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Guarantee Institutions' Risk in China: Evidence from Small and Medium Enterprises

중국 보증기관의 위험 결정 요인 : 중소형 기업을 중심으로

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Contents

Abstract

In China, the commercial bank credit financing is the most important external financing channel for SMEs. However, the lack of credit guarantee significantly deters commercial banks to finance SMEs. which may generate a negative impact on the trade activities of SME in China. In this paper we examine the risk of credit guarantee for SMEs financing and the factors affecting this risk through a VAR (Value-at-Risk) model. Our analysis shows that the scale of enterprises' impact on the VAR (risk of financing guarantee) is not much relevant. We also find that the certainty of financing for SMEs, such as the fixed asset ratio, has a significant and negative effect on the VAR of Chinese credit guarantee institutions. The product uniqueness is positively correlated with the VAR, and operation risk is also positively related to the credit risk of Chinese credit guarantee institutions.

Key Words : Guarantee Institutions; SMEs Financing; VAR model; Credit Risk

Ⅰ. Introduction

Small and medium enterprises (SMEs) are important pillars of the economy in both developed and developing countries. Despite its irreplaceable role of SMEs in many aspects, financing difficulties have become the top problem in establishing and developing of SMEs in China. The primary reason for China's commercial banks' reluctance to SMEs financing comes from their high degree of financing risk, which in turn gears to the chief cause of SMEs' financing difficulty. At present, China is at a critical period of economic transformation, and the society as a whole is faced with huge employment pressure. With the development of Chinese socialist market economy, the role of SMEs is becoming more and more important in promoting the sustained, healthy and stable development of the economy. However, the high risk of SMEs financing has seriously affected the sustainable development of SMEs in China.

It has been argued that the lack of credit guarantee is one of the biggest problems in SMEs financing in China. While the commercial bank credit financing provides a very important external financing channel for SMEs (In some regions, it is the only substantial external financing form.), the lack of credit guarantee often deters commercial banks to effectively finance SMEs. Therefore, in order to create an effective credit guarantee system of small-medium sized enterprises, great attention has to be paid to the risk management of guarantee financing. This is the reason that the study on the relationship between guarantee institution and SMEs financing has strong practical significance.

The objectives of this study are to arrive at measures and recommendations on how to improve the guarantee system of SMEs financing in China. We examine factors affecting credit risk faced by guarantee institutions in China and try to put forward views and suggestions to solve the bottleneck of the development of SMEs.

This study is organized as follows We first analyze the development of Chinese credit guarantee institutions. Second, based on previous literature, we list the potential risks of credit guarantee for SMEs financing and factors affecting credit guarantee risk. We then present hypotheses and empirical results. Finally, we conclude the paper.

Ⅱ. Guarantee System in China

1) Sources of Funds

According to the "Guidelines on experiments for establishing the SMEs credit guarantee system", the sources of funds can be divided into state-owned land and asset transfer, the government budget transfer, re-guarantee provision, private investment and capital raised by community, government credit guarantee funds, risk margin of members, endowment of foreign government or international organization, etc. The sources of funds of commercial guarantee institutions are private investment capital and risk margin paid by warrantee, etc. The credit guarantee funds for SMEs set by government budget transfer restrict to credit guarantee business for SMEs only, and authorize the national, provincial and municipal credit guarantee institution to operate respectively.

With the actual situation of financial constraints, the local governments take "government-led, supplemented by society, multi-raising" to raise guarantee funds. There are four sources. The first is the risk margin of warrantee. For sustainable development, the guarantee institutions which need certain sources of revenue charge a certain amount of risk margin, which both broadens sources of funds, and enhances the credit constraint. The second source is from the government input. For the formation of guarantee capacity, local governments put the required guarantee funds into their budget, fully funding each year in the beginning years, and establish a compensation mechanism by supplementing yearly in subsequent years. The third one comes from the funds of operating income supplement. Excluding operating expenses and risk reserve, all of the interests on deposit and the balance of total premium income of the guarantee institution are used for supplement funds. The fourth source is the funds raised by guarantee institutions. They can be realized by the assistance of international organizations, investment attracting of specialized institutions and the organization of extensive fund-raising, etc. In short, through these channels and practices, we can mobilize and organize social resources to solve the problems of SMEs financing difficulty and guarantee difficulty and change the traditional model of supporting the SMEs by the government only to, avoid the drawback of putting all the guarantee risks onto the government especially finance department.

