

Research on the Independence of Cooperation between Big Data Credit Agencies and Commercial Banks--The Perspective of Commercial Banks credit risk Control

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Abstract: Risk control is the core of the commercial bank credit business. In recent years, the rapid development of internet and financial technology has created basic conditions for big data credit agencies to help commercial banks fully tap customer information, strengthen dynamic risk control model management, and improve the effectiveness and scientificity of loan decision-making. More and more commercial banks and big data credit agencies cooperate in depth through data sharing, joint modeling and other ways, and adopt different charging methods to realize risk sharing. In particular, small and medium-sized commercial banks with weak technical strength have stronger risk control dependence on big data credit agencies. The independence of big data credit agencies determines their choice in customer diversion, profit sharing and other aspects, and also determines the effect of commercial banks credit risk control, which deserves attention and research.

1. Introduction

In recent years, with the rapid development of internet and financial technology, big data credit agencies rely on their professional data mining technology to collect all kinds of behavior data of information subjects, and provide to commercial banks. With the gradual refinement of social division and the more prominent technical advantages, big data credit agencies began to provide risk control services to commercial banks. Through joint modeling with commercial banks or directly responsible for all risk control modeling work, big data credit agencies provided customers with credit decision-making advice for commercial banks, shared part of credit profits and assumed part of credit risks.

2. Cooperation mode between big data credit agencies and Commercial Banks

The traditional way for big data credit agencies to serve commercial banks is to participate in credit business as data source. According to different kinds of data sources, it is mainly divided into two types of services: one is the credit data from Credit Reference Center of The People's Bank of China; the other is alternative (non-credit) data provided by big data credit agencies, such as judicial, tax, customs, environmental protection, etc. The two kinds of information are strongly related to the credit, operation and repayment ability of customers of commercial banks, forming a mutually complementary and support relationship. Commercial banks using such data services are generally large in scale and strong in risk contro, and only introduce the data source into their own credit risk control model to screen out high-quality customers. The payment mode between them and big data credit agencies is generally per-query or annua, which has nothing to do with the credit line and loan amount of credit business.

But with the rapid development of financial science and technology, big data credit agencies, with its technical advantages, began to participate in the credit business of commercial banks as the risk controller, playing an important role in pre loan assessment, record in loan and post loan supervision. This mode is generally participated by big data credit agencies, commercial banks, governments and guarantor companies. According to the needs of commercial banks, big data credit agencies build

big data credit model, integrate the information in their own database and the information filled in by customers when applying for credit business, to collide with the internal information of commercial banks, and specifically preliminarily screen the list of customers who basically meet the credit conditions in the region, supplemented by customized credit reports and credit extension and loan recommendation, which provide reference for credit decision-making of commercial banks. Some big data credit agencies also provide offline investigation services. Commercial banks conduct secondary risk control in combination with the credit reports provided by big data credit agencies and Credit Reference Center of The People's Bank of China, determine whether to pass customers' loan apply, and be responsible for issuing loans and post loan management. Governments coordinates with relevant departments to help big data credit agencies obtain more data, improve the accuracy of customer credit profile by increasing data dimensions, assist commercial banks to invest credit funds to more high-quality customers, and promote local economic growth. Guarantor companies relies on the credit report issued by big data credit agencies to make guarantee decision, obtain more benefits through distributing credit business of commercial banks, and bear the risk of credit guarantee.

Table 1. The mode of a big data credit agency serving commercial bank as risk controller

Service mode	Mode 1	Mode 2	Mode 3
Composition of participants	Government Big Data Credit Agency Commercial Bank	Big Data Credit Agency Guarantor Company Commercial Bank	Big Data Credit Agency Commercial Bank
Service content of the big data credit agency	<ol style="list-style-type: none"> 1. Build a big data credit model according to the needs of the commercial bank. 2. Push the list of primary screening customers and credit report to the commercial bank. 3. Notify the commercial bank to lend money after collecting the customer credit service fee. 	<ol style="list-style-type: none"> 1. Build a big data credit model according to the needs of the commercial bank. 2. Push the list of primary screening customers and credit report to the commercial bank. 3. Carry out offline investigation according to the list of secondary screening customers fed back by the commercial bank. 4. According to the investigation, add credit score and recommended credit line in the credit report. 5. Feedback the adjusted credit report to the guarantor company. 6. Notify the commercial bank to lend money after collecting the customer credit service fee. 	<ol style="list-style-type: none"> 1. Build a big data credit model according to the needs of the commercial bank. 2. Help the Commercial bank integrate the information in their own database and the information filled in by customers when applying for credit business to form credit report.
Characteristics of credit products	<ol style="list-style-type: none"> 1. Pure credit loan. 2. The big data credit agency recommends customers. 3. The commercial bank makes credit 	<ol style="list-style-type: none"> 1. Credit loan and mortgage loan. 2. The big data credit agency recommends customers. 3. The commercial bank 	<ol style="list-style-type: none"> 1. Pure credit loan. 2. The commercial bank independently markets customers and conducts offline investigation. 3. The commercial bank

