Research on Risk Control of P2P Network Lending Platform Based on Blockchain Technology

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Abstract: Under the background of the new economic era, Internet finance has appeared in people's views, and injected strong power to the development of social economy. Especially for small and micro enterprises, the traditional “financing difficulty” problem has been efficiently solved, and circulating funds existing in the market can be used for better recreation. Although science and technology have promoted the development of society, the resultant financial chaotic phenomena are also emerging in endlessly. With the emergence of various P2P lending platforms, the security of economy cannot be effectively guaranteed. In order to settle these problems and exert the advantages of the Internet economy, block chain technology has attracted a lot of attention in recent years, of which the distributed bookkeeping method and smart contract method can alleviate the contradictions between people and P2P lending platforms. Therefore, this paper takes the risk control of P2P lending platforms based on the block chain technology as the research objects, and searches out the way to better integrate the block chain technology into the solution of the problems of P2P lending platforms, hoping to provide some enlightenment for the safe development of the market economy.

1. Introduction

With the continuous expansion of Internet finance, excellent Internet companies have emerged in large numbers in the world. As far as China is concerned, Baidu, Tencent and Alibaba are typical representatives of China's Internet economy and have made remarkable contributions to social development. Therefore, people have realized the huge profits in the Internet economy, continued to pursue and study out new methods and ideas, and developed a series of sub products under the Internet finance, thereinto P2P lending platforms are typical representatives. In the beginning, the formation of P2P lending platforms is mainly to solve the problem of capital turnover of enterprises and individuals. However, affected by various factors, the development of P2P lending platforms is more and more deviating from the ideal track. All kinds of problems such as illegal fund-raising, cash withdrawals and runaway have made people lose confidence in P2P lending platforms. The government has no idea of where to start in order to strengthen the management intensity of the P2P lending platforms. If the source of the P2P lending platforms is to be supervised, a lot of problems will occur in the borrowing process. If the market is to be regulated and governed, then related problems will be triggered. Therefore, it is very difficult for the government to strictly control the chaotic phenomena of the P2P lending platforms.

Recently, Bitcoin has exerted a great impact in the world. It is not the concept, but the technology behind it, that is, the block chain theory, that people focus on. Block chain technology seems to be capable of avoiding the drawbacks of Internet finance, improving the efficiency of fund utilizing and well maintaining the security of the market economy. Therefore, the relationship between block chain technology and the development of Internet economy has become a research hotspot in China’s theoretical circle in recent years. Whether block chain technology can affect the risk assessment of the P2P lending platforms is a central clue of this study.

2. Block chain technology

The block chain is a general ledger that includes all historical transactions. Each block contains

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several transaction records. If block chain is compared to the account book of the enterprise, then the block is a component of the account book. All transaction details will be recorded in the account book, and as long as people enter the system, they can view the information. In short, block chain technology constitutes the proposed information into a three-dimensional space, then forms all transaction information into nodes of the three-dimensional space through the network technology and ensures smooth operation between the nodes. Meanwhile, the block chain technology has good information security protection performance. Specifically, the characteristics of block chain technology are mainly embodied in the following aspects: first, distributed bookkeeping is adopted. The core point of block chain technology is to help participants to normally complete transactions. But in this process, participants' private situation is open. The system allocates corresponding rights to individuals according to their credit standing, so as to ensure the circulation of resources. Distributed bookkeeping is a relatively advanced idea in block chain technology, which is based on the awareness of “sharing” to realize fairness in transactions [2].

In this community, first, the transaction information is continuously stored, and the change in any of the nodes represents the completion of a transaction, thus reducing the transaction risk caused by inadequate and uncommon information. Second, the information is irrevocable. In the block chain community, as the key is set up, each node can prove the authenticity of the account book. Although a variety of information is contained, block chain technology can carry out classification well to ensure the reliability degree of each piece of information. Individuals are unable to change the information, as the information is fixed by the system. Just like people's ID information, regardless of personal changes, as long as search on the Internet is conducted, the accuracy degree of the information can be identified. Third, the information is open [3]. As long as you use block chain technology to carry on transaction, these transaction information will be publicly recorded in the account book. The information data is constantly changing to protect the right to be informed of the participants. As to Bitcoin, if people adopt this transaction mode, anyone can use the code for query, which to a great extent reduces the transaction cost, protects the security of transactions and avoids the interference from any negative information. The final characteristic is intellectualization. The development of science and technology has changed people's life style [4].