2) Characteristic of Institution

The characteristics of different credit guarantee institutions are not necessarily the same: The first is the non-profit institution. "Guidelines on establishing the pilot unit of credit guarantee system for SMEs" states that in the initial phase of credit guarantee institutions, the guarantee funds and business funds are based on government budget funding and transfer, supplemented by the guarantee fee income, which is for non-profit purposes. The credit guarantee institutions established by relevant government departments or local government's funding belong to the "non-profit institutions." The membership guarantee institutions established by government's funding and the closed-end guarantee institutions established by several enterprise groups for the purpose of carrying out mutual guarantee of shareholders also belong to the "non-profit institutions". Because these guarantee institutions have good reputation and are easy to supervise, they have clear policy-oriented characteristic.

The second can be called "quasi-governmental institution", whose sources of funding are almost local government financial transfer and most of them are brought into administrative institution. The third can be called "commercial institution" which is established by the enterprises or individuals for commercial purposes. Such guarantee institutions take earning profit as the primary purpose in business scope and the choice of guarantee commodity. Ministry of Finance issued "Interim Measures on the Risk Management of SMEs Financing Guarantee Institutions" on March 26, 2001 and encouraged the guarantee institutions to take the company form. The guarantee institutions which find it difficult to take the company form at present will change to company form when conditions are mature. Therefore, today there are 70% guarantee institutions implementing company form in China. However, while a small part of such institutions are funded by individuals or corporate groups, the majority are funded by the government and are implementing the strategy of "policy-oriented funds, corporate management, market-oriented operation" to manage by themselves.

3) Scale of Funds

As the strength of the investor and the function and location of guarantee institutions are different, the scale of fund and capital of guarantee institutions are also different. The scales of guarantee institution established by governments in the economically underdeveloped areas and small companies in the form of investing or mutual guarantee funds are both relatively small. By comparison the scale of guarantee institution with specific functions established by governments in the economically developed areas and large corporate groups is relatively large.

4) Main Business

As mentioned above, the sources of capital of various guarantee institutions are different. The different fund support system of guarantee business determines the facts that the business direction of different type of guarantee institution is not the same. The guarantee institution with the characteristic of "corporate" or "association" established by individuals or private enterprises is for the purpose of earning profits. Most of these guarantee institutions are either in a closed system doing guarantee business to make it, serve their own related business or only doing general guarantee business to other enterprises within a small area. At the same time, these guarantee institutions also performs consulting and investing business. By contrast, the "non-profit institution" and "quasi-governmental institution" are not operating for the purpose of earning profits and the characteristic of "public welfare" determine that their guarantee commodities bear some functions of government, which must reflect the characteristic of financial capital's value. But it also makes them difficult to get profits. Therefore, most of such guarantee institutions only do the guarantee business.

Meanwhile, as state-owned companies with independent legal person qualification, they must take the responsibility of insure and increase the value for state-owned assets. In order to achieve the target, nearly 1/3 of these guarantee institutions also do the business of venture capital, capital market operation, investment, financial and legal consulting besides guarantee business. The guarantee market is still in the stage of developing and improving in China and many guarantee institutions still cannot fulfill the funding needs by only relying on the guarantee fee with the financial resources of all levels of government are limited. Therefore, there has become a subject which must be taken seriously for that all various guarantee institutions on how to carry out for-profit business such as project evaluation, investing in equity, financial consulting by using their own funds effectively and legally, which can make up profitability of core guarantee business and enable the guarantee institutions to have healthy and sustainable development.

5) Guarantee Type

The credit guarantee for loans is the first market demand that specialized credit guarantee institutions face in China. It gives priority of the financing guarantee to the loans of short-term Renminbi circulating funds applied by SMEs. The amount of such financing guarantee is usually not more than 2million Yuan, and the period is usually less than 1year. The financing guarantee for key construction projects of local government such as infrastructure and leading industry is also one of the main businesses of the large-scale guarantee institutions funded by the government. In general, the “administrative” guarantee institutions focus on social benefits and “corporate” guarantee institutions focus more on the economic benefits and guarantee efficiency. With the development of market economy the demands for credit guarantee are more than before.

The guarantee institutions in China gradually develop other credit guarantee commodity besides financing guarantee, so the guarantee commodities become diversified gradually. For example, some “corporate” guarantee institutions, according to the situation of local social and economic development, gradually develop a number of commercial guarantee commodities fit for local economic characteristics, such as e-business guarantee, the performance guarantee of commodity trading, the performance guarantee of construction project, the preservation guarantee of litigation property, personal credit guarantee, commercial paper guarantee, compensation trade guarantee, intermediary fees(commission) guarantee, customs guarantee, government procurement guarantee, and so on.

