

Analysis of the Investment Value of The Listed Companies in The Liquor Industry Based on The Factor Analysis Method

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Abstract: In the post-epidemic period, the liquor industry has entered a new round of adjustment cycle. This paper takes the average financial data of the annual reports of 18 listed companies in the liquor industry from 2021-2021-2022 as sample data. Through SPSS23.0 data analysis software, the factor analysis method selects the corresponding public factor, and the investment value of listed companies in liquor industry is analyzed according to the comprehensive evaluation of each public factor and weight. According to the scores of various factors, the profitability of Kweichow Moutai is far higher than that of other companies, the development capacity of Laobaigan liquor industry is at the forefront of the industry, and the operating capacity of Swellfun is strong, with high resource utilization efficiency, and Yanghe Stock's solvency and capital utilization efficiency are strong. According to the comprehensive score research, it is found that among the listed companies in the liquor industry with strong profitability, their business ability and solvency are generally weak. At the same time, according to the comprehensive score, the top three enterprises are Shanxi Fenjiu, Luzhou Laojiao and Shide Wine Industry.

Keywords: Liquor industry, Listed company, Investment value, Factor analysis.

1. Introduction

In the post-epidemic period, the liquor industry has entered a new round of adjustment cycle. With the recovery of the economy, it has gradually entered a period of stock competition. The profit situation, operation, status, development situation and debt repayment situation of the listed companies in the liquor industry are the wind vane of the liquor industry. There are few studies on investment value analysis of liquor industry. Usually about Kweichow Moutai Company, the benchmark enterprise in the industry. For example, Wang Xuechen[1]The investment value of Moutai enterprises is analyzed by using the combination of PEST model and financial indicators. Zhao Hua [2]The investment value of Moutai company is analyzed through the EVA model. Therefore, in the post-epidemic period, the analysis of the investment value of the listed companies in the liquor industry can directly reflect the recovery of the liquor industry, and also provide corresponding reference suggestions for investors.

Qu Mengxin[3]The investment value of Hisense home appliance company was analyzed through the combination of SWOT analysis and financial ratio index. Han Yang[4]Using the EVA model, they analyzed the investment value of eight listed dairy enterprises. Shen Fanwei[5]Through the method of stock valuation, the investment value analysis of enterprises respectively uses the price-earnings ratio method of relative valuation method and the free cash flow method of absolute valuation method. Li Tongqing[6]Based on the factor analysis method, et al. established an evaluation index system through financial indicators, and finally analyzed the investment value of electric power enterprises according to

the comprehensive score. Therefore, this paper will construct the evaluation index system of the listed companies in the liquor industry, and conduct a comprehensive analysis of the investment value through the factor analysis method.

2. Construction of Investment Value Evaluation Index System for Listed Companies in Liquor Industry

2.1. Principles of index selection

2.1.1. The principle of comprehensiveness

When analyzing the financial indicators of listed companies, the selected indicators should be comprehensive and make comprehensive evaluation through various angles.

2.1.2. The principle of importance

First of all, according to the development characteristics of liquor industry, the typical and important key indicators of all levels are selected.

2.1.3. The principle of practicability

The selection index should be real and effective, easy to obtain, and at the same time, easy to deal with, to avoid the occurrence of calculation results and the actual situation.

2.2. Selection of indicators

Based on the relevant literature and the characteristics of liquor industry, through the four perspectives of profitability, operation ability, debt paying ability and development ability, 13 secondary indexes are set to analyze the investment value of listed companies in liquor industry. After extracting the main factor, a comprehensive analysis of the investment value is made according to the weight of each factor.

Table 1. Evaluation index system of investment value of listed liquor companies

Level 1 indicators	Secondary indicators	Indicator symbol	Indicator type
profitability	Return on equity	X 1	positive
	net profit rate	X 2	positive
	Net interest rate on total assets	X 3	positive
	gross profit rate	X 4	positive
	earnings per share	X 5	positive
operation ability	turnover of total capital	X 6	positive
	turnover of current assets	X 7	positive
debt paying ability	current ratio	X 8	appropriate
	quick ratio	X 9	appropriate
Development ability	net profit growth rate	X 10	positive
	increase rate of business revenue	X 11	positive
	Operating profit growth rate	X 12	positive
	Growth rate of total profits	X 13	positive

