A CRITICAL STUDY OF COMMERCIAL BANKS’ CREDIT RISK ASSESSMENT AND MANAGEMENT FOR SMES: THE CASE OF AGRICULTURAL BANK OF CHINA

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Introduction

The economic situation has dramatically changed in China with the in-depth implementation of economic reform, leading small and medium-sized enterprises (SMEs) to a higher position in the national economy. Tan (2014) states that until 2013, the number of SMEs has already accounted for over 97.7% of total number of all corporations in China with the annual rapid growth, meanwhile, these companies create enormous number of occupations, nearly 70% of the employment opportunities. In addition, SMEs boost the corporate innovation by obtaining more than 65% of patents and achieving 80% of new product development in China. Generally, SMEs have become the driving force for economic and social development and vitality, as the basis of the benign development of national economy and an important growth point, the method to relieve the pressure of employment, the motivation of technical innovation and the vigorous boost for local economy (Feng, 2013). However, the development of SMEs demands the support of capital and funds so as to develop new product, to explore the market and attract talents.

In fact, it is difficult for SMEs to obtain capital and funds through financing, reflecting on the single mode of financing, narrow financing channels and high financing costs. From a conventional perspective, although bank credit should be the main financing channel for SMEs, the high costs of loan transaction and monitoring hinder the financial support from the commercial bank (Chen, 2013; Yang and Zhou 2007). In addition, due to the world economy in the phase of adjustment after 2008 international financial crisis, it is supposed for China to drive up the international demand to boost the domestic economy, thus, the SMEs, contributing to over 60% of foreign trade volume, ought to get capital and funds to develop. In the Meantime, Tang (2015) notes that in order to speed up the process of interest rate liberalization, the government slashed the rate difference on savings and loan in 2014, making it difficult for commercial banks to sustain the traditional bank profit structure with the main profit source of the rate difference. As a result, international trade financing becomes a possibility for commercial banks to gain benefits from with low risk, yet still excluding the SMEs. Therefore, commercial banks should shift financing business to the potential SMEs but at the same time control the relatively high potential risks compared to that of stable large state-owned enterprises. To solve the above limitations and problems, risk assessment mechanism and credit management strategy can contribute to establish mutually beneficial relationship between SMEs and commercial banks. This paper will discuss the the problems and characteristics of difficulties of SMEs’ financing based on the current context, to illustrate an example of a commercial bank, Agricultural Bank of China and offer suggestions on risk assessment mechanism and credit management strategy aimed at SMEs.
Literature Review

The financing problem of the SMEs is not particular for China, while foreign researchers have focused on commercial bank credit for SMEs earlier than Chinese scholars. As early as 1931, a British knight Macmillan conducted a survey among the local SMEs and found nearly all of them faced the problem of insufficient funds, the main cause of which is that the financial institutions did not provide financial credit for them. This is the famous Macmillan gap, drawing the attention from foreign scholars. Afterwards, many scholars have attempted to further analyze the causes behind the problem and suggested certain moves to improve. Regard to the causes of related financing problems for SMEs, asymmetric information between commercial bank and SMEs will result in adverse selection and moral risks in the credit market, leading to the formation of credit rationing (Stiglitz and Weiss, 1981). Moreover, Ang (1991) argues that SMEs are usually in inferior position due to the limitation of financing channels since they cannot attain the preferential loan policies as large enterprises do and even be provided adequate loans. Boot and Thakor (1994) suppose that SMEs does not have enough collateral and hence have difficulties in borrowing the money even at the expense of higher interest. Furthermore, the global finance brings fierce competition with the money flowing into large corporations, making the credit situation for SMEs even worse (Taylor, 1988). From the scale of bank, bank credit risks and non-performing loans can be caused by information asymmetry as a result of ‘soft information’ (Canales and Nanda 2010). Besides discussion about causes, scholars suggest multiple approaches and theories to solve such problem. Berger and Udell (1998) analyze the SMEs’ financing environment and their law of development and then emphasize the importance of the centralization of banks for organizational development. In addition, Bradford and Chen (2004) find out that the government credit guarantee for SMEs assist in alleviating the pressure of the financing and obtaining loans from financial institutions. Stein (2002) states that since small and disperse banks are more sensitive to vague and uncertain ‘soft information’ to undertake the risks to provide SMEs credit support, commercial bank scale greatly affects credit of middle and small-sized enterprises, while large commercial banks hold conservative attitude towards to them. Based on Stein’s statement, Berger and Udell (2006) propose that ‘Relationship Lending’ is not the only theoretical model of commercial banks’ credit financing aimed at SMEs, and Uchida et al. (2012) also point out that ‘soft information’, as a reference standard, is difficult to be quantified and collected whereas relationship lending must be established on the further contact with and understanding of corporations, inducing certain difficulties and risks. Additionally, relationship investment in commercial banks is valuable for SMEs to obtain bank credit (Shen et al., 2009). Torre et al. (2010) claim that commercial bank should enlarge application range to provide more financial service on the basis of availability of credit, grasp of the comprehensive corporation information to control risks and promotion of the organizational development to amplify profit margin.

