

## **The Coping Strategies of Commercial Banks in Big Data Background**

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**Abstract:** *The era of "big data" has dawned, which is known as a disruptive technology change in succession to the cloud computing and EPC system network. It will have huge influence on society, business and human. In this background, this paper analyzed the influences which will have on the commercial banks with the arrival of "big data" era. Some suggestions are put forward, such as combining financial services and social networking, strengthening cooperation among big data finance and cultivating the core abilities.*

**Keywords:** *Big data; Commercial banks; Core competences*

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Big data is a new technical revolution in the IT industry in the train of cloud computing and EPC System Network. These data are too large to be measured by G&T. As far as commercial banks are concerned, virtualization and electronic trading will be the characteristics in an era of big data for the financial industry development. As a result, commercial banks should be positive to deal with massive data and to meet the challenges of the era of big data from a strategic level. Financial institutions who promote and establish the data driven development pattern will obtain higher efficiency than peers. They can promote abilities of cross sales and investment management effectively, market share and. At the same time, their core competitiveness of information will be cultivated.

### **1. LITERATURE REVIEW**

Over the past two decades, Internet brought rapid data expansion, which determines the future development of the enterprise to some extent. As the New York Times represented, wrote in a column published in February 2012, "big data" era is coming. The decisions will be increasingly based on data and analysis but not based on experience and intuition in the commercial, economic and other fields.

Xiaochuan Zhou (2013) thought that in the face of the large data rapid development, the challenge is positive because the competition will improve the development of traditional industry which has to adapt to the new situation. The strong stimulus will help them catch up with the pace of science and technology. Through the competition, the final result is the case that the competition will bring better products and better service.

Mr.Ping Xie (2012) presented that modern science and technology represented by considerable data and the Internet, especially mobile payments, social networks, search engines and cloud computing, will have a fundamental impact on human financial model. The third kind of financial model, namely "the Internet finance", will play an important role in financing field, which is not only different from indirect financing of commercial bank, but also direct financing capital market.

Songzuo Xiang (2012) argued that Internet finance will be the future of financial model innovation. The traditional bank industry will suffer a huge shock if the third party payment and the electronic business enterprises are allowed to expand their activities in finance.

## **2. THE CHARACTERISTICS AND ADVANTAGES OF THE ERA OF LARGE DATA**

Generally think, big data have the following four characteristics, the low cost, variety, volume and velocity. In term of the cost, big data can greatly reduce the costs which includes the transaction costs, the cost of information processing. In addition, the cost can be lowered down in the transmission and processing of customer feedback information. Information will be a new kind of capital and huge amounts of customer information will become the new production factors. Both supply and demand sides will complete detailed disclosure of information to each other in the era of big data. Based on rapid matchmaking tradeoff, credit rating will go beyond mortgages, which can generate risk-pricing of both sides and the dynamic probability of default with the support of sufficient historical information.

Big data on the economic contribution is to meet demand for promoting the efficiency of all walks of life. At the same time, the new business forms will overturn the old. In reference to industry characteristics of massive data, only the one who mastered the data can be able to enter the field of big data because the barriers to entry are low. Nonetheless, compared with the general industry, the barriers of growth and development are high. The required knowledge is comprehensive, which includes IT, mathematics, industry experiences and rare comprehensive abilities. The more data are mastered and understood, the more data are output and utilized.

## **3. THE COMPARISON OF FINANCE IN ERA OF BIG DATA AND TRADITIONAL FINANCIAL---TAKING COMMERCIAL BANKS FOR EXAMPLE**

Big data promote the development of the Internet finance. The core is the transmission of information, which make the costs of transaction and analysis reduce greatly. Inevitably, the entire business model is changed. The changes provide new direction for the financial industry development. Big data will support a good customer experience and save cost, which is benefit for increasing customer investment yields and lowering loan interest rates. Thus, the banks will attract more customers and improve customer viscosity. In contrary, the traditional banking pay more attention to only a few clients, such as large scale enterprises and higher-yielding clients.

By contrast, in the era of big data, Internet finance replaces banking outlets and manpower with technology, which will impact the traditional banking in the field of sensitive efficiency, yield and convenience. The common characteristic is that such businesses are not difficult to be standardized. For non-standardized financial business (such as financial needs of large enterprises) have to be met through customized solutions. Traditional banks are much better at it.

