocurrencies' shortcomings are easily addressable (Eichengreen 2018).

Aizenman suggests that these shortcomings might not be addressable at all. The starting point in his reasoning is the famous tragedy of commons problem, i.e. the necessity to cooperate between different economic agents in order not to damage a limited common resource. In the case of cryptocurrencies (provided that they are intended to become money) such a common is their stability. Achieving this would necessitate a cooperation between sellers of cryptocurrencies and large players who move their prices on the highly illiquid (easy to manipulate) markets. Aizenman's rhetorical question is how such cooperation would be possible between anonymous agents (Aizenman 2019).

The frequent argument says that cryptocurrencies are new phenomenon and they will evolve into a developed monetary system. Thus, let us assume that at some point in the future the today's fiat money system would be replaced by cryptocurrencies.

How might the problem of money efficient allocation be solved? There might be crypto-commercial banks which would extend loans and create crypto-deposits that would be convertible into cryptocurrencies playing the role of liquid reserves of the crypto banking system. Creating crypto-commercial banks would solve also the problem of a flexible adjustment of the money supply to the needs of the economy.

Under these circumstances the problem of controlling money supply could be solved through establishing a crypto-central bank which would intervene on the interbank market in order to set such a level of interest rate which would allow to control the supply of credit and money (Danielsson 2018b).

In order to provide the system with a legal tender, monetary authorities would have to eliminate the anonymity of cryptocurrencies. Their functioning would have to be supervised and regulated by the state, as it is already proposed by the EU parliament (Houben and Snyers 2018).

In fact, the cryptocurrencies should have been issued by the state, as there is no good answer why the revenues from seigniorage would go to private anonymous hands as it is today in the cryptocurrency world where the vast majority of their supply is being issued by a shady oligopoly of 'miners' located in Russia, China and some other post-communist undemocratic countries (Roubini 2018).

² It will be not cash but a complement of cash (as stated by the Riksbank), because digital cash, unlike paper money, has to have an individual record in banks' books (Sveriges Riksbank 2017).

4. Central Bank Digital Currencies (CBDC): a return to the concept of narrow banking

Central banks opening an account for every citizen and company would open a highway for bank runs, challenging financial stability.

Per Callesen (2017)

The emergence of cryptocurrencies spurred discussion on the Central Bank Digital Currencies (Mancini-Griffoli et. al. 2018). To a large extent the proposal to issue CBDC was a return to the discussion on narrow banking in digital clothes.

The concept of narrow banking was a reaction to the painful banking crisis which took place in the US in the early 1930s. The problem was that the Federal Reserve did not provide enough liquidity to stop the runs on banks. Had it provided banks with sufficient amount of liquid reserves, they could have convert them into paper money and offer their customers to withdraw cash freely from their accounts. The self-reinforcing panic would then have been stopped. Regrettably, the Fed failed to provide enough liquidity, which led to massive banks bankruptcies. Around a third of the deposit money vanished. For this reason the initial recession morphed into the Great Depression (Cogley 1999).

One of the reactions to these developments was the proposal to introduce narrow banks (Simons 1936, Fisher 1936). The idea was that people would keep their money deposits in the so-called narrow banks having assets in the form of central bank reserve money or government paper – readily convertible into cash. Depositors would not have problems with withdrawing cash from banks during crises.

The concept of narrow banking was not introduced. Instead, the FDIC (Federal Deposit Insurance Corporation) was established in 1933, which guaranteed deposits in commercial banks. It was a better and practical solution which did not suffer from potential risks related to the narrow banking concept.

The main risk related to the implementation of the narrow banking system is created by the destabilizing deposit flows from commercial to narrow banks in times of a recession or heightened uncertainty resulting from a turmoil in financial markets.

In normal times, commercial banks would be able to offer higher deposit rates than those offered by narrow banks as the latter would invest exclusively in the safe money-like assets. Thus, households would tend to keep their money deposits with commercial banks. However, during recessions or heightened uncertainty, households would move their deposits from commercial banks to the safe narrow banks. Such runs would aggravate situation of commercial banks which would be losing their liabilities. This might force commercial banks to fire sale their assets which would deepen the banking crisis as banks would suffer substantial balance sheet losses.

As there was no sufficient solution to this problem, the narrow banking proposal was treated rather as an interesting concept which should not be implemented (Goodhart 2009). Nonetheless, the unprecedented scale of the recent banking crises produced a return of the idea that people should have a possibility to keep their deposit money with completely safe institutions.

