

Box 4

Crypto-assets

Crypto-assets (CA) such as Bitcoin¹ are digital units that can be used as a medium of payment for the exchange of goods and services, as a store of value, and as a unit of account (FATF, 2015).² These assets can be stored on computer devices and transferred by the internet on a global scale whether this is in a decentralized fashion (person to person) or with the support of specialized intermediaries who offer a wide range of services such as currency exchange houses, custody and trading of CA as well as the issuing and trading of financial derivatives based on them, etc.

The distributed logging technology (DLT),³ which supports a substantial part of the CA plans, allows the transfer of digital assets and information through a public registry of the transactions that is synchronized and shared among several participants in the plan (commonly known as miners). These participants take responsibility for the validation and updating of the registry (e.g.: new blocks of transactions) through the use of cryptographic security protocols without any need for centralized systems for issuance, registration, clearing, and settlement.

The market for CA is very dynamic with more than 1,500 CA (<https://coinmarketcap.com>; 18/04/2018). Among those that are traded and used the most are Bitcoin, XRP, (the Ripple plan CA), Ether, Bitcoin Cash, and Litecoin. In April 2018, Bitcoin and Ether reached a market value of USD 187.0 billion (similar to the capitalization value of Citigroup Inc.) and the 30 next most traded CAs had a value of USD 111.0 billion. However, since the emergence of the CAs with Bitcoin in 2009, approximately 625 CAs have gone out of circulation (<http://deadcoins.com/>; 18/04/2018).

Although these assets are presented as possible substitutes for legal tender or for the means of payment issued by financial institutions, they are far from having the necessary attributes to be considered money.

As various publications of the Bank for International Settlements (BIS) have declared – Carstens, 2018; BIS, 2018; Shin, 2018—, the money or fiduciary currency of a country is a social convention or agreement about an asset that is representative of the obligation of the issuer, usually the central bank, and that enjoys general acceptance for making payments, being a store of value, serving as a unit of account, and having unlimited clearance power for settling debts between agents. The basis of this convention is trust. And trust is given to it due to the backing of an issuing state institution with a high reputation (the central bank), a legal framework, and consistent public policies. This is what guarantees the high standards of safety, acceptability and stability in the purchasing power of the currency.

In contrast, the possibility that the CAs could serve as a store of value and means of payment is limited by the high volatility of their prices since, in these plans, the supply of CA is inflexible to changes in demand. Other factors that affect the volatility such as speculation and price manipulation, regulatory changes, cybercrime on CA intermediaries, and the uncertainty generated by the proliferation of new CAs (Cheah and Fry, 2016; Gómez-González and Parra-Polanía, 2015; Iwamura *et al.*, 2014; Camera and Giboni, 2013; Gandal and Halaburda, 2014; Shin, 2018; BIS, 2018) are added to this.

In addition to the above, the CA plans manage issuance, validation and security protocols that are quite opaque and that could undermine the confidence of the public. First of all, in the majority of them, there is no single party who is responsible to account for any fraud or failure in these plans. Secondly, there is no suitable protection for users and investors with regards to cyber-attacks or operational failures on the part of agents who serve as CA intermediaries. Third, the forks⁴ and possible alterations in registry due to agreements between the validating agents⁵ could arbitrarily modify the supply of CA. Fourth, unlike the certainty that traditional payment systems offer in terms of the purpose of the payments, in the CA plans this purpose depends on the validation process and consensus protocols between the registry validating agents. This situation generates uncertainty about the time when the funds will be available and leaves a door open to the

1 In November 2008, the document, “Bitcoin: A Peer-to-Peer Electronic Cash System”, was published on the internet under the pseudonym of Satoshi Nakamoto. There, “the methods of issuing and transferring encrypted digital units to carry out transactions without the need to validate the identity of the parties or anonymously” are detailed. The Bitcoin® net went into operation in January 2009 with the publication of the *software* for customers and the issuance of the first fifty bitcoins called the “genetic” block.

2 Virtual currencies differ from what has been called electronic money (or e-money) which is a digital representation of the currency which is the legal tender of a particular jurisdiction (He *et al.*, 2016; BIS-CPMI, 2015).

3 Commonly known as *blockchain*.

4 A *fork* (or bifurcation) in a CA plan is the result of a rupture in the *blockchain* into two parallel chains due to the lack of consensus between validators on the network.

