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Introduction

- 1 Digital currencies such as Bitcoin and Ethereum have received much attention in the media and public debate in recent years. Their increasing importance has also triggered reflection about the role of central banks and traditional forms or systems of money. While some see these new currencies as a potential threat to the stability of monetary systems, most commentators – including central bankers themselves – acknowledge that the technological innovations associated with digital currencies can have interesting applications for monetary policy and the control of payments. In fact, several central banks are currently studying the possibility of issuing their own digital currencies – variously called Fedcoin (USA)¹, e-Peso (Uruguay) or e-krona (Sweden), or, more generally, Central Bank Digital Currencies (CBDC). According to researchers from the Bureau of International Settlements, the current developments related to the Covid-19 crisis might indeed speed up the implementation of CBDC (Auer *et al.*, 2020). For example, in March 2020, the Banque de France launched an experimental program to test the introduction of a form of CBDC for firms in the Eurosystem.² In any case, while their exact form is still unclear, CBDC would allow firms and citizens access to (a new form of) digital money issued directly by central banks.
- 2 The research literature on digital currencies in general, as well as on CBDC in particular, is still in its infancy but growing at a fast pace. There is, of course, an already large literature on Bitcoin and the technological innovations associated with

digital currencies (Böhme, Edelman & Moore, 2015). The more limited research literature that concerns CBDC tends to be enthusiastic, arguing that it would provide central banks with new policy instruments that have the potential to challenge the influence of private financial institutions and thereby to curb market excesses (Dyson & Hodgson, 2016; Bordo & Levin, 2017). The literature from central bankers themselves is more mixed and tends to concern technical details about the consequences of CBDC for monetary policy and financial stability (Bech & Garrat, 2017; Fung & Alaburda, 2016; Engert & Fung, 2017; Barontini & Holden, 2019; Boar, Holden & Wadsworth, 2020).

- 3 The central question of this paper is whether CBDC is a desirable addition (or alternative) to our current monetary system. To answer this question, we mobilize several strands of political economy research on the strenuous relationship between private finance and centrale banking (Ingham, 2004; Dyson, 2009; Aglietta, Oul-Ahmed & Ponsot, 2016; Gabor, 2016). This research conceptualizes central banks as pivotal institutions in the state-finance nexus, that are tasked to regulate the monetary system and ensure the confidence of economic agents in it. More precisely, central banks have traditionally pursued the two main goals of price and financial stability.³ In theory, they are well positioned to tackle these goals due to their monopoly on the issuance of legal tender – that is, central bank money – which is located at the very apex of the financial system (Pistor, 2013). Since central bank money is the ultimate form of settlement between economic agents, central banks can contribute to stable price levels by manipulating the price of credit, and to financial stability by acting as lender and market maker of last resort (Mehrling, 2011).
- 4 However, managing these tasks has proven far from easy: central banks must also ensure a high degree of confidence in their operations, from both citizens and the financial industry, to reach their policy goals (Goodhart, 2011). This system of confidence in turn relies on “fragile compromises” that are often called into question because of the unequal, and fundamentally political, relationships between economic agents and publics authorities (Théret, 2008). These tensions are often most visible in times of financial crisis, when the interventions of public authorities have both direct and distributional consequences for the full range of economic agents (Aglietta, Oul-Ahmed & Ponsot, 2016, P. 73). As a case in point, many researchers have analyzed how the 2007-2009 global financial crisis revealed a great increase in the structural and infrastructural power of financial institutions stemming from the “financialisation” of Western economies (Dietsch, Claveau & Fontan, 2018). Structural power here refers to the privileged position of financial institutions in our economies, and infrastructural power to the fact that they form the channels of transmission of monetary policy. In turn, this growing financial power creates ethical and policy issues, which undermine the general level of confidence in the monetary system.
- 5 It is against this background of previous research and debate that we evaluate the desirability of CBDC. We will argue that, on the one hand, the present state of the private financial sector is indefensible and regulators cannot turn a blind eye towards the problems created by the increased leverage that financial institutions have gained over the monetary system. On the other hand, implementing CBDC comes with risks of its own, such as that of creating a “Frankenstein scenario” where too much power is given to unelected technocrats. Our tentative conclusion is therefore that CBDC should be seen as a second-best or fall-back option: the primary focus of policy makers should be on the possibility of reforming or re-regulating the financial sector as such.

- 6 The paper is structured as follows: we first give a brief presentation of what CBDC is and the various alternative forms that central bankers currently are considering (section 2). We then say a bit more about how the structural and infrastructural power of private financial institutions tends to undermine central banks' operations (section 3). Thereafter we present how CBDC has the potential to undermine this financial power of private banks (section 4), at the price of serious drawbacks pertaining to the democratic control of central banks (section 5). Finally, we draw on these developments to conclude that CBDC is only a second-best option.