Therefore, people have deepened their research on “intellectualization”, hoping to further improve their lives. Block chain technology has also incorporated this idea into its developmental direction, hoping that people's transaction mode can develop in an intelligent direction. As early as the end of last century, the concept of smart contract was proposed abroad, but due to the restriction of objective conditions, the idea of “intellectualization” was not put into practice. Later, people found that the idea has many possibilities of development. Through specific computer language, the lender transfers funds to the borrower in accordance with the appointed mode. At this movement, funds will flow autonomously in two accounts. Any party's violation of contract will be recorded in the account book, and the pre-made contract will be undersized. This is essentially a representation of the spirit of contract. With the popularity of smart contracts, the security transaction performance between people will be well protected [5].

3. The development status of P2P lending platforms

P2P lending platform is a product in the Internet financial era, and has to a certain extent promoted the development of China's economy. On P2P lending platforms, the participants can be divided into lenders, borrowers and P2P platforms, each of these three parties bears different functions to maintain the development of P2P lending [6]. Essentially, P2P lending is to lend the lender's funds to the borrower through the platforms, and the platforms charge certain proportion of intermediary fees. At present, P2P lending platforms in China mostly adopt the trading mode of secured transaction, that is, P2P lending platforms are responsible for verifying the identity, funds and other personal information of the borrower, once any non compliance occurs, the platforms first make a payment on account to the lender, and then dun for the money from the borrower.

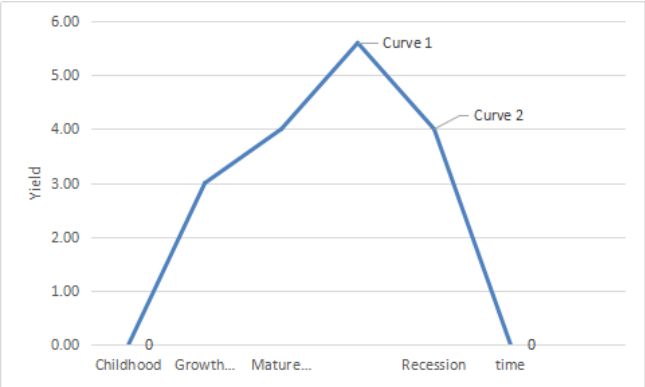

Fig.1 Laws of Industry Development

It can be seen from Fig. 1 that, all enterprises will undergo childish period, growth period, mature period and recession period, which is a rule. According to data analysis, the chaotic phenomena in P2P lending platforms have been constantly emerging and in a transition stage from mature period to recession period. Then, it is necessary to figure out the causes of the risks of P2P lending platforms. Firstly, from the perspective of the platform operators, most of the platforms do not possess a mentality of long-term development. According to relevant data in China, the founding rate of P2P lending platforms in recent years is 30%, but the close-down rate reaches 48% [7]. Thus it can be seen that most of the platforms are very large. The cost of P2P lending platforms is about two hundred thousand yuan, and some of the platforms even used the trick of “White Wolf”, the platform's registered capital is only ten thousand yuan, then these platforms provide high yield in the name of novice activities, so as to induce investors to invest. Once circulating fund is obtained, the operators will quickly “run away”. Therefore, the operators of P2P lending platforms have drawbacks themselves, the platform mechanism seems perfect, but it is just “image project”.

In addition, from the perspective of market development, there are also many problems, such as “self-funding”, “post-lending management” and “fake bidding”. No matter what kind of enterprise is, an important factor that restricts the development of the enterprise is capital. Therefore, in order to confuse the social masses, the operators will even use some ways of public opinions to report the amount of money their platform has raised as well as the achievements they have made. In fact, these are false appearances, which do not exist. The so-called financing is the operators' self-funding or the investment made by others the operators asked for. Therefore, these situations of P2P lending platforms have accelerated the decline trend of the platforms [8].

