

# Performance Evaluation of Listed Companies in the Chinese Medicine Industry

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## Abstract

Since the 13th Five-Year Plan, the country has placed the development of Chinese medicine in an important position in the overall economic and social development. At the same time, with the development of cross-border e-commerce, the entry of well-known foreign pharmaceutical companies into the Chinese market has brought an impact on Chinese pharmaceutical companies. The challenge under the situation has become a question for Chinese medicine companies. Based on this background, this paper selects 66 listed Chinese medicine companies in 2018 as the research objects, and uses factor analysis to construct a comprehensive corporate performance evaluation system with profitability, solvency, capital operation, and growth and development as the first-level indicators. Provide a reference for Chinese medicine companies to monitor operational risks.

## Keywords

Chinese medicine; Listed company; Factor analysis method; Performance evaluation.

## 1. Introduction

Traditional Chinese medicine is a treasure of the Chinese nation. As Secretary Xi Jinping said: "Promoting Chinese medicine to the world is a kind of self-confidence, a kind of heart, and a mission and responsibility for the benefit of mankind." At present, although there are a large number of Chinese medicine companies, there are relatively few Chinese medicine companies with strong competition. This may be because the Chinese medicine industry is a systematic project of centralized medicine planting, picking, processing, Chinese patent medicine production, packaging, and sales. The nature and intersectionality make it difficult for Chinese medicine companies to develop rapidly, and Chinese medicine companies generally have small scales, backward equipment, poor innovation capabilities, and irregular management. In the critical period of the increasingly vigorous development of cross-border e-commerce, the Chinese medicine industry must overcome the immediate difficulties and improve its overall competitiveness. The financial indicators of listed Chinese medicine companies not only play an important role in evaluating their company's operating performance and formulating appropriate strategic directions for the company, but also helpful in providing ideas for business objectives.

Prior to this, many domestic scholars conducted research on the operating performance of listed pharmaceutical companies: Xie Xiaogang used factor analysis to construct a core competitiveness evaluation model from the perspective of efficiency, and the study found that the operating efficiency of Indian listed companies was higher than that of domestic listed pharmaceutical companies [1]. Zhao Cuiping selected 109 listed pharmaceutical companies for research and analysis, obtained the ranking of each company through factor analysis, and verified it with market profitability [2]. Li Xiaojuan evaluated the operating performance of my country's listed Chinese medicine companies from 2014 to 2016, and used spss for empirical analysis [3]. The above scholars only conduct research based on a certain perspective of listed

Chinese medicine companies, and most of them are researches on listed pharmaceutical companies, rather than independent research on Chinese medicine companies. Although there are researches on the operating performance of Chinese medicine companies, they are earlier and analyzed. The tool is spss.

## 2. Methodology

### 2.1. Factor Analysis Model

Factor is a multivariate analysis method of data reduction. It is a very effective method based on the minimization of information loss. It combines many indicators into a few public indicators, that is, public factors. Its basic idea is to classify the more closely related ones in the same category, and those with low correlation and lower connections represent a different structure, that is, a factor. According to the factor score value, the sample points are drawn in the space constructed by the factor axis to intuitively achieve the classification purpose; or calculate the factor ranking to evaluate the research object.

$X = (X_1, X_2, X_3, \dots, X_n)'$  represents that there are  $n$  observable random variables, and  $F_1, \dots, F_p$  represents that there are  $p$  unobservable factors, the mean value  $E(F) = 0$ , covariance matrix  $\text{cov}(F) = I$  means the factors are independent of each other.  $\varepsilon_1, \dots, \varepsilon_n$  and  $F$  are independent of each other. And the covariance matrix of  $\varepsilon$  is a diagonal matrix which means the components  $\varepsilon$  are independent of each other.

$$\begin{cases} x_1 = a_{11}F_1 + a_{12}F_2 + \dots + a_{1p}F_p + \varepsilon_1 \\ x_2 = a_{21}F_1 + a_{22}F_2 + \dots + a_{2p}F_p + \varepsilon_2 \\ \dots\dots\dots \\ x_n = a_{n1}F_1 + a_{n2}F_2 + \dots + a_{np}F_p + \varepsilon_n \end{cases} \quad (1)$$

This is a factor analysis model, the matrix form is  $X = AF + \varepsilon$ , we call  $F$  as the common factor or latent factor of  $X$ , the matrix  $A$  is called the factor loading matrix,  $a_{np}$  is the factor loading, and  $\varepsilon$  is called the special factor.