Meanwhile, for financing guarantee business, there has been the dilemma between the guarantee institutions and financial institutions that the guarantee institutions only guarantee for principal or part of principal and interest, or guarantee for all of principal and interest. In recent years, with growing competition in the banking sector, the terms of guarantee contract required by banks are relaxed. The guarantee institutions in some areas gradually break away from the passive situation that guarantee for all of principal and interest or principal by repeated communication and negotiation with banks, and achieved the target that the minimum guarantee limitation is the 70% of loans.

The achievement of this target also benefited from the central government and relevant departments making clear the various policies that enhance the development of SMEs including implementation of non-full-amount guarantee. With the rapid development of the economy, the SMEs in China, the commercial banks, especially small and medium commercial banks come to realize that it is possible to increase their benefits supporting the development of SMEs. So the conditions on the credit guarantee become more flexible. On one hand, proportion guarantee reduces the risks of guarantee institutions. On the other hand, it enhances the banks' managing efforts for financing guarantee project and the cooperation with guarantee institutions, and improves the banks' risk awareness, which help promote the formation of credit guarantee system and the healthy development of guarantee institutions.

6) SMEs Financing in China

As mentioned already, small and medium enterprises (SMEs) are important pillars of the economy in both developed and developing countries. Their indispensable role in many fields should not be ignored. There are such important roles as enriching industrial cluster, promoting scientific and technological progress, improving efficiency of resource allocation, increasing employment, expanding exports and so on. At the same time, SMEs not only provide broad employment opportunities, but also help people realize the dream of starting an undertaking. Almost all of the super-multinationals started from small business and gradually grew into success, like Ford, Toyota, Sony, Microsoft and so forth. We can say that the SMEs are the cradle of successful multinational corporations.

In recent years, followed by economic growth and the improvement of policy environment, the SMEs in China have made rapid development and played an important role in improving the total economy, promoting employment, increase in tax revenue, promoting technological innovation, etc. For instance, in Beijing, according to the official website of Chinese SMEs, at the end of 2008, there were more than 404,000 small and medium enterprises, accounting for 99.8% of the city's total number of enterprises. This means a realized business income of 4.9 trillion Yuan, accounting for 64.6% of the city's enterprises and by the end of 2009, the total number of SMEs rose to 500,000, accounting for 99% of the total number of city business or a realized business income share of 64.4%.

Ⅲ. Literature Review

1) Profitability

Xiao et. al. (2011)[1] argue that corporate profitability refers to the firm's ability to use various economic resources to make a profit. It is a comprehensive reflection of marketing, obtaining cash, reducing costs and avoiding risks capabilities for a corporate and specific performance of various aspects of operation. Consequently, whether a business entity's competitive edge will be manifested through profitability. Generally, it can be argued that financing guarantee risk of higher profitability company would be lower while less profitable companies tend to have high financing guarantee risk.

2) Operational Risks

According to Lei Peng, (2009)[2], the greater the operational risk, the greater financing guarantee risk would appear. For the commercial banks, if a customer has a high degree of business risk, it is more likely that the loans extended cannot be recovered.

3) Value of Assets: Collateral

There are vast amount of literatures discussing the impact of collateral and its certainty on company's debt level. For instance, Xubing Yan, et.al. (2011), Zhenqing Yang (2010), and Xiaoxi Wu (2008)[3] find that the acquirement of liability is generally required for the company to provide mortgage assets. Fixed assets and inventories both can be geared to mortgage assets. However, fixed assets as collateral are more likely to be accepted since value of inventory is more instable.

1) Xiao Wang, Jie Zhang, (2011), Bank credit rationing and small business loans - a biochemical collateral and the theoretical model of firm size, economic research, pp. 68-75.
2) Lei Peng, (2009), Balanced credit rationing, credit guarantees and financing, contemporary financial, pp. 50-54.
3) Xubing Yan, Dengfeng Zhou, Jun Liu, (2011), SME characteristics, differences and financing, corporate financial, pp. 144-145.
Zhenqing Yang, (2010), "Think about the risk of SME financing", Economics and Management. pp. 40-41.
Xiaoxi Wu, (2008), "Strategies to reduce the risk of SME financing", Jiangxi University of Finance on the job. pp. 51-53.

Theoretically, the relationship between certainty and asset-liability ratio should be a positively correlated. In the previous literature of agency costs, it is pointed out that if a company's tangible assets can reduce the agent risk of the lender. This means that firms' desiring to maintain a high debt ratio would want to have a higher level of fixed assets ratio. Similarly, the value of tangible assets should be higher than that of intangible assets in order to reduce the possibility of bankruptcy.

