

Rural Banks Risk Characterization and Risk Early Warning

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Abstract

With the increasing rural banks, they have provided the necessary financial support for entrepreneurial farmers, improved farmers' income and accelerated rural economic development, while the risks they faced are gradually revealed. Deeply understanding of the risk profile of rural banks, strengthening risk control in the new situation and conducting effective risk prevention become the important issue related to rural financial system construction and rural economic development. Based on this, this paper will focus on the rural banks risk characterization and risk early warning studies to improve the risk predictability of rural bank and the relevant departments.

Key words: Rural banks; Risk characterization; Early warning

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INTRODUCTION

China Banking Regulatory Commission issued "on the adjustment and relaxation of the banking institutions policy in rural areas in order to have better access to support the construction of a new socialist countryside" on December 20, 2006, relaxed the policy restriction of three kinds of new type of rural financial institutions. After six years' practice, the development of rural banks is far faster than the credit union funds and loan companies. According to the China Banking Regulatory Commission

annual report, at the end of 2012, the country has set up 876 village banks (opened 800), among which about 61.2% is located in the central and western regions. The total bank assets of the open village bank have reached 434.3 billion and the various loan balances have reached 233 billion, among which farmers and small and micro businesses loans accounted for 84%. In recent years, the practice proved that the existence and development of village banks established a new channel for the rural areas supply of funds, improved the status of financial services and give full play to the financial support for economic development. The rural bank also exposed some risks in the development process, which are quite different from the city financial institutions and the traditional rural financial institutions. They are unique under particular institution constraint and background environment.

1. RISK CHARACTERIZATION OF RURAL BANKS

According to the "core principles for effective banking supervision" announced by the Basel Committee on Banking Supervision in September 1997, the main risks the banking sector were summarized facing into eight aspects: credit risk, market risk, interest rate risk, liquidity risk, operational risk, legal risk, reputation risk, country and transfer risk, which is the most commonly used according to the classification of the causes. This paper chose towns and villages as the financial risk subjects, focused on the new trend of rural economic and financial development, analyzed the facing credit risk, liquidity risk, operational risk, interest rate risk and its particularity.

1.1 Credit Risk Shows the Characteristics of Accumulation

As one of the traditional risk for banking financial institutions, credit risk is the main risk faced by banks, especially for rural banks. Especially with the

development of “three agriculture”, in addition to the inherent banking financial institutions and agricultural characteristics of their own, the rural economy and the change of relationship among farmers also bring new incentives, and shows cumulative trend with the village banks expanding. For example, Anhui Changfeng Keyuan Rural Bank Co., with the rapid loan growth, the non-performing loan ratio also increased rapidly. According to the 2009-2011 Annual Report of the bank, the loan balance was 369.3622 million Yuan, non-performing loans, at the end of 2009. The loan balance increased to 600.7784 million Yuan, still no non-performing loans, at the end of 2010. The loan balance continued to increase to 738.6994 million Yuan, but the rate of increase in non-performing loans increased to 0.65% at the end of 2011. According to five categories, normal loans were 369.0222 million Yuan and special mention loans was 0.34 million Yuan in 2009. Normal loans were 595.4784 million Yuan and special mention loans increased 5.3 million Yuan in 2010. Normal loans were 728.4482 million Yuan and special mention loans increased 5.4512 and special mention loans with an increase of 4.8 million Yuan substandard loans in 2011, from which we can see the accumulation of credit risk. Its specific reasons can be summarized as the following aspects: First, small-scale farmers and large uncertainty are the main factors causing non-malicious default risk. It is clearly defined that rural bank loans should first meet local farmers, agriculture and rural economic development and maintain small and decentralized principles, therefore, compared to other types of financial institutions, the local rural economy, especially the farmers and agricultural development have greater impact on rural banks, thus risks pressure will be greater. Farmers usually engaged in planting and breeding operations, so the cycle is generally longer and they are often influenced by natural conditions and there inevitably exist some natural risks. Besides, with the development of market economy, scattered farmers in the large market are often in a weak position, with high transaction costs, which will lead to market risks; meanwhile low profit margins due to agricultural production make farmers have poor against risks ability, therefore, in the event of a natural accident or market risks, the farmer will have no ability to repay instead of no repayment will, which will result in the emergence of non-malicious breach of contract. Second, with the development of rural economy and farmers' increased mobility, the farmers' community special ethical is weakening. According to monitoring survey of migrant workers from the National Bureau of Statistics, migrant workers in the country totaled 252.78 million in 2011, among which the number of the township migrant workers outside their hometown was 158.63 million, accounting for 62.8% of the total migrant workers; a number of migrant workers within the local township was 94.15 million, accounting for 37.2% of the total migrant workers. With the large number of migrant workers

