Problems and Countermeasures of Financial Competitiveness of Listed Manufacturing Companies in Hunan Province

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Abstract: The present study takes 28 listed manufacturing companies in Changsha-Zhuzhou-Xiangtan-Heng-Yang City Groups of Hunan province in 2017 as the research sample, and uses Factor Analysis to extract 16 main impact factors from the debt paying ability, operation ability, profit ability, growth ability, and other financial indexes, based on which it builds the financial competitiveness evaluation system and obtains the main impact factors ranking and the comprehensive ranking of these companies. Results show that the overall level of financial competitiveness of listed manufacturing companies in the City Groups is not high and their development is not balanced. Generally, listed companies of electrical machinery and special equipment rank relatively high while pharmaceutical companies are significantly weaker than other industries. At last, the countermeasures are given to improve the financial competitiveness of the listed manufacturing companies in Changsha-Zhuzhou-Xiangtan-Heng-Yang City Groups.

1. Introduction

The comprehensive evaluation model of financial competitiveness of listed manufacturing companies in Hunan province can simplify scattered and various financial indexes into an integrated one that shows their internal structures, which can comprehensively and intuitively reflect their financial development levels. [1] On the one hand, it is easier to find their financial problems by comprehensively scoring and ranking the selected companies. On the other hand, this paper tries to quantify the evaluation function of non-financial indexes on financial competition.[2] For example, it considers the influence of the company's internal management, financial personnel composition, and other non-financial indexes on financial competitiveness, based on which it successfully extracts the common factor of financial control ability and check-and-balance ownership ability. Thus, it is of innovative significance to the quantitative index of non-financial indexes.

2. Evaluation Method of the Financial Competitiveness of Listed Manufacturing Companies in Hunan Province

Taking the methods of Principal Component Analysis and Factor Analysis from statistics, the present paper determines the statistical weight in terms of variance contribution. Such practice can not only avoid the subjective bias of artificial weight determination, but also eliminate the influence of correlation among indexes, which results in objective and reasonable evaluation.[3] Based on the foregoing points, this paper uses the Factor Analysis method to construct the financial competitiveness evaluation model of listed companies.

2.1. Basic Principles of Factor Analysis

Factor Analysis is a kind of data simplification technology. Based on the internal correlation between the original variables, it seeks for the basic structure of data and uses imaginary common variables to represent the original data variables. The mathematical model of Factor Analysis can be expressed as:

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$$Xi=a_{i1}F_1+a_{i2}F_2+\ldots\ldots a_{im}F_j+\varepsilon_i \quad (1)$$

In this equation, X(X1,X2,…Xi)represents the originally relevant indexes. F(F1,F2,…Fj)is the common factor, whose coefficient is a_{im}, or factor loading. εis a special factor, representing the part that cannot be included by the above m common factors.

2.2. Sample Selection and Data Sources

This paper selects 28 A-share listed manufacturing companies from 40 companies of Hunan province that has listed in Shanghai and Shenzhen as the research samples. These companies mainly cover electrical machinery, special equipment, pharmaceutical manufacturing, food and other industries.

2.3. Index System for Financial Competitiveness Evaluation of Listed Manufacturing Companies in Hunan Province

It is found that although the evaluation systems of enterprise financial competitiveness established by previous studies differ in their purposes, they basically centre on describing such aspects as the debt paying ability, operation ability, profit ability, and growth ability. [4] Therefore, to effectively evaluate the finance of the listed manufacturing companies in Hunan province, this paper takes 16 basic financial indexes as the index system for evaluation based on relevant principles while drawing on previous studies and the industrial characteristics. The financial competitiveness index evaluation system for companies is shown in Table 1:

Table 1. The evaluation indexes of financial competitiveness of listed manufacturing companies in Hunan province