4) Scale of enterprise

Large enterprises can achieve diversified operation, and their ability to resist risks is relatively strong. For the same level of debt, therefore, they face less bankruptcy risk, which generally enables them to take on a higher debt ratio. On one hand, in China, large enterprises are generally a focus of national policy and the state usually gives them concessions and facilities through various lending policies. On the other hand, the scale of enterprise often represents strength, industry position and development potential, so large enterprises have easier access to loans. Thus, scale of enterprise is an important factor that affects the financing structure.

For the relationship between scale of enterprise and debt ratio, information asymmetry financing structure theory argues that compared to small firms, lenders knows more about large enterprises and there would be a lower degree of information asymmetry. The larger the enterprise's scale is, the wider the business scope and breadth, and the lower the business risk. That means that the smaller the possibility of bankruptcy is and the lower the bankruptcy costs. By comparison, the smaller the enterprise's scale is, the bigger the possibility of bankruptcy is and the higher the bankruptcy costs. Low bankruptcy cost companies are more likely to use debt financing. Thus, the enterprise's scale should have positive correlation with the debt financing.

Many other theoretical studies also show that financial leverage should increase along with the company's value. Empirical research finds that financial leverage is usually positively correlated with enterprise's scale. In general, large-scale corporations have great credit ability and they are more inclined toward diversification or vertical integration to improve efficiency, reduce risk and use funds effectively through internal adjustment. Their expected cost of bankruptcy is low which make them conduct more debt management than smaller companies. Moreover, the larger the scale of IT companies in China is, the more easily they obtain government support and bank credit. Therefore, the scale of the enterprise and the debt ratio should be positively correlated.

5) Growth

Managers are more concerned about the growth of enterprises and prefer large investment projects requiring big capital investment. When the internal retained earnings are difficult to meet the capital demand of business growth, large amounts of debt is unavoidable. Therefore, the company's growth should be positively correlated with asset-liability ratio. For the proxy of growth, Chinese scholars usually use main business revenue growth, total assets and sales revenue growth rate to study the relationship between the company's growth and debt ratio.

Ⅳ. Research Model

1) Hypotheses

There are a number of factors affecting the financing risk of providing credit guarantee for SMEs. Firstly, the scale of enterprise occupy one important factor. Based on the provisions of "Measures of dividing Large, Medium and Small enterprises on Statistics (Interim)" (National Unification [2003] No. 17), the enterprise's scale can be divided by three indicators: the number of employees, market capitalization and total assets. For this study, the total assets and market capitalization are used as indicators of the enterprise's scale. Due to the fact that larger scale enterprise always have larger guarantee amount (in other words, larger amount of investment from guarantee institution) compared to smaller scale enterprises, so as to cause the guarantee institution has larger VAR. (positive correlation)

Secondly, Holmen (2002) discusses the indicator of profitability as evaluated by ROE = net profit after tax / average net equity, and net asset value per share, and net margin. Concerning about this research, the ROE, net asset value per share and net margin are used as indicators of the enterprise's profitability, which has negative correlation with VAR. Previous studies mostly use business prime operating revenue growth as an indicator of the relationship between company's growth and the debt ratio. On the other hand, growth in earnings is often monitored with earnings per share, which expresses the earnings of a company on a 'per share' basis. A high earnings per share in comparison to other competing firms is desirable. Therefore, this research uses the prime operating revenue growth rate, and earnings per share as the evaluation of the company's growth. Growth should have a positive correlation with VAR.

Frost (2000) discusses that Certainty is proportional with the company's debt level, cash flow, and negotiable capital, because liabilities are generally required to provide mortgage assets, which includes ffixed assets and inventories. Since the value of inventory has the shortcoming of instability, the value of fixed assets as collateral is more likely to be accepted. Besides cash flow emphasizes on operating results and negotiable capital influences the company's uncertainty. Consequently, this research measures the factors of certainty as fixed assets / total assets, cash flow per share and negotiable capital. And certainty should have a negative correlation with VAR.

Concerning about the difficulty on how to evaluate product uniqueness, which just like what Tushman (1990) discusses, this research uses research expenses / total assets to measure the factor of product uniqueness, which has a negative correlation with VAR. Thompson, et. al. (1998) use the current ratio and P/E ratio, as the indicators of enterprise's operational risk. Considering about the current ratio, it is calculated by current assets / current liabilities, it can help the researcher to understand if the company can meet its obligations over the short-run, when higher liquidity levels (higher current ratio) indicate that the company can easily meet its current obligations. In other words, lower current ratio indicates higher risk of meeting its obligations. And the P/E ratio, a high P/E Ratio would imply that investors are very optimistic (bullish) about the future of the company since the price (which reflects market value) is selling for well above current earnings. However, higher P/E ratio also indicate higher risk, because the share price was already more expensive than its earnings. In this research, the current ratio and P/E ratio are used as indicators of the enterprise's operation risk. And the operation risk should have a positive correlation with VAR.