### 2.2. Maximum Variance Orthogonal Rotation Method

After establishing a factor analysis model to find the principal factors, you still need to know the meaning of each principal factor, but sometimes the typicality of the principal factors obtained is not very prominent, and the variables cannot be well represented. Therefore, it is necessary to rotate the factors to obtain a satisfactory principal factor. The most commonly used factor rotation is the maximum variance orthogonal rotation method.

Carrying out factor rotation is to transform the absolute value of the factor load into two directions of 0 and 1, so as to simplify the structure of the factor and make the meaning of the factor more clear. Orthogonal rotation means that the corresponding axes of the factors are orthogonal to each other. On this basis, making the variance of the squared data as large as possible, which is called the maximum variance orthogonal rotation method.

### 3. Performance Evaluation of Traditional Chinese Medicine Industry Based on Factor Analysis

#### 3.1. Data Source and Data Processing

The data selected in this article are the annual financial statements data of 66 Chinese medicine companies in 2018. The data comes from [www.cninfo.com](http://www.cninfo.com). It is the designated information disclosure website of the China Securities Regulatory Commission, which is reliable. A scientific and accurate evaluation index system is the first step in the research problem. In order to fully reflect the comprehensive capabilities of listed Chinese medicine companies, the performance evaluation of listed Chinese medicine companies in my country is studied from the four aspects of profitability, capital operation, debt solvency, and growth and development. Following the principles of scientificity, comparability, and comprehensiveness, selected 11 indicators: x1 earnings per share, x2 net assets per share, x3 return on net assets, x4 operating profit margin, x5 net profit margin, x6 inventory turnover rate, x7 total asset turnover rate, x8 current asset turnover rate, x9 asset-liability ratio, x10 current ratio, x11 quick ratio.

In order to reduce the influence of units and dimensions, first standardize the data. Using Z-Score standardization method, the specific calculation formula is:

$$Z = \frac{(x - \bar{x})}{s} \quad (2)$$

#### 3.2. Factor Analysis Process

In order to verify whether this article is suitable for evaluating listed companies in the traditional Chinese medicine industry using factor analysis, KMO and Bartlett tests are used to obtain the results through SPSS statistical software (as shown in Table 1). The KMO value is 0.618, which means that the effect of factor analysis is average, but According to Bartlett's sphericity test, the sig value is almost 0. It is reasonable to reject the original hypothesis and believed the correlation between the financial indicators of listed Chinese medicine companies is relatively strong, and it is suitable for factor analysis.

**Table 1.** KMO and Bartlett's sphericity test results

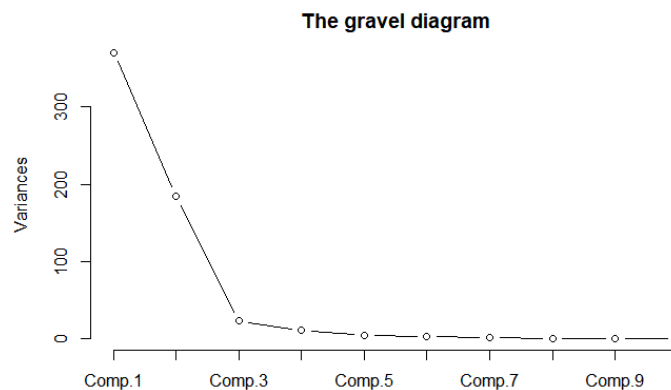
Kaiser-Meyer-Olkin measure of sampling adequacy		0.618
Bartlett's sphericity test	Approximate chi-square	798.433
	df	55
	Sig value	0.000

This paper uses R statistical software to standardize the data, and then perform factor analysis. The number of factors is selected and extracted according to the cumulative variance of each factor greater than 85%. As shown in Table 2 for the explanation of factor variance. It can be seen from the table that the eigenvalue of the main factor Factor1 is 3.97, and the variance contribution rate is 36.09%; Factor2 represents the information of the main factor 2, its eigenvalue is 2.99, and the variance contribution rate is 27.18%. Factor3 represents the information of factor 3, its characteristic value is 1.69, and the variance contribution rate is 15.36%. Factor4 represents the information of main factor 4, its characteristic value is 0.919, and the variance contribution rate is 8.35%. The eigenvalues of the first three factors are significantly greater than 1, and the eigenvalue of the fourth factor is very close to 1, and the cumulative contribution rate of the three factors is 86.99%, which contains 86.99% of the original index information, so it is enough to replace the original index Evaluate the performance of the Chinese medicine listing industry.