Initially, it was proposed to return to the idea of narrow banking (Benes and Kumhof 2012). More recently the idea of introducing the Central Bank Digital Money emerged (Meaning et. al. 2018). Yet, to a large extent the CBDS proposal is in fact a new version of narrow banking idea. The difference is that households and firms would hold their deposits not in narrow banks but directly at the central bank which would issue such deposit through purchasing assets from households and firms (Bordo and Levin 2017). The additional benefit for households and firms would be having access to the instant and cheap settlements in central bank (Nakaso 2017).

Nonetheless, an implementation of the CBDC would still bring the risk of destabilizing deposit flows from commercial to central banks (Callesen 2017). Moreover, on the globalized financial markets a heightened uncertainty might trigger cross-country deposit flows to the most trusted central banks, e.g. Swiss National Bank (Grym et. al. 2018). This was the main reason why the Danish and Finnish central banks decided not to implement CBDC (Gürtler et al. 2017, Grym 2018).

The benefit for a central bank issuing CBDC would be the possibility to launch QE which would enable to increase directly money supply (i.e. households' and firms' money deposits) – unlike the QE programs which were launched after 2008, where central banks were able to increase only banks' liquid reserves (buying securities from them) but this not necessarily led to a sufficient increase in credit and money creation (Bordo and Levin 2018).

This looks as an important benefit, but central banks are not commercial institutions. They do not extend loans and there is no economically rational mechanism to allocate the newly issued CBDC. The only way left is to use the issuance of the CBDC as the source of deficit monetary financing – the so-called 'helicopter money' (Meaning et. al. 2018). This opens the difficult issue how to use such an option without misusing it by the government. The solution might be to leave such decisions in hands of an independent central bank which would agree for budget deficit financing only when money supply would grow at a lower rate than the rate of growth of the demand for money consistent with the potential rate of GDP growth (Turner 2016).

While introducing the CBDC would not necessarily lead to abolishing cash (Meaning 2018), one can assume that it might be the case and central banks would obtain possibility to set interest rates at substantially negative level. Some economists believe that it would enrich greatly the arsenal of central banks countercyclical policy (IMF 2018), but the recent experiences with central banks negative interest rates illustrate that large benefits from introducing substantially negative interest rates are far from obvious (Agarwal and Kimball 2019).

Concluding remarks

Despite the 2007–2009 crisis eroded trust in the modern bank-based monetary system, it still possesses the characteristics (being the outcome of its long-term evolution) which predestine it to play its role efficiently. Commercial banks are able to adjust smoothly the supply of credit and money to the needs of the economy. Deposit money created by commercial banks is allocated to those who are efficient enough to repay loans. During the last four decades central banks have been effective in stabilizing inflation. During the crisis of 2007–2009 they proved that they are able to play effectively the role of lenders of last resort.

Cryptocurrencies possess none of these characteristics. There is no economically rational mechanism for their allocation. They do not play the role of money. Economic agents do not keep them to cover current expenditures on goods services. Most probably, they will still play the role of popular speculative assets and, due to their anonymity, they will be still used as means of payment in illicit operations. The proposals how cryptocurrencies might play the role of money are rare and unconvincing.

The crisis of 2007 produced a return of the idea of narrow banking in the form of the CBDC. The potential benefits from introducing the CBDC (e.g. the possibility to launch QE programs which would directly increase money supply) do not seem to outweigh the risk of destabilizing deposit flows between commercial and central banks even on international scale.

The problem with cryptocurrencies and with the CBDC is that their deficiencies are unrepairable. Till cryptocurrencies are anonymous, there is no chance to coordinate their issuance and stabilize their prices except fixing them to the existing monies. Both in case of cryptocurrencies and CBDC there is no way to create a mechanism of their economically rational allocation.

Under the circumstances the only way left is to eliminate the deficiencies of the existing monetary system which led to the crisis of 2007–2009. The two necessary recipes are widely known. The first is to strengthen countercyclical stabilization policy with macroprudential tools. The second is to solve the problem of the too-big-to-fail banks. The first is being step by step implemented. The political economy of the second is unfortunately very hard (Vickers 2018).

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COULD CRYPTOCURRENCIES OR CBDCs REPLACE THE RECENT MONETARY SYSTEMS?

Abstract

The paper highlights why, contrary to frequent claims, cryptocurrencies will not replace the existing monetary system. The reason is that despite its shortcomings the current monetary system is a product of a long evolution which had adjusted it to the needs of the economy. Cryptocurrencies will probably remain what they have been during the last decade, i.e. the popular speculative assets and the means of payment used – due to their anonymity – for illicit operations. The recent monetary system, based on deposit money issued by commercial banks, will not be replaced also by deposit money issued by central banks (Central Bank Digital Currency) as the CBDC would lack a rational mechanism of its allocation and would pose risks to financial stability.

Keywords: monetary system, cryptocurrencies, central bank deposit money

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