Finally, we present the following hypotheses:

: There is a significant positive correlation between Scale of enterprise and VAR.

: There is a significant negative correlation between Profitability and VAR.

: There is a significant positive correlation between Growth and VAR.

: There is a significant negative correlation between Certainty and VAR.

: There is a significant positive correlation between Product unique and VAR.

: There is a significant positive correlation between Operation risk and VAR.

According to earlier discussion, the measured variables are presented in Table 1.

Table 1 Variable Description and Hypotheses

Variable	Significance	Relationship with the VAR
Independent variable	VAR	\
Total assets	Scale of the enterprise	Positive correlation
Market capital		
ROE	Profitability	Negative correlation
Net asset value per share		
Net margin		
Growth rate of prime operating revenue	Growth	Positive correlation
Earnings per share		
Fixed assets / Total assets	Certainty	Negative correlation
Cash flow per share		
Negotiable capital		
Research expenses / total assets	Product uniqueness	Positive correlation
Current ratio	Operation risk	Positive correlation
P/E ratio		

2) Calculation for VAR

The original goal of VAR was to systematize the measurement of an active trading firm's risk exposures across its dealing portfolios. Before VAR, most commercial trading business measured and controlled risk with little attention to firm-wide exposures. In contrast, VAR made it possible for dealers to use risk measures that could be compared and aggregated across trading areas as a means of monitoring and limiting their consolidated financial risks.

Beijing ZhongDan Investment & Credit Guarantee Co. Ltd (hereinafter referred to as "ZhongDan") was established in 1999, it is the professional financing guarantee corporate approved by local government and a number of Beijing Entrepreneur Association member companies, the registered capital at the establishment was 35 million Yuan. Currently, the company has established to create an industry chain strategy which provides pawn shops, auction, loan companies and financial guarantee service, etc., and is willing to create more subsidiary offices in Beijing and other cities in China. In addition, in order to solve the financing difficulty of SMEs and support the growth of SMEs, ZhongDan dedicated to serving SMEs through mergers and acquisitions, investment in project financing, to help the cooperation between SMEs and banks.

The company received AA+ credit rating in 2010 for its strategic vision through advanced, innovative business model, risk control system, strict management mechanisms to strengthen security. In order to calculate the VAR for each credit guarantee business, it is necessary to know the standard deviation of revenue or each investment (guarantee business). In this paper, we select 28 SMEs which are listed in Chinese Small and Medium Enterprise Board which ZhongDan have credit guarantee business with. The related data are obtained by interviewing ZhongDan personally and collecting from the web site of SME board information disclosure platform. All data are obtained only for the purpose of research.

Ⅴ. Empirical Results

1) Descriptive Statistics

Chinese SME Financing Guarantee VAR of up to 100.9898, a minimum of 18.0160, while the mean of 48.3, indicating standard deviation of about 19.7. Other results can be seen in Table 2.

Table 2 Descriptive Statistics

Variable	Mean	Std.Deviation	Minimum	Maximum
VAR	4.83E+01	1.97E+01	1.80E+01	1.01E+02
Total assets	207878.29	28007.357	170492	283042
Market Capital	60191.866	1.27E+05	12633.14	699621.19
ROE	-0.020089	0.1743718	-0.5232	0.1452
Net asset value Per Share	5.3371	1.96984	2.94	10.02
Net Margin	1.31E+04	1.10E+04	1300.7	35389.54
Earnings Per Share	0.4879	0.22961	0.14	1.04
Revenue growth rate	0.019154	0.3656535	-0.5163	0.6989
Fixed assets /Total assets	0.176136	0.1890578	0.0041	0.7199
Cash flow Per Share	0.2224	0.45512	-1.19	0.99
Negotiable Capital	50406.008	99007.116	7695.35	544208.85
Research expenses/ Total assets	0.051754	0.0692403	0	0.2862
Current Ratio	1.711564	1.1266326	0.0895	4.0134
P/E Ratio	62.8464	2.69E+01	33.54	129.42

2) Correlation Matrix Analysis

Table 3 presents a correlation matrix of all variables. We can observe that the signs of the correlations between VAR and the various independent variables are generally consistent with the our predictions, except for the (7) growth rate.

