CRYPTOCURRENCIES: INTERNATIONAL REGULATION AND UNIFORMIZATION OF PRACTICES

The internet has changed society as we know it affecting both human relationships and commerce, giving rise to a number of technologies that altered how society works. Between these technologies, we can find the cryptocurrencies.

Cryptocurrencies, such as Bitcoin, rely on the work of the participants of a network and not in the work of companies. Since everyone has access to a log of all the transactions that took place in the system, the verification of payments is made by the participants of the network that are rewarded with cryptocurrencies. Since this system does not take into account where its participants are, people became able to make payments all around the world rapidly and, excepting the internet and electricity, without any costs.

But cryptocurrencies are subject to very specific economic phenomenon and makes it possible for people to dodge compliance regulations and makes it almost impossible to identify its users.

With that in mind, this paper aims to briefly present the regulations regarding cryptocurrencies put forth by some countries, discussing the main difficulties faced by the regulators when dealing with this disruptive technology and presenting the main reasons why the uniformization of practices regarding their use should be discussed internationally.

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INTRODUCTION

We live in a world that has been permanently changed by the internet. This new technology changed the way in which people interact and perform commercial transactions.

Taking this scenario into consideration, we bring forth a new technology that innovated how payments systems work: the Cryptocurrency. This technology made it possible to perform international transactions with a very low operational cost, but it also imposes a series of regulation related challenges since this system is not governed by any kind of governmental agency, whereas its users are the sole responsible for its operation.

Some countries have issued information and regulation on the use of cryptocurrencies, but these initiatives, most of the time, do not provide definitive answers regarding how this instrument should be treated and how companies interested in their use should do so.

Thus, given the scenario that was described above, this paper aims to indicate how the international trans-governmental institutions may help to uniformize the commerce practices associated with the use of cryptocurrencies. In order to complete such a task, chapter one shall briefly explain how cryptocurrencies work, chapter two shall show how they can be considered from a legal standpoint and chapter three will explain how the regulation of this tool by such institutions international institution can take place.

CHAPTER ONE - HOW CRYPTOCURRENCIES WORK

Given the fact that the Bitcoin system is the most successful kind of cryptocurrency currently in use and has heavily influenced other cryptocurrencies, it shall be used a basis for this paper.

The Bitcoin System was created by Satoshi Nakamoto and presented on the paper "Bitcoin: A Peer-to-Peer Electronic Cash System", where the creator sated the purpose and functioning of this new technology.

As explained by Alexandre Pacheco da Silva (SILVA, 2016), is a system characterized by a computer program with three main axes:

"(...) (i) a public system of registration of transaction, called Blockchain, serving as an accounting book of its entries and exits; (ii) an encryption algorithm called asymmetric encryption - associated with a proof-of-work - which is used to validate operations with the currency; And (iii) a decentralized computer network, according to the design of the users, also called miners, which verify and validate transactions with the currency and update the public registry system -Blockchain. "

On the other hand, Bitcoin or the cryptocurrencies are a monetary unit constructed by a specific and unique numerical sequence used within the Bitcoin system, which is freely traded among users (KAPLANOV, 2012).

The Bitcoin system, allows its users to create Bitcoin wallets in addition to Bitcoins *per se*, freely transacting them. Hence, the user is, at the same time, the owner, custodian and creator of the Financial instrument, a situation that has not yet been observed in large scale cross-border transactions.

The issuance and use of cryptocurrencies is not associated with any type of state or intermediary institution, thus, the adherents of the system carry out transactions and issuance of virtual currencies independently of any type of legislation or state tutelage, making it almost impossible to dismantle the system as a whole unless all its adherents are extinguished.

The first step to perform a Bitcoin transaction is the creation of a user in the Bitcoin system, which demands a computer installed with the necessary software (Bitcoin Client) and an internet connection. This is one of the most important aspects of the cryptocurrency: it has a very low operational cost in order to be used since only a computer and internet access are required.

