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Helicopter Money and CBDCs: Are DLT the perfect infrastructure for monetary policies in time of crisis?

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The nascent economic crisis is highlighting the need to rely on creative policy responses. Helicopter money appears to be one of the few untried monetary tool. Central Bank Digital Currencies (CBDCs) based on Distributed Ledger Technologies (DLT) would provide the optimal infrastructure to implement such stimulus policy.

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1. Is it time to finance the economy with helicopter money?

Faced with the crisis caused by the Corona virus pandemic, governments are scrambling for answers on how to save the economy from a protracted recession. Support programs of unprecedented magnitudes are implemented in order to help workers and firms operating in one of the non-essential sectors that have been put into hibernation. Governments cannot finance their exploding budget deficits by an increase in taxes since this would worsen the shortfall in demand that they are trying to mitigate. Hence they have turned to central banks and asked them to support their effort through unconventional monetary policies. The severity of the crisis means that new initiatives, going well beyond Quantitative Easing, are needed. In particular, more and more voices[4] are advocating recourse to *Helicopter Money*.

Helicopter money refers to an allegory proposed by Friedman (1969) wherein monetary creation, instead of being channeled through banks, is directly dropped by helicopter onto the grateful population. Obviously, Friedman did not think of his story as a realistic policy proposal. It was intended as a thought experiment that neatly illustrates the impact of persistent changes in the stock of base money.

It took three decades for helicopter money to be reframed as a real-world policy tool. In his 2002 speech, the US Federal Reserve (Fed) governor, Ben Bernanke, noted that "a money- financed tax cut is essentially equivalent to Milton Friedman's 'helicopter drop' of money". Bernanke's speech argued that this approach might solve Japan's woes, and that it could be used by the U.S. if the country were ever to fall into a deflationary spiral.

What seemed like a far-fetched scenario at the time of Bernanke's speech, became at the heart of policy discussions six years later with the 2008 financial crisis. As demand dwindled, the Fed first reduced its policy interest rate all the way down to zero, pushing the U.S economy into the liquidity trap. When it became apparent that this was not sufficient, it embarked on an unprecedented program of *Quantitative Easing* that resulted in a fivefold increase in the monetary base (M0). As of now, *Helicopter Money* remains the last untried weapon in the Fed's arsenal.

It important to realize that Helicopter Money combines monetary and fiscal policy. Giving money straight to households is equivalent to:

1. A fiscal transfer to households, financed by issuing bonds;
2. A Quantitative Easing program, whereby the central bank buys these bonds with newly printed money.

Under liquidity trap circumstances, the massive creation of money is not inflationary. However, if the transfers of wealth to households is sufficiently massive, this could prop up aggregate demand to the point where inflationary pressures start to re-appear. To avoid rapid inflation, the central bank could decide to raise the interest it pays on its reserves, such as to reduce the quantity of money in circulation. Households would therefore become the owners of reserves, instead of being the owners of government bonds under traditional fiscal transfer programs.

2. Is helicopter money already a reality? A cross-country comparison.

The American CARES (Coronavirus Aid, Relief, and Economic Security) law allows a sum of

[4] See https://www.nytimes.com/2016/07/29/upshot/helicopter-money-why-some-economists-are-talking-about-dropping-money-from-the-sky.html
https://voxeu.org/article/helicopter-money-policy-option
https://voxeu.org/article/helicopter-money-time-now

money to be allocated directly to economic agents. During the review of this law, the Democrats proposed that these payments be made in the form of a digital dollar, within the framework of an electronic payment infrastructure administered by the Fed. To cope with massive unemployment, the transfer of $1,000 to the bank account of American citizens was retained, as well as the sending of bank checks if they did not have a bank account. To all effects and purposes, this policy amounts to a helicopter drop of money. The Fed also activated these more traditional levers: lowering interest rates, which are now back to zero; and unlimited intervention to buy Treasury, real estate and corporate bonds.

In Europe, the ECB launched the Emergency Pandemic Purchasing Programme (EPPP), with a total budget of EUR 750 billion. Purchases will be made until the end of 2020 and will include all asset classes eligible under the existing PEPP.

The European Union is deploying a new instrument for temporary help to alleviate the risk of unemployment in emergencies (SURE), designed to help protect jobs and workers affected by the coronavirus pandemic. It will provide financial assistance in the form of EU soft loans to Member States up to a total of €100 billion. These loans will help Member States to cope with sudden increases in public spending in order to safeguard jobs. More specifically, the loans will help Member States to cover the costs directly related to the creation or extension of national short-time working schemes and other similar measures they have put in place for the self-employed.