Table 3 Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
VAR(1)	1.000													
Total assets(2)	.437	1.000												
Market Capital(3)	.553	.630	1.000											
ROE(4)	-.236	.116	.039	1.000										

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Net asset value Per Share(5)	-.046	.237	.243	.207	1.000									
Net Margin(6)	-.090	.213	-.019	.582	.466	1.000								
Earnings Per Share(7)	.017	.250	.286	.167	.765	.392	1.000							
Revenue growth rate(8)	-.218	.150	-.108	.759	.085	.717	.056	1.000						
Fixed assets /Total assets(9)	-.116	.097	-.035	.595	.324	.580	.310	.619	1.000					
Cash flow Per Share(10)	-.272	.481	.279	.008	.389	.202	.371	.157	.068	1.000				
Negotiable Capital(11)	.550	.646	.999	.038	.235	-.028	.290	-.109	-.033	.270	1.000			
Research expenses/ Total assets(12)	-.077	.103	-.130	.582	.111	.740	.036	.830	.523	.117	-.135	1.000		
Current Ratio(13)	-.388	-.123	.077	-.647	-.341	-.708	-.261	-.764	-.605	-.177	.077	-.708	1.000	
P/E Ratio(14)	.038	-.158	.000	.005	-.102	-.256	-.443	-.180	-.255	-.233	-.013	-.175	.199	1.000

3) Estimation Results

In order to test the hypotheses, we present 8 specifications that alternatively include or exclude corresponding proxies for each hypothesis.

(1) Scale of the Enterprises

Basically the larger companies have the ability of diversification, which causes the power to resist risks and lower probability of bankruptcy. For instance, the costs for lender related to the scale of enterprise can be significant, and the smaller size borrowers will take more time on the process of financing. In addition, in many countries it is common to grant credit to an enterprise only after it has had a big account within the bank and the bank could observe cash flow for some period of time, mainly because the larger companies have less bankruptcy risk within the same level of debt. Chinese larger companies are generally supported by the government, which includes higher debt ratio and concessions on financing rate. Moreover the scale of enterprise often represents the strength of the company, the position in the industry and potential development power.

Table 4 Regression Estimates

	A	B	C	D	E	F	G	H
Total assets	0.01*** (0.003)						0.01*** (0.001)	0.01*** (0.004)
Market Capital		-0.07*** (0)	-0.01*** (0.007)					
ROE	-26.56*** (0.008)			-21.249*** (.004)				-43.741*** (0.008)
Net asset value Per Share		-.867*** (0.007)				-.249*** (0.009)	-.226*** (0.009)	
Net Margin			0.01** (0.008)	0.02** (0.004)	0.07*** (0.009)			
Earnings Per Share		1.452*** (0.009)				14.303*** (0.005)	6.708*** (0.007)	7.141*** (0.006)
Revenue growth rate	-14.662*** (0.004)		-25.18*** (0.002)	-8.58*** (0)	-27.893*** (0.002)			
Fixed assets /Total assets					-2.149*** (0.009)	-8.101*** (0.007)	-10.388*** (0.006)	
Cash flow Per Share	-7.27*** (0.003)	-9.69*** (0.002)						
Negotiable Capital			-0.01** (0.008)	-0.02** (0)				-0.01*** (0.003)
Research expenses/ Total assets	152.329* (0.001)	131.299*** (0)	122.373*** (0.002)	131.828*** (.0)	89.322*** (0.004)	125.088*** (0.)	108.638*** (0)	61.903*** (0.003)
Current Ratio	-11.663** (0)	-12.066* (0)		-11.554* (0.)		-13.967*** (0.)	-13.806*** (0)	
P/E Ratio			.004*** (0.009)		0.011*** (0.009)			0.053*** (0.007)
Constant	-41.998** (0.001)	-17.87*** (0.002)	-38.977*** (0.002)	-11.583*** (0.001)	-42.191*** (0.002)	-8.277*** (0.002)	-53.6*** (0.001)	-16.145*** (0.002)

*** 1% level of significance, ** 5% level of significance, and * 10% level of significance, p-value in parentheses.

According to the regression estimates results, concerning about scale of the enterprises variables, both Total assets (positive sign) and Market capital (negative sign) show little influences on the incidence of VAR and. financing company size is slightly correlated. In other words, the scale of enterprises' impact on the VAR (risk of financing guarantee) is not too relevant. In addition, Market capital show little negative sign on the incidence of risk. This may be determined by the special situation of China. Although the development of SMEs in China has earned more attention, the intensity is far less favorable than the policy of state-owned enterprises and foreign enterprises. SMEs in terms of scale or development are far less smaller than state-owned enterprises and foreign enterprises, so the risk of financing guarantee for small and medium-scale has little effect. This conclusion is consistent with the findings of most foreign literatures, further supporting the static trade-off theory and the conclusion that the large companies have easier access funds than smaller companies.