leaving the local town, the farmers' income increase, but the farmers community organizations tightness weakened, which weakened the farmers special reputation mechanism binding. It also increased the dispersion of the borrower, which brought the rising costs of loans tracking and management and even part of the loan drifted beyond the effective control of financial institutions increased the risk of default. Third, People often mention the weak legal and credit infrastructure environment. In China it is largely reflected in the weak culture foundation of farmers in rural areas. According to the second national agricultural census data bulletin, the cultural level of the rural labor force is generally low. Labor resources with junior high school or below are above 80 percent. Low level of education is bound to face vague understanding of legal concepts and national policies and some other issues. If the country lacks the appropriate mechanisms for farmers to re-education during the relevant financial system reform, rural banks loan recovery implies greater risk in the long run. Fourth, weak dispersion of the risk of accidents. From the operating scope of rural banks, whose positioning is a regional financial institution, the regional operations exacerbate risk concentration, such as earthquakes and other force majeure can bring an unexpected increase of the possibility of default risk. In addition, although the development of agricultural insurance has been taken seriously, but it is still facing agricultural insurance laws and regulations are not perfect, the insurance company management level needs to be further improved, the lack of agricultural mutual insurance mechanism, bank and insurance catastrophe risk transfer mechanisms and interactive dispersion mechanisms and other issues, insurance penetration and density as well as the loss ratio are to be further improved. Meanwhile, the lack of professional rural credit guarantee and deletion of institutions guarantee fund operations also weakened the risk spreading mechanism.

1.2 Liquidity Risk Exhibits the Trend of Acceleration

Rural banks with small, strong regional characteristics have strong limitations to funding sources, while the eager to profit purposes has brought a rapid expansion of the size of loans, which resulted in the extreme imbalance between supply and demand of funds, which is prone to liquidity risk. According to the annual report of listed banks, the majority of rural bank loan to deposit ratio exceed the standard. Many rural banks loan to deposit ratio is about 100%. According to the annual report of Bank of China in 2011 and 2012, Fullerton village bank by Bank of China in Shandong Province, Hubei Province, Anhui province and Zhejiang province has established 18 rural banks and 4 branches, with the total loan balance of 1.98 billion Yuan and the deposit balance of 2.28 billion Yuan at the end of 2012. The loan to deposit ratio was nearly 90%, while in 2011 at the beginning of the establishment of was

only 52%. The rural banks initiated by the Construction Bank of China have established 26 village banks in Hunan Taojiang by the end of 2012, with the loan balance of 6.987 billion Yuan and deposit balance of 7.112 billion Yuan. The total loans were up to 98%, much higher than 90% at the end of 2011. Although the supervision department has given certain support policies like in the opening 5 years loan to deposit ratio not checked, which gives the village and town bank a buffer period, but the long-term loan to deposit ratio exceed the standard brings increasingly huge liquidity pressure on rural banks. The specific cause of the rural community can be attributed to the transmission of information. This particularity reflects the information in China between farmers and financial institutions is very asymmetry and farmer community internal information relatively complete. The Chinese farmers have extremely scarce financial knowledge. The information dissymmetry is mainly embodied the lack of understanding to financial institutions information; meanwhile, the Chinese farmers take the blood as a link and regard the family as a unit and the clan as the common support, so farmers who lives in a village form a tight network among people with close relationship, thus information is complete within the community. On one hand, extremely asymmetric information between farmers and financial institutions has increased the probability of liquidity risk, because the farmers do not understand the financial institutions, the herd mentality will be intensified and the lack of brand credibility in the hearts of the people make them prefer big banks, which will cause widespread rural bank deposit problem. The village banks due to the small scale, the profit pressure, will continue to expand the size of the loan; the liquidity problem is more outstanding. On the other hand, the relatively complete information within the community accelerates the diffusion of liquidity risk. Once the adverse factors, for example, because of the wrong operation or other situation a pen or a few deposits cannot be cashed, panic will exaggerate the situation in the rural community which lacks of financial knowledge, so the rural liquidity risk outbreak is often accompanied by acceleration.

