

# Application and Regulation of Block Chain Technology in Money Laundering Crime

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## Abstract

**This paper introduces the block chain technology and its technology development stage, and then explains the application of block chain technology in money laundering with digital currency, specifically through the technical structure of money laundering with general digital currency and the technical structure of money laundering with anonymous digital currency, thus further examine the current quo of the money laundering with the block chain technology of the digital currency , and put forward regulatory suggestions.**

## Keywords

**Block Chain Technology; Money Laundering; Digital Currency.**

## 1. The Foreword

With the continuous development of block chain technology, intelligent money laundering continues to subvert the traditional crime mode. For example, the future exchange underground banks will adopt new knock-to-knock methods with digital currency as the credit carrier. This transaction method will make money laundering more convenient and more difficult to track the flow of funds in time. The key to money laundering with digital money is to use its underlying block chain technology and avoid judicial investigation and control with its decentralized core technology. In this context, digital currency has gradually become a sharp weapon of money laundering crime. This puts forward new challenges and expectations for China's financial order and judicial supervision. Therefore, it is very urgent and necessary to study the application and regulation of block chain technology of money laundering crime with digital currency.

## 2. Block Chain Technology

### 2.1. Introduction to Block Chain Technology

Block chain is an intelligent peer network using distributed databases to identify, disseminate and record information, also known as the Value Internet. It is essentially a distributed public ledger [1]. The working principle is from time to order, and the first-to-end information data form a chain database. Through the double encryption of public key and private key, the block chain internal information data can not be changed or forged, so as to realize the integrity and security of information data. In Internet applications, through the dual encryption of public and private keys, block chain technology has the characteristics of decentralization, transparency and privacy protection. Therefore, the continuous application and development of block chain technology will promote the application of Internet technology from the original information and data transmission to more complicated credit value transactions. As we have seen, the

digital currency with block chain technology as the core has had a profound impact on all aspects of anti-money laundering crime regulation, and its unique decentralization, concealment and liquidity have brought unprecedented new challenges to the existing regulatory system.

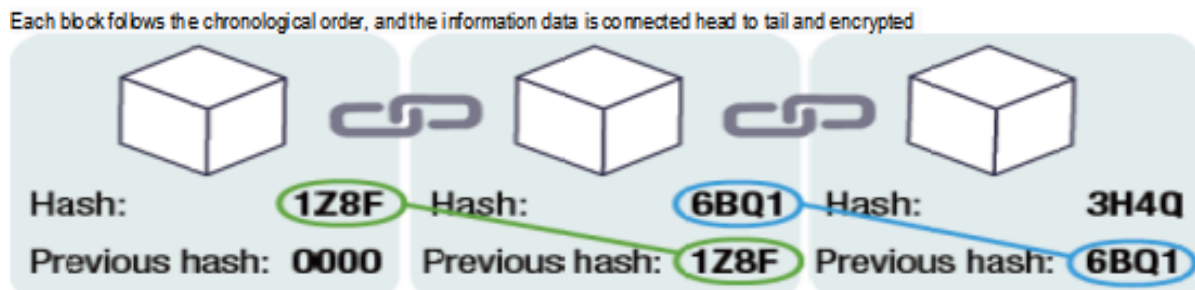


Fig 1. Blockchain diagram

## 2.2. Technological Development Stages and Division

Count the three development processes of block chain technology, and the process of gradually maturing is the process of gradually promoting the development of Internet technology in the application field to the more complicated credit trading field. Block chain technology 1.0, programmable currency, mainly applied in the financial field, focusing on electronic currency and payment; block chain technology 2.0, programmable finance, application field covers the entire financial field, focusing on customized financial products and services using computer and Internet technology; Block chain technology 3.0, programmable society, block chain technology application is to achieve efficient and fair, not only to notarization, voting and appraisal, but also include industry, culture, science and art. In this sense, block chain touches the important factors on which human society is built- -trust, money, and power. However, looking at the world, block chain technology is still constantly improved and explored, so block chain technology still has many technical shortcomings and legal blind spots in regulation. For example, using digital currency money laundering, with the technical characteristics of block chain, criminals can quickly and conveniently realize the transnational transfer of funds and effectively avoid the division laws and regulations.