1. CBDC: a technological revolution?

- 7 Most money today is already held in digital form, namely as deposits on accounts in private banks or other financial institutions (McLeay, Radia & Thomas, 2014). While bank deposits often seem interchangeable for public coins and notes, there is an important difference – namely that the deposits are claims on the bank in question and may therefore be in jeopardy if the bank becomes insolvent (although there is typically a public deposit guarantee up to a certain amount). Alongside cash and bank deposits, there is also a third form of money: the deposits that the private banks hold at the central bank for financial stability and monetary policy purposes, the so-called central bank reserves. This form is also digital but underwritten by the central bank and mainly used to facilitate inter-bank payments.
- 8 How would CBDC fit into this picture? If implemented, CBDC would be legal tender in a given monetary zone and labelled in a national currency. It could then take either of two shapes: it could be a form of digital coin or token, making it more similar to cash; or it could be a form of digital account, making it more similar to bank deposits and central bank reserves (Dyson & Hodgson, 2016; Bordo & Levin, 2017, p. 6-8). In practice, virtually all CBDC proposals are “account-based”, as this option seems both easier to implement, safer and under direct control of the central bank (Barrdear & Kumhof, 2016; Bordo & Levin, 2017). In essence, then, CBDC is an extension of the system of central bank reserves to the general public. While only commercial banks (and a few financial arms of companies) are allowed to take part in that system today, CBDC would open it up to all citizens and firms.
- 9 How would people have access to CBDC? There are once again two possible scenarios: either everyone would hold accounts directly at the central bank, or there would be indirect accounts available at commercial banks or specific agencies. The possibility of the first scenario depends on the capacity of modern technology to reduce the cost of managing millions of accounts significantly enough. For example, Koning's “Fedcoin” proposal assumes that the Federal Reserve could create a digital currency whose circulation and emission would be managed through a “distributed ledger” technology, much like Bitcoin (Koning, 2014). In this scenario, then, the Federal Reserve itself would manage the whole payment system. Alternatively, central banks could leave this task to commercial banks or specific non-bank intermediaries (Dyson & Hodgson, 2016; Bordo & Levin, 2017). The money would then stay at the central bank, and be legally its money, but accredited financial intermediaries would provide access to these accounts to the public. These intermediaries would be the interface between firms or citizens and the central bank, and they could also deliver classical banking services labelled in CBDC.

- 10 How would CBDC be introduced into society? The most common scenario is that CBDC is introduced as a complement to other forms of money, at least in the initial phase. The role of the central bank could here be either reactive or proactive (Dyson & Hodgson, 2016). In the reactive scenario, CBDC is simply offered as a voluntary alternative. In the proactive scenario, the central bank takes active measures to increase the use of CBDC over time. These measures could in turn vary in strength: for example, the central bank could set a favorable exchange rate between bank deposits and CBDC to raise incentives (Bordo & Levin, 2017). Alternatively, it could seek to inject CBDC directly into the economy.
- 11 There are several possible channels for the direct introduction of CBDC. For example, CBDC could be issued through exchanges against government bonds or other financial assets, which is the scenario imagined by Barrdear and Kumhof (2016). Another suggestion is that central banks should issue CBDC directly to people's accounts, which is sometimes called the "helicopter drops" proposal (Lervén F van, 2016). We will return to this last proposal at several points in the paper.
- 12 Would CBDC accounts function like normal bank accounts, for example in accruing interest over time? Bordo and Levin (2017) and Kumhof and Noone (2018) argue that CBDC should be remunerated in a way similar to commercial bank accounts. Bordo and Levin (2017, p. 2) state that interest-bearing CBDC "could constitute a secure store of value" and "the CBDC interest rate could serve as the main tool for conducting monetary policy". An interesting feature is that remunerating CBDC would allow central banks to go beyond the Zero Lower Bound – that is, to set up a more pronounced negative interest rate. This is difficult in the current system as economic agents will prefer to hold cash (whose nominal yield is zero) rather than deposits (whose nominal yield would be negative). Without cash as an alternative to CBDC, central banks could set a negative interest rate on reserves and CBDC to boost investments (Rogoff, 2014; Nabilou, 2020). However, this will only work if all cash is substituted for CBDC, which seems somewhat unrealistic (Broadbent, 2016). Thus, Dyson and Hodgson (2016, p. 31) argue for a purely cash-like and unremunerated version of CBDC. They contend that remunerating CBDC would be difficult and may endanger the central bank's or the state's budget. Since this latter version seems less controversial in the debate, we will assume an unremunerated CBDC for the remainder of this paper.
- 13 Finally, to what extent would CBDC be similar to Bitcoin and other cryptocurrencies? One of the main issues here is whether CBDC requires some form of centralized bookkeeping, as in the current system, or may rely on the "distributed ledger" technology underlying Bitcoin (Broadbent, 2016, p. 5). Bitcoin relies on a decentralized payment system, which records all transactions on a ledger that is distributed across an online network; "miners" compete to verify the transaction and the "winner" gets a reward for registering it on the ledger. This technology has several important properties. First, it is public. Every user can verify and process transactions. Second, cryptographic technologies secure the ledger against falsifications, without resorting to any financial institution or central authority. Finally, the fact that the ledger is publicly available means that Bitcoin can only preserve a "pseudo-anonymity" for its users, who can be identified by their Bitcoin address (Imwinkelried & Luu, 2015).
- 14 As things stand, some central banks are actively thinking about reforms to their centralized payment system (e.g. Fung & Alburda, 2016; Engert & Fung, 2017). A