Chinese research scholars advise different perspectives and strategies from various aspects as well. In general, SMEs have several shortcomings in China and face the discrimination from the state-owned financial system, both bringing about the current financing plight. On one hand, the internal factors cause the problem. Li and Yang (2001) claim that poor credit rating, high bankruptcy rate and shortage of mortgage guarantee induce the financing plight situation, at the same time, after
economic crisis in 2008, Feng and Zhou (2011) state that economic crisis results in even more severe situation for SMEs’ capital with shortage of investment from commercial banks. From the micro-level, enterprise management level, enterprise scale, credit level and business risks are crucial factors that influence corporate financing, but SME apparently is at a disadvantage towards them (Zhou, 2008).

On account of European early practice in this area, Deng (2013) concludes that certain revelations about the sources of capital, financing structure and credit time for commercial banks in China by contrasting the modes in Britain, Germany and France. On the other hand, external factor give rise to this situation as well, for example, Zhang (1993) presents that enterprise scale is positively related to the ratio of corporations getting loans from financial institutions. The main reason for the financing difficulty for SMEs is the ubiquitous scale discrimination in market economy, rather than ownership discrimination (Zhang, 2002), while Chen (2009) states that the operation principle of the commercial bank goes against the SMEs financing. Information asymmetry exists between commercial banks and SMEs (Lin and Li, 2001), and guarantee agencies and SMEs (Wu, 2004; Xu, 2003).

Besides research on causes, many other domestic researchers also express their viewpoints on the solutions. It is necessary to improve SMEs by internal control. Bao and Guo (2006) suggest that flat and specialized management should be applied in SMEs, and Zhou (2010) deems that SMEs ought to accelerate the reform of its system. Moreover, a sound credit guarantee system is required, as Cao (2001) claims that the establishment of credit guarantee system can guarantee for SMEs and create fair financing environment. Furthermore, large commercial banks should develop targeted financing service for SMEs and small and medium-sized financial institution should have rapid development. Lin and Li (2001) analyze the basic situation and predicament of SMEs’ financing and then put forward that the solution of this problem is to accelerate the development and refine national financial institution system. Yang and Li (2007) propose multilayer analysis weight gray analysis to control and complete the credit system in commercial banks and Fu (2009) considers that risk-oriented audit has wide application prospect. Zhang (2007) proposes that commercial banks need financial innovation to solve the financing problem for SMEs, meanwhile, Xu (2003) argues that commercial banks should form the credit department, particularly aimed to provide financing service for SMEs. Additionally, Shen et al. (2009) classifies SMEs based on their risk characteristics and offer suggestions to improve financial organization’s risk evaluation of SMEs. Sun (2010) uses Shanxi Province as a research subject to put forward Customer selection strategy and risk prevention strategies, while Lin (2011) focuses on path choice of enhancement of commercial bank credit risk assessment.

From the above academic literature, apparently foreign scholars have studied this subject for a long time and gained thorough understanding of it, while Chinese scholars have discussed and analyzed it with the domestic context and made more pointed suggestions. Judging from the current conditions, the core of the SMEs’ credit is evaluation and control of risks, concluded from both domestic and foreign research. Thus, how to enlarge the profit margin of banks under a controllable risk range and broaden the financing channels has become the trend of future development in commercial banks and institutions.
Research Method

Case study is the main research method in this report to focus on Agricultural Bank of China. Yin, Robert K. (2003), the famous case study scholar, developed a relatively complete knowledge structure and system to help future researchers to utilize this method.

There are five required procedures in case study design and method. Firstly, the case analysis project should be designed, including selection of a case and establishment of the case’s logic, which also means that a plan of case analysis is demanded in the first place. However, research design is the most difficult step in the whole process, a step to use empirical data to link issues for research with final conclusions.