		decision directly through credit report without offline investigation. 4.The commercial bank credit rate is less than 20%.	directly conducts secondary screening through credit reports, and the screening pass rate is more than 80%, and does not conduct offline investigation. 4.The guarantor company selects customers according to the adjusted credit report and issues the guarantee letter. 5.The commercial bank credit rate is 20% - 30%.	makes credit decisions according to the credit report and offline investigation.
Credit limit		2 million	20 million	1 million
Charging mode	Big data credit agency	Collect 0.4% of loan amount from the commercial bank customers.	Collect 1% of loan amount from the commercial bank customers.	When the total scale of credit products is less than 1.5 billion, 1.5-4.5 billion and more than 4.5 billion, the big data credit agency collect 10%, 8% and 6% of the paid in interest from the commercial bank respectively.
	Guarantor Company	—	Collect 0.6% of loan amount from the commercial bank customers.	—
	Charge time	Before lending		Quarterly payment
Risk sharing model	Government	70% of the commercial bank's bad debt ¹	—	—
	Big data credit agency	10% of the commercial bank's bad debt	5% of the commercial bank's bad debt	When the non-performing rate is more than 3%, 4% and 5%, the percentage of charges in interest will be reduced by 1, 2 and 3 percentage points respectively.
	Guarantor Company	—	75% of the commercial bank's bad debt	—
	Commercial Bank	20% of the commercial bank's bad debt	20% of the commercial bank's bad debt	Other credit risks

The smaller local commercial banks adopt this mode, because their own risk control ability is insufficient, they need to use the external financial technology and non credit data to help improve the credit risk control model. The model is generally set up in the production system of commercial banks to ensure the ownership of property rights and the security of information. However, due to the lack of risk tolerance of small commercial banks, they are more vulnerable to the impact of credit bad debts, resulting in liquidity risk, so they will generally share the risk through the intervention of governments or guarantor companies, or combine credit loans with mortgage loans to make up for the possible loss of credit business with bad debts.

The service fees collected by big data credit agencies will be included in commercial banks' designated account as risk sharing fund in the early stage of cooperation with commercial banks, and the excess can not be taken out as the income until the agreed fund limit is exceeded². Therefore, if

¹ Commercial banks usually charge bad debts to accounts that are more than 90 days overdue.

² If the total amount of risk sharing fund is ¥100 million, big data credit agencies will bear 5% of the bad debt amount according to

big data credit agencies adopt this mode to cooperate with commercial banks, they will have a large amount of investment and a small amount of income in the early stage. It will take a period of time to verify their role in the drainage and risk control of credit business before they can continue to get more income. In the above example of cooperation between the big data credit agency and the commercial bank, the non-performing rate of credit business is very low, and some overdue loans are temporarily eliminated by means of extension after coordination by the government. Therefore, none of the relevant parties has incurred any credit loss.

3. Analysis on the independence of cooperation between big data credit agencies and commercial banks

Compared with the services provided to commercial banks by big data credit agencies as data sources and risk controllers respectively, the former only provides information and does not involve in commercial banks credit business, and the independence risk is relatively small; the latter involves in commercial banks credit business to varying degrees, and the independence risk deserves attention.

3.1 Independence risk in credit business of commercial banks

In the above three modes of big data credit agencies serving commercial banks, all the profits are obtained by sharing. In mode 3, commercial banks participate in the whole process of model design and independently completes customer acquisition, offline investigation and final credit decision-making, so the independence risk is small. In mode 1 and mode 2, big data credit agencies not only provide commercial banks with guidance and credit advice, but also take the place of commercial banks to carry out offline investigation. Guarantor companies and commercial banks also rely on the credit reports provided by big data credit agencies to make guarantee and credit decisions. Although the final credit rate is not high, it indicates that commercial banks have conducted secondary risk control by using larger data and more stringent access conditions, but there is still the possibility that the credit personnel fully adopt the credit proposals of big data credit agencies, and there is a certain degree of independence risk. Generally speaking, if the commercial banks only bear a small part of the risk of credit business, and governments or guarantor companies bear most of the risk, commercial banks will reduce its investment cost in the approval of credit business as much as possible due to the profit driving angle, and make credit decision by relying on customer credit reports and credit recommendation provided by big data credit agencies; if commercial banks bear most of the risk of loan business, in order to avoid losses, they will not let the third-party big data credit agencies deeply participate in the credit business, and will not fully rely on the services provided by big data credit agencies to make credit decisions. In other words, the independence risk of big data credit agencies in credit business is inversely proportional to the credit risk that commercial banks bear.