4. Investigation on risk control of P2P lending platforms based on block chain technology

Then under block chain technology, the way out for P2P lending platforms and the management that should be implemented on the platforms need to be figured out.

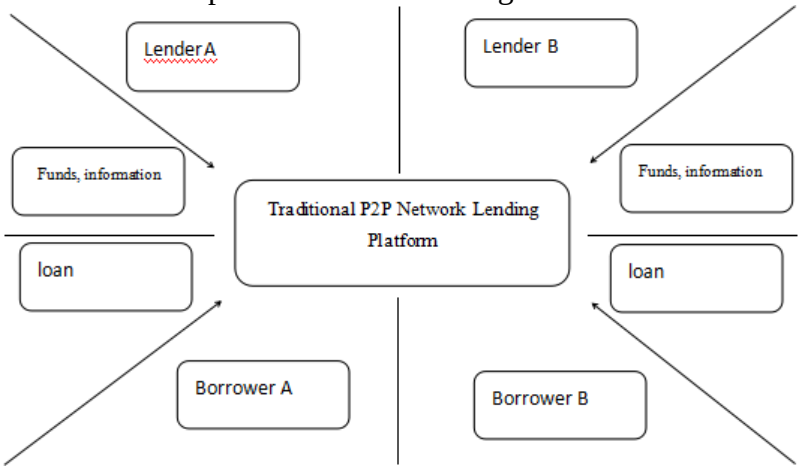

Fig. 2: Operating Model of Traditional P2P Lending Platform

It can be intuitively seen from Fig. 2 that, the causes of the decline of P2P lending platforms include the prevalence of inferior platforms and lots of illegal profit-gaining behaviors, which has led to the “Gresham's Law”, that is, the economic phenomenon of bad money expelling good money. The numerous inferior platforms operate illegally through Internet channels. Once the capital chain is broken, the operators can only choose “running away” to avoid problems, as the loans cannot be paid back. This irresponsible attitude has caused people to misunderstand deeper and deeper, and good platforms in the real sense will inevitably suffer from misunderstandings. The ultimate goal of all enterprises is gaining. If integrity management is unable to gain profit in the short term, then the enterprises will compromise with the society, and once the cost is recovered, they will be opportunistic, which will generate a bad atmosphere in the whole society [9].

