Research on Financial Risk Evaluation of GEM Listed Companies

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Abstract: In recent years, GEM listed companies are developing rapidly, at the same time facing higher risks, especially the financial risk has gradually become a bottleneck factor restricting their sustainable development. Based on the characteristics of GEM market and the basic theory of financial risk, this paper selects financial indicators from four aspects: financing risk, investment risk, operating risk and income distribution risk, and constructs the financial risk evaluation index system of GEM listed companies. This paper collects the financial data of the listed companies in the growth enterprise market of Southwest China in recent three years, and makes an empirical stud on the financial risk assessment by factor analysis. Based on the financial risk status and empirical analysis results of GEM listed companies in the low Southwest China, the paper proposes the results of the financial risk analysis. Recommendations for reducing financial risk are put forward.

1. Introduction

GEM (Growth Enterprises Market) is an emerging market in China. Due to its short establishment time, it is not fully mature in terms of regulatory system, information disclosure, trader conditions and investment risks. While expanding the financing channels of small and medium-sized enterprises and promoting the development of capital market, the high risk of GEM can not be ignored. Therefore, the different degrees of financial risks faced by GEM enterprises in the development process can directly reflect the investment value of enterprises, and is directly related to the development of GEM market. Studying the financial risks of GEM enterprises can meet the financing needs of independent innovation of small and medium-sized enterprises, effectively evaluate the value of entrepreneurial assets, promote the development of knowledge economy, provide "export" for venture capital funds and disperse the risks of venture capital. Therefore, it is of great practical significance for GEM enterprises to correctly understand the various risk factors existing in the GEM market and find methods to evaluate and reduce the financial risk of GEM enterprises.

2. Empirical Analysis on Financial Risk Evaluation of Gem Listed Companies in Southwest China

2.1. Selection of Evaluation Indicators

According to the principles of comprehensiveness, operability, predictability and cooperation, 10 financial indicators at four levels are selected to construct the financial risk evaluation index system of GEM listed companies in Southwest China. Among them, the financing risk indicators include current ratio x1, quick ratio x2 and asset liability ratio X3; Investment risk indicators include profit margin of main business x4, return on assets X5, proportion of R & D personnel X6 and proportion of R & D investment in operating income X7; Operational risk indicators include accounts receivable turnover rate X8 and inventory turnover rate x9; The risk indicator of income distribution is retained earnings ratio X10.

2.2. Sample Selection and Data Source

According to the announcement of GEM listed companies of Shenzhen Stock Exchange, there are 38 GEM listed companies in Southwest China. According to the annual financial report of listed companies released by NetEase Finance, collect relevant financial data from 2015 to 2017 for empirical research.

2.3. Empirical Analysis of Financial Risk Evaluation

2.3.1. Variable Test

Variable test is the precondition to judge the applicability of factor analysis, and Bartlett sphericity test is the main method to test the correlation between variables. The inspection results are shown in Table 1.

Table 1. KMO and Bartlett's inspection

Kaiser Meyer Olkin measure of sampling adequacy		591
Bartlett's sphericity test	Approximate chi square	266.640
	df	45
	Sig	000

Approximate chi square according to Table 1, the kmo value of the original data is 0.591, greater than 0.50, the Bartley sphericity test value is 266.640, the corresponding companion probability is 0.000, less than the significance level of 0.05, so factor analysis can be carried out on the original data.

2.3.2. Factor Extraction

Factor extraction is the second stage of factor analysis, which is to extract the number of factors that meet the research requirements according to the principle and standard of factor extraction. The specific results are shown in Table 2.

Table 2. Total variance of interpretation

Ingredients	Initial eigenvalue			Extract sum of squares load			Rotation sum of squares loading		
	total	% of variance	Cumulative%	total	% of variance	Cumulative%	total	% of variance	Cumulative%
1	3.278	32.780	32.780	3.278	32.780	32.780	2.912	29.123	29.123
2	2.434	24.341	57.121	2.434	24.341	57.121	2.101	21.010	50.133
3	1.237	12.373	69.494	1.237	12.373	69.494	1.695	16.951	67.083
4	1.078	10.784	80.278	1.078	10.784	80.278	1.320	13.195	80.278
5	.762	7.617	87.895						
6	.472	4.718	92.613						
7	.318	3.182	95.794						
8	.214	2.144	97.939						
9	.200	2.005	99.943						
10	.006	.057	100.000						

According to Table 2, among the 10 eigenvalues of 10 variables, 4 eigenvalues are 3.278, 2.434, 1.237 and 1.078, which are greater than 1, so 4 factors should be extracted.

2.3.3. Factor Naming

Factor naming is to rename the extracted factors and use a new comprehensive name to represent the proposed factors, so as to lay a foundation for later factor analysis. Table 3 shows the rotation factor load matrix.

2.3.4. Calculate Factor Score

The component score coefficient matrix calculated by SPSS statistical software is shown in Table 4.