## 3. Application of Block Chain Technology in Digital Currency Money Laundering

### 3.1. Technical Deconstruction of Money Laundering with Digital Currency

Digital currency takes block chain technology as the underlying core technology, and realizes transactions based on cryptography principle through a set of keys to transfer ownership. This set of keys is double encrypted by the public and private key to accept the transfer of digital currency ownership, the private key is used to verify the identity of the transaction user, and, the new key generated by any exchange is random, making it difficult to explore. In order to ensure secure transactions, the block chain network will publish every transaction brief message on the whole network. However, the published part is only the address of each transaction and the amount of the transaction information, as for the identity of the transaction user, it is difficult to confirm.

#### 3.1.1. Technical Deconstruction of Money Laundering with General Digital Currency

General digital currency mainly takes advantage of the decentralized characteristics of block chain technology and makes it difficult for judicial organs to obtain complete transaction data. In general digital currencies such as Bitcoin, judicial and regulatory authorities can still rely on

"miners" to obtain complete transaction information data, and rely on precise positioning. Bitcoin uses broadcasting in the whole Bitcoin network to effectively verify the transaction, which means that all nodes inside the Bitcoin network can receive, record, and process the transaction. Since block chain is essentially a distributed public ledger, it is easier to obtain transaction records and accurately connect anonymous users to this transaction through technical means. As long as you control the Bitcoin market and block chain, it will be able to fully grasp the specific process of both parties.

### **3.1.2. Technical Deconstruction of Money Laundering with Anonymous Digital Money**

Anonymous digital currency, as the name suggests, is a special class of digital currency formed after the general digital currency upgrades its anonymity. Anonymous digital currency has been applied in the field of money laundering crime, repeatedly successfully avoiding the control of judicial and regulatory authorities by relying on its centralized characteristics and untraceability. Among them, the decentralized feature makes it difficult for the judicial and regulatory departments to obtain transaction data through the information service platform. Moreover, anonymous currency upgrades its anonymity on the basis of general digital currency to build a solid untraceability to ensure that the transaction information is unexplored. Anonymous currencies that are currently in circulation and have considerable market demand are Dash (Digital Cash), XMR (Monero) and ZEC (Zcash). Among them, The Dash improves Bitcoin by the hybrid system, and then realizes the untraceability of transactions. The transactions of multiple users can be combined into a common transaction through a hybrid system, and in this co-transaction, each user transaction information is disrupted, and then respectively delivers anonymous currency outward, which makes the outward transaction information not only independently distributed but also has no traces of association. Even if a third party has intercepted a portion of the transaction information, anonymous currency transaction users cannot be traced.

### **3.1.3. Characteristics of Digital Currency Money Laundering**

The use of digital currency in the field of money laundering crime has three characteristics of liquidity, decentralization and concealment. Especially after digital currency has enhanced their anonymity, criminals can use untraceability to avoid regulations and quickly realize transnational circulation.

First, liquidity makes digital money laundering possible. For the application of digital money to money laundering crimes, the first condition is that it must be negotiable. Although digital currency has been monitored to various degrees in countries around the world, its circulation has been warmly pursued by the market because of its considerable value investment properties, and it can achieve rapid transnational trading and rapid cash. Moreover, digital currency embodied in a virtual network, free of geographical restrictions, free to any country, can realize the rapid transfer of any place to the Internet at any time. In addition, a Bitcoin transaction generally takes no more than 15 minutes from start to confirmation, which greatly improves the speed and convenience of cross-border money laundering.

