

The risks resulting from crypto-currencies trade expansion -The Chinese crypto-currencies organizational framework as a case study-

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Abstract:

This study aims at demonstrating the negative effects resulting from crypto currencies trade. These currencies differ from the traditional ones in terms of being intangible and decentralized, using these currencies increase through the internet, because of the increased value on the trade platforms, the rapidity, and the low cost. We've concluded that these currencies may be hacked through the digital piracy. They may be used in money-laundering, besides their value deterioration at anytime.

Key words: crypto currencies, capital risk, central bank .

JEL Classification Codes :E59,G24,G21.

ملخص :

تهدف هذه الدراسة إلى توضيح الآثار السلبية الناتجة عن تداول العملات المشفرة فبالرغم من كونها تختلف عن العملات التقليدية فهي غير مادية ولا مركزية، إلا أن استخدام هذه العملات يزداد عبر الإنترنت بشكل كبير، بسبب زيادة قيمتها على منصات التداول، والسرعة، وانخفاض التكلفة. توصلنا من خلال هذا البحث إلى أن هذه التعامل بهذه العملات له عدة سلبيات منها فقدانها من خلال القرصنة الرقمية و استخدامها في غسيل الأموال إلى جانب تدهور قيمتها في أي وقت.

الكلمات المفتاحية: العملات المشفرة، رأس مال المخاطر، البنك المركزي

تصنيفات JEL : E59، G24، G21

Introduction :

Nowadays, the world is witnessing accelerated developments in what's known as the digital revolution, which is an important variable in the financial and banking industry, services, and goods. The crypto currencies are considered as the new odd within the international monetary system. They've various types with a wide use through the internet. Tens of trading platforms have been created for selling and buying these currencies, and also avail the possibility of transferring them.

Considering the fact that there're no legislations organizing these currencies, which are out of the official currencies traditional system, since they're not issued by governments, moreover their prices don't change according to the countries' economic situations. They're obscure, since their issuers are unknown with no guarantor or bond in any asset, unlike the official currencies, which makes the operation of controlling them so difficult. So, they've caused various negative effects whether on the banking systems , being used in Money Laundering, funding terroristic activities, or drug trade. Furthermore, they're used, through the electronic piracy and the illusive platforms, in stilling the individuals' properties. This has prompted many states to create legal measurements for forbidding these currencies trade and the attempts of making them legal.

In the light of what's mentioned above, the following problematics are: **what are the negative effects resulting from the crypto-currencies? In case of their proliferation, what are the necessary measures for decreasing these effects and make use of them in developing the modern banking industry?**

For solving this problematic, we've to answer the following questions:

- What are the crypto-currencies? what are their characteristics?
- What're the crypto-currencies features and the risks resulted from their use and trade?
- What're the procedures followed by the banks and the international financial bodies for organizing the use of these currencies?

The study significance: Although the crypto-currencies are widely used as a tool for the electronic payment and being a mean for trade in several countries, their users don't know their mechanisms and risks. So, we've to clarify these currencies fact and their negative effects on individuals and financial and banking institutions.

The study objectives: This study aims at:

- Retrieving the recent developments and innovations at the level of the banking industry.
- Demonstrating the negative side of the crypto-currencies, which aren't issued by official authorities, and they aren't governed by any disciplines, so they're so obscure.
- Indicating the international financial bodies vigilance and their efforts in maintaining the banking systems, as well as protecting the individuals' finances.

The study methodology: In our work, the descriptive method has been adopted for explaining the concept of crypto-currencies and their characteristics. The analytical method has also been followed for studying these currencies most important features and clarifying the risks of their use. The most important legal measures, followed by governments and the international bodies for organizing these currencies use, have been addressed.

1. Definition of the crypto-currencies:

They're defined as the commercial exchange units, which don't exist only within the electronic body. They're decentralized crypto-currencies working with peer-to-peer system. They're fully managed by their users, without any central authority or mediators, through several electronic media like: computers and smart devices for buying in-kind goods or various benefits (lotfi, 2020).