3. Construction of Investment Value Evaluation Index System for Listed Companies in Liquor Industry

3.1. Sample selection and source

This article selects A-share liquor industry listed companies as the primary research object, excluding ST company, eventually to Luzhou Laojiao Company Limited, Anhui Gujing Distillery Company Limited, Jiugui Liquor Co., Ltd, Wuliangye Yibin Co., Ltd, Beijing Shunxin Agriculture Co., Ltd, Jiangsu Yanghe Brewery Joint-stock Co., Ltd, Qinghai Huzhu TianYouDe Highland Barley Spirit Co., Ltd, Xinjiang Yilite Industry Co., Ltd, Anhui Golden Seed Winery Co., Ltd, Kweichow Moutai Co., Ltd, Hebei Hengshui Laobaigan Liquor Co., Ltd, Shede Spirits Co., Ltd, Sichuan Swellfun Co., Ltd, Shanxi Xinghuacun Fen Wine Factory Co., Ltd, Anhui Yingjia Distillery Co., Ltd, Jiangsu King's Luck Brewery Joint-Stock Co., Ltd, Anhui Kouzi Distillery Co., Ltd, Jinhui Liquor Co., Ltd. 18 liquor industry listed companies as the research object, and in the annual report of 2021-2022 the financial data average as A sample. The data used in this paper were obtained from the CSMAR database.

3.2. Model preprocessing

According to the Ye Zongyu method[7], Forward treatment for the moderate index. Because the current ratio and the quick ratio belong to moderate indicators, the forward

treatment method is: (k is the industry average).

$$X'_{ij} = -|X_{ij} - k|$$

3.3. Adaptability test

Before public factor extraction and naming, the sample data were analyzed by KMO and Bartlett test in SPSS23.0 software. The specific test results are shown in Table 2. According to the test results, the test value of KMO is 0.582 greater than 0.5, and the significance level is 0.000, which is much less than 0.05. Therefore, the selected sample data are capable of factor analysis.

Table 2. KMO and Bartlett tests

Number of KMO sampling suitability quantities.		.582
Bartlett sphericity test	Approximate chi square	338.294
	free degree	78
conspicuousness		.000

3.4. Interpretation of the total variance

Through the results of the total variance interpretation analysis, a total of 4 principal components were extracted, and the cumulative contribution rate reached 91.045%. The investment value of listed companies can be effectively analyzed by 4 components in liquor industry. The variance contribution rate plot of each factor are shown in Table 3.

Table 3. Total variance interpretation

ingredient	Initial eigenvalue			The sum of the load squares was extracted			Sum of the rotating load squares		
	amount to	variance percentage	accumulate%	amount to	variance percentage	accumulate%	amount to	variance percentage	accumulate%
1	6.528	50.212	50.212	6.528	50.212	50.212	3.944	30.341	30.341
2	2.365	18.189	68.401	2.365	18.189	68.401	3.828	29.445	59.786
3	1.983	15.253	83.654	1.983	15.253	83.654	2.384	18.340	78.126
4	.961	7.390	91.045	.961	7.390	91.045	1.679	12.919	91.045
5	.402	3.092	94.136						
6	.305	2.348	96.484						
7	.195	1.502	97.986						
8	.153	1.180	99.166						
9	.060	.464	99.629						
10	.035	.271	99.900						
11	.010	.080	99.981						
12	.002	.019	99.999						
13	6.523E-5	.001	100.000						

3.5. Extracting the common factors

The factor load matrix was rotated using the maximum variance method by SPSS23.0. The rotation results are shown in Table 4. In public factor 1, net profit margin, net profit rate of total assets, earnings per share, gross profit rate, return on equity and other loads are large, which are 0.909,0.847,0.760,0.750,0.650 and 0.698 respectively, mainly reflecting the recent profitability of the company, so public factor 1 is named as profitability factor. In the public factor 2, the growth rate of operating profit, total profit growth rate, net profit growth rate and operating income growth rate are large,

respectively 0.968,0.967,0.928 and 0.646, which mainly reflect the recent development of the company, so the public factor 2 is named as the development ability factor. In the common factor 3, the current asset turnover and total asset turnover are large, 0.952 and 0.898 respectively, which mainly reflect the recent operating capacity of the company, so the common factor 3 is named as the operating ability factor. In common factor 4, the current ratio and quick ratio factor have large loads, namely 0.957 and 0.703 respectively, which mainly reflect the recent solvency of the company, so common factor 4 is named as the debt paying ability factor.

