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Not the Time for Central Bank Digital Currency. Why Cash is Still Irreplaceable

Ansgar Belke* and Edoardo Beretta**

Abstract

This short article addresses several important (but less discussed) aspects of the introduction of central bank digital currency that give cause for concern, no matter whether such a currency is intended as a substitute or a complement to cash. It discusses potential effects, such as bank runs and capital flight, and analyzes possible interactions between central bank digital currency and the limits on cash payments that already exist in several European countries. What are the structural characteristics that still make paper money and coins (the only means of payment directly issued by central banks) irreplaceable? These and other issues (including effects of COVID-19 on cash payment limits) are explored through a discursive approach that is simultaneously grounded in rigorous macroeconomic analysis.

Keywords: Cash Transaction Limits, Central Bank Digital Currency, Payment Systems

JEL classifications: E51, E58, E71

I. Introduction

"Beware of the Digital Euro!", an article written by Commerzbank chief economist Jörg Krämer for the eighth issue of *WirtschaftsWoche* in 2020, hits the nail squarely on the head. In it, Krämer comments on how the European Central Bank and other central banks – including the Swiss National Bank, the Bank of England, the Bank of Japan, and the Bank for International Settlements – have been considering the introduction of a digital alternative to paper money and coins since at least January 21, 2020 (Bank for International Settlements 2020). What is most impressive about the article is the author's approach to an already very polarizing topic. He draws a distinction between central bank and com-

* Univ.-Prof. Dr. Ansgar Belke, Universität Duisburg-Essen (Campus Essen), Fakultät für Wirtschaftswissenschaften, Lehrstuhl für Volkswirtschaftslehre, insb. Makroökonomik, Universitätsstraße 2, D-45141 Essen, E-Mail: ansgar.belke@wiwinf.uni-due.de.

** Dr. sc. ec. Dr. rer. pol. Edoardo Beretta, Università della Svizzera italiana (USI), Institute of Economics (IdEP), Via Giuseppe Buffi 13, CH-6900 Lugano, E-Mail: edoardo.beretta@uni.ch.

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mercial bank money, for instance, that is absolutely correct but often lost in the general debate. He writes that commercial bank money is only "safe" to the extent that it can be converted into central bank money (i.e., cash) at any time. The aim of the present short article is not to reconsider or weigh the advantages and disadvantages of today's fiat monetary systems, but rather to take up important aspects of the ongoing academic debate that are all too often neglected and to investigate their interaction. E-cash, for instance, cannot be discussed without also discussing limits on cash payments (which are in place in many EU countries) or even cryptocurrencies. Furthermore, the question of what money is in the twenty-first century is by no means trivial. Answering this question is essential to understand the extent to which technological progress in currencies and payment systems would align with the characteristics that embody "modern money". This requires a macroeconomically sound approach based on logical analytical foundations and the simultaneous use of empirical evidence. This is the approach that will be taken in the following.

II. Physical Cash as a Means of Ensuring Economic Prosperity

First, let us return to our starting point. In his article, Krämer confirms what the authors of this article have long argued: Although the use of cash may be declining in everyday financial transactions – cashless payments in the euro zone increased by 7.9 percent in 2018 (European Central Bank 2019) – its intrinsic function as a store of value in monetary systems not backed by precious metals is more relevant than ever ("Gold has been replaced as money by state debt, which serves as a national unit of account and a means of circulation", *De Brunhoff/Foley* 2006). As of January 2020, 1,292.74 billion euros in cash were in circulation, as compared to 221.48 billion euros in January 2002 (European Central Bank 2020). Compelling evidence of this can be seen in bank runs (considered a thing of the past in post-industrial societies until the global financial crisis), in which account holders do not simply transfer funds to other bank accounts, but instead – take note – demand to withdraw their funds immediately. From this example, one could also equally well conclude that "digital" currency can only be considered "secure" when the economy is strong, whereas in economic crises, it becomes crucially important to people that they can get their hands on their assets in tangible, physical form. Past research on this topic has shown, for instance, that consumer spending depends heavily on the (subjective) feeling of economic security (*Beretta* 2017). Looking at bank deposits and repo transactions in Greece between 2001 and 2020, one clearly sees that in the midst of the European debt crisis, the Greek banking system experienced a capital drain (a large part of which took the form of cash withdrawals) (Figure 1). This cannot be attributed solely to the economic situation in that country, as attested by the numerous other European countries, including Ireland, Spain, and