The Financial Action Task Force (FATF), in one of its reports in 2014, has defined the crypto-currency as a digital representation that can be digitally exchanged or run as a mean of exchange, as a calculating unit, and/or as a value storage so that it doesn't have a liberation capability. So, they defer from the legal currencies and the electronic ones, which are electronic representations for the legal currencies (force, 2014)

In its report about the virtual currencies in 2012 (houben & snyers, 2018), the European Central Bank (ECB) defines the crypto-currencies as a subset from the virtual currencies (ECB, 2015), They're considered as virtual currencies linked to the legal ones or the real economy in a dual form. They can be bought and sold in return to the legal currencies. They can also be used for buying the electronic, real, or material goods. The European Central Bank, in another report about the digital currencies in 2015, has defined them as an electronic representation for the value. The central banks, the lending institutions, or the issuers of the electronic currencies that can be sometimes used instead of cash don't issue them.

The Bank of International Settlements (BIS), through its Committee on Payments and Market Infrastructures (CPMI), has defined the crypto-currencies as digital currencies with the following characteristics (CPMI, 2015):

- The assets value can be determined through offer and demand principle. They're identical to its concept of goods like gold, but with a zero intrinsic value. The electronic currencies don't form a commitment on individuals or institutions, and they aren't supported by any organizational body.
- Their values are electronically transmitted from one person to another with no trust between all the parties, in the light of the non-existence of mediators. Some of them are technologically used "the distributed registers" for this objective.
- They aren't managed by a certain authority or a person.

In the light of what's mentioned above, the crypto-currencies can be defined as a digital representation for the value, and they're electronically circulated in a determined or undetermined virtual society. In the principle of their issuance and circulation, they rely on cryptology techniques. They aren't issued by a central bank or a controlling or an organizational authority, but they're issued and controlled by their developers. They can't form commitments on any authority including their developers (DSCNPS, 2020)

2.The crypto currencies characteristics: The increased interest with the crypto currencies refer to several characteristics, and the most important of which are:

-Less transactions cost: this is due to the non-existence of mediators, besides the availability of the payment methods like the payment cards and the financial remittances. It also refers to the noncompliance to the organizational requirements, even if they're devoted for the payment methods safety. However, the miners, in the future, may impose higher fees in return to the verification operations and making sure of them considering the crypto-currencies decrease through time. Furthermore, most of traders, who accept the crypto currencies as payment methods, impose commission, so the transactions cost will become higher.

-The transactions speed: they're treated more rapid than treating the legal currencies transactions. The transactions across borders with Bitcoin take from 10 to 60 minutes with using the Blockchain technique. The payments, with crypto currencies, are available all time, unlike the traditional payment methods. This feature has prompted some countries towards providing the settlement operations all time.

-Tracking: the crypto currencies record more accurate information than the traditional payment systems; the Blockchain technique can't only record the transaction time, it stores other information like contracts, images, and domains related to the sold or bought product or service. Similarly, the consumer data, emails, or other contacts linked to the transaction can be recorded. Since the data recorded on the Blockchain are invariable, this maintains a level of integrity, which will be beneficial in revising the transaction later.

- Safety: the Blockchain technique relies on highly developed encryption techniques for securing the transactions details recorded within the blockchain log, which makes it hard for the electronic criminal to hack a certain transaction details or change them. Moreover, every user has a copy of the distributed log through which the other users can control the cases of changing illegally a transaction details. In order to be successful, electronic attack, the encryption must be decoded and at least 51% of the users' logs must be changed simultaneously, so disabling the stored information safety is so difficult (CGACBML, 2019).

3.The cryptocurrencies risks:

Among the negatives caused by the expansion of cryptocurrency trading

-The technical risks: From a pure technical perspective, many reports indicate that the digital virtual currencies become unvaluable through the digital hacking operations. This refers to the fact that trade in these currencies is almost done through fake funds damaging the operators' wealth, which is so far from the work official legal rules, in accordance with the laws agreed upon in the commercial exercises. Among these virtual currencies cons is that the confidence element, which is considered as the most vital value for working with these currencies, may simply decline at a moment, and make the currency unvaluable, simply because the required confidence can be quickly disappear, due to the inaccurate review supposed to guarantee the transactions completion. In these cases of confusion, these digital currencies may totally stop, which means the total value loss. Do the operators grasp these risks in this unknown disordered aether.