The plan of case analysis can instruct researchers to collect, analyze and explain information progressively and can function as a logical model to proceed argument, leading researchers to deduce relationship of different variables. Secondly, preparing work is required before information collection to guarantee the smooth implementation of case analysis. Thirdly, the research should collect the relevant information and data about this case, the sources of which contain files, documents, interviews, direct observation and physical evidence, while the shortcomings of each source should be noticed. Fourth, the evidence from the case should be analyzed starting from question itself instead of evidence.

In addition, Yin proposes four main evidence analysis strategies based on theoretical viewpoints, complies case analysis, the integration of qualitative and quantitative material and test on the contrary competitive explanation. Fifth, it is time to begin to write the case analysis report, and basic writing skills and contents, confirmation about the degree of anonymity of the case and examination of the whole research paper are three essential elements.

Case Background

The comparison between current credit situation of commercial banks and features of SMEs will be stressed at first to lay foundation for case analysis and to help recognize the conflicts at present. Credit business, the vital component of bank business, functions as the source of income for banks because banks acquire capital by deposits and then issue the loans with the difference between deposit and loan interest rates. From Figure 1, the deposits and loans in financial institutions increases in the past years whereas the growth of deposits is more salient than that of loans, besides it is evident that the amount of difference between deposits and loans go up every year.

Besides the growth of difference between deposits and loans, from Figure 2, banks tend to centralize the credit business on middle and long-term loans and decrease the short-term loans. Since 2005, the ratio of middle and long-term loans has been greater than that of short-term loans, the difference of which peaked in 2010 and still remains at a certain level. Short-term loans are used to deal with corporate financial liquidity, but middle and long-term loans, with higher interests, large amounts and risk of long-time exposure, are frequently used to invest on fixed assets. Hence, the higher incomes and related potential risks of middle and long-term loans lead the banks to tend to choose large or state-owned corporations, contributing to the credit centralization problem, thus exacerbating the financing problem for SMEs.
As for SMEs’ characteristics, some of them can be learned from the classification of standard, such as small or middle scale of production, production flexibility, low cost of investment and high randomness, which conduce to the financing difficulty. To be more specific, SMEs can do self-financing, obtain government support, raise funds through stock market and rely on bank credit. Due to the restriction on capital and sources, bank credit is still the main financing method.

To conclude, financial difficulty is related not only to narrow channel of financing, but also to poor financing capability of SMEs which must be considered as a criterion to decide the credit provision. Credit, regarded as the process involving mutual chooses, are desperately desired by SMEs to continue the further development in product innovation, production and construction, which may be hindered by their own problems to make it hard to gain trust from financial institutions. Consequently, SMEs should analyze their own problems, the sources of bank credit risk, to deal with financing difficulty.
Case Analysis and Discussion

The following case explores the SMEs’ financing issues in Agricultural Bank of China (ABC), including the credit rating model, credit policies targeted at SMEs and risk control system. This single descriptive case study takes ABC as the object of study, representative of Chinese commercial banks, most of which are state-owned or at least partly and ideal capital sources. With the aim of providing reference value and certain suggestions for other banks about SMEs’ financing, there are three main parts in the following analysis.

The first part briefly introduces the classical theories and models for the evaluation of credit risk and their limitations, and indicates the information collection method and sources and outlines the scope and focus of this study. The classical assessment methods include qualitative analysis, model evaluation and integrated evaluation. To be more specific, three typical methods are expert opinion, logit model and neural network model, functioning well under different conditions and possessing advantages and disadvantages respectively, and the summary and comparison of them are shown in Table 1.

Table 1. A Comparison of Main Credit Risk Evaluation Methods

<table>
<thead>
<tr>
<th>Methods</th>
<th>Evaluation</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
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<tbody>
<tr>
<td>Expert opinion</td>
<td>Risk parameters are determined by experts</td>
<td>Simple and practical</td>
<td>Strong subjectivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wide range of application</td>
<td>Weak consistency</td>
</tr>
<tr>
<td>Logit model</td>
<td>Categorize the enterprises into high-risk and low-risk; use discrimination</td>
<td>High accuracy</td>
<td>High demand for sample data</td>
</tr>
<tr>
<td></td>
<td>model for calculation</td>
<td>High degree of fitting</td>
<td></td>
</tr>
<tr>
<td>Neural network model</td>
<td>Simulate a human brain to process information to obtain risk parameters</td>
<td>Process mass data and correlative data</td>
<td>High costs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Massive calculation</td>
</tr>
</tbody>
</table>

The second part will illustrate the information and related policies in ABC from three aspects, combined to help further understand how ABC deals with the above problems previously stressed. First, the process of credit rating in ABC measures the risks of enterprise credit, as shown in Figure 3.