Second, the decentralized characteristics make the capital flow difficult to regulate. Traditionally, only incorporating financial institutions or third-party payment units into the monitoring network of judicial organs and regulatory departments can realize capital penetration, grasp the flow direction of the capital chain, and solve direct money laundering crimes. However, due to the decentralized nature of digital currency, money does not need to pass through third parties, but flows peer-to-peer. To know, block chain technology as the underlying core technology of digital currency, its decentralized characteristics makes the third party cannot simply obtain digital currency flow, and in fact the judicial authorities, regulators are unable to include each node, in short, as long as the transaction between each nodes, the

outside world will be unable to explore transaction information data, which actually to some extent greatly convenient for the implementation of money laundering crime.

Third, concealment (untraceable) makes it difficult to trace the digital currency, especially anonymous digital currency transaction information. A general digital currency like Bitcoin can still track the transaction technically, even if both users hide their signatures. This means that the simple hidden signature is not absolutely impossible to explore, through technical means to decrypt, confirm, can still be traced to the specific transaction user information. But anonymous digital currency is significantly different, which can ensure untraceability after true anonymization. Obviously, the untraceability makes the anonymous digital currency distinct from the general digital currency in the field of privacy protection. It can be seen that with the untraceability of anonymous digital currency, both transaction users do not need to worry about whether their own information leaks when completing the transfer of funds. So far, the concealment of the general digital currency has evolved into the untraceability of the anonymous digital currency. In fact, this builds an unbreakable firewall for money laundering crime. Not only is the transaction information completely anonymous, but it can not be found to both parties through the transaction exploration, which sets up a huge obstacle to the investigation work[2].

## 4. Current Quo and Regulatory Suggestions

### 4.1. Current Quo of Money Laundering Using Block Chain Technology in China

First, it is difficult to file a case. Such money laundering crimes have no direct victims, so few people are reported or reported, let alone filed. The decentralized characteristics of digital currency leads to the elements of a single transaction often stored in multiple platforms or institutions, including fintech services companies, telecom service operators and payment platforms. It is difficult for a single institution to retroactively monitor the transaction process completely. Using digital currency to realize rapid transnational circulation, as long as criminals log into the Internet trading platform engaged in money laundering activities overseas, they can realize the whole money laundering process abroad, thus avoiding the monitoring of domestic anti-money laundering institutions. All the above set great obstacles for the illegal facts of relevant departments to effectively monitor and use the money laundering of block chain technology. In addition, the investigation of the seven types of upstream crimes involves the Discipline Inspection Commission, public security organs, national security organs and other organs, which are under the jurisdiction of criminal investigation, state security, anti-smuggling, drug enforcement, economic investigation and other departments respectively. All departments pay more attention to the charges responsible by their own department. In the process of investigating cases, even if money laundering is found, they will recover stolen assets according to the continuation of upstream crimes.

Second, it is difficult to carry out criminal wealth investigation. When a digital currency transaction occurs, the authentication information of the transaction user can be confirmed solely by completing the authentication of the key and the digital signature. On the one hand, although the general digital currency can obtain all transaction information through "miners", the transaction platform (digital currency intermediary service platform) is not strict, allowing criminals to open accounts in false identity, making it difficult for the existence of money laundering crime; on the other hand, anonymous digital currency greatly improves the anonymity on the general digital currency, untraceable to explore the completed transaction information. Intraceability enables the certified parties to only check the account address and amount of the counterparty, and cannot continue to explore the nature and source of the funds. Third, it is difficult to conviction. With "digital currency", "anonymous currency", "Bitcoin", "world currency", "world", "XMR", "ZEC", "block chain", "money laundering" and other

keywords query in "China judgment document network", the result is that today has not found any case of money laundering using money laundering for money laundering. Investigate its reason, in addition to the concealment of block chain, it is difficult to obtain enough evidence for money laundering crime, the more important reason is that our criminal law has long been excluded from money laundering crime, in other words, only when the actor did not participate in seven types of upstream crime, can constitute the main body of money laundering crime, the result directly led to the evaluation of the specific seven types of crime, and the use of digital currency for money laundering. Or, even if it meets the objective requirements of the crime of money laundering, because the upstream crime is not the seven special crimes stipulated in China's criminal law[3] In the end also had to be convicted on other charges, the realization of the same principle to have a long way to go.