1.3 There Exists a Big Operational Risk

Because of the pilot village banks and business objects promoted too fast and geographical specificity, there exist great hidden dangers to generate operational risks. First, from the establishment point, the low level of sponsor risk management planted some potential risks to the development of rural banks. SMCBs, the main sponsors of rural bank take a much higher proportion of large banks. According to the five big Chinese bank annual report 2012, at the end of 2012, 876 rural banks were set up, among which China Construction Bank initiated the establishment of 26 village banks in Hunan Taojiang, 22 village banks and its branches initiated by the Bank of China, 6 initiated by the Agricultural Bank of China, 4

initiated by the Bank of Communications and 2 by the Commerce Bank of China. The total number is only 60, far below a number of banks initiated by the small and medium-sized commercial banks. The fact is that spanned the establishment of village banks put forward higher requirements of parent company risk management and the capability and risk management of large and medium-sized banks is obviously higher than the city firm. Second, from the personnel structure of rural banks, staff from the grass-roots of originating banks often lacks overall risk control ability and the local recruitment from the rural is not of high personnel quality. They are with low compliance awareness, strong randomness and lack of risk awareness. Third, the low government intervention efficiency and weak supervision is prone to generate operational risk. Compared to other commercial banks, the rural bank has its particularity. Although a series of regulations has been promulgated, but from a long-term point of view, the lack of pertinence and efficiency of special legislation will weaken the risk control. The existing rural financial supervision technology and professional skills can hardly meet the need of the rapid expansion of the number of villages and towns' implied great risk too. A large number of dispersed villages also increase on-site inspection and off-site supervision cost and the low technical equipment level and grass-roots staff can also lead to the occurrence of financial regulation is not in place and other phenomena. The intervention of local government will also increase the risk. In addition, the asymmetric information between the farmers and financial institutions will increase the probability of operational risk. Because the farmers do not understand the financial institutions, the relative lack of public supervision of financial practitioners and the low quality of personnel, the probability of operation risks like fraud, business capital security, nonstandard business operations will increase.

1.4 Interest Rate Risk Stems From the Lack of Flexible Loan Pricing Mechanism

At present, People's Bank of China implemented a unified rate standard to the financial institutions lending rates for all other loan interest rates, except a few loans. The village and town bank loans operate the benchmark interest rate and floating interest rates, but with the influence of traditional thinking, most farmers microfinance practice prefer the non-floating or less floating preferential interest rate policy, which has strong contrast to the high operation cost of village banks, thus it will expose to interest rate risk.

To sum up, with the development of rural bank, the risk is looming. Therefore, the risk early warning mechanism based on above risk characteristics to improve the predictability of village bank and the relevant departments to prevent and control risks has more practical significance.

2. CONSTRUCTION OF RURAL BANK RISK EARLY WARNING MODEL

Factor analysis and cluster analysis methods are used to evaluate the competitiveness of the cultural industries of China's administrative regions. Data sources are from the cultural industry development report of China and the China Statistical Yearbook. Calculation and analysis is completed by SPSS software. The interpretation of results is as follows:

2.1 Select the Risk Monitoring Index

Operational risk monitoring index of rural banks can use the index system of hierarchy in design. Capital risk, credit risk, interest risk, liquidity risk, operational risk and market risk are the main risks of rural banks formed in the course of business, so the above six types of risk monitoring index will be regarded as the core of the risk monitoring index system and also the first grade indexes. Based the first grade indexes, the second grade indexes are designed for each class of risk to investigate the degree of risk. From the regulatory index system commonly used at home and abroad, combined with the actual situation of rural banks, specific indicators are selected as follows.

