

Yannis Stournaras: The future of money

Speech by Mr Yannis Stournaras, Governor of the Bank of Greece, at the International Conference “The Future of Money: Trend-Alternatives-Potentials”, The American School of Classical Studies (Gennadius Library), Athens, 24 May 2018.

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Ladies and Gentlemen,

Thank you very much for the kind invitation to this event. I am very happy to be here today and address such a distinguished audience.

Most people assume that all issues pertaining to “money” are an easy task for a Central Bank Governor. On the contrary. Some issues are very challenging, including present emerging technologies in the field of finance and mushrooming cryptocurrencies. Addressing such issues presents a great opportunity for all interested to revisit the fundamental concepts surrounding money and how best to shape the monetary space in the future.

More than 20 years ago Bill Gates stated: “Banking is essential, banks are not”. Please, allow me to disagree. Banks are of utmost importance, but what is true about this quote is that the distrust that emerged towards some banking systems after the 2008-2009 global financial crisis and the development of a society-wide taste for decentralized, peer-to-peer, facebook-type, interactions across powerful computer networks, has dramatically altered the landscape in the financial services. And central banking in the age of digitalization is an interesting issue for reflection in the realm of monetary economics.

In my speech I will try to explore some key issues in how money evolves, what is the key innovation in private digital currencies, what would a central bank digital currency be like and what might be the impact of introducing one for the central bank monetary policy.

“Monetary space”

To assess the possible paths that means of payment, and consequently monetary policy, may take in the coming decades, discussions often focus on the definition of money, its functions and forms.

So what is money?

A simple answer would probably involve Adam Smith’s example of “the butcher, the brewer and the baker”, where money is a solution that arose to address the inefficiencies of the barter economy. Money is quite simply an asset that everyone wants. The Greek word for money, “chríma”, means something that one uses or needs. So money as a means of payment must be efficient and safe to use.

Money, as we know it today, is the result of a long process. The world’s first coins were produced in Lydia over 2500 years ago. They were made from electrum, an alloy, and a roaring lion head was engraved on one side, a symbol of the ruling dynasty. This innovation quickly spread to the city-states of ancient Greece. During the classical period, Greek coinage reached an exceptional technical and artistic level. As anyone who has visited the Numismatic Collection at the Bank of Greece knows that money has evolved to meet society’s needs. As economic activity increased, it became apparent that money supply needed to expand beyond the limits of holding precious metals. Centuries later, with the circulation of paper money, minting of metal

coins was restricted to lower values.

In classical economic theory, money fulfils three functions. First, it is a means of payment and therefore has a key role in all financial transactions. Second, it forms a unit of account. Third, it is a store of value. People will only accept money as a means of payment if they believe it can be used again in the future. For all these to work, money assumes a broad trust in the issuing institution. The first central bank was founded to build additional trust in the currency, since the issuance by private entities led to an unstable system. Hence, the role of the central bank is related to trust.

There are three types of money in the economy: a) physical cash, i.e. banknotes and coins. Banknotes is the form of central bank money that can be held by the general public. b) The second is electronically recorded deposit account liabilities on the ledgers of commercial banks. c) The third is reserves, that is, deposits of commercial banks with the central bank.

Cash nowadays is displaced in many ways and the “demonetization” of transactions has become a commonplace. However, the question arises: Will there be an increased need for cash in the near future? The answer is clearly positive. For, here is the paradox of the coming “cashless economy”. According to the ECB, in 2016 around 79% of all payments at Points of Sale (PoS) in Europe were made with cash¹. Therefore, although nowadays most money has been already digitized, cash is still world’s quintessential means of payment. Cash still remains an important and a very popular component of money supply.

Digital Currencies

Preserving the two distinguishing attributes of cash, namely anonymity and peer-to-peer exchangeability within a digitized platform, had proven to be significantly challenging until the distributed ledger technology offered in 2008 the key to assure in a decentralized way than one could never spend twice her withholding (the “double spending problem”).

There is a lot of excitement in the air about cryptocurrencies. Everyone has heard about Bitcoin, whose market capitalization as of the first quarter of 2018 exceeded 110 billion US\$, increasing by a factor of ten within a year. The above observation raises many questions, while it is true that cryptocurrencies represent only a negligible fraction of all world payments.

There has been a raging debate about the effects on the financial system of introducing virtual currencies, digital currencies and related innovations. The IMF has recently recognized that digital currencies might offer potential benefits, including greater speed and efficiency in making payments and transfers – particularly across borders². Offsetting the promised benefit of low payment processing costs, which is expected when the technology in this field matures, is the extreme volatility of cryptocurrencies’ prices. “Crypto” means anonymity and anonymity can be abused in a world of crime, terrorism and evasion.