Table 3. Rotation component matrix

	Ingredients			
	1	2	3	4
X1	.969	-.082	-.133	-.031
X2	.976	-.074	-.070	-.040
X3	-.761	-.194	.014	-.435
X4	.558	.428	.224	.346
X5	.344	.247	-.727	.319
X6	.078	.507	.610	.157
X7	.008	.191	.826	.041
X8	-.030	.937	-.030	.032
X9	.024	.790	.192	-.145
X10	.067	-.110	-.036	.926

Table 4. Component score coefficient matrix

	Ingredients			
	1	2	3	4
X1	.385	-.082	-.001	-.195
X2	.394	-.089	.040	-.203
X3	-.212	-.027	-.029	-.225
X4	.150	.129	.126	.177
X5	.009	.220	-.487	.170
X6	.016	.147	.323	.108
X7	.046	-.050	.513	.051
X8	-.081	.510	-.190	-.033
X9	-.002	.400	-.020	-.176
X10	-.131	-.121	.035	.787

It can be seen from Table 3 that the first principal component F1 mainly reflects the information of variables such as current ratio, quick ratio and asset liability ratio, so the first principal component can be called financing risk factor; The second principal component F2 mainly reflects the information of variables such as accounts receivable turnover rate and inventory turnover rate,

so the second principal component can be called operational risk factor; The third principal component F3 mainly reflects the information of variables such as return on assets, the proportion of R & D personnel and the proportion of R & D investment in operating income, so the third principal component can be called investment risk factor; The retained earnings ratio in the fourth principal component F4 is 0.926, which has a large positive load, indicating that this indicator has a great influence. The fourth principal component can be called income distribution risk factor. According to Table 4, the factor score function of four factors can be obtained.

2.3.5. Factor Score

When calculating the overall comprehensive score, you need to calculate the weight first, and calculate the weight according to the variance contribution rate. The calculation formula of comprehensive score is obtained according to the weight.

2.4. Analysis of Empirical Results

2.4.1. Financing Risk Analysis

The financing risk factor score of 22 GEM listed companies in Southwest China is less than 0, indicating that most companies listed on the GEM in Southwest China have weak solvency and even suffer losses, which is not conducive to the long-term development of enterprises and face large financing risks.

2.4.2. Investment Risk Analysis

The investment risk factor score of 21 GEM listed companies in Southwest China is less than 0, indicating that the profitability of these 21 companies is weak. Enterprises should strengthen financial manaGEMent and promote industrial transformation and upgrading to improve profitability, so as to reduce enterprise investment risk.

2.4.3. Operational Risk Analysis

Among the companies listed on the southwest GEM, only Xunyou technology, Wanxing technology and chuanjinnuo have an operational risk factor score greater than 1, and the operational risk factor scores of the other 35 companies listed on the southwest GEM fluctuate between - 1 and 1. It shows that the turnover speed of accounts receivable of most GEM listed companies in Southwest China is slow, the liquidity of funds is weak, and the operation risk faced by enterprises is large.

2.4.4. Income Distribution Risk Analysis

The risk factor scores of income distribution of 24 GEM listed companies in Southwest China is greater than 0, indicating that most GEM listed companies in Southwest China have stable income, orderly operation of enterprise funds, reasonable fund distribution scheme by managers, less financial uncertainty, good financial status and less risk of income distribution.

2.4.5. Comprehensive Score Analysis

More than half of the GEM listed companies in Southwest China scored less than 0, indicating that most of the companies listed on the GEM in Southwest China have significant financing risk, investment risk, operation risk and income distribution risk.

3. Suggestions on Reducing the Financial Risk of Gem Listed Companies in Southwest China

3.1. Profit Oriented, Improve Enterprise Profitability

Maintaining strong profitability is the goal of enterprise development. The GEM listed companies in Southwest China should do well in cost control and minimize discretionary costs in the course of production and operation; at the same time, adhere to profit oriented performance management and implement profit oriented development strategy.

3.2. Formulate a Reasonable Debt Repayment Plan to Enhance the Solvency of Enterprises

Based on the current situation of financial risk, companies listed on the GEM in Southwest China should formulate reasonable financing plans and repayment plans, reasonably arrange the debt maturity structure, appropriately control the debt scale and reduce the financing risk, so that enterprises can survive and develop healthily.

3.3. Adhere to Innovation Driven and Increase R & D Investment

R & D investment is an important guarantee for the innovation and development of enterprises. Enterprises should first enhance their R & D awareness and become the main body of innovation; at the same time, adhere to the innovation drive and put innovation at the core of the overall development of the enterprise; In addition, we should pay attention to new product development, improve product quality and market competitiveness, so as to reduce investment risk.

3.4. Strengthen the Management of Inventory and Accounts Receivable and Improve the Operation Capacity of Enterprises

Inventory and accounts receivable are important current assets of an enterprise. Improving its management efficiency will help to improve the operation capacity of the whole enterprise. Therefore, the GEM listed companies in Southwest China should strengthen inventory budget management and establish a comprehensive budget management system; improve the enterprise's collection speed, shorten the average collection period and enhance asset liquidity, so as to improve the enterprise's operation ability and reduce the operation risk.

3.5. Overall Arrangement of Funds to Reduce the Risk of Enterprise Income Distribution.

The GEM listed companies in Southwest China should make overall arrangements for enterprise funds, analyze the future cash surplus and shortage of enterprises, comprehensively consider the external financing risk and income distribution risk, reasonably plan enterprise working capital and establish a reasonable income distribution plan.

4. Conclusion

Based on the characteristics of GEM market and the basic theory of financial risk, this paper selects financial indicators from four aspects: financing risk, investment risk, operating risk and income distribution risk, and constructs the financial risk evaluation index system of GEM listed companies. This paper collects the financial data of the listed companies in the growth enterprise market of Southwest China in recent three years, and makes an empirical study on the financial risk assessment by factor analysis. Based on the financial risk status and empirical analysis results of

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Acknowledgements

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