Such software is classified as open source or open source software. It is a computer program that "allows users themselves to make changes to the code, and may vary from case to case." (SILVA, 2016)

Bitcoin Client enables users to create Bitcoin wallets, where Bitcoins will be stored, and perform Bitcoin mining, the verification of transactions and exchange of Bitcoins between wallets. Bitcoin Mining is the verification of amounts to be transferred, such as a financial institution that checks how much money a person has on his/hers account and sends the money to another account. The mining process takes into consideration the Encryption system operated by the Bitcoin Client, mathematical functions, and information disclosure regarding past transactions available in the Blockchain.

Every time a transaction is carried out, it is validated by at least 3 (three) miners. To the extent that such miners accumulate information about transactions validated by them, they create blocks of information containing all data relating to those transactions. These blocks constitute the backbone of Blockchain as they are responsible for creating the ledger of transactions, being incorporated into Blockchain and made available to the public through the presentation of a proof of work.

Such proof of work is generated when a miner solves a mathematical problem presented by the system and manages to incorporate his block of information into the Blockchain. As a reward for their efforts, miners receive new Bitcoins generated by the system.

When a block is incorporated into the Blockchain, all members of the system will have access to the information contained therein, that is, everyone will know that a specific Bitcoin or fraction of Bitcoin, each one of them with their own identification code, has been transacted, checking its path from the moment of its creation to the moment in which it reaches the current transaction, validating it if all members report the same data.

If a person tries to perform a transaction with information that has not been incorporated in the Blockchain and that does not match the registries performed in the Blockchain (such as stating that one wallet has more bitcoins than it actually has), the miners will not be able to incorporate such a transaction in their blocks, guaranteeing the integrity of the system.

If any member of the system tries to present information outside the correct parameters, the other miners will not be able to validate the operation, causing the next miner to present a correct answer to be able to insert his block into Blockchain. Thus, the miners are in constant competition to be able to incorporate their blocks of information in Blockchain, benefiting the system as a whole.

Each wallet has its own numbering and password, whose confidentiality is the responsibility of its owner, just like any login and password. All system participants can check how many Bitcoins or fractions of Bitcoin are present in each system wallet in the whole system, but there is no way to know for sure who owns each wallet, since only their wallet number is accessible.

Transactions are carried through after the creation of the wallet. The user can create "Bitcoin addresses" (connections between wallets) that are nothing more than intra-system payment instructions that dictate the payment flow that shall be carried through, analyzed by miners and incorporated in the Blockchain.

Blockchain and Bitcoin solve one of the major problems that affect the use of virtual goods: it avoids the double spending dilemma.

This dilemma is explained by Fernando Ulrich (2010, page 200) in the following terms: before the creation and dissemination of virtual currencies, online transactions required the direct intervention of a third party who acted as an intermediary in transactions given that virtual goods could be reproduced infinitely. In such a situation, the same virtual money could be presented to two different persons and perform two valid payments.

Given that each Bitcoin and fraction of Bitcoin has their own identification and that the systems checks its use since the moment in which the Bitcoin was created, it is impossible to copy a Bitcoin and perform multiple payments with the same instrument.

It is worth remembering that there are a finite number of Bitcoins that can be created (approximately 21 million units) but there are an infinite number of possibilities of creating blocks. This happens because members of the system can still carry out validations of transfers even without the creation of new Bitcoins.

No system is perfect, therefore, with the possibility of failures in this or even the need for changes, any member of the system can request that changes in it. Each of the other members may vote on such changes that will be implemented if more than half of the votes of the entire system agree to such a decision. This type of possibility gives extreme flexibility to the Bitcoin system and opens space for its improvement and evolution in a democratic way.

This created a system that feeds itself based on the active work of its members and a monetary unit that is not created and issued according to the need and subjective view of each country, but rather with a mathematical logic.

One of the critical points of this type of system is the fact that it makes it very difficult to identify their users, contrary to what banking regulation determines.

Knowing the identity of individuals or companies that transfer funds between themselves is important since it enables the State and financial institutions to monitor the trafficking of resources in the system and prevent illicit activities (such as financing of organized crime, drug trafficking, terrorism, among others) from using the financial system to carry it out.