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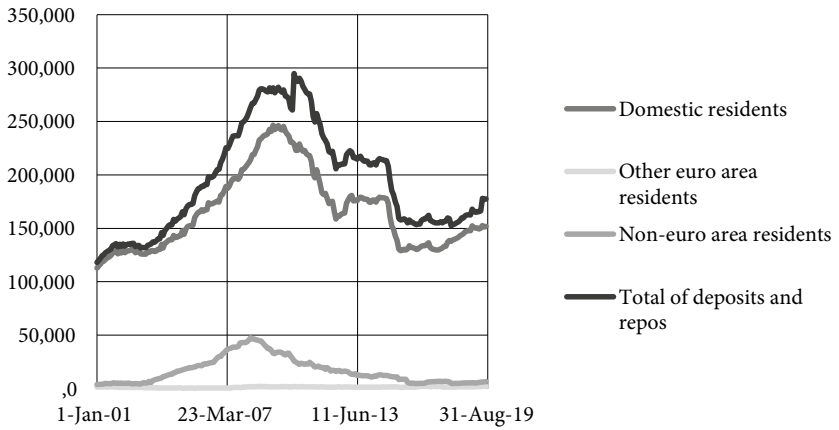

Source: based on data from Bank of Greece 2020

Figure 1: Bank Deposits and Repo Transactions in Greece (Jan. 2001–Jan. 2020), Million Euros

Cyprus, that were affected to a similar extent by capital withdrawals. For example, "[f]rom the beginning of 2008 to September 2013 […], target credit and fiscal rescue credit financed the entire 613 billion euros in cumulative current account deficits of the GIPSIC [Greece, Ireland, Portugal, Spain, Italy and Cyprus] countries and, in addition, a capital flight of around 425 billion euros" (*Sinn* 2014). All these countries may well have been going through the same extraordinary crisis situation, but the "herd-like" behavior of account holders was more the result of their shared view that (digital) savings are always vulnerable to compulsory levies or bank insolvency. Moreover, "[t]he cashless world also makes it much easier to collect taxes and impose compulsory levies. It is even more difficult for citizens to defend themselves. And what is worse: If cash is abolished as a legal means of payment or pushed into peripheral areas, price transparency will become little more than a pretense. Any large corporation will then be able to create its own currency and its own units of measurement or designations for its products" (*Horstmann/Mann* 2019). A particularly salient example (despite its initial difficulties) is Libra, the digital currency proposed by Facebook, because it bears the risk of "reviving" medieval systems of exchange, in which there were no central banks and where feudal lords or seigneurs held the responsibility for issuing money (and who enjoyed the accompanying privileges). It goes without saying that this is the origin of the term "seigniorage" (which thus also points explicitly to the potential for inflationary phenomena) (*Beretta*, forthcoming).

In other words, even central bank digital currency could hardly prove to be an adequate alternative to paper and coin money in times of crisis. E-cash could

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even exacerbate capital flight from current accounts at commercial banks – after all, transfers could be made conveniently, with a click of the mouse or a swipe of the finger, as noted by *Fatàs/Weder di Mauro* (2018). *Raskin/Yermack* (2016) comment in addition that "[a] central bank that took deposits from the public would end up competing head to head with commercial banks, even as it served as the regulatory overseer of the same institutions". Krämer, "our" author mentioned at the beginning of this article, also lists several (sensible) conditions that central bank digital currency would have to fulfill for it to make sense at all: one is that it would have to remain interest-free (like cash). Even then, however, central bank digital currency would probably stand less for "interest-free" than paper and coin money ("Without cash, depositors would have to pay the negative interest rate to keep their money with the bank", *Agarwal/Krogstrup* 2019), especially since it would only be guaranteed through an act of law (which could be repealed just as easily if necessary). In the case of "normal" cash, on the other hand, the possibility of hoarding is what would guarantee no interest – a much more structural anchor. Negative interest rates, whether on bank deposits or e-cash, should be a very last resort, if any, for monetary policy. It is therefore difficult to understand why one would assume (as much of the economic literature has been doing for years) that negative interest rates should be a permanent instrument of central banks. This still holds true despite further cuts in interest rates worldwide as a result of the COVID-19 pandemic (e. g., from 1.25 to 0.25 percent in the USA, from 1.25 to 0.75 percent in South Korea, and from 0.75 to 0.25 percent in Canada, Global-rates.com 2020).