The ECB has been considering monetary policy implications resulting from the introduction of cryptocurrencies since at least 2012. In its recent study, it suggested that due to its high price volatility and low acceptance rate, the bitcoin could not be regarded as a full form of money from an economic perspective³. More recently, the issue has been discussed in the G-20 meeting and in the latest communiqué of Finance Ministers and Central Bank Governors (Buenos Aires 19-20 March 2018) where it was stated that crypto-assets lack the key attributes of sovereign currencies, although at some point they could have financial stability implications.

So, in the current state, digital currencies leave monetary transmission mechanisms largely unaffected.

However, it is almost a cliché to say that the only certainty about the future of cryptocurrencies is uncertainty. Risks to financial stability may eventually emerge since the impact of the digital currencies on the monetary transmission mechanism ultimately depends on whether firms and households broadly accept them. Therefore, supervisory authorities are monitoring all developments in the crypto-ecosystem, occasionally issuing warnings for crypto-exchanges and brokers, Initial Coin Offerings, futures, exchanged traded funds etc. To this date, some countries have tried to ban crypto-assets altogether (e.g. Morocco) while others are fostering their development (e.g. Malta).

On the other hand, the distributed ledger technology (DLT) underlying some digital currencies schemes, offers potential benefits that go far beyond digital currencies themselves. A distributed ledger technology is used as a decentralized minting and transaction processing platform, with copies of all the transactions ever performed distributed on a public network of computing servers. A transaction on such a network is completed when the majority of the servers in the network achieve consensus that it is valid, using cryptographic identification techniques (private-public keys and hash functions), thus eliminating the need for a trusted party (e.g. central bank).

DLT is likely to change mainly securities clearing and settlement operations. A key feature of distributed ledger networks as payment platforms is that the entire history of transactions – which is immutable - is available to all transactions verifiers in real time. A copy of the transaction ledger is stored in all participating agents Data Centers and thus cannot be easily compromised; at the same time it is easily verifiable and readily auditable.

Bank of Canada experimented on a DLT-based wholesale payment system (the so called “Project Jasper”) and concluded that core wholesale payment systems function quite efficiently but there could be some benefits from the interaction with a larger DLT ecosystem of financial market infrastructures, including cross-border transactions⁴. In a recent speech, the IMF states that DLT could be applied to various processes in cross border payments and gains would be most evident in efficiency⁵. Bank of England has expressed the view that there is scope for central banking and the financial system more broadly to benefit from the settlement technology⁶. But many colleagues stress that the DLT is not perfected yet as technology and it has not been adequately tried. To central banks it remains at an experimental stage at present.

Central Bank Digital Currencies (CBDC)

I will now move to an interrelated discussion that focuses on the desirability of central banks to provide digital currencies through distributed ledger technologies in a decentralized fashion.

Lately, the prospect of central bank cryptocurrencies is attracting attention. Central banks are drawn to the idea of issuing a fast, efficient, digital currency that does not carry the cost of securing, distributing and processing physical banknotes and coins and that can be tracked in real time as it moves through the financial system. The development of DLT in recent years now provides the possibility of a supplement to physical cash in the form of central bank digital currencies. The Bank of England was among the first central banks to take notice of the feasibility of a central bank digital currency, and other monetary authorities have since followed⁷.

CBDC is a potential new form of digital central bank money. In the current banking system, only commercial banks hold digital money in deposit at the central bank, i.e. reserves. By introducing an universally accessible CBDC, every household and business would be enabled to hold direct claims against the central bank. In practice, the central bank would guarantee free convertibility at par (i.e. 1:1). This practice would make the digital currency a secure store of value, incentivizing individuals and businesses to hold the CBDC. One major issue, however, is whether the CBDC should be an interest bearing asset or not.

There are two cases:

A) CBDC pays no interest, just like paper currency.

In this case, households and companies would be incentivized to hold most of their liquid funds in interest bearing deposit accounts at commercial banks, keeping the use of the digital currency fairly modest. However, this form of digital currency would constrain the ability of central banks to push interest rates below zero during periods of weak aggregate demand and deflation because depositors would swiftly move their funds into digital currency paying zero interest. Thus, the effective zero lower bound on interest rates would become a more binding constraint for monetary policy.

B) CBDC is introduced as an interest bearing currency.

In this case, the central bank would pay interest for digital currency accounts held at the central bank by individuals, companies and banks, similar to the deposit facility for commercial banks. If the digital currency bears interest, it will likely affect the demand for physical cash out of circulation, at least to a large extent. In a recent working paper of Bank of England, CBDC is defined as “a central bank granting universal, electronic, 24x7, national-currency-denominated and interest-bearing access to its balance sheet”⁸.

Furthermore, with an interest bearing CBDC, still only if we assume that zero-interest bearing paper currency eventually disappears, the constraint of an effective lower bound will be removed and thereby there will be no need for alternative monetary tools such as quantitative easing or fiscal interventions⁹.