decentralized payment system would have several advantages, according to some authors. The main one would be a reduction of the costs of handling payments (for individuals) and verifying payments (for central banks) since decentralized payment systems would allow settlements directly between parties, without resorting to a central agency (Andolfatto, 2015). It could also make settlements of cross-border transactions safer and more rapid (Committee, 2018; He *et al.*, 2017). Finally, it could reduce the risk of technological failure of the payments system: as a larger number of payment providers will connect to the central bank, the bankruptcy or technological failure of any single actor would be less likely to threaten the overall system (Dyson & Hodgson, 2016, p. 10-11).

- 15 However, there are also disadvantages associated with a decentralized payments system. The cost-saving property may be exaggerated since making it work on a large scale can incur huge costs of maintenance, as the case of Bitcoin illustrates (Lambrecht & Larue, 2018, p. 8-10). Bitcoin's payment system has also experienced several technical failures and serious security breaches during its short history (European Banking Authority, 2013; Lambrecht & Larue, 2018, p. 10-12). Finally, Bitcoin's proof-of-work mechanism entails that huge amounts of computing power is invested in "mining" facilities by private companies, which seek to get the reward associated with the validation of a transaction. However, since only one miner actually earns the reward, this means that much energy has been needlessly consumed (Deetman, 2016). Other algorithms, such as proof-of-stake protocols, may consume less computing power. However, much research still needs to be done on alternative technologies to alleviate these problems (Chohan, 2018; Auer, 2019). Therefore, it seems that the most likely scenario is CBDC run on a centralized payment system. In other words, CBDC would actually be closer to the current system of central bank reserves than to Bitcoin or other private cryptocurrencies.

2. Financial power and central banks' operations

- 16 The previous section indicates that there is mixed evidence for the potential of CBDC to increase the efficiency of the global payment system. Yet, according to its proponents, CBDC retains at least two other major potential benefits. First, it would provide central banks with an additional monetary policy option that can be used in economic downturns, namely to credit citizens' accounts directly (Barrdear & Kumhof, 2016, p. 12; Dyson & Hodgson, 2016; Bordo & Levin, 2017). Second, CBDC has the potential to reinforce financial stability since it would provide a "safe haven" outside of the private financial sector (Broadbent, 2016; Dyson & Hodgson, 2016, p. 9-10; Engert & Fung, 2017, p. 7). Both of these promises rely on a third and more fundamental promise, namely CBDC's ability to challenge the excessive level of power held by private financial institutions over our current monetary system. Before analyzing CBDC's potential to solve these issues in the next section, let us take a closer look at the connections between the underlying problems of financial power, financial stability and monetary policy options. These problems are directly linked to the "financialisation" of the economy and the fragile compromises between economic agents that sustain confidence in monetary systems.
- 17 Banks and other private financial institutions wield both structural and infrastructural power in our current monetary and financial system. Structural power derives from the

central role they play in our system of payments and credit (Culpepper & Reinke, 2014). As we have seen, commercial bank deposits constitute the most abundant form of money today. The reason for this is that most money is actually created in the credit or lending operations of commercial banks (McLeay, Radia & Thomas, 2014). Under the current system of fractional reserve banking, commercial banks need only keep a small fraction of their deposit liabilities in either cash or central bank reserves. In essence, this means that they can extend the amount of private money in circulation and acquire a structurally dominant position within the financial system.