Notably, the technical reports address more sensitive points concerning the virtual currencies. In this framework, they bluntly deny the illusions asserting these currencies speed transactions, since they're done far from the official financial systems; in reality, and after reviewing the transactions, it's demonstrated that slowness has a role in each transaction. So, whenever the trade currencies number, the required time increases, and it may reach several hours. As a real example for comparison, the two credit cards companies Visa and MasterCard do ten thousands of transactions in one second with a small cost. Concerning the digital currency Bitcoin transactions, the one transaction cost take a longer time, and its value increases to reach some Dollars (ghaleb, 2018).

Another risk in using these virtual currencies, it's the possibility of the uncompleted transaction for a particular reason, which means the trader loss. Since these currencies and their trade aren't subjected to any rules, so there's no proving document in case of loss. Except for some official operators, many digital currencies trade stock markets are

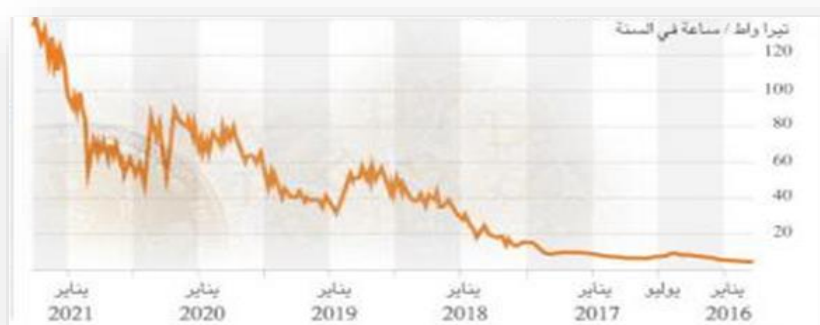
like organized frauds using technology for stealing the individuals' wealth (akouche & ziad, 2019).

-The power draining: A new study has demonstrated that mining the digital cryptocurrencies is a power draining operation more than mining their bright peers like: gold, platin, and copper. The researchers have studied the unusual power requirements, for years, of one of the Bitcoin mining companies. One of the reports, issued on November 2017, indicated that the power consuming in the network equals the same power consuming in Ireland. Another report indicated that the annual produced Carbon emissions are similar to those produced from a million of expeditions across the Atlantic ocean.

The study has founded that the necessary power for mining the digital cryptocurrencies has dramatically increased, over the past 30 months, even when these currencies markets faced volatilities. Max Krause, an environmental engineer at OAK Ridge institution of sciences and education, who independently conduct the study, said that the required power amount competes the developed countries like Denmark, and the necessary power amount for mining Bitcoin, with only one Dollar, is more than what's required for mining the same value of gold, platin, or copper.

The researchers estimate that the Carbon emissions, resulting from the mining operations , are ranged from 3 to 15 million tons of CO₂ in the world. However, the Carbon emission amount of each transaction differs according to the country; China, where several mining operations are done, is considered as the most Carbon consuming place, whereas Canada witnesses some mining operations with less Carbon density in the world; it's four times less than that of China (Krause, 2018).

Figure 01: Energy consumption by Bitcoin



source : (Ranking of “Bitcoin” among the countries in the world in energy consumption, 2021)

The continuous internet connection cost is also so expensive, because of the continuous update of the transactions database within Blockchain, which uses those data in solving mining captchas and updating the clients' balances. So, it's another technical challenge, since losing internet connection, even for moments, would lead to the current transaction failure or the transaction captcha is going to be solved by another client within the virtual currency network, which means the mining reward loss (essaka, 2019).

-Fraud via the electronic platforms: The best example is the ICO companies. Its reliability is undoubted. The most of them are fraud illusioned profitable. Their effects have surpassed the geographical boundaries, since they're transcontinental.

These companies are electronic platforms receiving the people funds in return to digital currencies and symbols, which are of an illusioned unstable value and without guarantee. The US and the European authorities have warned from transacting with ICO, since it's out of the legal scale, besides the unavailability of any protection for the investors. These authorities have also said that **ICO** is almost used for laundering and fraud.

The year 2018 witnessed the major fraud operations, in this field. Among the frauds Bit connect company, based on **ICO**, which succeeded in receiving Millions of Dollars. Its market value reached 2.7 Billions USD. Later, it has been appeared as a fraud company,

which decreased its cryptocurrency price, and then it bankrupted on January 2018 (ordikian, 2019).