evaluation index	specific evaluation index	formula
profit ability	return on assets(X1)	(net profit + interest expenses+ income tax)/ average total assets *100%
	basic earnings per share(X2)	net profit/ average number of shares of common stock
	profit margin on sales(X3)	total profit/sales revenue
	net profit margin on sales(X4)	net profit/sales revenue
	return on equity(X5)	after-tax profit/owner's equity
debt paying ability	current Ratio(X6)	current assets/current liabilities
	quick ratio(X7)	quick assets/current liabilities
	asset-liability ratio(X8)	total liabilities/total assets
operation ability	accounts receivable turnover(X9)	sales revenue/average accounts receivable
	inventory turnover(X10)	cost of sales/average inventory
	total asset turnover(X11)	main business income/average total assets
	current asset turnover(X12)	net main business income/average current assets
growth ability	net profit growth rate(X13)	(net profit of the current year - net profit of the previous year)/net profit of the previous year
	total assets growth rate(X14)	(total assets at the end of the period - total assets at the beginning of the period)/total assets at the beginning of the period
	operating income growth rate(X15)	(total operating income of the current year - total operating income of the previous year)/ total operating income of the previous year
	earnings per share growth rate(X16)	(earnings per share for the current period - earnings per share for the previous period)/ earnings per share for the previous period

3. Evaluation and Analysis of Financial Competitiveness of Listed Manufacturing Companies in Hunan province

3.1. Precondition Test for Factor Analysis

In this paper, correlation matrix calculation, KMO test and Bartlett Sphericity Test are performed on the sample data through the analysis module in SPSS.19. The test results are as follows:

Table 2. Test results of KMO and Bartlett

Kaiser-Meyer-Olkin measure of sample adequacy		.667
Bartlett Sphericity Test	The approximate chi-square	967.930
	df	300
	Sig.	.000

Results show that the KMO value is 0.667, greater than 0.5, and the observation value of Bartlett Sphericity Test is 967.93. Null hypothesis of identity matrix is thus rejected, and Factor Analysis method is suitable for original data variables.

3.2. Extraction of Common factor

In this paper, Principal Component Analysis is adopted to extract variables with eigenvalues greater than 1 as the common factors. Four main factors are extracted through Principal Component Analysis, and the cumulative contribution rate is 81.23%, greater than 80%. These common factors can well explain the total variance.

For the common factor F1, the original indexes X1 (return on assets) and X5 (return on equity) are relatively concentrated in load, so F1 represents the profit ability factor.

For the common factor F2, the original financial indexes include X6 (current ratio), X7(quick ratio) and X8(asset-liability ratio), which account for a larger load, so F2 represents the factor of debt paying ability.

For the common factor F3, the original financial indexes are X9 (accounts receivable turnover), X10 (inventory turnover), X11 (total assets turnover), and X12 (current assets turnover), so F3 represents the operation ability factor.

For the common factor F4, the original financial indexes are X13 (net profit growth rate) and X16 (earnings per share growth rate) which have a larger load, so F4 represents the growth ability **factor.**

3.3. Calculation of Factor Scoring Matrix

The linear expression of each factor and the original variable is obtained, and the score of each factor is calculated so as to reduce their dimensionality. Factor Scoring Matrix is shown in Table 3.

Table 3. Factor Scoring Matrix

	factor			
	F1	F2	F3	F4
Zscore(X1)	.918	.095	-.147	-.145
Zscore(X2)	.871	-.185	-.042	.054
Zscore(X3)	.532	-.411	-.278	-.182
Zscore(X4)	.747	-.084	-.088	.246
Zscore(X5)	.887	.062	-.068	-.158
Zscore(X6)	.443	-.568	.351	-.048
Zscore(X7)	.460	-.530	.349	-.089
Zscore(X8)	-.429	.553	-.443	-.018
Zscore(X9)	.136	.382	.755	-.040
Zscore(X10)	.134	.462	.737	-.122
Zscore(X11)	.331	.722	.405	-.119
Zscore(X12)	.243	.752	.354	-.043
Zscore(X13)	.570	-.072	.243	.508
Zscore(X14)	.502	.126	-.235	-.610
Zscore(X15)	.502	.126	-.235	-.020
Zscore(X16)	.549	-.088	.247	.533

4. Evaluation and Analysis of Financial Competitiveness of Listed Manufacturing Companies in Hunan Province

4.1. Overall Evaluation Analysis

According to the above analysis, the comprehensive evaluation model of financial competitiveness of listed companies in China is as follows:

$$F=0.25425F1+0.14329F2+0.11205F3+0.069045F4 \quad (2)$$

In equation (2), F1 represents the profit ability factor, F2 debt paying ability factor, F3 the operation ability factor, and F4 growth ability factor. From the above evaluation model, it can be seen that the profit ability factor and debt paying ability factor have greater impact on the comprehensive financial competitiveness of companies.