In any case, our intention here is not to enumerate the advantages and disadvantages of physical money. Rather, we ask the following question: To what extent should central banks – i. e., not commercial banks that might have an interest in pushing ahead with the digitization of the payment cycle – enter into the risky game of "dematerializing" their own money by converting at least part of it from physical to electronic form? This would mean creating a "fiat monetary system 2.0" where, on the one hand, the currency is not backed by precious metals, and, on the other, where even cash (which today functions as a de facto exchange guarantee for digital savings) would be less reliable or no longer reliable at all. This could result in a range of scenarios, including an overissuance of currency, a dangerous dependency on the reliability of systems of digital payment, and disorientation among savers after centuries of tangible, physical money and assets. Even Aristotle's concepts of economics and chrematistics – which he described in the fourth century BC as exaggerated phenomena – teach us that wealth is connected with acquisition, and acquisition with tangible, physical assets. Yet how economic prosperity is understood is not primarily a question of the historic period, but an inevitable consequence of the concept of "property" itself. For if "property" is associated with "wealth", then a lack thereof triggers a striving for the opposite (i. e., possession). The next-best solution in a consumer

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society (besides simply doing without) is, economically speaking, to borrow capital. But the easier this process becomes, and the less it is that "property" (i. e., "prosperity") requires a tangible, physical form, the lower the threshold for payment falls. In other words, there is a danger of systematically spending more (than one actually has). Marianna Hunt's provocatively titled article in *The Telegraph* from September 6, 2019, "Why a return to cash might be the answer to the millennial debt problem", is particularly striking in this respect. In the case of digital transactions, where payers only "part with" a portion of their savings virtually (as opposed to materially, i. e., by handing over money), scenarios of over-indebtedness are, of course, especially concrete. If one also considers marketing strategies such as "buy now, pay later", which allow customers to defer payment, the fears become so acute that leading news agencies begin to report on them (BBC 2020). Finland, which has long promoted a policy of cashless payment, recently announced the Finnish central bank's "Financial literacy project" to address the increasingly urgent problem of rising household debt (Bank of Finland 2020). Although it would be far-fetched to argue that over-indebtedness of private households in many countries is due solely to lower cash use, or to claim a strong causal nexus, Table 1 clearly shows that private debt is high in countries where cash use is particularly low (see also countries like Australia, Netherlands, Sweden, and South Korea). Even if no causal relationship can be identified, one can at least assume a certain correlation. In addition to the "cash" factor, there are still likely to be a number of other forces driving household debt (e. g., the general fiscal and debt position of the local population, the amount of consumer spending needs that have to be met, and access to funds from outside sources).

The most plausible reason why central bank currency should continue to exist solely in material form thus appears insubstantial from a macroeconomic perspective. This makes it even more important to ask what benefits could be expected from digitization – perhaps a higher level of innovation, with a lower likelihood of tax evasion due to better traceability of payments? Yes, but it could soon turn out that this would come with an even greater danger of jeopardizing the function of cash as a store of value in already unstable economic and financial times, and of abolishing a last bastion of legal anonymity ("Because paying in cash means there is no need to involve a third party, both parties can keep the payment secret – and sometimes the underlying transaction, too" *Krueger/Seitz* 2017), with all the potential consequences for consumer and investment spending. And by placing what is currently the most established means of payment on a similar digital level, this would create no competition for cryptocurrencies (which are circulating to an increasing degree alongside legal tender). It is also not particularly strategic on the part of policymakers to impose legal restrictions on legal tender (i. e., paper and coin money) while simultaneously giving free rein to "private" means of payment such as cryptocurrencies that escape institu-