- 18 Moreover, the role of banks in money creation also gives them infrastructural power, that is, they have control over the transmission channels of the central bank's monetary policy (Krippner, 2012; Gabor & Ban, 2016; Braun, 2018). When the central bank wants to stimulate or decrease economic activity, it has no direct access to the economic activities or accounts of citizens or firms. Instead its central tool is to manipulate the interest rate on central bank reserves, which it then hopes will "transmit" into changed credit policies on the part of commercial banks. That is, the central bank can only steer the economy through a close collaboration with commercial banks and the financial industry, which Braun (2018) calls a form of "infrastructural entanglement".
- 19 In a historical context, the structural and infrastructural power of banks have increased steadily since the 1970s and -80s, in concert with the so-called financialisation of advanced economies (Strange, 1986; Mehrling 2011). Financialisation refers to the expansion in size and influence of the financial system that stems from several decades of financial deregulation or "liberalization" that started with the policies of Ronald Reagan and Margaret Thatcher. Interestingly, it seems that central banks have encouraged these developments for both ideological and strategic purposes (Dietsch, Claveau & Fontan, 2018; Braun *et al.*, 2018). First, central bankers believed that financial innovations such as securitization or derivatives help to spread risks and make markets more stable and efficient (Turner, 2016). Second, central bankers hoped that these innovations could help them to steer the economy at a distance, through domestic financial markets (Krippner, 2012; Braun, 2018). For example, the European Central Bank has promoted the idea of a unified repo market with the hope that it will foster economic convergence between Eurozone countries (Gabor & Ban, 2016). Moreover, the expansion of the "shadow banking" system – which is the performance of credit operations and liquidity transformation outside the formal banking system – has contributed to even further levels of financialisation (Pozsar, 2018).
- 20 To many observers, the 2007-2009 global financial crisis (GFC) revealed the many problems inherent in financialisation. By the early 2000's, many banks had become "too big to fail" (TBTF); that is, public authorities deemed them so vital to the economy that they could not be allowed to fail if they were to fall into financial difficulties (Woll, 2014). Moreover, the growing awareness of this situation in the financial sector created a problem of moral hazard, namely that banks had incentives to take excessive risks and grow to the point of becoming TBTF (Turner, 2016). Indeed, excessive levels of risk-taking and financial "innovations" fueled a massive credit boom and speculative bubbles on the mortgage markets of the US and other countries. When these financial imbalances started to unravel in 2007, public authorities were eventually forced to bail out the financial system which was an enormous cost to the budgets of many states.⁴

- 21 Several events in the aftermath of the GFC also revealed how central banks have lost control over their channels of transmission (Braun, 2018). We here focus on central banks' purchases of financial securities on the open market; the policy known as quantitative easing (QE). The central idea was to inject liquidity (fresh money) into the system and, through the resulting appreciation of financial prices, reactivate commercial lending and stabilize the value of banks' balance sheets (wealth effect). By mainly purchasing safer assets (such as sovereign bonds), central banks also hoped to trigger a portfolio effect; that is, to increase the willingness of financial agents to take risks and thereby to invest in new enterprises (Bell *et al.*, 2012). Some central banks also purchased corporate securities, but in a supposedly "market neutral" way (Klooster J. van't & Fontan, 2019). What they did was to purchase a broad basket that reflected the whole universe of high-grade corporate securities, with the aim of easing the financing conditions of both the emitting firms and, through portfolio rebalancing mechanisms, also small and medium-sized enterprises.
- 22 While these QE programs were instrumental for stabilizing financial systems on the verge of collapse, and also mitigating the deflationary tendencies of the resulting economic shock, it is clear in hindsight that they came with significant negative side-effects (White, 2012). The most significant problem relates to the moral hazard issue. Because financial institutions wield significant structural and infrastructural power, central banks did not "dare" to attach significant conditions to their measures – such as, for example, a requirement that the provided liquidity is passed on to struggling enterprises in the real economy rather than extracted as bonuses to financial managers. There is an ethical problem inherent in this development, namely that financial managers could augment their personal wealth during the "boom" phase of the economy but then avoid the negative financial consequences of the crisis phase (Godechot, 2016). In other words, financial profits were privatized while financial losses were socialized (Admati & Hellwig, 2014).
- 23 Moreover, the QE programs had significant distributive consequences. The direct wealth effects of asset purchases of course mainly benefit the owners of financial assets, that is, the economic agents located at the top end of the wealth distribution spectrum (Bell *et al.*, 2012). It is yet unclear whether the indirect effects of QE (stimulation of economic growth and employment) are enough to mitigate these inegalitarian tendencies (Colciago, Samarina & de Haan, 2019). Moreover, the purchase of corporate securities meant that central banks provided support to several firms with ethical problems, such as LVMH, Ryanair and Volkswagen (Klooster J. van't & Fontan, 2019). This practice also had a significant bias in favor of multinational firms with large carbon footprints, such as Total and Ryanair (Matikainen, Campiglio & Zenghelis, 2017). These firms are overrepresented in the corporate securities market because they rely more heavily on external debt financing and can post collateral against their loans more easily than their competitors.
- 24 In sum, the structural and infrastructural power of financial institutions in our current system tends to undermine financial stability, social justice and, ultimately, probably also people's confidence in the monetary system.