Introducing CBDC as an interest bearing security has its merits, as explained above, but it comes also with great risks. One major question is the following: if money users have access to risk free central bank money, why would they hold risky commercial bank deposits?

This gives rise to Gresham’s law, namely that “bad money drives out good money”, particularly during periods of banking crises. Therefore, the impact on the balance sheets of the commercial banks would be the same as in a classical bank run. Banks would increasingly lose the ability to attract deposits, creating a potential for more destructive financial crises. Moreover, without the ability to attract deposits, banks would lose their ability to provide credit; hence they would lose their core function as financial intermediaries in the economy.

There are other reasons why some central banks, for example in the Scandinavian countries, might view CBDC particularly favourably. At a time of rapidly declining paper currency circulation, this could maintain the central bank’s seignorage revenues while preserving some public, trust-enhancing, element in money. The advent of digital currencies can help increase financial inclusion and thereby expand the size of the formal economy. On the other hand, the real-time traceability of digital ledger transactions can combat effectively money laundering, fiscal and social fraud and help in the expansion of the tax base.

Payment system efficiency seems to be also an objective in considering CBDC. Money and payment systems are intrinsically linked. They evolved together and this connection remains evident in the responsibility of the central banks to ensure the stability of the payment systems. Some potential benefits include a) less concentration of liquidity in payment systems which make large banks less systemically important and b) enhanced stability for the overall payment ecosystem, depending on the type of the distributed ledger technology.

Innovation is something that powers development in the financial sector, has contributed to the

high standard of living we now enjoy and has made finance more “democratic”. For example, crowdfunding has enabled access to finance to a greater part of the society, while using smartphone apps we can now make mobile payments.

Yet, digital currency is something else.

I am not sure whether digital currency will become a substitute of cash in the near future since many important questions remain unanswered. Cryptocurrencies have no intrinsic value, only value in exchange. Their value derives from the hope, to quote Yves Mersch, “of finding a greater fool to sell to before the inevitable crash”¹⁰. There is also the crucial point which Augustin Carstens makes¹¹ that usage of crypto-assets “relies on the oxygen provided by the connection to standard means of payments and trading apps that link users to conventional bank accounts... [We must] not allow such tokens to rely on much of the same institutional infrastructure that serves the overall financial system and freeload on the trust that it provides...”.

Today, banks face a strategic dilemma with the emergence of DLT. Just as the Internet decentralized the flow of information, so has the emergence of crypto instruments decentralized value. And just as postal services have not disappeared, banks are not about to disappear either. DLT might have many positive outcomes for banks, from reducing settlement risk and associated capital costs, to reducing costs associated with back office functions, to the possibility of reducing core banking system costs as the DLT may replace much of the need for a banking general ledger in the future. But we remain still far from this point.

Digitalization in finance opens up bewildering opportunities. Central banks should capitalize on them but without losing sight of the potential risks. The Bank of Greece and the ECB have several reasons to be interested in developments in digital currencies. We cannot predict the exact direction the innovations will take but we will certainly continue to monitor developments and assess their implications.

¹ (1) Esselink, H. and L. Hernandez (2017), “The Use of Cash by Households in the Euro Area”, No201, European Central Bank.

² (2) Lagarde, C. (2017), “Central Banking and FinTech – A Brave New World?”, Speech at the Bank of England Conference, London.

³ (3) ECB (2015), Virtual Currency Schemes – A Further Analysis, European Central Bank.

⁴ (4) Chapman, J., Garrat, R., McCormack A and W. McMahon (2017), “Project Jasper: Are Distributed Wholesale Payment Systems Feasible yet?”, Financial System Review, Bank of Canada.

⁵ (5) Dong, H. (2017), “FinTech and Cross-Border Payments”, Speech at the Ripple – Central Summit, New York.

⁶ (6) Carney M. (2018), “The Future of Money”, Speech to the Inaugural Scottish Economics Conference, Edinburgh.

⁷ (7) Ali, R., Barrdear, J., Clews, R. and J. Southgate (2014), “Innovations in payment technologies and the emergence of digital currencies”, Bank of England Quarterly Bulletin, Vol. 54, No. 3, pages 262–75.

⁸ (8) Barrdear, J. and M. Kumhof (2016), “The Macroeconomics of Central Bank Issued Digital Currencies”, No. 605, Bank of England.

⁹ (9) Agarwal, R. and M. Kimball (2015), “Breaking Through the Zero Lower Bound”, International Monetary Fund Working Paper, No 15/224.

¹⁰ (10) Mersch, Y. (2018), “Virtual or Virtueless? The Evolution of Money in the Digital Age”, Speech at the Official Monetary and Financial Institutions Forum, London.

¹¹ (11) Carstens A. (2018), “Money in the Digital Age: What Role for Central Banks?”, Speech at the Goethe

University.