**Table 2.** Factor variance and contribution

Factor	variance	Contribution rate	Cumulative variance contribution rate
Factor1	3.970	0.36092	36.09
Factor2	2.990	0.27182	63.27
Factor3	1.690	0.15363	78.64
Factor4	0.919	0.08355	86.99

The gravel diagram (Figure 1) shows the factor selection more vividly. The variance of the fourth factor tends to be flat, indicating that the optimal number of factor selection is 4. In addition, the cumulative variance contribution rate of the first four factors is 86.99%, indicating that the selection of these four factors is reasonable for studying the performance of listed companies in the traditional Chinese medicine industry. It not only retains most of the information in the original data, but also eliminates other factors that are not representative to achieve the purpose of dimensionality reduction.

**Figure 1.** The gravel diagram

Using Rstudio for factor analysis, you can get the initial factor loading matrix. It can be seen from Table 3 that, except for the first factor, which has more loads exceeding 0.8, the loads of the second, third, and fourth factors in each observation data index do not exceed 0.8, so factor rotation is considered so that each factor has a clearer practical meaning can interpret the original data more effectively.

**Table 3.** Factor loading matrix before rotation

variable	Factor1	Factor2	Factor3	Factor4
x1 earnings per share	0.69730	0.53149	-0.06212	0.35540
x2 net assets per share	0.51147	0.43025	-0.07583	0.68927
x3 return on net assets	0.83932	0.37041	-0.08409	-0.21085
x4 operating profit margin	0.90809	0.03931	-0.23265	-0.25711
x5 net profit margin	0.89987	0.04162	-0.24235	-0.26172
x6 inventory turnover rate	-0.14292	0.21018	0.77131	0.08585
x7 total asset turnover rate	0.10929	0.73499	0.55857	-0.09624
x8 current asset turnover rate	-0.01408	0.74616	0.41296	-0.31257
x9 asset-liability ratio	-0.55052	0.51486	-0.39105	0.06915
x10 current ratio	0.53635	-0.71041	0.36288	0.11461
x11 quick ratio	0.50998	-0.68632	0.44533	0.07958

The factor load matrix after rotation is shown in Table 4. The economic meaning of each factor is very obvious after the factor load matrix is rotated by the maximum variance rotation method.

**Table 4.** Factor loading matrix after rotation

variable	Factor1	Factor2	Factor3	Factor4
x1 earnings per share	0.50636	-0.02933	0.20346	0.774739
x2 net assets per share	0.18094	-0.01653	0.05622	0.944128
x3 return on net assets	0.86775	0.06846	0.21560	0.298370
x4 operating profit margin	0.92358	0.23630	-0.08706	0.173160
x5 net profit margin	0.92281	0.22496	-0.09219	0.167434
x6 inventory turnover rate	-0.35260	0.23197	0.69738	0.049187
x7 total asset turnover rate	0.10844	-0.14577	0.89410	0.202443
x8 current asset turnover rate	0.16365	-0.31692	0.83529	-0.015615
x9 asset-liability ratio	-0.24215	-0.81516	-0.01089	0.051058
x10 current ratio	0.11071	0.94633	-0.16926	0.026786
x11 quick ratio	0.08604	0.95979	-0.08415	-0.008824

The factor load is the correlation coefficient, and the specific explanation of the factor is determined according to the correlation. The load of Factor1 on the return on net assets x3 is 0.86, the load on the operating profit margin of x4 is 0.923, and the load on the net profit margin of x5 is 0.922, so factor 1 represents the profitability of listed Chinese medicine companies. The load of Factor2 at x9's asset-liability ratio is -0.815, the load at x10's current ratio is 0.94, and the load at x11's quick ratio is 0.95, indicating that factor 2 represents the solvency of listed Chinese medicine companies. The load of Factor3's total asset turnover rate at x7 is 0.89, and the load of current asset turnover rate at x8 is 0.83, which shows that factor 3 represents the operating capacity of listed Chinese medicine companies. The load of Factor4 on x1 earnings per share is 0.77, and the earnings per share of net assets on x2 is 0.94, which shows that factor 4 represents the growth ability of listed Chinese medicine companies.