This situation creates a very complex scenario in which everyone has access to all the information in the system, but at the same time, nobody is aware of what is really happening.

We can conclude that the great merit of this new technology comes from the fact that it incorporates many of the characteristics necessary for its operation as a medium of exchange, including its agility and security, but at the same time greatly reduces transaction costs in commercial operations.

REGULATION AND UNIFORMIZATION OF PRACTICES

Since there are no norms regarding the use of Cryptocurrencies in international trade, it is important that countries and international institutions expose their opinions and thoughts on the matter so that the this new approach to international payment can be used by people and companies.

The creator of the Bitcoin system (Nakamoto, 2009) argues that the financial system based on trust in economic agents is too fragile, exposing society as a whole to the risks inherent in such an environment, thus, the cryptocurrency was created in order to achieve a very clear goal: to promote disintermediation in the execution of commercial transactions on the Internet (implementation of a monetary freedom), that is, to make it possible for sellers and buyers to carry out their transactions independently, without needing financial institutions, in a safe and fast way.

The intermediation of transactions has the following characteristics (EIZIRIK et all, 2011, page 4):

"(A) the activity of giving and receiving financial resources whereas the intermediary acts as creditor and debtor of both parties at the ends of the operation that is taking place; and

(B) mandatory participation in the chain; and

(C) such operations must be carried out constantly; and

(D) Professionalism in carrying out such operations."

Many types of entities may develop the role of financial intermediary, such as credit institutions (commercial banks, leasing companies, among others), brokerage firms and securities distributors and even qualified investors (Yazbeck, 2007, p.).

Financial disintermediation breaks with all of the assumptions described above, but it generates the same effects since it enables financial assets to be exchanged for goods and services without the interference of the aforementioned institutions.

Thus, based on the scenario described above, the Cryptocurrency, performs the same function as the instruments normally used to facilitate trading in the modern world. The impact generated by this new technology comes from the fact that virtual currency meets the needs of modern commerce without having to be part of the banking network.

Although the primary objectives of the cryptocurrency involved the disintermediation of transactions, many companies currently make use of the new technology as intermediaries or fiduciary agents. However, these companies offer their services at a very competitive rate, which tends to be much lower than those practices by the banking system.

One must also observe the high price variation of cryptocurrencies before making use of this instrument. Fernando Ulrich writes about the value of Bitcoin in the following terms (2014: 70): "What seems to escape, however, is that there is no intrinsic value, there are intrinsic properties (chemical and physical). Value is subjective and is in every individual's mind.". Thus, it is important to know that value of the cryptocurrency variates in accordance with its acceptance in the market, which means that it can skyrocket of spiral down rapidly.

In a context where there is clear legal uncertainty and a lack of close supervision, we are faced with a high risk situation. We can justifiably claim that Bitcoin is a high risk system for its users from a financial perspective, and that it could collapse if people try to leave the system and are not able to do so because of their lack (European Banking Authority, 2012).

Cryptocurrencies pose a number of challenges to national and international regulatory bodies for a variety of reasons, many of which are inherent to its issuance and means of operation. After all, how can one cope efficiently with a self-managed system that emits units of value independently while acting as both a means of payment and a means of custody?

Each of these functions is currently performed independently by private or public entities in today's society and this new technology has broken with all the previously presented paradigms, forcing us to view our institutions from a completely different perspective.

As it is almost impossible to combat this new system given the large investments in infrastructure, time and personnel needed to do so (besides the need for intense international joint action in this regard) and the fact that the use and acceptance of cryptocurrency in the market grows every year, regulation and uniformization o practices are the best way to protect the economic and financial order, in addition to opening new choices to the market.

However, before determining which regulatory strategy is appropriate, we should check what kind of market will be regulated as such matter has been addressed in other jurisdictions.

The study of cryptocurrency payment arrangements developed by the European Financial and Administrative Authority (European Banking Authority, 2015) may help us this time as it offers a way to classify the payment arrangements involving cryptocurrencies, taking into account the interaction between them and the global economy.