Fourth, the inter-departmental cooperation mechanism is not perfect enough. Anti-money laundering involves law, finance, technology and other fields, and needs the help of the services and channels of anti-money laundering obligation institutions. Anti-money laundering obligation agencies have natural advantages in finding clues, identifying the nature of their behavior and preventing money laundering. However, the reality is that at all stages of the money laundering crime, few anti-money laundering obligation agencies participate in it. The anti-money laundering investigation of the People's Bank of China, as the result of administrative investigation, in practice, the investigation organs are mostly used for intelligence purposes, and only as auxiliary materials when moving litigation, which is difficult to use as independent evidence. Due to the imperfect cooperation mechanism, the form of anti-money laundering obligation institutions and the People's Bank of China to participate in the case investigation is still relatively single, and their professional advantages have not been given full play. Public security law and other organs do not fully play the function of financial intelligence in the discovery of clues and evidence acquisition.

#### **4.2. Regulatory Suggestions on Money Laundering by Using Block Chain Technology**

First, to improve the proof ability of electronic material evidence from the technical level. Regulatory and judicial departments need to improve their ability to collect, extract and analyze electronic data to effectively protect the legal rights of relevant subjects. In the process of investigating and using block chain technology for money laundering crimes, electronic evidence is more common. The relevant departments should pay attention to the training of electronic material evidence talents and the replacement of software and hardware equipment, provide important reference and cross-examination evidence for such crimes, and strengthen the means of judicial evidence collection.

Second, from the judicial level of the crime of money laundering judicial needs to be strengthened. At present, China has not yet committed self-money laundering[4]. The third and fourth rounds of evaluation reports issued by the Financial Action Task Force on Money Laundering in 2007 and 2019 also believed that the failure to commit self-money laundering is an important defect in China's implementation of international standards for anti-money laundering activities. As a party to the Vienna Convention, the Palermo Convention and the Convention against Corruption, the failure to commit self-money laundering will affect our performance of anti-money laundering obligations under relevant international conventions and weaken the effectiveness of combating money laundering and related upstream criminal activities.

Third, to clarify the legal obligations and responsibilities of the digital currency service platform from the regulatory level. From the perspective of the whole digital currency money laundering process, each chain of money laundering through digital currency ultimately needs to be connected between the block chain network and the real world through the digital currency



service platform. Therefore, the technical and legal regulation of the digital currency service platform is the key to the effective supervision of the digital currency money laundering crimes. Only by clarifying the legal obligations and responsibilities of such digital currency service platforms can we have a targeted and effective supervision. First of all, it may be clear about the connotation and form of such platforms first. Specifically, including operators providing digital currency exchange, trading, storage and other services, including traders of virtual assets, traders, electronic wallet providers, initial token issuance of financial services providers, etc[5]. The above subjects will be included in "specific non-financial institutions", build the whole chain anti-money laundering supervision system with financial institutions, and clarify the anti-money laundering obligations and responsibilities of the service platform, so as to realize effective supervision.

Fourth, "the chain, the law" to form a new idea of cracking down on transnational money laundering crimes. According to the idea of effective monitoring of block chain to block the use of its money laundering, the characteristics of block chain itself are utilized to implement "chain governance by chain". If you try R3's Corda project abroad. "Chain to chain" refers to relying on technical code to ensure that the regulatory object abide by the law, that is, through the program code of some important nodes and legal provisions, as long as these nodes have detected in line with the legal provisions of the behavior, will automatically implement the corresponding measures stipulated by the law, such as transaction block, account freeze, etc. In the face of the continuous development of block chain technology, traditional supervision and judicial means are facing severe challenges, and "chain governance by chain" provides a new idea for technology and legal regulation. However, the so-called "chain governance chain" is actually to implement legal regulation with technical means, technology is only an auxiliary means, the basic principle of "legal main chain auxiliary" is still throughout.