4.2. Analysis of the Evaluation Results of Each Group

Zhu Xiao, a professor at the Accounting School of Xinjiang University of Finance and Economics, proposed in 2009 that assuming M is the comprehensive score of financial competitiveness of listed companies, when M is greater than 0.4, the financial competitiveness is relatively strong; when M is between 0 and 0.4, the financial competitiveness is average; when M is between -0.4 and 0, the financial competitiveness is weak; when M is less than -0.4, the financial competitiveness is very weak. According to this criterion, the distribution of financial competitiveness of listed manufacturing companies in Hunan province is obtained, which is presented in Table 4.

Table 4. The Distribution of Financial Competitiveness of Listed Manufacturing Companies in Hunan Province

group	companies and scores
relatively strong financial competitiveness	ten companies such as Gold Cup Electric (1.9308), CHNSUN (1.4811)
average financial competitiveness	three companies such as Jinjian Cereals Industry (0.0379), Jiajia Food (0.1505)
weak financial competitiveness	five companies such as Zhuzhou Times New Material Technology Co., LTD (-0.2193), Hunan Haili Chemical Co. LTD (-0.3253)
very weak financial competitiveness	ten companies such as Hansen Pharmacy (-1.7569), *ST Guhan (-3.4101)

Results show that the overall level of financial competitiveness of listed manufacturing companies in Changsha-Zhuzhou-Xiangtan-Heng-Yang City Groups of Hunan province is not high and their development is unbalanced. In general, listed companies such as electrical machinery and special equipment rank higher, and those in the pharmaceutical industry are significantly weaker than other industries.

5. Suggestions on Improving Financial Competitiveness of Listed Manufacturing Companies in Hunan Province

The above comparison shows that the financial competitiveness of listed manufacturing companies in Hunan province has certain advantages, but the existing problems are relatively prominent. In view of their weak financial competitiveness, the author puts forward the following countermeasures:

5.1. Establishing Awareness of Financial Competitiveness

Companies should raise the awareness of financial competitiveness while correctly understanding the value of financial management. Good financial competitiveness can not only enable companies to obtain financial advantages from all aspects, but also contribute significantly to

their survival and development. Therefore, companies should attach importance to the improvement of their financial competitiveness, putting it in the same important position as the improvement of production efficiency and the expansion of market share. In addition, they should establish the awareness of financial competitiveness, paying attention to the characteristics of the market and industry they are in, and changes of market and policy environment. Only in this way can they achieve resources optimization, capabilities integration, and financial competitiveness improvement.

5.2. Improving the Profit Ability of Listed Manufacturing Companies in Hunan Province

Listed manufacturing companies in Hunan province can improve their profit ability by making full use of existing assets. For example, idle funds can be used to invest in fields with less risk to offset interest expenses and increase investment income. Besides, it is advised to carry out regular check on various fixed assets. As for the unusable fixed assets, they can lease or sell them to increase the company's income. At the same time, they should pay attention to investment risk, diversifying their investments. Before investment, they are supposed to investigate the market demand, to analyse the feasibility of the project and the return of investment, and to grasp the investment opportunity. More importantly, they should resist risks through diversified investments. When improving profit ability, they should pay attention to the coordination with financial strategies, focusing on both the present and the future. In addition to short-term profit ability, they should put more emphasis on the cultivation and development of their long-term profit ability.

5.3. Enhancing the Debt Paying Ability of Listed Manufacturing Companies in Hunan Province

Listed manufacturing companies in Hunan province should improve their industrial concentration and product development ability so as to enhance the financial strength. In addition, they should speed up the capital turnover and prevent the debt risk through the development of detailed collection strategies. They can also achieve their complementary capital advantages through intra-industry and inter-industry mergers and reorganizations. Last but not least, they can transform backward and difficult companies through the combination of strong companies and acquisition or merger of superior companies.

6. Conclusion

In summary, companies should improve their competitiveness in the process of development, especially their financial competitiveness. The present study takes the listed manufacturing companies in Hunan province as the research object and uses Factor Analysis to extract 16 main impact factors from the debt paying ability, operation ability, profit ability, growth ability, and other financial indexes, based on which it builds the financial competitiveness evaluation system and obtains the main factors ranking and the comprehensive ranking of these companies. According to these two rankings, it has conducted a comprehensive evaluation of the selected companies' competitiveness levels, and put forward the corresponding suggestions.

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