**Table 5.** Main factor explanatory index

Comprehensive meaning	Factor	Explanatory index
Profitability	Factor1	Return on net assets, Operating profit margin, Net profit margin
Solvency	Factor2	Asset-liability ratio, Current ratio, Quick ratio
Operational capability	Factor3	Total asset turnover rate, Current asset turnover rate
Growth ability	Factor4	Net assets per share

It can be seen from Table 5 that the explanatory indicators of Factor 1 are return on equity, operating profit, and net profit. Their load coefficients all exceed 0.8. These indicators all reflect the company's profitability, so they are named It is a profit factor, and the variance contribution rate of this factor is the largest of the four main factors, 36.09%, which shows that the profit factor is an important indicator of our performance evaluation of listed Chinese medicine companies. The input, output and profitability of listed Chinese medicine companies play a decisive role in their long-term development and growth. Therefore, factor 1 has a great guiding and guiding role for investors and government managers of listed Chinese medicine companies. The explanatory indicators of Factor 2 are asset-liability ratio, current ratio, and quick ratio, and their load factors also exceed 0.8. These indicators all reflect the company's ability to repay debts, which is named the debt service factor. The variance contribution rate of this factor is

27.18%, which is the second largest contribution rate among the four main factors and plays a key role. The traditional Chinese medicine industry is inseparable from the research and development and innovation of drugs, which requires financial support and investment. Sufficient funds of enterprises can maintain good liquidity of corporate assets and provide corporate operating capabilities, thereby bringing higher benefits to the company. The solvency of a company is also related to its reputation, and its stability is also a key factor in attracting investors.

The explanatory indicators of Factor 3 are total asset turnover and current asset turnover. Name this factor the operating factor. The variance contribution rate of this factor was 15.36%, ranking third among the four main factors. Asset turnover rate is an important financial ratio that measures the efficiency of a company's asset management. It has an important position in the financial analysis index system and reflects the management quality and utilization rate of the company. Generally speaking, the higher the turnover rate, the stronger the sales ability, and the higher the efficiency of asset utilization. Investors are also concerned about the ability of listed Chinese medicine companies to sell drugs and the efficiency of asset utilization. Therefore, the operating factor is also an important measurement indicator.

The explanatory index of Factor 4 is the index of net assets per share. Its load factor is as high as 0.944, and the factor's contribution to the variance of the original data is 8.35%. The fourth factor is named growth factor. The larger the net asset value per share, the higher the company's development potential and the higher the expectation of stock appreciation, the stronger the company's ability to create profits and the ability to resist risks, and the less risk that investors bear, thereby maximizing the company's interests and high dividends for shareholders.

### 3.3. Factor Comprehensive Score Ranking and Evaluation

In order to analyze the performance of listed companies in the traditional Chinese medicine industry more intuitively, the factor loading coefficients after rotation are used to weight the total factor loading coefficients of each company to obtain the comprehensive factor scores of each traditional Chinese medicine company. The variance contribution rate of each factor is used as the weight Perform weighting to calculate the comprehensive score of each Chinese medicine company.

The calculation formula for the score of each factor is:

$$F1=0.506x1+0.181x2+0.868x3+0.924x4+0.923x5-0.353x6+0.108x7+0.163x8-0.242x9+0.110x10+0.086x11(3)$$

$$F2=-0.029x1-0.016x2+0.068x3+0.236x4+0.224x5+0.2319x6-0.145x7-0.316x8-0.815x9+0.94x10+0.95x11(4)$$

$$F3=0.203x1+0.056x2+0.2156x3-0.087x4-0.092x5-0.697x6+0.894x7+0.835x8-0.010x9-0.169x10-0.084x11(5)$$

$$F4=0.774x1+0.944x2+0.298x3+0.173x4+0.167x5-0.0491x6+0.202x7-0.015x8+0.051x9+0.02x10-0.0088x11(6)$$

The formula for calculating the comprehensive score is:

$$F = (0.36092F1 + 0.27182F2 + 0.15363F3 + 0.08355F4) / 0.8699 \quad (3)$$

The following will be sorted and evaluated according to the comprehensive score of the Chinese medicine listing formula.