Table 4. Composition matrix after the rotation

	ingredient			
	1	2	3	4
Net profit rate (X2)	.909	.311	.123	-.020
Net interest rate of total assets (X3)	.847	.369	.344	.024
Earnings per share (X5)	.760	.019	-.269	-.403
Gross profit margin (X4)	.750	.477	.302	-.057
Return on equity (X1)	.698	.449	.503	-.004
Operating Profit Growth rate (X12)	.195	.968	.092	.006
Total Profit Growth rate (X13)	.204	.967	.094	.004
Net Profit Growth Rate (X10)	.205	.928	-.099	.082
Operating revenue growth rate (X11)	.510	.646	.292	.295
Current asset turnover ratio (X7)	-.027	.069	.952	.022
Total Assets Turnover Rate (X6)	.313	.007	.898	.095
Current ratio (X8)	.048	.050	.016	.957
High-speed ratio (X9)	-.540	.092	.092	.703

3.6. The score expression of each factor

The relationship matrix of the score coefficient of each

factor is shown in Table 5.

Table 5 The component score coefficient matrix

	ingredient			
	1	2	3	4
Return on equity (X1)	.129	.012	.144	.001
Net profit rate (X2)	.317	-.086	-.086	.117
Net interest rate of total assets (X3)	.248	-.058	.033	.091
Gross profit margin (X4)	.167	.022	.038	.002
Earnings per share (X5)	.299	-.107	-.204	-.087
Total Assets Turnover Rate (X6)	.014	-.100	.408	-.006
Current asset turnover ratio (X7)	-.181	.016	.503	-.150
Current ratio (X8)	.216	-.137	-.151	.694
High-speed ratio (X9)	-.131	.057	.026	.363
Net Profit Growth Rate (X10)	-.093	.323	-.114	-.022
Operating revenue growth rate (X11)	.096	.095	.014	.180
Operating Profit Growth rate (X12)	-.154	.350	.000	-.115
Total Profit Growth rate (X13)	-.151	.348	.000	-.115

From Table 5, the score expression of each factor is:

$$F1=0.129*X1+0.317*X2+0.248*X3+0.167*X4+0.299*X5+0.014*X6-0.181*X7+0.216*X8-0.131*X9-0.093*X10+0.096*X11-0.154*X12-0.151*X13$$

$$F2=0.012*X1-0.086*X2-0.058*X3+0.022*X4-0.107*X5-0.100*X6+0.016*X7-0.137*X8+0.057*X9+0.323*X10+0.095*X11+0.350*X12+0.348*X13$$

$$F3=0.144*X1-0.086*X2+0.033*X3+0.038*X4-0.204*X5+0.408*X6+0.503*X7-0.151*X8+0.026*X9-0.114*X10+0.014*X11+0.000*X12+0.000*X13$$

$$F4=0.001*X1+0.117*X2+0.091*X3+0.002*X4-0.087*X5-0.006*X6-0.150*X7+0.694*X8+0.363*X9-0.022*X10+0.180*X11-0.115*X12-0.115*X13$$

4. Evaluation and Analysis of The Investment Value of The Listed Companies in The Liquor Industry

4.1. Evaluation of the model construction

According to the score expression of each factor and the weight of each factor after rotation in Table 3, the evaluation

model can be obtained as: $F = (30.341 * F1 + 29.455 * F2 + 18.340 * F3 + 12.919 * F4) / 91.045$. According to the

evaluation model, the analysis of the investment value of listed liquor companies is shown in Table 6.

Table 6. Table of comprehensive evaluation of investment value of listed liquor companies