3. The promises of CBDC: a remedy against financial power?

- 25 Now, let us return to CBDC and ask: could CBDC solve the problems above? In our view, the main promise of CBDC is exactly that it seeks to address these problems related to the inflated power of banks in an increasingly financialised economy.
- 26 First, CBDC would decrease the structural power of banks, since the economic system would be less reliant on the stability of private banking. Namely, the introduction of CBDC would offer an alternative payment system that is not managed by the private banking sector. People could also choose to hold their savings in an account with the central bank (or at a private agency connected to the central bank) which by definition would be safer than a commercial bank account (Broadbent, 2016; Dyson & Hodgson, 2016, p. 9-10; Engert & Fung, 2017, p. 7). In this way, as noted above, the structural power of banks is interconnected with issues of financial stability. Since CBDC would bypass the private banking system, it has the potential to weaken the TBTF problem and thereby to reduce the problems of financial instability and moral hazard. For example, when excessive levels of risk-taking within the financial industry translate into another financial crisis, public authorities would have less incentives to bail out TBTF institutions since alternative payment systems would be in place and savings would be located within central banks' balance sheets. CBDC's success in these regards would, of course, depend on the rate of adoption of CBDC among citizens and firms.
- 27 Second, CBDC could reduce the infrastructural power of banks and thereby help central banks to regain control over their monetary policy. Since there would be a direct monetary channel between central banks, households and firms, central bankers would not be dependent on financial operators' willingness to pass on the provided liquidity in order to have an impact on the economy. Indeed, as we have shown above, the whole set of unconventional monetary policies that have been implemented since the GFC still rely on private banks to form the channels of transmission. Instead, CBDC could give central banks access to a new kind of monetary policy instrument, namely to credit the accounts of both firms and citizens directly (Barrdear & Kumhof, 2016, p. 12; Dyson & Hodgson, 2016; Bordo & Levin, 2017). This is of course the "helicopter drops" proposal which we noted above.
- 28 The helicopter drops proposal is not new. It was originally a thought experiment of Milton Friedman (1969) in which he envisioned central banks "dropping" newly created cash directly into households' accounts. The proposal is different from the monetization of government's deficits, which means that central banks purchase their debt on primary markets (see Lagerwall, 2019, p. 9-10). In the aftermath of the GFC, NGOs and think tanks dusted off the helicopter drops proposal and called it "Quantitative Easing for the People"; arguing that it would allow central banks to support a broader range of policy goals, such as reducing inequality and promoting environmental sustainability (Lervén F. van, 2016; Engert & Fung, 2017, p. 6). Some central bankers are now also discussing helicopter drops as a remedy to the economic impact of the Covid-19 pandemic.⁵
- 29 It is not hard to see why this option would fare better than regular QE in both distributive and economic terms. First, if helicopter drops were implemented with CBDC, they would have the potential to decrease economic inequalities. For example,

central banks could credit all citizens' accounts with a lump sum, or target the least well-off and transfer CBDC accordingly. Alternatively, central bankers could support the financing of small and medium-sized firms that do not have access to the corporate bond market. They would thereby reduce the bias in favor of multinational firms that is inherent in current purchase programs of corporate securities. Second, helicopter drops could also fare better than QE in terms of growth dynamics. If we take note of the fact that bond holders on average are richer than the rest of the population, giving money directly to people would be a greater stimulus than buying bonds since people's marginal propensity to spend tends to decrease with income (Blyth & Lonergan 2014; Buiter, 2014; Muellbauer, 2014). However, we should note that, although there is an obvious connection between CBDC and the helicopter drops proposal, the implementation of the latter would have far-reaching consequences for monetary and fiscal policy, and for the power balance between central banks and governments. We discuss these consequences in the next section.

4. The perils of CBDC: empowering unelected technocrats

- 30 Policy reforms often come with unintended consequences, whose costs might outweigh their benefits. Despite its promises, we argue that the CBDC proposal may have the negative consequences of (1) giving excessive powers to unelected central bankers, and (2) actually threatening financial stability. Moreover, we also wish to stress that (3) there may be alternative reforms that address the problems we have outlined above without triggering such negative consequences. Taken together, these considerations speak against CBDC as a first-best policy option.
- 31 (1) With regards to power, it seems clear that CBDC could challenge the excessive power that financial institutions have over our current monetary system. However, it seems equally clear that CBDC comes with a major drawback or unintended consequence in terms of power balance. Namely, that it would give substantial power over our economies to central banks and their personnel. In our view, giving independent central bankers the power to manage and credit private citizens' accounts without an increased public oversight could be called a "Frankenstein scenario" (Fontan, 2013). The size of the Frankenstein's creature would of course depend on the level of adoption of CBDC in society. In any case, this scenario raises a number of ethical and democratic issues.
- 32 A first issue concerns the democratic legitimacy of central banks, which is closely connected to their mandate (Klooster J. van't, 2018). Most of modern central banks follow a so-called "narrow mandate", which finds its roots in the myth of Ulysses and the sirens (Elster, 1979; Conti-Brown, 2016). According to the proponents of this model, governments cannot resist the calls of the sirens. The most well-known example is that, in times of elections, public officials have an incentive to manipulate the money supply in order to boost economic growth and reduce unemployment. However, in the long run, or so the argument goes, this will only trigger a rise in prices and harm the economy (Kydland & Prescott, 1977). Accordingly, social welfare is improved if monetary policy is delegated to independent central bankers, who, unlike elected officials, lack incentives for an excessive use of the money supply. But when governments are tied to the mast, central bankers should only seek to attain well-

specified goals (such as price or financial stability) with a restricted set of policy instruments (Issing *et al.*, 2001). The current model of independent central banks would become problematic with a broader mandate that requires trade-offs of a more political nature (Klooster J. van't & Fontan, 2019).