**Table 6. Factor comprehensive score and its ranking**

company	Profitability		Solvency		Operational capability		Growth ability		Overview	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Jichuan Pharmaceutical	1.92	3	2.11	1	0.51	20	-0.15	35	1.13	1
Shin Kong Pharmaceutical	2.25	2	-2.62	66	0.81	13	-0.16	36	1.03	2
Qizheng Tibetan Medicine	1.64	4	-1.24	58	0.52	19	-0.48	47	0.79	3
Don Ejiao	2.30	1	0.58	19	-1.22	59	2.50	2	0.76	4
Pien Tze Huang	1.55	5	0.52	21	-0.30	43	-0.04	29	0.67	5
Renhe Pharmaceutical	0.43	15	0.44	24	1.81	3	-1.48	64	0.66	6
Jiangzhong Pharmaceutical	1.49	6	-0.52	49	-0.07	37	-0.02	28	0.63	7
Kaibao	1.05	9	-2.04	65	1.01	9	-0.38	44	0.58	8
Yunnan Baiyao	1.26	7	1.67	4	-0.37	47	3.39	1	0.53	9
Tibet Pharmaceutical	1.20	8	-0.19	38	-0.09	38	1.17	9	0.49	10
Huangshan Capsule	0.85	11	-1.79	64	0.94	10	1.32	8	0.45	11
Jinling Pharmaceutical	0.12	30	0.11	29	1.64	4	-0.06	31	0.43	12
Jianmin Group	-0.45	50	1.50	6	2.36	2	0.14	23	0.42	13
Ma Yinglong	0.14	29	-0.32	43	1.55	5	0.27	21	0.38	14
Buchang Pharmaceutical	0.79	12	1.81	3	-0.33	45	1.36	7	0.38	15
Kanghui Pharmaceutical	1.00	10	-1.68	63	0.21	27	1.53	5	0.36	16
Yiling Pharmaceutical	0.67	14	-0.87	55	0.49	21	0.13	24	0.35	17
Baiyun Mountain	0.30	22	2.02	2	0.49	22	1.90	3	0.34	18
Sunflower Pharmaceutical	0.39	19	1.03	9	0.31	23	-0.84	54	0.33	19
Watson Pharmaceutical	0.42	16	0.32	26	0.30	24	-1.75	66	0.32	20
Yiming Medicine	-0.48	52	-0.13	36	2.43	1	0.11	25	0.31	21
Qianjin Pharmaceutical	-0.02	36	0.73	14	1.02	8	-0.45	46	0.28	22
China Resources Sanjiu	0.27	23	1.53	5	0.11	32	0.64	15	0.24	23
Zhongxin Pharmaceutical	0.04	33	0.83	13	0.60	18	-0.26	38	0.21	24
Jiaying Pharmaceutical	0.01	35	-0.90	57	1.07	6	-0.85	55	0.20	25
Panlong Pharmaceutical	0.32	21	-0.02	31	0.23	26	0.41	20	0.19	26
Kangyuan Pharmaceutical	0.02	34	0.69	17	0.27	25	-0.30	40	0.12	27
Zhongsheng Pharmaceutical	0.41	18	-0.12	35	-0.34	46	-0.61	50	0.11	28
Shouxiangu	0.68	13	-0.11	34	-0.93	54	-0.37	43	0.10	29
Hansen Pharmaceutical	0.10	31	0.73	15	-0.20	42	-1.43	63	0.07	30
Guang Yuyuan	-0.10	39	0.99	10	0.18	28	0.43	17	0.05	31.5
Tasly	-0.10	40	0.99	11	0.18	29	0.43	18	0.05	31.5
Tongrentang	0.27	24	0.19	28	-0.37	48	0.18	22	0.05	33
Kun Yao Group	-0.50	53	1.28	8	0.77	14	-0.67	52	0.04	34
Jiuzhitang	0.09	32	-0.36	46	-0.04	36	-0.18	37	0.01	35
Zhongheng Group	0.41	17	-0.71	52	-0.70	52	-1.40	62	0.01	36
Wohua Pharmaceutical	-0.42	49	0.25	27	0.71	16	-1.17	58	0.01	37
Hongri Pharmaceutical	-0.20	43	-0.87	56	0.62	17	-0.50	48	0.00	38
Xintian Pharmaceutical	-0.04	37	0.50	22	-0.13	39	-0.32	41	-0.01	39
Long Shen Rongfa	-0.16	41	-1.53	62	0.72	15	0.10	26	-0.01	40
Essence Pharmaceutical	0.22	26	-0.24	40	-0.77	53	-1.31	60	-0.06	41
Guizhou Bailing	0.24	25	0.05	30	-0.99	55	-1.21	59	-0.08	42
Ling Rui Pharmaceutical	-0.08	38	0.39	25	-0.52	50	-1.05	57	-0.11	43
Teyi Pharmaceutical	0.20	27	0.47	23	-1.19	58	-0.61	51	-0.14	44
Conbay	-0.23	44	0.70	16	-0.63	51	-1.59	65	-0.17	45
Yabao Pharmaceutical	0.36	20	0.56	20	-0.33	44	-0.92	56	-0.18	46
Fangsheng Pharmaceutical	-0.53	55	0.60	18	-0.03	35	-1.39	61	-0.18	47
Longjin Pharmaceutical	-0.30	46	-1.35	59	0.06	33	-0.14	34	-0.21	48
Taihe Health	-0.47	51	-0.76	54	0.17	30	-0.33	42	-0.22	49
Dali Pharmaceutical	-0.51	54	-0.49	48	0.02	34	-0.06	32	-0.26	50
Treasure Island	0.15	28	-0.18	37	-1.71	63	-0.07	33	-0.33	51
Yisheng Pharmaceutical	-0.25	45	-0.72	53	-1.27	60	0.43	19	-0.46	52
Guofa shares	-1.19	60	-1.50	61	0.91	11	1.12	11	-0.46	53
Tai'an Hall	-0.38	48	-0.10	33	-1.30	61	0.48	16	-0.48	54
Tai Chi Group	-1.24	61	1.38	7	-0.14	40	-0.04	30	-0.50	55
Kyrgyzstan Pharmaceutical Holdings	-0.16	42	-0.09	32	-2.11	65	-0.71	53	-0.54	56
Foci Pharmaceutical	-0.36	47	-0.55	50	-1.56	62	-0.40	45	-0.54	57
Zuoli Pharmaceutical	-0.92	58	-0.43	47	-1.03	56	-0.27	39	-0.67	58
Xiangxue Pharmaceutical	-1.02	59	-0.19	39	-1.15	57	0.73	13	-0.75	59
Tianmu Pharmaceutical	-2.09	64	0.96	12	0.14	31	-0.61	49	-0.84	60
ST Kangmei	-0.81	57	-0.32	44	-2.04	64	0.69	14	-0.86	61
Zixin Pharmaceutical	-0.54	56	-0.62	51	-2.60	66	-0.01	27	-0.87	62
Tailong Pharmaceutical	-1.94	63	-0.33	45	-0.41	49	0.79	12	-1.01	63
Enlighten Guhan	-1.87	62	-1.49	60	-0.16	41	1.73	4	-1.02	64
Yibai Pharmaceutical	-2.57	65	-0.29	42	0.82	12	1.15	10	-1.03	65
SINBON Pharmaceutical	-2.91	66	-0.25	41	1.06	7	1.46	6	-1.13	66