stock	profitability	ranking	Development ability	ranking	operation ability	ranking	debt paying ability	ranking	Comprehensive score	ranking
Luzhou Laojiao	0.85989	3	0.28483	7	0.2094	8	0.42045	8	0.4812	2
Anhui Gujing Distillery	-0.19386	12	0.6328	4	0.22393	7	0.62089	7	0.2732	6
Jiugui	0.37584	5	0.04761	11	0.62803	6	0.75747	6	0.3749	4
Wuliangye	0.89506	2	0.01167	12	-0.61006	13	-0.99378	14	0.0389	12
Shunxin	-0.79282	15	-3.49957	18	0.65841	5	-0.43728	13	-1.3265	18
Yanghe	0.47894	4	0.27977	8	-0.9573	14	1.25297	1	0.2355	8
TianYouDe Highland	-1.38332	17	0.67947	2	-1.14791	16	-1.07553	15	-0.6261	15
Yilite	-0.76519	14	-0.6266	17	-1.12761	15	0.02549	12	-0.6819	16
Golden Seed	-1.77004	18	0.24687	9	-1.59686	18	0.18376	10	-0.8070	17
Moutai	2.5528	1	-0.26974	14	-1.28396	17	-1.90219	18	0.2370	7
Hengshui Laobaigan	-1.29091	16	1.46335	1	0.95114	3	-1.6747	17	-0.0038	13
Shede	0.32659	8	0.30115	6	0.66247	4	0.93054	3	0.4720	3
Swellfun	-0.069	11	-0.10855	13	1.97768	1	-1.31674	16	0.1534	10
Fen Wine	0.30962	9	0.65451	3	1.58525	2	0.30115	9	0.6772	1
Yingjia	0.35259	7	0.17421	10	0.12763	10	1.17428	2	0.3665	5
King's Luck Brewery	0.10355	10	0.47243	5	-0.09269	11	0.04848	11	0.1756	9
Kouzi Distillery	0.36907	6	-0.37083	15	-0.41004	12	0.91401	4	0.0504	11
Jinhui	-0.35882	13	-0.3734	16	0.20251	9	0.77072	5	-0.0905	14

4.2. Results analysis

4.2.1. Profitability factor.

The top three companies in profitability are Kweichow Moutai, Wuliangye and Luzhou Laojiao. In 2022, the gross profit rate of Kweichow Moutai will reach 91.87%, and the return rate of total assets will reach 24.62%, with the profitability far exceeding that of other companies in the industry.

4.2.2. Development ability factor

The top three enterprises with development ability are Hengshui Laobaigan, TianYouDe and Fen Wine. Among them, the operating profit of Laobaigan Wine Industry in 2022 was 934,6931 million yuan, and the operating profit growth rate was 83.59%, and the net profit growth rate of 81.81% ranked first in the industry.

4.2.3. Operating ability factor

The top three enterprises with operating capacity are Swellfun, Fen Wine and Hengshui Laobaigan. Among them, the total asset turnover ratio is 0.72, and the current asset turnover ratio is 1.09 at the forefront of the industry. It shows that Swellfun has strong sales capacity and the efficiency of resource utilization is higher.

4.2.4. Debt paying ability factor

The top three enterprises with solvency are Yanghe, Yingjia Distillery and Shede Spirits. The average current ratio of listed liquor listed companies is 2.68, and the average quick ratio is 1.52. Because the current ratio, the quick ratio are not positive indicators, but moderate indicators. Although the index is too large, more idle funds can be used, but it has not been used effectively used. The cash flow of liquor enterprises is large enough, among which the current ratio of Yanghe Joint Stock Company is 2.58, and the quick ratio is 1.70, which is at the average level of the industry, and the use of funds is moderate.

5. Conclusion

This article uses 13 secondary indicators and extracts the

profitability factor, development ability, operation ability, solvency and the weight of each factor through the factor analysis method, and analyzes the investment value of the average value of the annual financial data of 18 listed liquor companies in 2021-2022. According to the comprehensive evaluation results of the financial indicators, the following conclusions can be drawn:

Companies with strong profitability are generally weak in operating capacity. This phenomenon is that high-end liquor enterprises have higher pricing and strong profitability, but the production cycle of high-end liquor is longer, resulting in low turnover rate, which is affecting the operating capacity of the company.

Although the profitability of Kweichow Moutai far exceeds that of other companies in other industries, its operating capacity and solvency are at the end of the industry. The total asset turnover rate is 0.49, and the current asset turnover rate is 0.57. The turnover efficiency is low, and the liquor industry listed companies at the end of the comprehensive ranking of several companies tend to be consistent. The current ratio is 4.41 and the quick ratio is 3.62, much higher than the average level of the industry. The company has more cash flow and no effective use of funds.

Profitability and development ability are the important main components that influence the investment value analysis of liquor enterprises. According to the comprehensive score results, the top three listed liquor companies with investment value are Fen Wine, Luzhou Laojiao and Shede Spirits. Under the condition that its profitability is in the middle level of the liquor listed companies, its development ability is in the top three in the past year, and its operating ability and debt paying ability are in the middle level of the industry, which has better investment value.

Acknowledgment

This work was supported by fund Project Soft Science Project of Sichuan Provincial Science and Technology Department Project: Study on the Measurement and Strategic

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