**Sheet 1.** *The comparison between the Internet finance in era of big data and traditional banks*

	relative advantages	relative disadvantages
traditional banks	Higher market credibility Possessing large amount deposits Stricter regulatory standard, but may get the government support at extreme events Richer experience in the complex products and structured products Remaining in control of large corporate clients and agency business	Disadvantage in accessing to online users Higher operating cost Difficult to structural transformation Interest rate being regulated
Internet finance	Possessing real-time data of electric business platform Accessing to online users more easily Lower operating costs Easier to transform	Industry will be adjusted with more perfect and strict regulation Market-oriented interest rate reform will make its rewards appeal decline Higher credit risk Lack of experiences in design of complex products Customers scale are smaller

**4. THE EFFECT ON BANKING IN THE ERA OF BIG DATA**

Beginning with media and retail, Internet has spread into new regions such as finance, health care, education, TV, construction in the era of big data. A different business model has been formed, which contributes to enhancing the efficiency of industry competition. Influences on banking are as follows.

**4.1 Big Data is Helpful to Improve the Operational Efficiency of the Financial Industry**

After many years' accumulation and development, the data volume of commercial banks and insurance in China has reached more than 100 TB. At the same time, the amount of unstructured data is growing rapidly. The function of financial intermediaries has changed because of the application of big data, which manifested as virtualized and electronic characteristics. The financial system achieves higher productivity due to upgrading financial data platform and digesting data.

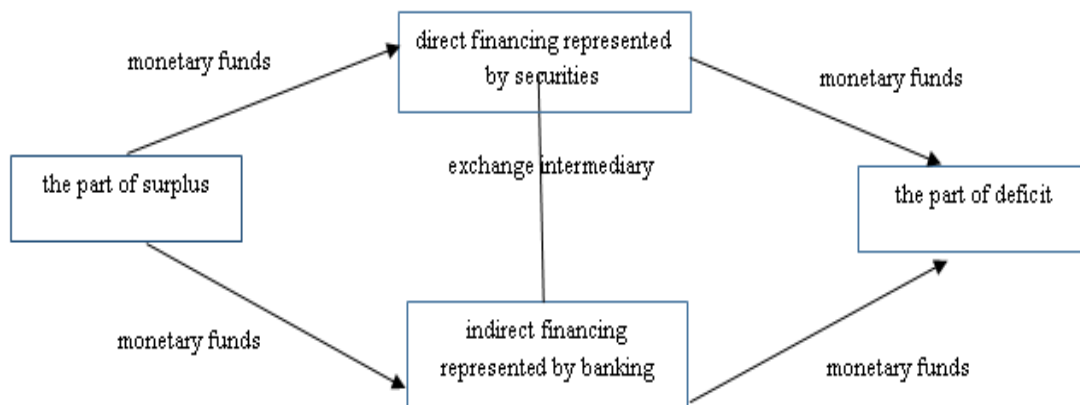
Firstly, virtualized transactions of financial products will extend financial supply chain. Not only monetary expenses can be reduced, but financial market efficiency be improved. Secondly, the accumulation of big data makes financial institutions sales more precision. Based on existing clients or business network, financial institutions can find more valuable customers who are potential to market precisely. Thirdly, because of the development of hardware and the construction of data platform, the transaction data that spread in different systems and locate at the bottom may analyze and identify comprehensively. And it is helpful to forecast beforehand, controlling during the process and analyzing and evaluating at the end. Taking banking for example, big data can help banks to establish a dynamic and reliable credit system to identify high-risk clients and potential customers. Meanwhile, various trading risks can be identified so as to prevent and control the financial risk effectively. Finally, financial institutions will be urgent to innovate in the era of big data. Through analyzing the classification of the users and creditability, financial products based on different combinations will be developed swiftly. By processing the

mass market information, the banking can improve the profitability of financial institutions.