3.2 The internal independence risk of big data credit agencies

It may appears in two aspects: First, it is the risk in the process of obtaining customer information. When guide customers to fill in information independently online and make full use of their information on site, big data credit agencies may guide or assist customers to optimize their information and help unqualified customers increase the probability of obtaining loan. Second, it is the risk in the process of designing the risk control model. If commercial banks do not invest in human resources and technical experience in risk control, big data credit agencies will fully lead the design of risk control model. On the one hand, it is difficult to make the model better fit commercial banks' lending demand, on the other hand, it may also make the model become a "black box". Without the commercial banks' knowledge, big data credit agencies may relax the initial screening conditions to attract more customers, and that will increase commercial banks' secondary risk cost

the agreement, then it needs to put the ¥5 million service fee of the initial income into commercial banks' designated account, and the part exceeding ¥5 million yuan can be taken out.

control and eventually lead to improper expansion of the scope of credit customers. For the above two types of independence risks, big data credit agencies may take the way of department and personnel isolation and salary independence to avoid risks: the marketing personnel facing commercial banks do not contact customers and participate in the model design; the model designers do not participate in the model design and master the model parameters, and do not participate in market management to commercial banks; the salaries of personnel in both market and model design departments are not linked to the relevant profit amount. However, at present, there are no laws and regulations that put forward specific requirements for the independence of big data credit agencies, so the risk prevention of big data credit agencies' independence is only limited to the actual operation process, no corresponding internal control system has been established to make clear provisions, and no corresponding punishment has been formulated to specifically restrict the violation of independence.

4. Relevant suggestions

First, big data credit agencies establish independent system of department, personnel and salary. Big data credit agencies should establish a clear internal organizational structure and a responsible firewall system, ensure the collection of customer information, the design of risk model and other credit departments are independent of other departments such as business marketing, and ensure that the compensation of credit department personnel is not related to the scale and quality of commercial banks credit business. At the same time, big data credit agencies shall establish an independent compliance department to supervise the compliance status of credit reporting department and personnel.

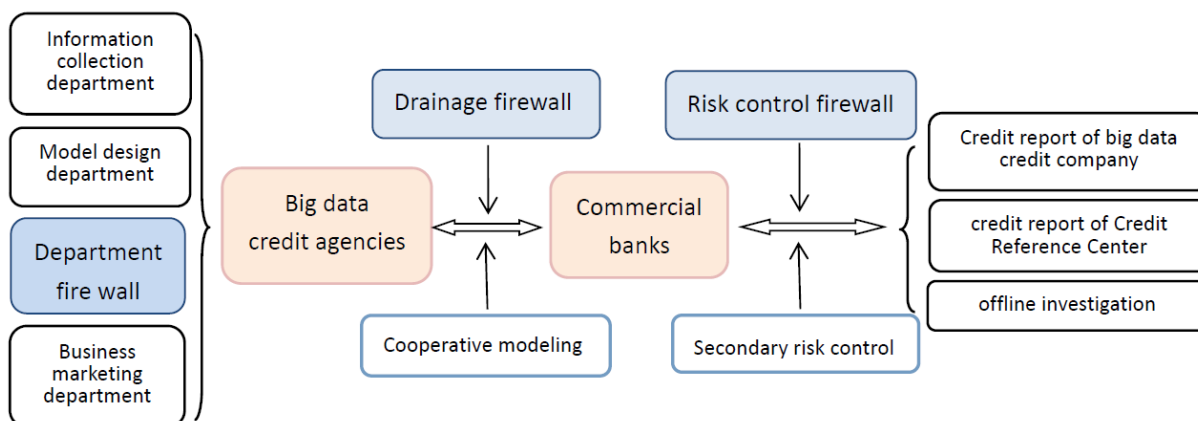


Fig 1. Independent risk control between the commercial bank and the big data credit agency

Second, commercial banks deeply participate in the whole process of designing the risk control mode, and negotiate with big data credit agencies on key elements such as specific data items and model weighting coefficient of risk control model, and adjust the model on the basis of consensus reached by both parties. Especially when the defect rate exceeds a certain value, both parties should find out the cause in time and adjust the model parameters.

Third, commercial banks independently carry out secondary risk control. The risk control function of big data credit agencies can not completely replace the offline investigation and secondary risk control of commercial banks. Commercial banks should make independent credit decisions on the basis of comprehensive analysis of the credit reports provided by big data credit agencies and Credit Reference Center of The People's Bank of China, and comprehensive understanding of the actual business situation of customers, so as to reduce the dependence on the big data credit agencies.

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