Table 1
Village Bank Risk Monitoring Index System

First grade indexes	Second grade indexes
Capital adequacy index	Capital adequacy ratio
	Core capital adequacy ratio
Credit risk index	The ratio of non-performing assets
	The ratio of non-performing loans
	Single customer credit concentration
	The top ten customers in the proportion of loans
Operational risk index	Operational risk loss rate
	Rate of return on assets
Profit risk index	Profit on capital
	Income cost ratio
	Reserve ratio
Liquidity risk index	Liquidity ratio
	The dependence of the core debt
Market risk index	The interest rate sensitivity

2.2 Determine the Weight of Indexes of Risk Early Warning Model

According to the research materials and relative data, we use analytic hierarchy method to determine the first grade index weights and entropy weight method to determine the second grade index. In the analytic hierarchy process, we send questionnaires to three kinds of experts from the rural financial management, rural banking practice and rural financial research and construct judgment matrix. In the entropy weight method, we obtain samples and relative

data from Shandong, Jiangsu village banks and calculate the relevant indexes. Finally, calculate the comprehensive weight according to the proportion of the first grade index and the second grade index. The results are as follows:

Table 2
Risk Early Warning Model of Each Level Index Weight

First grade index	Second grade index	Weight
Capital adequacy index		0.206
	Capital adequacy ratio (0.5369)	0.1109
	Core capital adequacy ratio (0.4631)	0.0957
Credit risk index		0.318
	The ratio of non-performing assets (0.3015)	0.0937
	The ratio of non-performing loans (0.2524)	0.0784
	Single customer credit concentration (0.2405)	0.0747
	The top ten customers in the proportion of loans (0.2056)	0.0639
Operational risk index		0.128
	Operational risk loss rate (0.1268)	
Profit risk index		0.157
	Rate of return on assets (0.1396)	0.0210
	Profit on capital (0.5069)	0.0764
	Income cost ratio (0.3535)	0.0533
Liquidity risk index		0.116
	Reserve ratio (0.2676)	0.0307
	Liquidity ratio (0.4161)	0.0477
	The dependence of the core debt (0.3163)	0.0362
Market risk index		0.095
	The interest rate sensitivity (0.0905)	0.0905

2.3 Risk Assessment Early Warning Model

Risk early warning system of rural banks consists of six categories and 14 indicators. The weights of the indexes represent different indexes in the degree of influence on the overall risk. According to scoring standards and calculation formula in Table 4, the index score was calculated and the score of each index weight multiplied by the corresponding and aggregate, with which we can calculate the comprehensive score of rural banks operating risk.

Table 3
Comprehensive Score Formula of Rural Bank Risk

First grade index	Weight	Second grade index	Weight	Evaluation interval	Scoring formula
Capital adequacy index	0.2066	Capital adequacy ratio	0.1109	0-8%	Index value/ 8%×100
		Core capital adequacy ratio	0.0957	0-4%	Index value / 4%×100
Credit risk index	0.3108	The ratio of non-performing assets	0.0937	0-40%	(1 — Index value/ 40%)×100
		The ratio of non-performing loans	0.0784	0-35%	(1 — Index value/ 35%)×100
		Single customer credit concentration	0.0747	5-20%	(1 — (Index value — 5%)/15%)×100
		The top ten customers in the proportion of loans	0.0639	30-100%	(1 — (Index value — 30%)/70%)×100
Operational risk index	0.1268	Operational risk loss rate	0.1268	0-10%	(1 — Index value /10%)×100
		Rate of return on assets	0.0210	0-1%	Index value/ 1%×100
Profit risk index		Profit on capital	0.0764	0-10%	Index value/ 10%×100
		Income cost ratio	0.0533	30-80%	(1 — (Index value — 30%)/50%)×100
Liquidity risk index	0.1146	Reserve ratio	0.0307	0-5%	Index value/ 5%×100
		Liquidity ratio	0.0477	0-100%	Index value×100
		The dependence of the core debt	0.0362	20-60%	((Index value — 20%)/ 40%)×100
Market risk index	0.0905	The interest rate sensitivity	0.0905	50%-100%	(Index value/ 50%-1)×100;
				100%-150%	(3-Index value/ 50%)×100

CONCLUSION

According to the calculated risk value, the risk of rural bank warning level can be divided into five levels such as the basic risk-free (Grade A), attention to risk (A level), small risk (grade B), high risk (B grade) and serious risk (grade C). According to the different alarm level of rural banks, considering their respective operational risk characteristics, various precautionary measures can be taken.

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