#### 4.2 Big Data is Helpful to Improve the Structural efficiency of the Financial Industry

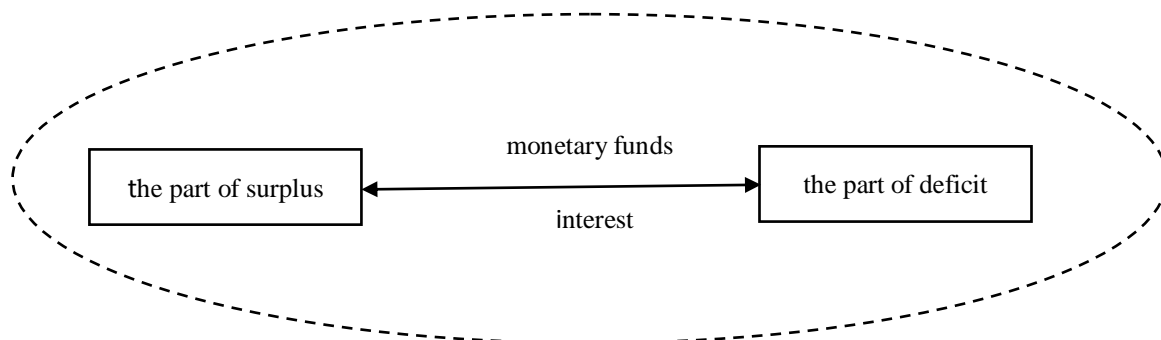
Internet and big data has broken the information asymmetry and physical barriers. Information flow and data flow will allocate various resources effectively to lead to a revolution of the traditional production relationship in. The mode of “Factory to consumer (F2C)” becomes an important trend, which will greatly improve efficiency of traditional financial industry structure. It is of great importance for China's economic transformation and industrial upgrading.

Financial intermediaries are indispensable owing to two premises. The one is transaction costs. Financial intermediaries can achieve economies of scale by proprietary technology. The other is information asymmetry, which leads to adverse selection and moral hazard. Traditional ways of generation, transmission, processing and utilization of information have been broken by search engines, social networks, Internet, mobile Internet, cloud computing and big data. The processing of disinter-mediation will speed up because the information asymmetry has been broken and the cost of information acquisition and processing has been decreased. As a kind of ideal model, the money supply and demand will match freely in the future. The social contract is the bidirectional interaction. There are still many unexpected risks for banking due to asymmetric knowledge. Personalized solutions are much appreciated by commercial banks. Otherwise, human knowledge can be structured by IT, and part of the banking service will be gradually replaced by the intelligent support IT.



Service intermediary such as Investment Consultancy and Rating Agencies

**Figure 1.** Traditional financing way of financial market in China



IT intelligence support+ service intermediary

**Figure 2.** Financing way of financial market in the future

## **5. SUGGESTIONS FOR COMMERCIAL BANKS TO DEAL WITH “BIG DATA”**

Despite the influence of big data is relatively small for commercial banks at present, but the disruptive effects of big data must be fully aware of. It is a good idea to provide against the future for the commercial bank with vision and ambition.

### **5.1 Promoting the Combination of Financial Services and Social Networking**

Commercial banks should break the boundary of the traditional data source and pay more attention to new data sources from social media. Much more customer information can be got through various channels and more valuable data will be dug out. Firstly, commercial banks will integrate new customer contact channels and make full use of the role of social networks to enhance the understanding of customers and set up a good brand image. Secondly, they should pay more attention to the customer service of new media and take advantage of BBS, chat tools, micro blogging, blog and other network tools rather than lying in the only service channel of telephone. Thirdly, commercial banks interconnect internal and external social data to get more complete customer relationship, which is benefit for efficient customer relationship management (CRM). Fourthly, product innovation and precision marketing can be realized by social network and mobile data. For instance, the banks know that a customer is shopping in a mall supermarket mobile location information by mobile location information. Promotion messages involved in paying by credit card will be sent automatically. Fifthly, the commercial banks should make a point of public sentiment from the different media channels. It is advantageous to treat problems timely before the outbreak of risk events and minimize adverse effects.