![Figure 3. The Process of the Agricultural Bank of China Enterprise Credit Rating](image)

From qualified and quantitative aspects, systematic risks and individual risks are
rated. Before formal rating process, classification of different clients is required so as to help account managers to choose the specific requirement of each industry and make qualified and quantitative considerations. During the credit rating, on one hand, the financial statements in recent three years are entered into IRBS and then this computer system proceeds to analyze the statistics automatically, thus obtaining a result about the rating. On the other hand, account managers need to grade all the items concerned with the credit rating and provide evidence and description.

Apart from the credit rating model, there are other two rating methods, pool rating and expert rating. Pool rating uses the category and qualification of collateral items to rate with details in Table 2, much easier and more which targets at small and micro enterprises, while expert rating means hiring professionals to grade on qualified and quantitative aspects.

<table>
<thead>
<tr>
<th>Table 2. Pool Rating Benchmark Table</th>
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<tr>
<td>Security/Pledge guarantees and surety institutions</td>
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<tr>
<td>State-owned land right of use</td>
</tr>
<tr>
<td>The collective construction land use rights and buildings on the ground</td>
</tr>
<tr>
<td>Residential real estate</td>
</tr>
<tr>
<td>Commercial real estate</td>
</tr>
<tr>
<td>Industrial facilities</td>
</tr>
<tr>
<td>Construction structure</td>
</tr>
<tr>
<td>Pledge guarantees</td>
</tr>
<tr>
<td>Deposit receipt, certificate treasury bonds and bank notes (low risk credit business)</td>
</tr>
<tr>
<td>Surety guarantees</td>
</tr>
<tr>
<td>Large and medium-sized corporate clients above AA+</td>
</tr>
</tbody>
</table>

Secondly, credit policies contain four featured credit products, accounts receivable pledge financing for small businesses, plant loan, simple loan and intellectual credit described in the following Table 3. These four products nearly cover all the respects of SMEs financing. From function, the characteristic credit operation helps companies to deal with capital liquidity problem during the manufacturing and operating by providing capital timely and relieving the pressure from the factory and equipment purchase. Regarding for loan amount and time limit, the highest amount can reach 40 million and the loan term ranges between 3 years to 10 years, satisfying the financing need of SMEs. Meantime, SMEs’ financing has the relatively convenient procedure and flexible guarantee ways.

Thirdly, ABC’s risk control system concentrates on rating process and post-loan supervision. Since SMEs are less stable than large-scale enterprises, banks will pay more attention to the supervision and information updating so as to get informed of operating situation in the company, thus being aware of the potential risks and taking action to prepare risk prevention procedures. In the first rating, ABC focuses on the industries the SMEs are involved in. For the SMEs in those industries with excess production capacity and no national policy support, ABC will increase the risk level and become strict with the standard of credit financing.
Table 3. The Description of Four Main Credit Products

<table>
<thead>
<tr>
<th>Brief Introduction</th>
<th>Functions</th>
<th>Advantage and Features</th>
<th>Loan Amount and Time Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pledge Financing from accounts receivable for small businesses</td>
<td>Dealing with issues about financing need from revolving and temporary working capital.</td>
<td>No house property mortgage; high loan amount; convenient process</td>
<td>The amount of a single loan cannot exceed 70% of the pledge amount; time limit cannot exceed one year.</td>
</tr>
<tr>
<td>Plant Loan (small and micro enterprise industrial housing mortgage loans)</td>
<td>Satisfying the financing demand of small and micro enterprises purchasing the building for production and operation; easing the pressure of capital turnover problem because of one-time large spending.</td>
<td>High mortgage ratio, up to 70%; long time limit; low repayment pressure</td>
<td>Based on borrower’s credit rating, length of maturity and repaying capability, loan amount varies up to 30 million; longest time limit can reach to 10 years.</td>
</tr>
<tr>
<td>Simple Loan (simple and quick credit operation for SMEs)</td>
<td>Meeting the need of small enterprises customers for revolving, seasonal and liquid working capital in the process of production and business operation.</td>
<td>Flexible financing amount; diverse guaranty methods; convenient business process</td>
<td>Loan amount depends on guarantee situation, up to 30 million; time limit ranges from 1 to 3 years.</td>
</tr>
<tr>
<td>Intellectual Credit (self-service revolving loans for SMEs)</td>
<td>Meeting the need of revolving working capital in SEMs during the process of normal production and business operation.</td>
<td>Fixed, circularly used loan amount; self-service withdrawal and repayment; saving financing expense.</td>
<td>Loan amount depends on existing credit ratings, at least 50,000; time limit ranges from 1 to 3 years.</td>
</tr>
</tbody>
</table>

Therefore, it is necessary to ensure the authenticity and completeness of information which is entered into rating model.