- 33 It seems clear to us that the introduction of CBDC gives rise to several difficult decision problems that are beyond the legitimate realm of central bankers. Consider, for example, the issues pertaining to financial inclusion. Who should be allowed to open CBDC accounts? Do you need a specific citizenship or visa to register? These questions become even more difficult if we factor in the “helicopter drops” proposal: What citizens or firms should receive the money? How much should they get? And should the amount vary according to wealth and income? These questions go far beyond the realm of competence and legitimacy of central bankers as we know them: Ulysses did not plan that his rowers would use other tools than oars when he tied himself to the mast. The Frankenstein scenario is thus an example of “agency shrink”, which means that independent agencies extend their roles or responsibilities beyond an original contract of delegation (Elgie, 2002).
- 34 A second issue concerns the privacy of citizens’ personal data. In our current monetary system, central bankers have access to information about the financial transactions and health of private banks and other financial institutions through their supervisory tasks and open-market operations. There are no particular worries about the fact that a regulatory agency collects data on the institutions that it supervises. However, having access to such data on private citizens and commercial firms is another matter as it increases the risk of information misuses by the personnel of the central bank. There is also an increased risk of so-called regulatory capture, which is known to happen more often when a given institution concentrates extended powers and responsibilities (Boyer & Ponce, 2012).
- 35 There may be remedies to both of these issues. Some authors argue for better or stronger coordination mechanisms between central banks and democratically elected policy makers. Indeed, they suggest that such coordination mechanisms should have been in place already in connection with the previous QE programs (Ryan-Collins & van Lerven, 2018). If CBDC is implemented, it seems clear that the coordination mechanism would have to reach a whole new level of institutional integration and importance. In fact, it seems insufficient to just hold public hearings with central bankers to ensure what we may call *retrospective* democratic consent. Instead, *prospective* democratic consent would require that elected officials have a direct say in the design of central bank operations (Klooster J. van't & Fontan, 2019). For example, mixed committees of central bankers and Treasury agents could design the amount and distributional features of helicopter drops, which then would be implemented via CBDC by central bankers. This would echo the coordination mechanisms between fiscal and monetary authorities during the Bretton-Woods era when central banks supported the credit policies of the state (Ryan-Collins & van Lerven, 2018; Monnet, 2018). Alternatively, parliaments or parliamentary bodies could be involved in the design of CBDC-based helicopter drops. Fiscal-monetary coordination mechanisms exist today in China, South Korea and Japan, where central banks finance sectors given priority by governments.
- 36 However, these remedies are unlikely to materialize soon in Western democracies. As we have seen in previous sections, the policies implemented by central banks since the GFC have already exceeded the remit of their mandates. Yet, there have been no

significant improvements of democratic controls over the Federal Reserve or the ECB, for instance. This is probably due to deep political divisions in place on both sides of the Atlantic, which make it difficult to find a political agreement about new mechanisms of institutional control (Conti-Brown, 2016; Högenauer & Howarth, 2016). Moreover, central bankers themselves are not willing to negotiate about their high level of independence, in part because they perceive that it would undermine their credibility in the eyes of financial market participants (Goodhart & Lastra, 2018). Thus, while many central banks are currently considering the implementation of CBDC, none has suggested deeper coordination mechanisms with elected authorities.

- 37 (2) Moving on to the theme of financial stability, it seems clear that CBDC would provide a “safe haven” for those that are worried about the instability of the private banking industry. However, we are once again worried that it can come with certain unintended consequences, and it may in fact pose new threats to the stability of the financial system. First, the existence of safer accounts at the central bank may increase the likelihood of bank runs, that is, situations in which a large number of customers withdraw their money from a commercial bank at the same time (Camera, 2017, p. 140; Mancini-Griffoli *et al.*, 2018, p. 21-22). While the system would be more resilient to the failure of one or two commercial banks (Broadbent, 2016), it may not be able to withstand the failure of many of them. Another issue is linked to the fact that, due to increased competition from public institutions, private banks could lose access to safe assets to back their lending activities (Committee, 2018, p. 15). That is, CBDC could force commercial banks to rely on riskier sources of funding, which would make the whole financial system less stable (Broadbent, 2016, p. 3; Raskin & Yermack, 2016, p. 13). Finally, CBDC might distract policymakers from the real sources of economic and financial instability in the private sector, which have been propelled by the financial deregulation and innovation of the last decades, and, in turn, amplify financial instability risks (Dow, 2019).
- 38 Niepelt (2018) argues that these risks are exaggerated, as current regulations protect consumers’ accounts against defaults. Similarly, the central bank of Sweden, which is seriously considering introducing CBDC, has made clear that this would not weaken its pledge to act as a lender of last resort in case of crisis (Sveriges Riksbank, 2017). But we may ask whether that pledge will be credible enough. Going back to the Frankenstein scenario, it seems that CBDC puts a heavier weight on central banks to safeguard financial stability in all situations. This is a problem if, for example, the reputation of the central bank would come into question. Research indicates that a central bank’s reputation for reliability is crucial for its regulatory and supervisory operations, but this reputation may come into question due to policy errors and/or technical failures (Camera, 2017, p. 141; Engert & Fung, 2017, p. 23; Committee, 2018, p. 10). CBDC may also increase the risk of reputation loss due to conflict of interests, as central bankers would now be tasked with monetary policy, financial supervision, as well as providing banking services themselves (either directly or indirectly). In sum, CBDC comes with its own challenges in terms of financial stability and the balance of powers within democratic systems. These challenges are even more accentuated when CBDC proposals are associated with helicopter drops.
- (3) In light of these potential shortcomings, can we have our cake and eat it too? Are there any alternative reforms that could reduce the structural and infrastructural