All data has been standardized before doing factor analysis, so 0 can be used as a reference value to measure the operating performance of listed companies. Companies with a score greater than 0 have relatively better operating performance and financial indicators, and are more competitive in the industry [5]; A company with a score of less than 0 does not mean that the company's economic benefits are negative, but that the company's economic benefits are lower than average, its operating performance and financial indicators are relatively poor, and its competitiveness in the industry is also weak.

In terms of profitability, the top three are Donge Ejiao, Xinguang Pharmaceutical, and Jichuan Pharmaceutical, followed by Tianmu Pharmaceutical, Yibai Pharmaceutical, and Xinbang Pharmaceutical. The data shows that 35 of the 66 companies have a positive value and 31 have a negative value, indicating that the overall profitability of most companies is above the average level and their profitability is relatively good. Shin Kong Pharmaceutical Co., Ltd. mainly focuses on Chinese patent medicines, and combines Chinese and Western medicines, covering cardiovascular system medicines, digestive system medicines, respiratory system medicines, liver disease medicines and other fields, with remarkable curative effects, high market reputation, and gradually expanding market share. Dongdong Ejiao insists on building its own breeding and breeding base and constructing the entire industry chain ecosystem. While ensuring the high quality, pure and reliable raw materials, it also saves production costs and increases profits for the company.

In terms of solvency, the top three are Jichuan Pharmaceutical, Baiyunshan and Buchang Pharmaceuticals, while Huangshan Capsule, Shanghai Kaibao, and Xinguang Pharmaceutical rank the bottom. Among the 66 companies, 30 scored positive and 36 scored negative. The total number of positive scores is only 45.45% of the total number of samples, indicating that the overall solvency of listed companies in my country's traditional Chinese medicine industry needs to be improved. Jichuan Pharmaceutical, Baiyunshan, etc. have strict company articles of incorporation, capital management system, and regularly hold shareholder meetings to conduct financial reports. A good company system and healthy corporate financial status provide a guarantee for the company's stable development.