-The digital piracy: Considering the fact that the digital currency is a virtual one stored within a digital wallet, so it's susceptible to piracy, stealing, fraud in its users' accounts. Although all payment methods are susceptible to dangers, the virtual cash is more susceptible. Despite the fact that counterfeiting the BTC ownership is Impossible, because of the encryption strength and the transfers and transactions are recorded by the miners, the hackers can steal the electronic wallets on the internet or those registered on PCs such as: hacking banks through hacking their websites and stealing the clients' data, and the clients stay incapable of restoring their money or make any legal procedure, since they face an unknown network (tala, 2019).

Figure02: The number of crypto currency exchanges hacked and the amount of money stolen per year



Source : (www.arabictrader.com, s.d.)

-The cryptocurrencies fast fluctuation: The year of 2017 was an exceptional year for bitcoin, when this famous virtual currency witnessed a huge leap to about 1900%, is where it went from less than a thousand dollars per bitcoin to nearly 20 thousand dollars, but it seems that 2018 held bad news for bitcoin.

Bitcoin , this virtual currency has no basis for prices estimation , but the huge demand around the world made it significantly expensive , while just before 9 years ago when it first appeared , it has been sold for less than 1dollar, but at the end of December its prices reached the 20 dollars levels per bitcoin , Then the price of this currency witnessed a decline till it reached its highest level since 12 November the last , when the price levelled only at 6 thousand dollars.

Within 6 months of this year, bitcoin lost the half of its value, nowadays its price reached \$6.3 thousand per bitcoin, which means that those millions of dealers who bought in 2018 lost more than half of their fortunes in bitcoin speculation.

The recent decline was due to the announcement of the Financial Sector Regulatory body last week, ordering crypto-currency exchanges to make improvements to their systems against money laundering, and to stop receiving new accounts, until checking the marketing methods used, which resulted another decline of bitcoin to 6 thousand dollars levels.

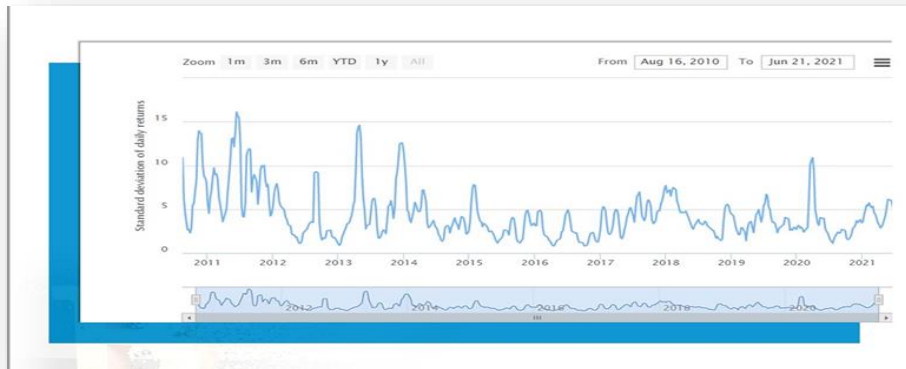
The year of 2017 witnessed the great leap of bitcoin prices , as people started dealing with it at the beginning of the year with less than a thousand dollars, and the price kept rising until it reached the levels of 20 thousand dollars on December 19, but at the end of the year it stopped at the price of 13 thousand dollars, warning the world that 2018 will be difficult year for all Bitcoin owners , which is what has already happened.

When there is a considerable drop in the price of Bitcoin, the talk about the collapse of the digital currency begins again , but the fact this currency went through multiple declines situations over the seven years of its trading. Otherwise when it first appeared In 2009, it had almost no price, and it was sold in March 2010 with 50 dollars per 10 thousand bitcoins, which means that its value was approximately 0.003 dollars, and this currency did not succeed in reaching the price of 1 dollars until February 2011, and then kept rising until its value reached 31 dollars in July of the same year.

After a recovery in bitcoin prices, which at the first time it reached 31 dollars in July 2010, the first collapse of the currency was in December of the same year, to reach only 2

dollars, but that wasn't the end of this currency however it rose again until it reached 266 dollars in April 2013 (diaa, 2018).

Figure 03: bitcoin trading and investing



Source : (www.arabictrader.com, s.d.)