The study divides the possible types of operations taking into account the payment flows to be effected by those involved, that is, the classification takes into account the use or not of traditional currency and cryptocurrency, in isolation or jointly. Based on this type of thinking, we arrive at three types of payment arrangements: Closed Arrangements, Unidirectional Flow Arrangements and Arrangements with Bidirectional Flow.

The closed arrangements do not have any kind of connection between the global economy and the economies that revolve around Cryptocurrency. Thus, in this case, the cryptocurrencies are exchanged with cryptocurrencies, there being no use of traditional currency involved in the transaction. Such a situation can be found in online computer games in which ingame currency is not accepted by market participants but can be used by players to purchase goods and services in the game. This type of arrangement, which focuses on a specific virtual community, is not relevant from the point of view of regulation or legislative activity rather than a simple online world interaction that does not affect the global economy (it affects, at most, the economic interactions within the closed system itself), therefore, can be excluded from the scope of the present work.

In arrangements with Unidirectional Flow the Cryptocurrency can be transformed into money, however, the opposite cannot occur. We may find this situation when one buys some form of credit that can only be accepted in one place and cannot be turned into money again, just like Facebook Credits sold by Facebook in 2009 that could be used to purchase products and services within the social network but could not be reversed in the amount originally paid in cash.

Again, such a payment arrangement does not have a great need for regulation insofar as it is not endowed with liquidity, a characteristic necessary in order to affect global economy.

In the Bidirectional Flow Arrangements, the cryptocurrency could be converted freely into cash and vice versa, without any kind of hindrance in the performance of such activity. In this case, virtual currencies can be effectively used to buy and sell goods and services.

This is the case that deserves the attention of regulators, self regulators insofar it can generate effective impact in the global economy.

Thus, regimes that are open and / or linked to the global economy (Unidirectional and Bidirectional Payment Arrangements), which effectively generate economic impacts, make the regulation of such situations within the competence States and, in a subsidiary way, by international and local entities, particularly if bilateral exchange rates create the opportunity for speculative behavior, and / or if any cryptocurrency is used to buy real goods and services, competing against traditional currencies.

In order to avoid any kind of abuse by participants in the cryptocurency market and to take full advantage of the positive effects generated by this new technology, the State must issue regulations on the subject, even so that the negative effects of the use of this type can cause in the economy and international institutions, as representatives of the interests of the sates, particularly those interested in the modernization and harmonization

of rules on international business, must act in order to protect both the integrity of the economy and the market participants.

It should be noted that banking and financial activity, which in many ways resemble activities carried out by participants in the crypto-currency market, have always been subject to specific regulation (Yazbeck, 2007, page 179).

Thus, once a technology capable of fulfilling many of the functions performed by the traditional financial system is created, which has always been subject to extensive regulation, there is no reason for the State and international institutions to refrain from trying to understand and regulate these new situations.

In order to avoid that the operators of the cryptocurrency markets perform transactions to Blue Chip SWAP, operations that do not bring any benefit to the national economy, regulation and uniformization of practices must take place.

There are some important points that deserve to be highlighted when dealing with the risks generated by the use of virtual currencies: (i) preservation of the unit of account, (ii) risks to the effectiveness of monetary policy and its implementation, and (iii) Distortions to the informative content of monetary aggregates.

Conceptually, the aforementioned virtual currency schemes could have an impact on price stability and national monetary policy insofar as they could affect the demand for central bank money and interfere with the control of the money supply through open market operations. That is, from the moment a parallel coin starts to compete with the national currency, the use of the obligatorily national currency is diminished and all the planning carried out by the government organs to control the money supply is affected once the demand is diminished (HAYEK, 2003).

In general, these regimes may affect price stability if: (a) they substantially alter the quantity of currency in circulation; (B) have an impact on the speed of money circulation, the use of money, and / or influence the measurement of monetary aggregates; C) there is an interaction between virtual currencies and the real economy (European Banking Authority 2015).

Given the lack of specific empirical data on the circulation of cryptocurrency in international trade given the fact that it as created in 2009 and is only now becoming popular, the phatic analysis of the first point is impaired, making us rely on economic theory regarding this subject.