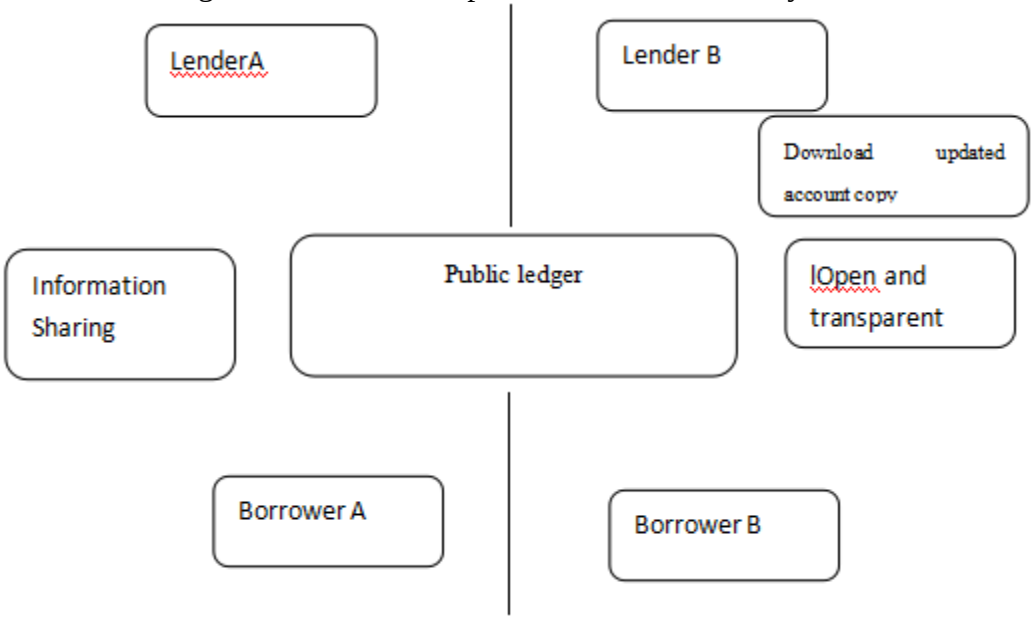

Fig.3: Business Model under Block Chain Technology

Fig.3 is the operation mode of P2P lending platforms after block chain technology is embedded. In this mode, the platforms must make clear the status of information intermediary, adhere to the baseline of integrity and the policy red line, and truly create sound convenience for the lender and the borrower's trading activities. In essence, block chain technology is to create a rule and provide a site for lending activities. All lending activities must be confined to a framework, so as to ensure the legality of the business activities. As designed in Fig. 3, there are restricted funds in the society, and when the borrower is in demand, he or she can apply to the lender and formulate certain conditions. According to the contract, the extent of responsibilities of the lending and borrowing parties should be clarified, and the relationship between rights and obligations should be handled properly. With the continuous superposition of the trading activities, the credit score of each user will be formed. The platform will allocate corresponding resources and divide different loan levels according to personal credit. People with higher credit rating are capable of borrowing larger proportion of money; on the contrary, people with lower credit rating can only borrow less money. Before lending, the lender can download the transaction information of the account book from the platform to query the status of the trader at any time.

Table 1: Comparison of Lending Rates between Banks and Online Platforms

Parameters	People's Bank of China	Online Platforms
Within 6 months	4.60%	4.30%
6 months to 1 year	4.70%	4.40%
1-3 years	5.01%	4.70%
3-5 years	5.01%	4.90%
Above 5 years	5.15%	5.02%

Due to the restriction of objective conditions, the lending rates of banks and P2P lending

platforms vary at any time. Therefore, the data selected in this paper is an average value determined by certain data. The information obtained from Table 1 is that although there is no big gap in the lending rate between banks and P2P lending platforms, and the difference is only zero points percent, if the cardinal number of the loan amount is referred to, the difference is not a little, which may reach several thousand, tens of thousands, or even hundreds of thousands. Moreover, the reason for the existence of P2P lending platforms in the market is that, compared with the traditional bank credit mode, an outstanding advantage of the platforms is the simplicity of the review procedure. It takes people a lot of time to borrow money from a bank, which is okay for individuals, but for enterprises, time means the risk they may bear. Banks have set up a lot of links in qualification examination of enterprises, so the time consumption is large. Therefore, in order to reduce the risk of enterprises, most managers will borrow money through P2P lending platforms, although the safety performance is not as high as that of bank lending, it can effectively meet the “crying needs” [10].

Therefore, block chain technology can effectively reduce the risk of P2P lending platforms, but it still needs the joint participation of social subjects to ensure its implementation. Firstly, the government should strengthen relevant legislative work. Legislation is the basis for ensuring social functioning, and all activities should be carried out within the scope allowed by law. After all, block chain technology is an emerging technology, and some unexpected problems will inevitably occur in the practice process. Therefore, the government should organize relevant personnel to conduct dynamic observation on the operation of the block chain technology, so as to ensure the coordinated development of the technology and the P2P lending platforms. Secondly, the P2P lending platforms should bear corresponding social responsibilities. Enterprises are subjects of market economic activities as well as the important force that pushes forward the continuous development of society. Given this, enterprises should resist firmly the ideas of “running away after making money” and “violating professional ethics”.

Although unhealthy ways and customs exist in the society, the masses' eyes are sharp. If an enterprise is truly operating, it will naturally establish a good corporate image. Finally it comes to the understanding of the society. It is undeniable that in recent years, a lot of disputes happened over P2P lending. People have entered the emotional margin of such services and mode. Therefore, people should be full of confidence in block chain technology, which can well guide the development of P2P lending platforms, and promote social development. Of course, the technology needs a process and time to prove itself. Only with the concerted efforts of the country, the society and enterprises, will block chain technology exert its greatest advantages, fundamentally solve the risk of P2P lending platform and ensure the specification of market economic activities.