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Table 1

Possible Correlation between Low Cash Use and Household Debt

	Share (%) of cash use in payments	*Household debt (in % of net disposable income)*
Australia	37	216.8
Austria	85	90.3
Belgium	63	115.0
Finland	54	144.9
France	68	120.7
Germany	80	95.3
Greece	88	105.6
Ireland	79	140.4
Italy	86	86.8
Latvia	71	41.9
Lithuania	75	49.9
Luxemburg	64	186.4
Netherlands	45	239.5
Portugal	81	127.4
Slovakia	78	79.4
Slovenia	80	56.7
South Korea	14	184.2
Spain	87	107.0
Sweden	20	188.9
UK	42	141.2
USA	32	105.4

Source: Based on data from CashEssentials (2018) and Organisation for Economic Cooperation and Development (2020).

tional control and are subject to extreme volatility. Bitcoin, the best-known cryptocurrency, recorded an increase of 8.83 percent on April 27, 2020, compared to the previous week, while Hive, which ranks 36th in terms of market capitalization, even reported an increase of 470.35 percent (CoinMarketCap 2020). This same phenomenon can currently be observed in many European countries.

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III. The Riskiness of Legally Binding Limits on Cash Payments

Cash has long been regarded with general suspicion – if not for helping to finance terrorism ("cash restrictions would not significantly address the problem of terrorism financing. The ineffectiveness of the measure stems from the fact that transactions targeted under these objectives are either of a value too low to be covered, or are already illegal transactions where an additional prohibition would have little impact, or both", European Commission 2018a), then at least for being vulnerable to misuse in money laundering. While this is not the place for detailed examination of this claim, there is increased criticism regarding the alleged traceability of digital means of payment in cases of fraud ("It is a form of fraud which has been repeated numerous times – and yet still criminals seem able to pull it off, via bank accounts which are theoretically traceable, but in practice no law enforcement body seems able or bothered to do the tracing", *Clark* 2017). A look at the recently introduced legal limits on cash payments in many European countries (Table 2) is enough to reveal the clear trend towards regulation of traditional means of payment. One could, of course, cite argu-

Table 2

Legally Binding Limits on Cash Payments in European Countries

Belgium	3,000 euros (goods/services)
Bulgaria	9,999 lev (≈ 5,110 euros)
France	1,000 euros (taxpayers residing in France and nonresidents acting as traders)/15,000 euros (taxpayers residing outside France)
Greece	1,500 euros
Italy	2,999.99 euros
Croatia	15,000 euros
Poland	15,000 euros (≈ 62,220 zloty)
Portugal	1,000 euros (goods/services between consumers and traders)
Romania	10,000 leu/person/day (≈ 2.260 euros)
Slovakia	5,000 euros (B2B, C2B, and B2C payments)/15,000 euros (private individuals acting as such, that it, for purposes outside of their business or trade)
Spain	2,500 euros (residents)/15,000 euros (nonresidents)
Czech Republic	350,000 koruna/day (≈ 14,000 euros)

Source: based on data from European Consumer Centre France (2020).

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ments in different directions (that is, both for and against such restrictions), but it seems at least worth noting that it is specifically banknotes – to which Article 128 of the Treaty on European Union and the Treaty on the Functioning of the European Union (2012) attributes the status of (sole) legal tender – that are subjected to these limits.

Although *Mersch* (2020) already expressed his views on the subject very clearly in 2018, when he was a member of the ECB's Executive Board – "if the citizen demands central bank digital currency, it should only be a technical variant of cash. Alternative payment methods cannot replace euro cash, they can only supplement it" – an additional report by the European Commission (2018a) underscores that limits on cash payments do not play a significant role in preventing the financing of terrorism, but do help in fighting money laundering. The report adds, for the sake of completeness, that the existence of different cash transaction limits in different countries would have the considerable negative effect of distorting competition. The topic is not new: "The study also noted that the existence of diverging restrictions at national level had a noticeable negative impact on the internal market by distorting competition and creating an uneven playing field among some businesses" (European Commission 2018b). The patchwork of restrictions, some of which appear quite extraordinary – raising the question of how countries hope to monitor compliance with daily, that is, not per-transaction, limits on cash payments – teeters on the edge of what is legally permissible. The idea of introducing central bank digital currency raises another question: Would it be subject to the same upper limits as its physical alter ego? If Germany has grappled less with questions like these up to now, it is only because it still has no restrictions on cash payments (in contrast to other European countries such as France, Italy, and Spain). In view of the trend towards cash payment restrictions mentioned here, however, it is legitimate to ask whether the current status quo will continue in the medium to long term.