Fifth, build an effective anti-money laundering cooperation mechanism between departments. Focusing on the principle of information resource sharing, we will cooperate with judicial organs, investigation organs, anti-money laundering departments and anti-money laundering obligation institutions, improve the function of cross-departmental cooperation system, and establish a mechanism for rapid inquiry of anti-money laundering information and rapid freezing of accounts involved in the case. Through batch query, cross-regional cooperation inquiry, bank internal cooperation inquiry, efficient investigation, money laundering, improve suspected money laundering case investigation, forensics and capital penetration analysis, speed up the money laundering crime clues transfer, verification, case investigation, prosecution and judgment process, improve the number of money laundering, strengthen the deterrent of anti-money laundering laws and regulations.

## 5. Conclusion

As the most popular technological innovation, block chain technology, with the most widely used digital currency field, is faced with the serious fact of frequent money laundering crimes. And based on the characteristics of decentralized underlying technology of block chain, digital currency presents the characteristics of circulation, decentralization, concealment (general digital currency) and even untraceable (anonymous digital currency), which is easy to be used by money laundering crime criminals and bring new challenges to the traditional regulatory means of regulatory and judicial departments. With the integration and development of technology and finance, regulatory means and ability need to keep pace with The Times. Therefore, it is really very necessary and urgent to re-examine the application of block chain technology in money laundering crime, and to explore its technology and legal regulation means. Fortunately, China's relevant regulatory authorities have paid attention to this and supplemented by thunder means. In May and June 2021, China's regulatory authorities have

made general arrangements, requiring all over the country to comprehensively investigate the latest situation of virtual currency speculation activities with the help of block chain, and have problems playing early and small in a timely manner. In the next stage of the work, the regulatory authorities will step up efforts to clean up and rectify virtual currencies and trading places, and find and deal with them together. It is reported that the China Internet Finance Association and the Emergency Response Center have also begun to search for the whole network, and timely deal with the newly emerging domestic virtual currency trading places and ICO activities, as well as the overseas virtual currency trading platforms for "going to sea". At the same time, the payment institutions are required to strengthen the investigation and cleaning up from the payment and settlement links. At present, technical search and drainage systems have been established in some regions, while some financial offices have established real-time technical interfaces with emergency centers, regularly search and arrange local websites with local problems, and deal with them in a timely manner. The regulatory authorities screened, cleared and shut down "mining" projects, which were included in the monitoring and management of the National Development and Reform Commission, with the focus on monitoring their electricity consumption. It is reported that "mining" may become history in China, and most "miners" will move to other countries, but some "miners" may still go underground. As the situation constantly changes, new tasks and new challenges follow. So far, China's application and regulation of studying block chain technology in digital currency money laundering crime has entered a new stage.

## References

- [1] Zhong Shengxian: Publishing-operated block chain business model, Audio-visual, (2019) No.1, p. 225-226.
- [2] Wang Yi: The law limitation of anonymous money laundering mode is guided by the structural characteristics of block chain technology, Journal of Anhui University of Administration, (2019) No.6,p. 95-100.
- [3] Lin Shengkeng: Field of crime and its field effect of money laundering- -Starting from the upstream crime characteristics and trends of money laundering in China, Fujian Institute of Administration Fujian School of Economic Management Cadres Journal, (2005)No.2,p.54-59+80.
- [4] Li Nan: Influence of RMB internationalization on Anti-Money Laundering Supervision in China's Banking Industry (Ph.D., Southwestern Jiaotong University, China 2012).
- [5] Ma Sai: Criminal Risk of Block chain Technology Application and its Response to --perspective from digital currency money laundering crime, Journal of Sichuan Police College, Vol. 32(2020) No.3, p. 109-116.