5 The danger lies in the fact that a coalition of validating agents which has more than 50% of the computing capacity of the network could modify blocks of transactions in their favor and leave them firmly bound in the public registry. In 2014, the computing concentration of GHash.io, one of the main groups of bitcoin miners, reached 42% which caused several miners to retire from the group in order not to compromise Bitcoin’s credibility (see <http://www.businessinsider.com/bitcoin-miners-approach-dangers-threshold-2014-1>; 05/10/2017).

possibility that already validated transactions in the registry could be reversed or erased (BIS, 2018).⁶

Moreover, CA plans face serious scalability problems (Danezis and Meiklejohn, 2016; BIS, 2018).⁷ For example, at the end of 2017, when Bitcoin reached an historical peak in volume of transactions, the processing of a transaction averaged 19.8 hours and the commissions per transaction, USD 28 (United States Congress, 2018).

As is highlighted in BIS (2018 and Shin (2018) the scalability problems in the CAs conflict with the principles of efficiency of a good payment system. Given the externalities of the network and economies of scale, a greater use of the system should lead to savings in costs and to growing profits associated with greater participation. However, in the CA plans the opposite happens. To the degree their use rises, the transaction costs and negative externalities associated with congestion also rise.

As a result of the above limitations, the CA plans currently in operation have a restricted use and acceptance when they are compared to the volumes and levels of acceptance that legal currency and the traditional electronic payment systems have.

However, their development raises relevant regulatory and public policy challenges. First of all, the CA plans are presented as alternatives to national legal currencies and to traditional digital payment systems. Secondly, these plans are intended to function as mechanisms of payment that are international in scope. Third, given that they operate in an environment of transactions that are difficult to trace, they present challenges from the point of view of taxation, money laundering, and financing of terrorism (ML/FT). Fourth, in the extent to which they become more developed, they could alter the way financial intermediation is done with implications for the monetary, exchange rate, and financial stability point of view.

This is why governments have taken on the task of adjusting their regulatory frameworks to this new reality. However, a review of international experience shows a broad spectrum of regulatory stances that go from financial education with press releases that emphasize the risks associated with holding and transferring these CA (as has

been the case in Colombia) to a total ban on the use and possession of CAs as in Bolivia (Arango and Bernal, 2017).

Among the actions taken by different jurisdictions around the world the following stand out:

- a. A fair number of countries have introduced regulations associated with specific businesses such currency exchange offices regarding holding and reporting information, knowledge about the client (KYC), consumer protection, and rules associated with ML/FT.
- b. The majority of the countries have extended legislation on taxes to these transaction ecosystems.
- c. Several have broadened the regulations associated with the financial system in order to make the requirements that apply to payment systems and traditional financial intermediaries also apply to intermediaries in CA plans.
- d. Some have applied the financial regulations for debt securities and derivatives to the CAs.
- e. A large number of countries have started publicity campaigns to warn citizens about the risks of CAs.

Currently, Colombian regulations do not explicitly mention the legal nature of CAs or associated businesses. Nevertheless, various official statements⁸ by both the central bank and the Office of the Financial Superintendent of Colombia have pointed out that cryptocurrencies (CC) are not recognized in Colombia as a legal tender currency based on Act 31/1992.⁹ They have also noted that CCs are not backed by central banks in other jurisdictions and, therefore, are not considered to be foreign exchange currencies for the purpose of transactions under the foreign currency exchange system. Finally, they have reiterated that under the regulations of the financial statute, no entity that they monitor is authorized to provide safe custody for, invest in, intermediate for, operate with nor allow the use of their platforms (wires) to carry out CC transactions. In these communiques, moreover, the public is warned about the risks of holding and using CC. DIAN (2018a, 2018b), in turn, has already made statements about CA to the effect that “[...] in the context of mining, as long as they are collected in exchange for services and/or commissions, they correspond to income and in any case, are assets that can be valued and generate an income for those who obtain them as well as becoming part of their equity and have an effect in terms of taxation.

6 This is what is denominated “probabilistic” finality and it is used in the sense that not all operations have the same chance of being processed since the miners could be validating blocks with different groups of transactions. Therefore, those transactions that appear in a larger number of blocks to be validated have a higher chance of being approved (BIS-CPMI, 2017; BIS, 2018; Liao, 2017).

7 An example of this is the difficulty that the developers of Bitcoin have in reaching a consensus on how to allow a larger number of transactions to be validated by block. This led to a bifurcation of CA and the emergence of Bitcoin Cash (<http://fortune.com/2017/08/11/bitcoin-cash-hard-fork-price-date-why/>; 04/10/2017).

8 Véase: <http://www.banrep.gov.co/es/print/40998>; <http://www.banrep.gov.co/es/print/41811>;

<http://www.banrep.gov.co/es/print/40991>;

<https://www.superfinanciera.gov.co/jsp/loader.jsf?!Servicio=Publicaciones&ITipo=publicaciones&IFuncion=loadContenidoPublicacion&id=10082781>

9 Indeed, that law stipulates that the legal currency (i.e., unlimited legal tender), monetary unit, and a unit of account in Colombia is the peso issued by *Banco de la República*.

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