In France in particular, the following responses were announced:

- Part-time work: the State guarantees the reimbursement to companies of the social aid requested to supplement employees' salaries.
- A State guarantee mechanism for loans granted to companies by national banks.
- The “Macron bonus”: A reward of 1000 to 2000 euros granted to employees (at the company's discretion) who have travelled to their place of work during confinement.
- System of internal stability/solidarity for companies that have decided to maintain payment to their suppliers whose activity is slowed down.

Comparison table of the different monetary channels

	Helico Money	Drone Money	CBDC	E-Dollar / E-Euro
Additional Functions	Stimulating demand, inflation keeping	Demand Stimulation, Financial Inclusion, Speed of Transactions	Financial inclusion, Speed of transactions	Speed of transactions
Money supply	M0	M0	M0	M1
Broadcast technologies	Currency, cheques or credit account	CB accounts or tokens	CB accounts or tokens	Domestic bank accounts
Terms	ST-MT	ST-MT	LT	LT
Issues	When to stop? Inflationary pressures?	Technical implementation. Privacy, data management	Technical implementation. New financial infrastructure + Privacy/Data MGT	Technical implementation

Source: Authors

Without attempting to be exhaustive on the measures taken by governments in response to the COVID, it appears that the European safety nets made it possible to transfer money via distribution channels that are not directly linked to citizens' bank accounts. By contrast, the United States, which has no such programs, is forced to transfer the currency directly into the beneficiaries' accounts. However, this practice does not guarantee that households receive these payments in due time. Aid programs in the USA, in particular unemployment insurance and support for small businesses, seems to be completely congested[5].

[5] See https://www.nytimes.com/2020/04/09/us/coronavirus-us-news.html

So how can we ensure the success of helicopter drops when the distribution channels do not allow to easily monitor transfers?

3. Would CBDCs be helpful?

In the case of the United States, the distribution of currency by the FED is done through the bank accounts of the beneficiaries. The use of an e-dollar to carry out this operation was probably not retained in view of its technical challenges and uncontrolled impact. However, the monetary injection carried out directly by the central banks is in line with the research carried out since 2015 on central bank digital currencies (CBDC). [6] The CBDCs have many benefits that resonate even more strongly today. A Central Bank Digital Currency would be an innovation in both the form of money provided to the public and the payments infrastructure on which payments can be made.

Four main objectives of a CBDC are initially listed by Gnan and Masciandaro (2018) and Berentsen and Schar (2018): improving interbank settlement, improving the efficiency of payment systems, improving the effectiveness of monetary policy by relaxing the zero lower bound constraint on nominal interest rates, and strengthening the oversight and stability of the financial system. Specifically, if all means of payments in cash were withdrawn, CBDCs would allow for negative interest rates and, most interestingly given our focus, for immediate drops of helicopter money.

Two types of CBDCs must be distinguished: a wholesale CBDC allowing end-to-end transactions, i.e. from the moment of purchase to the final payment of the assets subject to the transaction, which would themselves be digitized as tokens in a blockchain. The focus here is primarily on financial assets, as these are the most suitable for these transformations, which would facilitate the digitization of asset settlement. This is the case of the Stella project between the ECB and the Bank of Japan, which concerns the possible uses of DLT in the field of financial market infrastructures, with the development of settlement coins as tokens that allow payments to be made securely to the central bank at the same time as the delivery of financial assets. The collaboration between political, financial and industrial institutions, necessary for these practices, would facilitate the alignment of financial flows with climate and environmental objectives (see, for instance, NowCasting by De Prado, and Lipton, 2019).

In the case of a "retail" CBDC, its mode of operation would be similar to that of a paper currency: only the cardholder can spend its CBDCs while remaining anonymous. Two circulation models are possible: in the form of tokens or in the form of an account. The latter case highlights the management of user data and promotes financial inclusion, which is one of the major interests for Central Banks in the creation of a CBDC, whose "address book" of beneficiaries would be fed by the EU voting census.

In the shorter term, drone money is the crypto version of helicopter money, using new technologies to issue helicopter money. Going beyond the failed transmission channels and distributing basic money directly to households, rather than through banks and financial markets.

Last but not least, by using these distributed registry technologies (DLTs), central banks could monitor the effectiveness of monetary policy in real time. A review of Friedman's work in 1961 points out that "monetary changes take much longer to affect prices than they do to affect output". Bernanke, Laubach, Mishkin, and Posen (1999) describe a two-year lag between policy actions. The deployment of DLT would improve the reactiveness of central banks. Instantaneous data tracking and management allows for on-line monitoring and could reduce the lagged response of monetary

[6] A digital asset issued and destroyed by the central bank alone, exchanging at par with notes and reserves, available at all times and in peer-to-peer transactions and circulating on digital media at least partly different from those used today.

policy, thus mitigating the risk of uncontrolled inflation triggered by overly generous helicopter drops.

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