4.Regulation of crypto-currencies trade mechanisms:

In order to mitigate the negative effects of crypto currency trading, the following measures have been taken :

4.1.Stable coins: According to the European Central Bank (ECB), “stable coins represent units of value that differ from existing forms of currencies but its value is associated with a group of installation tools in order to reduce the sharp fluctuation of prices (bullmann, klemma, & Pinna, 2019)

In addition, installation tools differ according to their stability levels and complicity; the simplest these tools are, the more the level of the asset is stable and vice versa. The simple installation tools require centralized custodian trade transactions, which take place within collaterals represented in:

Associating encrypted assets with traditional asset classes such as Dollar or currency basket, which is known by off-chain collateralized stablcoin.Regarding the non-simple installation tools that involve higher level of complicity and risk, they take place within the trade decentralized registration process without any currency exporters or custodian.

These tools are:

-The association with another more stable crypto-currency like Bitcoin; known by on-chain collateralized stable coins.

-The association with users' predictions to the encrypted assets values known by the Algorithmic stable coin; Algorithms control the creation of encrypted assets units by replacing the role of central banks through intelligent contracts that are the responsible for stable coins money supply according to previous determinants of the system.

Lately, stable coins become more important due to the relatively low levels of its risks compared to the other encrypted assets. This led to the increase of its market value from us\$ 1.3 trillion in 2018 to us\$ 4.3 trillion in 2019. The stable coins that are associated with cash assets (tokenized funds) are considered the most actively traded, they dominate 97 of the crypto-currency trade benefiting from exporters and guarantors.

Based on the association mechanism and trading system, there are many stable and most traded currencies. The more the stable coin is associated with an international fundamental currency like US dollar or its trade is under a transparent and verifiable System, the more it will be used, for example: Paxos Standard, Maker DAO, True USD, Tether (USDT), Gemini Dollar (Abdelmounaim, 2020)

4.2. Central bank digital currency:

The Bank for International Settlements defines it as: "a new form of central bank money that is different from balances in traditional reserve or settlement accounts."

There are a lot of design choices for the digital currency issued by the Central Bank according to the way it's used: limited use (banks only), wide use (public), the anonymity of users' identity (total anonymity or showing clients' ID), availability levels (during the day, week or limited), whether it's associated with an interest price (yes or no) (coeuré & Loh, 2018)

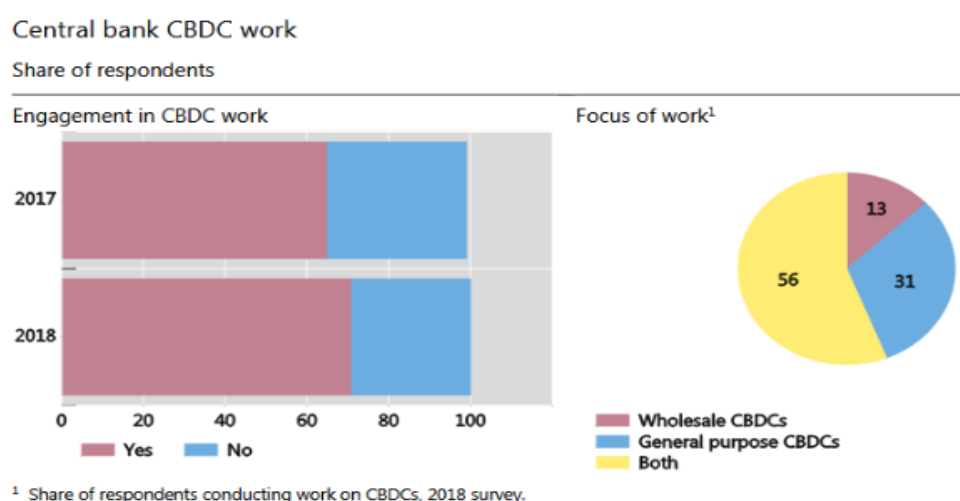
The Central Bank digital currencies have a lot of advantages which are the following:

- Reducing the cost of transaction completion.
- Improving the efficiency of payment system levels.
- Increasing financial inclusion levels.

- Combating financial crimes like money laundering and financing criminal activities.