(2) Profitability

Corporate profitability refers to the ability from one corporate to make profit using all kinds of economic resources. It is one comprehensive reflection of various aspects of business operation, which includes marketing capabilities, obtaining cash and reducing costs and avoiding risks. Previous studies present some variables related to corporate profitability and factors affecting the risk of guarantee of financing, which includes net cash flow, debt to equity ratio, current assets divided by total assets and sales to total assets ratio, etc. Angoua, et. al. (2008) use the profitability index as one variable to evaluate the project risk under privately guaranteed debt financing and find that the profitability and risk of guarantee for financing have negative correlation. In conclusion, whether one company will be a success or failure can be manifested through profitability. Basically, the risk of guarantee of company's financing should be lower in those companies with lower profitability, while less profitable companies tend to be high risk financing guarantees. This means profitability has a negative correlation with VAR.

With regard to profitability variables, ROE shows significant negative influence on the incidence of risk. Another proxy, Net asset value Per Share shows little negative sign and Net Margin shows little positive one. In conclusion, if one SME was successfully manifested through profitability, then the risk of guaranteeing the company's financing should be lower than in those companies with lower profitability, while less profitable companies tend to be high risk financing guarantees.

(3) Growth

Managers are more concerned about the growth of enterprises and willing to invest on larger projects which need larger capital. When the internal retained earnings have difficulty in meeting the business demand for capital in the growth process, large amounts of debt are inevitable and there tend to be high risk financing guarantees, so Growth has a positive correlation with VAR.

According to the regression estimates results, concerning about growth variables, both earning per share (positive sign) and Revenue growth rate (negative sign) show significant influences on the incidence of VAR. However, the two variables are opposite, which means firstly growth's impact on the financial security risks is significant, and Earning per share shows significant influences on the incidence of risk, mainly because the SMEs with higher growth are willing to develop more projects which need more capital. When the internal retained earnings have difficulty in meeting the business demand for capital in the growth process, large amounts of debt are inevitable, which lead to high risk financing guarantees. On the contrast, those SMEs with big amounts of revenue have enough ability based on internal earnings, thus the willing of debt is not expected causing lower risk in financing.

(4) Certainty

Robert A. Jarrow (1955) discusses that uncertainty will influence the risk of guarantee of financing because the uncertainty may include taxes, costs, consumer demands, etc. For instance, for those SMEs which do not have enough stable power with marketing and sales, it is easily influenced by lower consumer demand following the global financial crisis. Delmon et.al. (2010) review some historical projects of financing, and emphasized that those stable companies with less uncertainty have more abilities to pay the loan on time. Finally, the estimates in this research are that the Certainty has a negative correlation with VAR.

With regard to certainty variables, both Fixed assets / Total assets, Cash flow per share and Negotiable capital show negative influence on the incidence of risk with Fixed assets / Total assets and Cash flow per share's influence significant and Negotiable capital' s little. The result indicates that the certainty of financing for SMEs has a significant effect on VAR. Similar to the general theory of financial risk: certainty and risk financing guarantee has negative correlation. Because the high rate of fixed assets often means a higher solvency, the security agencies are willing to give these companies guarantee. Meanwhile cash flow emphasizes on operating results and negotiable capital influences the company's risk, although the negotiable capital's impact is not so significant.

(5) Product Uniqueness

Kotler (2002) figures that companies are taking high risk without developing unique products, because consumers' needs and tastes keep changing, technology is rapidly developing and the market competition is increasing giving rise to the elimination of too ordinary products. These companies usually response slowly to the market and have little motivation to invest in innovation for unique products. Although there may still be some opportunities to make profit, Christensen (1997) presents that unique product linked to high risk on uncertainty projects with the potential to vastly influence the marketplace and bring returns to the firm. And the estimates in this research are that the product uniqueness has a positive correlation with VAR.

The only variable of uniqueness, Research expenses/ Total assets show significant impact on risk. The product uniqueness has a positive correlation with VAR, mainly because innovation linked to high risk on uncertainty projects with the potential to vastly influence the marketplace and bring returns to the firm. In addition, the innovation needs more investment so that a large amount of debt is inevitable. Consequently, the product uniqueness has a significant positive correlation with VAR.