### **5.2 Layout Competitions and Cooperation with Financial Big Data**

“Financial big data” here refers to the financial service businesses based on big data, such as Ali Credit in China. With the development of financial big data, competition and cooperation between banks and the financial service businesses are inevitable. On the one hand, banks can compete directly with them by developing their own sizable data platform. At present, there are a large number of deals in broad electric business platform every day. Meanwhile, most of these settlements are monopolized by the third-party payment institutions and banks are at the end of the paying chain. As a consequence, the value they obtain is very small. In response to the situation, banks can consider to build big data platform themselves and access to their own big data. In view of owning operating data of a large number of customers, the banks are more competitive in vying for influence in marketing. In fact, many banks have implemented strategies in this aspect. On June 28, 2012, e-commerce platform of China Construction Bank, "good financial business", has been launched. It includes B2B and B2C, involving in e-commerce services, financial services, operation management services, community services, etc. It can be viewed as a direct response for CCB to terminate cooperation with Alibaba.

On the other hand, banks need to broaden win-win economic cooperation with financial enterprises of big data. It is impossible that complete and comprehensive big data are controlled by one of the enterprises, institutions or government alone. Cooperation and win-win between enterprises are the trend because anyone can't monopoly big data. Reaching a mutual understanding on recognition huge value of big data, banks will cooperate with various data platforms, such as telecommunications, E-commerce, social networks. Information and data can be shared effectively, and the useful customer information can be integrated, too. The cooperation between China Construction Bank and Alibaba made a meaningful exploration on the integration financial services with mobile Internet, E-commerce, social networking, etc.

It's a pity that the cooperation had to be terminated because the requirement of Alibaba in sharing credit interest benefiting was rejected. A true principle, therefore, it is the key for cooperation whether the profit allocation model is reasonable or not among the banks and the mobile Internet, E-commerce, social networking.

### **5.3 Culturing the Core Competences in the Era of Large Data**

#### *5.3.1 The Ability of Data Integration*

Data integration not only includes the internal data, but the ability of data integrating the external data on larger data chain. In big data era, only will the enterprises who are able to integrate and manage data dominate the industry chain. As one of the big data chain, banks should be more active in the exchange of data and information. The more complete the data are, the greater the effect can be created. Owing to the differences from industry data standards and formats, it is enormous challenges how to gradually unified data standard for more convenient data exchange and integration.

#### *5.3.2 The Ability of Data Analysis*

It's important to distinguish between the traditional business intelligence and the capacity of data analysis in the era of big data. First of all, unlike traditional business intelligence data processing by the banks mostly are standardized and structured data of databases, more data are semi-structured and unstructured ones in an era of big data. Secondly, the amount of data needed to be processed in era of big data is not an order of magnitude with the current data completely, which results that the existing data processing method can't meet the demand.

Finally, the current analysis of data, such as credit rating and marketing model, is conducted after modeling system implementation lasting for a long time. In the era of big data, real-time data processing is necessary. The differences in the nature of these not only require banks to use special data storage technology and equipment, but require the use of special data analysis methods and system. It is bound to note that there's a wide gap of ability of data analysis with the advanced international banks. Many Chinese Banks ability of data analysis in the era of "data" are urgently need.

#### *5.3.3 The Ability for the Implementation of Action*

Only converting into actual business operations, can analysis of the big data truly create value for banks. Implementation in the era of big data has two distinctive features-- accurate and fast. Precision depends on the comprehensive and deep-going understanding to clients when facing different ones in the future. It is the premise that all of action plans are targeted. The solution will be more differentiation. At present, one unified version for all customers in a promotional message will be replaced tens of thousands of different versions in the future. Rapidness depends that many analysis and strategy are automatic in big data era. More marketing activities will be triggered by a behavior of customers, and then automatically perform the corresponding action by the system. These features require the bank system and personnel more adaptable.

To cultivate the ability of these three aspects, banks need to prepare in concept, system, talents, management and so on. As far as the idea is concerned, the impact of the big data needs to understand fully, and the idea that data analysis guides the operation and management should be established and strengthened. As for system, when constructing of a new generation of information system storage, management, analysis and use of large data should be considered. In addition, advanced talents who proficient in data management and analysis is necessary to be

actively recruited and trained. At last, the existing management structure, organizational system, resource allocation should be restructured. Data management and analysis department are located in the upstream of the company. For example, chief data officer (Chief Data Officer, CDO) position will be set up, and it is essential to make it into the company's core decision-makers.

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