The Development Trend and Comparison of Chinese and American Financial Technology

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ABSTRACT
As a role of value circulation, finance is the allocation of transboundary resources in the uncertain environment [1]. However, there are many problems during the process of traditional allocation. Financial technology can accelerate the solution of traditional financial problems. China and the United States have a great influence on the global economy in the development of financial technology. This paper compares the similarities and differences of financial technology in China and America to get the focus and growth area for Chinese financial technology. It begins with the background of financial technology development in China and the US. Then it discusses Sino-US common financial technology development. In addition, it analyzes three drive technology’s appliances, which is big data, artificial intelligence and block chain. Finally it comes to their development suggestion. China should find the innovative way to develop financial technology and improve its regulation.

KEYWORDS
Financial technology; China; America; comparison; development trend

THE BACKGROUND OF FINANCIAL TECHNOLOGY DEVELOPMENT IN CHINA AND THE US
The traditional finance mainly refers to the three traditional businesses: deposit, loan and settlement [2]. Compared with the United States, the three major traditional financial services in China are slightly inadequate, especially in the construction of bank infrastructure.

1. RELATIVE INSUFFICIENCY OF CHINA’S BANK INFRASTRUCTURE
There are many kinds of ownership in China’s banks. However, the capital and business share of the state-owned commercial banks are the largest. The government’s decision on financial system reform requires state-owned commercial banks to decouple from insurance industry, securities industry and trust industry.

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Under the model of separate operation, it is difficult for state-owned commercial banks to obtain the source of funds outside the deposit. The lack of funds and the limited expansion channels of bank capital can easily cause the situation that the scale of the bank cannot be fully expanded. At the same time, unlike the US's large competition in the banking market, the state-owned commercial banks are strictly supervised by the state and the degree of marketization is relatively low. So they lack the driving force to provide better services to win more customers.

Thus, China bank infrastructure is relatively insufficient. In 2015, commercial bank outlets in China are per 100 thousand people to 16.06, which are per 100 thousand people to 29.23 in the US, nearly two times as many as China’s [3]. So, in China there are a number of people that have not been served or not fully served by commercial banks, which are the underbanked. However, to commercial bank, the services for this kind of long tail cost users is with low income and expenditure ratio.

<table>
<thead>
<tr>
<th>TABLE I. STATISTIC AND CALCULATED DATA Statistic (Originate from 2015)</th>
<th>Total Population (Thousand people)</th>
<th>Commercial Bank Outlets</th>
<th>The Amount of Commercial Bank Outlets Per 100 Thousand</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1374,620</td>
<td>220,700</td>
<td>16.06</td>
</tr>
<tr>
<td>The US</td>
<td>32,136</td>
<td>93,920</td>
<td>29.23</td>
</tr>
</tbody>
</table>

2. CHINA’S IMMATURE CREDIT SYSTEM

Different from American credit industry with more than 100 year’s history, China's credit industry has developed for only a few years. There are enterprise and personal credit systems in the United States. As for enterprise credit system, Standard and Poor, Moody and Fitch are capital market credit organizations, while Dun & Bradstreet is common enterprise credit institution. As for personal credit system, Experian, Equifax and Trans Union are industry-leading. The remaining more than 400 regional or professional credit organizations are attached to the above-mentioned organizations [4]. In addition, the FICO rating system is established as a unified personal credit standard in US. As for China, the traditional credit organizations include PBCCIC, PYCREDIT, CCXI, and so on. The Internet credit organizations include IQIXIN, ZHIMA CREDIT, TENCENT CREDIT, and so on. Although China’s credit system has formed, big population base and a large number of enterprises lead to an uncomplete personal and enterprise credit system.

3. THIRD PARTY PAYMENT WORKS AS THE SUPPLEMENT FOR TRADITIONAL SETTLEMENT BUSINESS

On the one hand, traditional bank settlement business is relatively dispersed, which is unable to meet the huge need of cross bank funds. So Chinese third party payment undertakes online inter-bank payment system’s role. On the other hand, according to the traditional settlement business, consumers need immediate transfer to businesses, which is prone to lack of trust due to asymmetric information. The relatively independent third party payment platform can delay the arrival of payment. As a result, it solves the trust problems between two parties and facilitates transactions. In contrast, US third party payment organizations, backed by a mature credit system, focusing on enhancing the efficiency of the transaction, rather than simply contributing to the transaction.
4. SUMMARY
For traditional financial services especially in deposit service, the relative lack of Chinese banking infrastructure cannot meet all the users’ need. For traditional loan business, with a large amount of statistic waiting to calculate, China’s credit system is not perfect. For the traditional settlement business, third party payment platform needs to improve its efficiency. In this case, financial technology is utilized to fill the blank of traditional financial services.