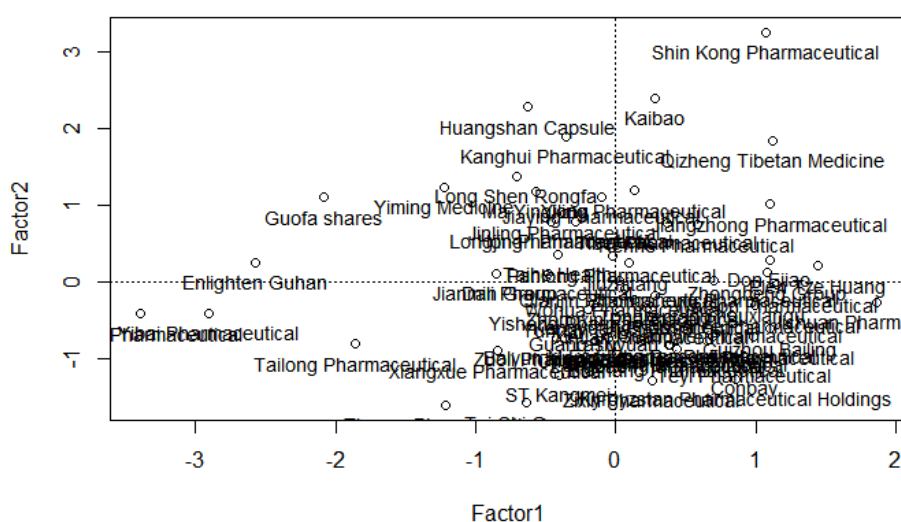
From the perspective of operational capabilities, Yiming Pharmaceutical, Jianmin Group, and Renhe Pharmaceutical ranked the top three, while ST Kangmei, Ji Pharmaceutical Holdings, and Zixin Pharmaceutical ranked last. The data shows that 34 of 66 companies have a positive score and 32 have a negative score. This shows that the overall growth ability of listed companies in my country's traditional Chinese medicine industry is relatively good, but there is a phenomenon of two levels of differentiation. Zixin Pharmaceutical's score is -2.60, It is quite different from other companies. Yiming Pharmaceutical benefits from Tibet's unique biological resource advantages and national policy advantages, adapts to the country's new medical system reform and development model, systematically and comprehensively builds an operation and development system, and provides a guarantee for efficient operation of the enterprise. Jianmin Group insists on being market-oriented and constantly adjusting its product structure. At the same time, relying on innovative marketing methods and reasonable capital allocation, its operating capability has been at the leading level in the industry for many years.

In terms of growth ability, Yunnan Baiyao, Dong'e Ejiao, and Baiyun Mountain ranked top three, while Renhe Pharmaceutical, Kang Enbei, and Watson Pharmaceutical ranked last. Among 66 companies, 26 companies have positive scores and 40 companies have negative scores, indicating that the overall growth capabilities of listed Chinese medicine companies in my country need to be improved.

Among the 66 listed companies in the traditional Chinese medicine industry, there are Jichuan Pharmaceutical, Xinguang Pharmaceutical, Qizheng Tibetan Medicine, Donge Ejiao, Pien Tze Huang, Renhe Pharmaceutical, Jiangzhong Pharmaceutical, Shanghai Kaibao, Yunnan Baiyao, Tibet The comprehensive scores of 38 companies including Pharmaceutical, Jinling



Pharmaceutical, Jianmin Group, and Ma Yinglong are positive, accounting for 57.57% of the total sample, while 28 companies including Tailong Pharmaceutical, Tus-Guhan, Yibai Pharmaceutical, and Xinbang Pharmaceutical The company's overall score is negative, indicating that the overall development of listed Chinese medicine companies in my country is relatively good, and the operating conditions are relatively stable. But at the same time, it must be pointed out that among the top companies in the overall score, many companies do not perform well in terms of growth capabilities, or even fall behind. And there is no company that scores high on all factors. For example, although Yunnan Baiyao ranks first in terms of growth capability, and its profitability and solvency are both within the top 10, its operating capability ranks 47th. This has something to do with the large scale of the company and the difficulty of management. Among the 66 companies, the highest overall score was 1.13, and the lowest score was -1.13, with a difference of 2.26. The difference in scores was obvious, indicating that my country's listed companies in the traditional Chinese medicine industry also have the problem of unbalanced development levels.



**Figure 2.** Factor score plot

In the factor score map (Figure 2), the top comprehensive rankings of Xinguang Pharmaceutical and Qizheng Tibetan Medicine are in the first quadrant of the factor score map. Both companies have relatively high scores on profitability and debt repayment factors. The bottom-ranked SINBON Pharmaceuticals, Yibai Pharmaceuticals, and Tailong Pharmaceuticals are in the fourth quadrant in the lower left corner of the factor score chart. Their first and second factor scores are low, in other words, their profitability and solvency are poor. Comprehensive ranking is also relatively low. In short, the gap between the companies is very obvious. From the figure, it can be seen that there are fewer companies excel in all three capabilities, and more companies are concentrated in the fourth quadrant in the lower right corner, indicating that the listed companies in the Chinese medicine industry have uneven development of comprehensive capabilities. To improve the company's capabilities as a whole, so as to provide the company's overall benefits. In today's increasingly fierce competition, companies can only stand out in the fierce competition only by recognizing their own advantages and disadvantages, while maintaining existing advantages, trying to make up for their disadvantages, and constantly transforming and upgrading.