power of private banks, and increase financial stability, without the negative consequences of CBDC?

- 39 As noted above, many of the problems in the financial sector stem from the several decades of financial deregulation that started with the policies of Reagan and Thatcher in the 1970s and -80s (Admati and Hellwig, 2014). It does not seem unreasonable, then, to seek remedies to the problems in some form of re-regulation of the private financial sector. In the aftermath of the GFC, there was indeed some political momentum for financial re-regulation. Several of the new regulations that came into place were designed to tackle exactly the problems of TBTF and financial instability. For example, the Dodd-Frank Wall Street Reform and Consumer Protection Act was passed in the US in 2010. Some of its main provisions were to separate banks' speculative activities from their retail operations (the so-called Volcker rule), restrict or regulate trade in very speculative investments (such as credit default swaps), create a new oversight council for financial stability, and increase the powers of various financial supervisory authorities. In a similar vein, European regulators introduced the Basel III framework in 2010. Some of its main provisions were to impose higher liquidity ratios and stricter capital requirements on commercial banks. Moreover, the EU created the so-called Single Resolution Mechanism in 2014 in order to have an orderly process of bankruptcy for financial institutions (which they partly would have to pay for themselves).
- 40 While we cannot evaluate these policies here, their appeal lies in their potential of addressing the problems of TBTF and financial instability while avoiding the negative consequences associated with CBDC. For example, challenging the structural power of commercial banks may not require Frankenstein central banks, but could instead be done through a re-regulation of the appropriate size and service mix of commercial banks. Similarly, safeguarding the stability of the financial system may not require the creation of a "safe haven" outside the private market, but could instead involve the imposition of appropriate levels of risk-taking, liquidity and capital reserves on financial institutions. In fact, Dow (2019) has thoroughly analyzed how re-regulation measures taken at the national and international level would fare better than CBDC to regain control over financialized economies.
- 41 We should acknowledge that re-regulatory efforts have often been criticized for being too mild and not going far enough (Admati & Hellwig, 2014; Helleiner, 2014; Couppey-Soubeyran, 2015; Turner, 2016; Scialom, 2019). A case in point are the attempts of separating commercial banking from investment banking (such as the US Volcker rule and the UK Banking Act) which were weakened significantly during the legislative process and may therefore include too many loopholes to end the TBTF problem (Gary, 2011; James, 2018). The recent EU experience is a further case in point: the European Commission's proposals on structural banking reforms were shelved in 2018 because of the lobbying efforts of large European banks⁶. In sum, despite partial regulatory improvements, the lack of stringent structural reforms after the GFC allowed a resurgence of risky financial activities and unsustainable business model in the banking industry.
- 42 If all other reforms to address the TBTF problems were doomed, CBDC could emerge as a desirable policy option despite its shortcomings. Yet, we can see at least a glimpse of hope concerning the possibility of further rounds of financial re-regulation in the future. According to researchers analyzing the links between financial policy and economic cycles, momentum for financial reform tends to reappear in financial

downturns when the underlying problems are more salient and regulators are under public pressure (McDonnell, 2013; Dagher, 2018). In other words, while the 2007-2009 GFC was a missed opportunity to end the TBTF problem (partly because there was no alternative policy blueprint ready at the time), there is reason to believe that things might be different when the next financial crisis hits.

Concluding remarks

- 43 In this paper, we have investigated whether CBDC is a desirable addition (or alternative) to our current monetary system. Our main contribution has been to give a broader and more balanced perspective than the existing literature, highlighting both the promises and perils of CBDC in terms of circumventing financial power. We have argued that, on the one hand, the present state of the private financial sector is indefensible and regulators cannot turn a blind eye towards the problems created by the structural and infrastructural power of financial institutions. On the other hand, implementing CBDC comes with risks of its own, such as that of creating a “Frankenstein scenario” where too much power is given to unelected technocrats. This dilemma is related to the pivotal but difficult role of central banks that we highlighted in the introduction. On the one hand, central banks must ensure a certain level of confidence in the monetary system: they need to control the channels of transmission of monetary policy and avoid creating situations of moral hazard when they intervene in the financial system. On the other hand, if they exert an excessive level of control over the production of money and the allowance of credit they go far beyond the remit of their mandates – and the confidence of both economic agents and the general public can also be undermined.
- 44 In light of this dilemma, we have argued that a careful evaluation of CBDC should compare it to the best alternative policy options, such as financial re-regulation. It does not seem ruled out that there are other ways to tackle the underlying problems of financial power, financial instability and monetary policy options while avoiding the negative consequences of CBDC. Our tentative conclusion is therefore that CBDC should be seen as a second-best or fall-back option, while the primary focus of policy makers should be on the possibility of reforming or re-regulating the financial sector as such. The fall-back option should only be activated if it becomes obvious that financial re-regulation is impossible for political or other reasons, but we do not believe that this day has come yet. If CBDC is implemented after all, there should be a serious reconsideration of the accountability procedures imposed on central bankers, in order to ensure that their increased powers also come with increased responsibility.