As for pool rating, the value of the mortgaged property should be accurately evaluated and verified to reduce future risks. Expert rating requires several experts who have no interest relationship with the enterprise and can be impartial and professional. In addition, post-loan supervision demands timely update, re-rating and client classification management. Information should be tracked and statistics should be quickly updated to reduce risks.
Meanwhile, ABC requests that managers should re-rate the customers at least once a year and the rating result cannot be higher. Client classification management should be further developed and force the customers with relatively high potential risks to leave the credit mechanism. Furthermore, the four credit products indicate other two methods ABC utilizes to control risk, emphasis on collaterals and control of loan amount and time limit.

At last, although this study demonstrates policies implemented by ABC to assist in SMEs financing instead of internal strategies for the development of SMEs, the measures taken by ABC reflects certain reasons for financing difficulty and corresponds to recommended solutions, both pinpointed from the related literatures or this report from the aspect of commercial banks. The credit rating methods combine both qualitative and quantitative information, and based on different methods, the ranking is targeted at different subjects in order to fully understand the SMEs’ financing situation. Furthermore, the four main credit products can help classify the enterprises applying for a loan, then provide various schemes for them, ensuring that all enterprises can get what they are in need of and capable to obtain. Information asymmetry problem can be greatly alleviated by post-loan supervision, acquiring the essential information about the lenders to reduce risks brought by instability of SMEs.

Conclusion and Suggestions

The relatively complete and developed credit risk assessment and management system in ABC can provide support by credit products and financing service and strictly control the emergence of the credit risk. Since the characteristics of SMEs add more risks to credit financing delivery by commercial banks, ABC has developed its own method to deal with risk assessment and management aimed at SMEs. Credit rating model, credit policies targeted at SMEs and risk control system are coherently combined to assist the process.

Based on the analysis of ABC case about risk assessment mechanism and credit management strategy, there are three main suggestions for all commercial banks.

First, the bank should release the policies encouraging the credit financing for SMEs. Those policies can change the attitude of employees towards to SMEs’ credit financing business to pay attention to it, contributing to effectively conducting relevant business.

Secondly, it is necessary to ensure that certain credit risk assessment mechanism matches the situation of SMEs. Because current mechanism is suitable for large enterprises in most commercial banks, SMEs can lose the chance to get assessed at first and therefore cannot get credit financing eventually. Financial institutions should concentrate on the potential development of the industry which the enterprise is involved in, corporation position in this industry and quality of corporate management besides financing data. Meanwhile, risk control system should be well built through technology to analyze, update and re-evaluate the information and statistics and broaden the source of information by internal and external communication with other institutions to ensure reliability and validity.

Thirdly, different commercial banks should make market positioning strategy and adjust measures to local conditions. During the credit reformation for SMEs process of large comprehensive commercial banks, the bank head office and branch banks can work together, meaning that head office is responsible for credit strategy
making and credit product research and development and branch banks can proceed the credit management. For those areas with a large number of SMEs, sub-branch banks can be established with one purpose, conducting credit financing business for SMEs.

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Abstract
In China it is difficult for small and middle-sized enterprises (SMEs) to obtain capital and funds through financing from commercial banks because of imperfect financial environment in China and SMEs’ instability contributing to relatively high risks for credit. However, the development of SMEs plays a pivotal role in the Chinese economy and it is important to study the credit financing problem for SMEs. Based on a detailed and critical case study, this paper studies how Agricultural Bank of China (ABC) deals with SMEs’ financing and explores innovative methods. It provides a good example in credit financing for SMEs among commercial banks in China, including credit rating model, credit policies targeted at SMEs and risk control system. From the ABC’s policies towards SMEs, three main suggestions are provided at the end, including preferential policies of credit financing for SMEs, flexible new risk assessment mechanism and adjustment to local business conditions.

Keywords: SMEs, credit, financing, risk assessment, commercial banks, China