THE GENERAL ANALYSIS OF FINANCIAL TECHNOLOGY DEVELOPMENT IN CHINA AND THE US
In China, financial technology fills the blank of traditional financial services. In US, with a relative perfect financial system, financial technology plays a supplement role. No matter what role financial technology can play, its development in China and the US still has something in common.

1. THE COOPERATION BETWEEN FINANCIAL TECHNOLOGY AND FINANCIAL ORGANIZATIONS IN CHINA AND THE US IS DEEPENING
In the US, the well-known investment bank Morgan and MCX (two-dimensional code scavenging payment company) had reached a cooperation. Citi Venture focus on financial technology equity investment like Square (a mobile payment company). In China, Alibaba and CCB had signed a strategic cooperation agreement. Tencent, Alibaba and Ping An insurance group had founded China's first online insurance company - ZHONGAN Online. There are many examples likes this.

2. THE RISKS OF FINANCIAL TECHNOLOGY IN CHINA AND THE US IS OVERFLOWING
Technological progress and innovation do not mean the loss of financial risk. On the contrary, the development of financial technology brings cross industry, cross market and cross institutional financial services, which will make financial risks more infectious, spread wider and spread faster. With the development of Internet technology, from Dec. 2012 to Feb. 2016, China's network lending platform has increased from 200 to 2519, increasing by about 12 times. But in Feb. 2016, the cumulative Chinese problem platform reached 1425[5]. In the United States, the development of financial technology also has risk problem. In May 2016, the P2P network loan platform Lending Club was released by the media for loan sale violation. Its stock price dropped by about 34.9% in May 9th, and further decreased by about 11.3% in May 10th. The P2P lending industry in the US was affected by it and suffered a great shock [6].

3. THE SUPERVISION OVER FINANCIAL TECHNOLOGY IN CHINA AND THE US IS TIGHTENING
With the outbreak of risk events in the Internet financial field, China's financial supervision department has begun to strengthen the supervision of Internet finance. In April 2016, the people's Bank of China, the Banking Regulatory Commission and other departments issued the new regulation “the guidelines for depositing and managing business of lending funds”. A series of new policies reflect the tighter regulation of financial technology. And the US regulation of
financial technology is also tending to be strict. In May 2016, the US monetary supervision department issued the draft to the financial technology company “financial technology enterprise application evaluation charter”.

COMPARISON OF THE FORMAT FROM FINANCIAL TECHNOLOGY DRIVEN FORCE

At present, big data, artificial intelligence and block chain are important driving forces in the dimension of financial technology. These driving forces had brought to three format: big data CreditReporting, Robo-Advisor, digital currency [7]. Therefore, from their development status, this paper analyzes the three new formats and puts forward the suggestions for their development.

1. BIG DATA CREDITREPORTING

The development of big data will undoubtedly play a great role in finance, which is a strong data oriented industry. In fact, big data can help enterprises find the truth of the market and better configure their resources.

(1) DEVELOPMENT STATUS

At the end of 2015, the central bank personal credit system contains a total of 880 million natural numbers, 380 million of which have a credit record. And its coverage rate is 27.6%.

\[
\text{Personal coverage rate} = \frac{\text{number of people with credit records}}{\text{Chinese total population}}
\]  

(1)

Besides, the central bank enterprise credit system included 21,200,000 enterprises and other organizations, 5,770,000 of which have credit records. And its coverage rate is 7.4% [8].

\[
\text{Enterprise coverage rate} = \frac{\text{number of enterprises with credit records}}{\text{Chinese total number of enterprises}}
\]  

(2)

For personal credit, the big three personal credit agencies have occupied more than half of the American local market share. For enterprise credit, Dun&Bradstreet owns the world largest business information database with 250 million enterprises (From more than 30 thousand data source). In recent years, some American Internet startups focus on professional orientation, gradually emerging from the highly centralized market. In addition, the United States has a complete credit supervision system.

(2) SUGGESTIONS FOR DEVELOPMENT

On the one hand, the popularity of inclusive finance and consumer finance brings greater credit demand. Therefore, while strengthening supervision, we should speed up the examination of personal and enterprise credit organizations, which will improve the competitiveness of the Chinese credit market. On the other hand, the relevant departments need to strengthen the supervision of large data, especially for personal data.