This is what happened in China with the Q-coin, a virtual currency introduced by Tencent, one of the country's top telecommunications operators. People started using credits issued by the company, that could be traded for communication services, a currency, what generated the need of State intervention in order to prohibit the practice and enforce the use of the state issued currency.

Other great difficulty in regulating this type of scenario lies in the fact that the State will have to institute procedures to be followed within a system that is outside its sphere of action, maintained and managed by the users themselves and by an independent system over which he has no influence at all while observing the principles inherent in all activities that can use cryptocurrency.

Therefore, given that self-regulation plays a very important role in scenarios in which the State has not yet manifested itself or has difficulty manifesting itself, this is the main way in which cryptocurrency has been approached internationally.

According to the lesson of Otavio Yazbek (2014):

"By the term self-regulation, basically means the regulation and supervision, by the members of the industry organized in institutions or private associations, of their activities, in order to maintain high ethical standards.

We can also verify the definition of Santana and Guimarães (2008):

"Self-regulation is the regulation promoted by the economic agents themselves to which the rule is intended. The agents themselves are most interested in having clear and quality rules, as this depends on the existence of a business-friendly environment. It is also assumed that they possess the technical know-how characteristic of their branches of action and, therefore, may be even better than the state regulator in the elaboration of rules and in the identification of problems. "

Thus, we can verify that self-regulation, as well as classical regulation, has several characteristics of its own, operating on different aspects

of traditional regulation activity, but has an intrinsic characteristic that differentiates it from traditional regulation: the market components themselves Emit the norms that will regulate their activity, which generates great changes in the way it is elaborated, perceived and fulfilled.

In addition, adherence to self-regulation, unlike the traditional regulation imposed by the State, which must be followed regardless of its nature, is in some cases entirely voluntary and is established by means of the signature of a contract of association or similar private instrument.

It is evident that self-regulation, in the condition of voluntary normalization adopted by contract, can never go against the law or the regulation imposed by the State, which holds the legislating power. Thus, it will always have the ability to stiffen the minimum conditions already imposed by the State or indicate behaviors in case of absence of law, always watching over the welfare of society and the continuation and expansion of the market.

The adoption of such standards makes the company commit to maintaining a standard of excellence and differentiated quality, increasing the trust placed in the institution by the market and by society. However, since in some cases a large number of market participants adhere to self-regulation, companies that do not institute such norms are not well regarded.

Self-regulation has a major impact on the cryptocurrency market as national regulatory bodies have not yet issued relevant decisions on the subject. Thus, in order to generate greater credibility to the market, the participants themselves issued rules to regulate the activity, uniformizing the applicable standarts.

Virtual Currency users are spread around the world and therefore their impact should also be analyzed globally, what increases the role of international institutions when it comes to verifying which procedures must be incorporated in these kinds of transactions and which standarts must be taken into account.

Such standards are necessary so that the use of crypto-currency becomes accepted and widespread. As the cryptocurrencies, despite their great advantages, do not have good reputation before national and international bodies, companies and people.

As soon as the use of cryptocurrencies has minimum and uniform conditions of use, it becomes more credible and, consequently, is used by a greater number of people and companies.

As soon as the market for cryptocurrencies generates a series of difficulties for the State they shall start to regulate their use. In the meantime, private institutions have much more freedom and much more responsibility in their performance. They must idealize and implement measures that make the use of crypto-coins accepted by the market as a whole and popular opinion, presenting its advantages and minimizing its risks.

Such measures, above all, have to aim to promote cooperation between the market agents, have to help build a scenario in which the use of cryptocurrencies is endowed with its own procedures and easy assimilation by all users of the system (consumers and companies), showing important aspects of its operation.

Like any kind of technology, regulation of virtual currencies can be performed in many ways, giving more or less emphasis to certain aspects of market in accordance with the interests and ideology of the regulator.

Given the situation in which this new instrument finds itself, we believe that the following measures should be taken I order to improve its general acceptance and decrease the risks associated with its misuse.