The scan of the Bank for International Settlements which included 63 central bank in 2018 shows that 70% of those banks are studying the possibility of issuing a digital currency while they are not really ready yet for the release, most of them are interested in currencies that serve CBDCs general purposes, CBDCs wholesales or both of them together (56%) (Abdelmounaim, 2020)

Figure 04: the World Central Banks orientations towards digital currencies issuance



Source: (Barontini & Holden, 2019)

4.3. International institutions' efforts to manage crypto-currencies trade:

International institutions and standard setters around the world made efforts in attempt to evaluate the economical and financial effects resulting from the use of these currencies, in order also to manage the trade and set the international norms, among these efforts the following:

The Global Financial Stability Board (FSB) evaluates the current regulatory and supervisory frameworks and emerging practices in this field by focusing on issues related to cross- border transactions from emerging markets and developing economies

perspective. It defines the ability of the current regulatory and supervisory frameworks in maintaining the financial stability and containing any sort of regulatory risk that might occur as a result of digital currency trade whether of individuals themselves or of the interaction with the financial system. Therefore, the FSB provides advice about the potential multilateral responses as well as to develop the regulatory and supervisory frameworks in accordance with updates imposed by the digital currencies. The FSB will present an advisory report to finance ministers and central banks governors to G20 (group 20) in April 2020 and a final report in July 2020.

-The FSB corporates with the commission of payments and the infrastructure of Basel Committee on Banking Supervision in order to monitor the asset trade of payment systems across borders and its impact on the financial stability.

-Basel Committee on Banking Supervision evaluates direct and indirect effects of the encrypted assets in banking sector and defines the nature of the precautionary interventions which must be taken by supervisory authorities to reduce risks of assets trade in this sector.

The International Organization of Securities commission (IOSCO) created an advisory group to discuss experiences and issues related to the first release of the encrypted assets (initial coin offering ICO). Besides, it studied their implications on protecting the investors locally and across borders.

-The Financial activity group studies and evaluates the risks of encrypted assets trade and the possibility of using them in money laundering and financing criminal activities, it also submits a detailed report to G20 in this regard (tusk, 2019)

Conclusion: we've attained several results including:

The crypto currencies are a digital representation of the value. They're electronically traded within a specific or unspecific virtual community. They depend in issuing and

trading them on cryptology. They're not issued by a central bank or a controlling or regulatory authority, but they're issued and controlled by their developers.

The crypto currencies rely on the blockchain, which is a smart log recording the transactions and transfers with guaranteeing their success without problems or fraud. It has high security and encryption; the blockchain technique cancels the mediation between the sender and the recipient and between the two contracted parties, which means that the banks, the contractual establishments, and many functions role and significance are cancelled.

The crypto currencies are characterized by their low costs, as a result of the mediators absence, the rapidity in processing transactions comparing to the legal currencies. Besides the security feature provided by the encryption technique.

Transacting with crypto-currencies is dangerous in terms of the trust element absence, which is considered as the transaction with currencies basis; it can be easily destroyed at any time, and make the currency loses its value. This is done considering the fragility of the audit process guaranteeing the transactions completion. In such confusion cases, this digital currency may totally stop, which means the total loss of its value, The crypto-currencies may be used in money-laundering crimes, since they're optimal for storing a cash value of obtained finances from an illegal source before laundering them, because of the difficulty of controlling their movement

The finances are exposed to steal within the electronic space through the electronic piracy or the ransom attack relying on encrypting the computers and the electronic devices and obliging the operators to pay a ransom in return to the decryption.

Suggestions and recommendations: The negative effects of Trade in crypto currencies can be eliminated at either the level of operators or the cash and financial system through the following:

- The stable currencies, which are defined by the European central bank as the representation of value units, and they don't form a determined value or a basket of them. Their value is rather linked with a number of installation tools for eliminating the fluctuations in their prices.
- The digital currencies issued by the central banks have several characteristics including the enablement of the central banks to reduce the transactions cost, the improvement of the payment systems efficiency, and increasing the levels of the financial inclusion, besides fighting the financial crimes consisting in the money-laundering operations and funding the criminal activities.
- The cooperation of the Financial Stability Board and Commission on Payments and Infrastructure corresponding to Basel Committee on Banking Supervision for monitoring the crypto assets trade effects on the payments systems across borders and its effects on the financial stability.
- Basel Committee on Banking Supervision works on evaluating the direct and the undirect effects of the crypto assets on the banking sector and the nature of the necessary precautionary interventions by the supervisory authorities for eliminating the risks corresponding to trading these assets on the banking sector.
- the IOSCO has to create an advisory group for discussing the experiences and issues related to the crypto assets first issuance operation, besides studying their effects on the issues related to the local protection of the investors and across borders.

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