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NOTES

1. Two US senators have recently asked the Federal Reserve to seriously consider its implementation (French Hill & Bill Foster, *Letter to the chairman Jay Powell*, September 30, 2019).
2. « Expérimentations de la Banque de France sur la monnaie digitale de banque centrale : appel à candidature », March 27, 2020. URL: <https://www.banque-france.fr/sites/default/files/media/2020/03/27/200327-note-information-monnaie-digitale-de-banque-centrale.pdf> [accessed on 08/12/2020]
3. The mandates of central banks have varied over space and time (sometimes including goals like full employment and reduced national debts), but these two goals remain constant.
4. The cost of bailing out the banking system varied between different countries. For example, the cost of Ireland's interventions amounted to 22% of its GDP, while France's interventions turned out to be less costly (Woll, 2014, p. 35).
5. The governor of the Banque de France has hinted that the option of providing liquidity directly to firms is on the table (Arnold, 2020).
6. « Proposal for a regulation of the european parliament and of the council on structural measures improving the resilience of EU credit institutions », January 29, 2014. URL: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/managing-risks-banks-and-financial-institutions/structural-reform-eu-banking-sector_en [accessed on 17/06/2020]

ABSTRACTS

This paper analyzes the proposal that central banks should issue digital currencies (CBDC) to provide a public alternative to private digital accounts and cryptocurrencies. We build on some

recent themes in political economy research to give a broader and more balanced perspective than the existing literature, highlighting both the promises and perils of CBDC. We argue that, on the one hand, the present state of the private financial sector is problematic and regulators should seek to tackle the issues of financial power, financial instability and lack of adequate monetary policy options. On the other hand, implementing CBDC comes with risks of its own, such as that of creating a “Frankenstein scenario” where too much power is given to unelected technocrats. Our tentative conclusion is therefore that CBDC should be seen as a second-best option, while the primary focus of policy makers should be on the possibility of financial re-regulation.

Cet article analyse la proposition selon laquelle les banques centrales devraient émettre des monnaies numériques de banque centrale (CBDC) dans le but de fournir une alternative publique aux monnaies numériques privées. Nous nous appuyons sur certains thèmes de recherche récents en économie politique afin de donner une perspective plus large et plus équilibrée que ne le fait la littérature existante sur le sujet, en soulignant à la fois les promesses et les dangers de ces monnaies. Nous soutenons, d’une part, que le secteur financier privé actuel confère un pouvoir excessif à certaines institutions privées, souffre d’instabilité financière et échoue à apporter des options adéquates en matière de politique monétaire. D’autre part, la mise en place des CBDC comporte des risques propres, comme celui d’enclencher un “scénario Frankenstein” dans lequel trop de pouvoir se trouve octroyé à des technocrates non élus. Notre conclusion provisoire est donc que les CBDC devraient être considérées comme une option de second choix, tandis que les décideurs politiques gagneraient à se concentrer principalement sur la possibilité d’une re-réglementation financière.

Este artículo analiza la propuesta según la cual los bancos centrales deberían emitir monedas numéricas del banco central (CBDC) con el objetivo de proporcionar una alternativa pública a las monedas numéricas privadas. Nos apoyamos sobre ciertos temas de investigación recientes en economía política con el fin de dar una perspectiva mas amplia y mas equilibrada, cosa que no hace la literatura existente sobre este tema, destacando a la vez las promesas y los peligros de esas monedas. Nosotros sostenemos, por una parte, que el sector financiero privado actual otorga un poder excesivo a ciertas instituciones privadas, pero sufre una inestabilidad financiera y fracasa para aportar opciones adecuadas en materia de políticas monetarias. Por otra parte, la puesta en funciones de las CBDC tiene sus propios riesgos, como por ejemplo desencadenar un escenario de tipo « Frankenstein » en el cual un gran poder se encuentra otorgado a tecnócratas que no han sido electos. Nuestra conclusión provisoria es entonces que los CBDC deberían ser considerados como una opción de segundo rango, mientras que los políticos que tienen poder para decidir ganarían si se concentraran principalmente en la posibilidad de una re-reglamentación financiera.

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