This paper dos not intend to exhaust all possible measures that can be included in regulation or uniformizations of practices, but to present some possibilities regarding the use of this new technology.

First of all, every company that may act as an intermediary or is involved in a transaction that makes use of cryptocurrencies must have a compliance program and a money laundry prevention program, whether not these are required by law.

Although the confidentiality aspects related to the use of cryptocurrencies are extensive, it is important to notice that they are not absolute, which means that it is possible to track cryptocurrency transactions using the information available in the Blockchain.

However, this measure is important given that markets in which financial assets are sold, bought and transferred are prone to misuse, especially

in a situation in which the confidentiality regarding the identity of the ones involved is as high as this one.

The adoption of an effective compliance and money laundering prevention policy greatly decreases the possibility of use of cryptocurrencies for illegal activities, such as it is the case with banking activities.

Therefore, a solid compliance program, which means the adoption of a compliance policy, due diligence of major customers, elaboration of forms such as know your costumer, and reporting of information should be adopted by all involved companies, especially companies that act as intermediaries in these transactions.

Also, it is important that these companies divulge the way in which their products are structured. This measure aims to protect the market since this new technology makes it possible to structure transactions like never before, what creates the need of extensive verification in order to protect the global economy.

Also, if possible, companies and people interested in making use of this technology in transactions should always have a solid legal view of the transaction and how cryptocurrencies are treated in each applicable jurisdiction. The lack of consensus regarding how this instrument should be treated may make it difficult to perform some acts in different jurisdictions.

Therefore, it is advisable that this aspect in special is treated in a legal opinion elaborated by and accredited lawyer, versed in the laws of the jurisdiction involved in the transaction that shall make use of cryptocurrencies.

This measure decreases the legal risks involved in the use of this kind of instrument and shall make it easier to use of it as time goes by and a solid understanding regarding it is achieved.

Cryptocurrency has a big advantage over some other payment methods: is it fully trackable and each one of them has their own serial number. This makes it possible to verify if the paying party has the assets necessary in order to complete the transaction and, in case of default, it is possible to know where the cryptocurrencies were transferred given the information presented in the Blockchain. Hence, international trade could make use of these facilities by determining exactly which cryptocurrencies should be used to pay for the obligations between the parties and easily demand their assets.

The regulation presented by the State of New York, in the United States of America, contains some norms that can be reproduced in international trade, especially the need of presenting "the methodology used to calculate the value of Virtual Currency in Fiat Currency".

This measure is important given that the value of cryptocurrencies, as explained above, varies in accordance with their acceptance in the market and there is no universally accepted methodology used in order to calculate the value of cryptocurrencies.

The presence of this kind of information makes it possible to determine indemnifications, makes it possible to hedge the transaction given the fact that the financial institution will have more information in order to structure the hedge and decreases the possibility of conflict between the involved parties.

CONCLUSION

The regulation and uniformization of practices regarding the use of cryptocurrencies pose a great challenge to both States and international institutions given the new paradigms generated by this technology.

The unique characteristics of cryptocurrencies , such as the independence of any State, agility in performing operations, issuance of units of value in mathematical form, among others, were never observed on such a scale in the capitalist system. The very union of a means of payment, custody and creation of value, roles that were previously fulfilled individually by different legal entities, in a sole instrument generated and still generates discussion.

With this, in the absence of state regulation, the market has to organize and implement a self-regulation of the use of cryptocurrencies so that this promising market is not negatively affected by the state omission.

This kind of market organization can be achieved locally, through the issuance of State regulation, or internationally, through the issuance of recommendations by international entities.

These recommendations must consider the specific aspects of this new technology, but also must be careful so that the possibilities presented by cryptocurrencies are not smothered by excessive regulation.

Given that the use of cryptocurrencies shares a lot of similarities with banking activities, since it achieves the same effects, banking regulation could be used as a basis for the verification of how companies and people should use cryptocurrencies in international trade, such as the implementation of compliance policies, client background checking and other measures.

However, since the understandings regarding cryptocurrencies are not uniform throughout the world, the treatment of this instrument in all applicable jurisdictions should be verified.

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