2. ROBO-ADVISOR

In order to meet the growing financial needs, Robo-Advisor appears. Based on the Markowitz theory and making use of artificial intelligence, when the two dimensions of user and market data is large enough (given return rate, variance and risk preferences of investors), we can find the
optimal modal. The role of Robo-Advisor, is to rationally find optimal portfolio and recommend for users, improving the effectiveness of capital market.

(1) DEVELOPMENT STATUS

With retail-heavy investor base and low effectiveness in Chinese stock market, the development of Robo-Advisor is still at the primary stage. From the established number of Robo-Advisor company, 2015 is the most heat year (By the end of Aug. 2017), see figure 1. At of the end of 2017, more than 78% of the domestic Robo-Advisor enterprises are still in the A round financing [9]. Obviously, there is a huge development room in the whole industry.

Figure 1. Chinese Robo-Advisor enterprise established number.

With developed financial markets, American Robo-Advisor is a mature industry, including Wealthfront, Betterment, Future Advisor and other Robo-Advisor oriented company, which have managed separately above $1 billion. So far, the United States has more than 200 Robo-Advisor companies, and this number is rising. According to Citigroup’s report, at the end of February 2017, the fund scale of Robo-Advisor has been close to $80 billion [12].

In the United States, like traditional investment advisers, Robo-Advisor is restricted by "Intelligent Investment Advisers Act of 1940", and it need to hold RIA (Registered Investment Advisor), that is, its Funds are regulated and managed by the third party. The Chinese legislation clearly stipulates that “the recommended software” are engaged in securities investment consulting business. But by now, it has not yet found a Robo-Advisor platform to get business license issued by the commission.

(2) SUGGESTIONS FOR DEVELOPMENT

American stock market is effective and stable. Most investors choose to invest in the stock market, especially the ETF (a basket of stocks’ ownership as a passive Fund) for a stable income. As shown in Figure 2, Chinese stock market is volatile and speculative with low expected return rate. At the same time, the monetary Fund rate usually reach 4-5%, which is more stable than the stock market [11]. For investors, the risk of Chinese stock market is far greater than the stock market in the developed countries such as the US. Chinese stock market’s low effectiveness and volatility make us not fully replicate the mature Robo-Advisor model of the US. We should adapt the Robo-Advisor model to Chinese investment characteristics. In addition, fairness of Robo-Advisors is to be discussed. According to the Securities Industry Association China information, only one Robo-Advisor company (TONG HUA SHUN) got the investment consulting qualification [12]. Most Robo-Advisor company need to cooperate with fund sales
institutions. And with depth bound with intelligent funds, Robo-Advisor company may not be able to recommend the most suitable investment portfolio for investors.

Figure 2. The Condition of Chinese Shanghai Composite Index.

3. BLOCK CHAIN

Block chain is an invariant protocol of value interconnection [13]. Block chain has a wide range of applications, such as digital currency, decentralization digital exchange, and digital identity authentication and so on. The role block chain, to finance is to decentralization, to improve transaction efficiency and market fairness.

(1) DEVELOPMENT STATUS

The application of China's block chain is concentrated in the financial field. As of September 4, 2017, the total amount of funds raised by the domestic platform for ICO projects was about 60-70 billion yuan. However, there are fewer landing cases in the area of block chain, and the application level products are mostly in the primary stage.

In contrast, America's application to block chains is more extensive and not stop in the financial sector. In the aspect of block chain alliance, Hyperledger (a super account project), Enterprise Ethereum Alliance (EEA) are examples. With more original technology, the US has a higher discourse power in the block chain alliance.

China's supervision of the block chain is from loose to tight. In 2013, the five sector identified bitcoin as a virtual commodity. But in 2017, with ICO's heat, the regulatory layer identified ICO as illegal public financing, which was directly required to suspend. However, the Chinese government is still open to the block chain. In contrast, the regulation of block chain in the United States is more sustained, and the regulatory layer has prompted the risk of the block chain.

(2) SUGGESTIONS FOR DEVELOPMENT

The block chain solves the centralization problem of value transmission. Although digital currencies such as bitcoin have been called by the Chinese government for "irrational exuberance". But it does not mean that block chain’s nature -decentralization is not recognized. On the contrary, block chain technology can be utilized in other field to improve the efficiency and fairness. It can be used in many different kinds of areas, such as intellectual property, identity, business contract signing, and etc. appliances.
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