What is often forgotten regarding the main argument of a lack of transparency in cash transactions is that illegal (and crucially, cross-border) money transfers always have two requirements: on the one hand, they should be as untraceable as possible, and on the other hand, it should be possible to process them as promptly as possible. There is no doubt that traditional paper and coin money cannot meet this second condition, whereas e-cash (which is touted as a method of payment that is safe from illegal transactions) could (*Belke/Beretta*, forthcoming). To put it differently: Since this money would be channeled through accounts at the central bank, central banks would hold even greater responsibility and face higher reputational risks than any other commercial bank due to the need to comply with the principles of "know your customer" (KYC) and "anti-money-laundering" (AML), as *Pundrik* (2009) and *Verhage* (2011) emphasize. To what extent voluntary exposure to increased technology and digitization contradicts the principle of "healthy" diversification will not be explored here. It

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should be mentioned that the World Economic Forum (2020) issued urgent warnings against technological risks such as data theft, fraud, and cyberattacks in 2018 and 2019 (although at its 2020 meeting in Davos, it failed to predict the economic impacts of the coronavirus or to classify the global health risks as high). It is already considered certain that the increase in digital payment methods will be accompanied by a systematic increase in the volume of fraud cases ("businesses in eCommerce, airline ticketing, money transfer and banking services, will cumulatively lose over $200 billion to online payment fraud between 2020 and 2024; driven by the increased sophistication of fraud attempts and the rising number of attack vectors", Juniper Research 2020).

IV. Conclusion and Outlook: Impacts of the COVID-19 Pandemic on Cash Use

In addition to the aspects of central bank digital currency discussed repeatedly in the economic literature, the following obstacles stand in the way of its introduction:

1. The difficulty, if not impossibility, of overcoming the function of paper money and coins as a store of value – not because paper money and coins are issued by the central bank, but because they are tangible and can be carried around physically by consumers.
2. Explaining why e-cash should exist alongside cash, which is not self-evident. What would the expected added value be?
3. Introducing limits on cash payments simultaneously with electronic central bank money – if this should even be done at all. If the two turn out not to be mutually exclusive, this would be a de facto admission that e-cash already possesses characteristics that, in the case of physical cash, have to "guaranteed" through regulations on cash payments. In other words, e-cash would not be equivalent to cash.
4. Ensuring that central bank digital currency would not encourage "looser" handling of savings and that the central bank would not hold excessive responsibility.
5. Addressing the question of whether e-cash would come be at the expense of other payment methods (both digital and private bank payments).

Support for digital and contactless payment methods in general could be an unexpected by-product of the COVID-19 pandemic, which has raised numerous legitimate health concerns. The World Health Organization (2020) recently stated that "[w]ith proper hand cleaning, the risk of being infected with the new coronavirus by touching objects, including coins, banknotes or indeed credit cards, is very low", and various economic and monetary institutions have ar-

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gued in favor of protecting cash, particularly in this time of crisis ("Cash matters – now, more than ever, in the time of coronavirus" (International Currency Association 2020). Nevertheless, if uncertainty regarding the risk of infection from cash persists – which would be highly undesirable from a health perspective, but also from an economic perspective – a change in patterns of payment could emerge, if only temporarily. Any attempt to draw conclusions at this stage would be, at the very least, premature – like the recently proposed idea of central bank digital currency itself. If payment behavior does indeed reveal such an exogenously driven tendency, central banks would do well to think twice about whether they should follow suit. What is at stake is not so much the technological state of the art, but rather the structural stability of payment systems and general economic prosperity, which may well be founded on a "barbaric relic". Whether one likes it or not, there may simply not yet be an adequate alternative. The same can be said of gold, probably the most "old-fashioned" of the precious metals, the price of which rose 12.01 percent between January 24, 2020 the day the first three COVID-19 cases were identified in Europe, and April 24, 2020 (from 1,425.97 to 1,597.27 euros) (Gold Price 2020): It, too, is likely to continue to surprise the global economy, especially in times of uncertainty and crisis.

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