## 4. Conclusions and Recommendations

This paper conducts factor analysis on the financial data of 66 listed companies in the traditional Chinese medicine industry in 2018, and selects four main factors for the performance evaluation of listed companies in the traditional Chinese medicine industry: profit factor, debt solvency factor, operation factor, and growth factor. Through factor analysis, the problems in the development of listed companies in the traditional Chinese medicine industry have been discovered and relevant suggestions have been made.

### 4.1. Improve Independent Innovation Capabilities

Innovation is the first driving force leading development. Xinguang Pharmaceutical Company mainly produces 6 dosage forms, including oral liquids, tablets and capsules, and more than 60 products. The company attaches great importance to product development and technological innovation. Currently, it has 5 original research products and 6 national patents. Buchang Pharmaceuticals adheres to the research and development model of "joint development as the mainstay and self-research and development as a supplement", and has become China's current company with the most varieties of traditional Chinese medicine patents [6], with 217 new drugs under development, and nearly 20 national and provincial innovative research platforms. It has undertaken more than 130 scientific and technological projects of various types and won more than 30 scientific and technological awards at various levels. These achievements are inseparable from their long-term adherence to technological innovation as the driving force. Therefore, Chinese traditional Chinese medicine companies should enrich their medicines by introducing high-tech talents, increasing R&D investment, and developing new drug research and development wages. At the same time, it is necessary to strengthen international cooperation, maintain contact and cooperation with international scientific research institutions, realize resource sharing, save research and development time and costs, and achieve simultaneous growth of operating profits and corporate benefits. Second, it is necessary to strengthen the government's support for R&D investment. The leverage effect of government R&D funding on the company's R&D investment is greater than the substitution effect. Finally, companies should enhance their independent research and development capabilities, strengthen cooperation with universities, and build a scientific research platform for high-quality and high-quality talents.

### 4.2. Firmly Establish Brand Advantages

Branding is a comprehensive system for an enterprise and even an international competitiveness, and brand building is an important part of improving the socialist market economy system, promoting supply-side reforms and upgrading the demand structure. Yunnan Baiyao Group Co., Ltd., as a "time-honored" enterprise in the pharmaceutical industry, has a history of more than 100 years. Since the adoption of the "New Baiyao, Great Health" brand strategy in 2010, it has formed the Baiyao brand, natural medicine, health care and personal health care. The four major brand groups in nursing care, and the four major brand groups are highly coordinated and evolved, forming a brand ecosystem pattern in which sub-brands focus on collaboration, ethnic groups and core brands support each other, and stakeholders are mutually beneficial and win-win [7]. Under the circumstances, Chinese medicine companies should learn how to "maintain" their own corporate brands; at the same time, they should encourage company employees to increase brand awareness, maintain brand image, and use the brand as the advantage to conduct diversified sales to further increase the revenue and efficiency of the company.

### 4.3. Strengthen the Integration with the Internet

In 2015, the country put forward the "Internet +" strategy, and pharmaceutical e-commerce ushered in a new round of development opportunities [8]. In the same year, Renhe Pharmaceutical first entered the Internet O2O, created the "Dingdang Kuaiyao" brand in the industry, and launched the pharmaceutical industry. With the new healthy retail model, Dingdang Kuaiyao cooperates with 466 pharmaceutical companies across the country to achieve free delivery in seven major cities including Beijing, Shanghai, Guangzhou. The vigorous development of e-commerce, such as Ali Health Pharmacy, takes users as the core, promotes pharmaceutical e-commerce and new retail business through all channels, provides online and offline integrated solutions for the pharmaceutical industry, and provides consumers with more convenient channels. Kangmei Smart Pharmacy can provide services such as online medicine acquisition and Chinese medicine consultation. The emergence of the new retail model of "Internet +" medicine and health is a necessity for industrial transformation and service upgrade. The Chinese medicine industry should conform to the trend of the times, make timely changes, and adopt a combination of online and offline methods to expand the company's sales channels and provide the company's business. income. Use the Internet to develop multi-platform channel marketing methods.

In addition, the government plays a very important role in the development of Chinese medicine companies. The government should do a good job of encouragement and support, and actively guide Chinese medicine companies to develop in a better and faster direction. The government should issue relevant preferential policies that are conducive to the development of Chinese medicine companies, to ensure that the traditional Chinese medicine industry enjoys the same treatment as other industries, and give certain policy incentives, tax incentives and subsidies.

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