(6) Operational Risk

Anna S, et.al. (2007) define operational risk as the risk of direct or indirect loss resulting from inadequate or failed internal process, people or systems or external events. There may also include the internal risks such as people, process and systems and external risks such as natural disasters and interest rate risk. Amanat Hussain(2000), shows the credit risk from the borrowers side is that it is possible that the borrower fails to make the payments because of some operational risks, for example market risk when the value of a contract, financial instrument, asset or portfolio changes with market conditions changing(such as global financial crisis). However, in this dissertation the operational risk mainly focus on whether the company had ability to control the investment, cash flow, liquidity risk, etc. If SMEs did not prepare the solution of these operational risks, there will be a result of inadequate systems and internal controls, inadequate disaster or contingency planning, and management failure, etc. And it is easy to deduce that, the greater the operational risk is, the greater risk of guarantee of company's financing it will be associated because it is easily found that the financing loans is difficult to recall if the company has high operational risk. In other words, the operation risk has a positive correlation with VAR

According to the regression estimates results, Current ratio (significant) shows negative and P/E ratio shows positive influences on the incidence of VAR. Consequently, operation risk has a strong positive correlation with VAR. And Current ratio shows significant influences on the incidence of risk. This is consistent with the general findings. In other words, when companies have high operation or financial risk, there may be a large debt burden and lower ability for making profit causing more difficulty to return the financing.

Ⅵ. Conclusion

This research examines guarantee risk for Chinese SMEs based on a VAR model and discusses factors influencing on the guarantee risk. Through the risk valuation of China's credit guarantee institutions, we desire to ensure the healthy and fast development of guarantee business for Chinese SMEs. Our analysis shows that the scale of enterprises' impact on the VAR (risk of financing guarantee) is not much relevant. In addition, if SMEs were successfully manifested through profitability, the risk of guarantee of company's financing should be lower while less profitable SMEs tend to be high risk of financing guarantees. It is not clear whether the growth rate significantly affect on the risk of financing guarantee. Two variables of growth employed in this study show inconsistent results each other. However, whether the debt is inevitable or not is important influencing high or low risk in financing. Our results indicate that the certainty has a significant negative correlation with VAR, and the product uniqueness has a positive correlation with VAR. Innovation is linked to high risk on uncertainty projects with the potential to vastly influence the marketplace and bring returns to the firm. Finally, operation risk has a strong positive correlation with VAR. When companies are at high operation or financial risk, there may be a large debt burden, and lower ability in making profit, which causes it to be more difficult to return the financing.

In commercial loans, guarantee agencies are involved in as a bridge to reduce the risk of commercial banks and the commercial bank's credit risk. Security agencies need to decide whether to provide guarantees for SMEs before their information have been fully analyzed. Thus, financing credit guarantee system for SMEs is an important part in financial services. However in China, in order to improve guarantee system and provide financing and better services for SMEs, further improvement must be made.

Some of measures that need to be made comprise the followings: First, the central government and local governments should gradually establish and improve security budget financing for SMEs as well as increasing the guarantee system for SMEs financing investment from the perspective of both with Chinese characteristics and SME credit guarantee budget system. Second, People's Bank financing guarantee institutions for SMEs should have a clear and collaborative assessment of liability for breach of bank credit, compensatory conditions, warranties liability, responsibility-sharing ratio and warranty and so on. Third, intermediaries involved in financing guarantee system for small and medium enterprises operating in the market is an important part. The operation of the security agency itself must also be regulated and market-oriented. Finally, at present, China's guarantee on SME financing laws and regulations, are still imperfect. It is necessary to improve the laws and regulations in order to establish a more scientific system for the important SME financing basis and guarantee security.

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국문초록

중국 보증기관의 위험 결정 요인 : 중소형 기업을 중심으로

한 소* · **이상휘**** · **정도섭*****

중국 중소형 기업들에게 상업은행을 통한 자금 조달은 매우 중요한 자금 조달의 원천이 되고 있다. 그러나 이러한 기업들의 신용보증 부족으로 중국 상업은행은 중소형 기업들에 대한 자금 공여를 꺼리고 있는 실정이며 이러한 현실은 이들 기업의 무역활동에 부정적인 영향을 미칠 수 있을 것이다. 본 연구에서는 중국 중소형 기업들에 대한 신용 보증기관의 위험에 관해 VAR 모델을 적용하여 중국 보증기관의 위험에 영향을 미치는 요인을 분석하고 자 한다. 분석 결과, 기업 규모는 그다지 통계적으로 유의한 요인이 되지 못하였으나 기업의 고정자산 비율 등 담보 관련 정보는 신용보증기관의 VAR를 감소시키는 요인으로 분석되었다. 또한 기업 관련 제품의 독창성 여부 및 중소형 중국기업의 운영위험은 신용보증기관의 VAR와 양의 관계를 보여주고 있다고 분석되었다.

주제어 : 보증기관, 중소기업 자금조달, VAR 모형, 신용 위험

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