5. Conclusions

In conclusion, P2P lending platforms under block chain technology can achieve favorable management. However, multiple factors need to be considered in the concrete implementation process, such as the standard making subject of the block chain technical protocol. Since the government has no interest appeals in the trading activities, it should assume the responsibility of supervision in block chain technology. Some supervision on the development and usage of any new thing is needed in the early stage, for which the reason is that, on the one hand, the deficiencies can be detected and actively corrected; on the other hand, corresponding supervision of the new thing can be conducted and the implementation of the thing can be standardized. In addition, although relevant protocol standards independently studied and formulated by the subjects are often highly efficient and flexible, enterprises are profit-oriented social organizations, and the standards will be inevitably affected by corporate interests. At present, the country is increasingly strengthening its supervision over P2P lending platforms, many chaotic phenomena have been effectively resisted, and the financial intermediary and risk guaranty functions of these platforms are even restricted. Therefore, some hardware facilities or conceptions are difficult to be tested by practice. In order to effectively push forward the compatibility between block chain technology and market financial activities as well as realize informatization and intellectualization of the financial activities, it is

necessary to accelerate the transformation of professional services' agency role by means of block chain technology, so as to well maintain sociometric security while providing convenience to both transaction sides.

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References

[1] Ji, Liangliang, Chen, Xiaofang, Wu, Yanhong et al. Influence of liquid crystalline formation on the phase behavior of side-chain liquid crystalline block copolymers[J]. Polymer: The International Journal for the Science and Technology of Polymers,2015,61:147-154.

[2] Habe, Hiroshi, Sato, Shun, Morita, Tomotake et al. Bacterial production of short-chain organic acids and trehalose from levulinic acid: A potential cellulose-derived building block as a feedstock for microbial production[J]. Bioresource Technology: Biomass, Bioenergy, Biowastes, Conversion Technologies, Biotransformations, Production Technologies,2015,177:381-386.

[3] Kanmuri, Shuhei, Kobayashi, Koji, Kimura, Yoshiharu et al. Preparation of Chain-Extended Poly(hexamethylene/pentamethylene carbonate)s and Their Block Copolymerization with Poly-L-lactide into Partly Biobased Thermoplastic Elastomers[J]. Journal of the Society of Fiber Science and Technology, Japan, 2015,71(2):127-140.

[4] Hsu, Yu-I,Masutani, Kazunari,Yamaoka, Tetsuji et al. Strengthening of hydrogels made from enantiomeric block copolymers of polylactide (PLA) and poly(ethylene glycol) (PEG) by the chain extending Diels-Alder reaction at the hydrophilic PEG terminals[J].Polymer: The International Journal for the Science and Technology of Polymers,2015,67:157-166.

[5] Mishra, Kaushik, Joy, Abraham. Dual functionalized telechelic block copolymers with reproducible block sizes prepared by microwave assisted RAFT polymerization[J]. Polymer: The International Journal for the Science and Technology of Polymers,2015,66:110-121.

[6] Banerjee, Rakesh, Maiti, Chiranjit, Dutta, Sujan et al. Size- and distance-dependent excitation energy transfer in fluorophore conjugated block copolymer - gold nanoparticle systems[J]. Polymer: The International Journal for the Science and Technology of Polymers,2015,59:243-251.

[7] Monireh Sadat Mirtalaei, Morteza Saberi, Omar Khadeer Hussain et al. A trust-based bio-inspired approach for credit lending decisions[J].Computing: Archives for informatics and numerical computation,2012,94(7):541-577.

[8] Binjie Luo, Zhangxi Lin. A decision tree model for herd behavior and empirical evidence from the online P2P lending market[J]. Information systems and e-business management: special issue on emerging technologies for e-business engineering,2013,11(1):141-160.

[9] Torregoza, Mark Lorenze R., Dadios, Elmer P.. Comparison of neural network and hybrid genetic algorithm-neural network in forecasting of Philippine Peso-US Dollar exchange rate[C].//2014 International conference on humanoid, nanotechnology, information technology, communication and control, environment and management: HNICEM 2014, 12-16 November 2014, Puerto Princesa Palawan, Philippines.2014:1-5.

[10] U. Redmond, P. Cunningham.A temporal network analysis reveals the unprofitability of arbitrage in The Prosper Marketplace[J]. Expert Systems with Application,2013,40(9):3715-3721.