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Research on the Investment Value of Shanghai Zhenhua Heavy Industry Co., Ltd. Based on Big Data Analysis

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Abstract. In the market, an issue that investors are more concerned about is the investment value of the enterprise itself. The correct evaluation of the enterprise's investment value plays a very important role in both market stability and enterprise development. This paper conducts a study on the investment value of Shanghai Zhenhua Heavy Industry with the help of SPSS software.

Keywords: Investment value; market competitiveness; financial evaluation.

1. Introduction

Studying the investment value of listed companies is of great significance to the stable development of the market economy. The quality of the investment activity itself determines whether the final investment can make a profit. Therefore, scientifically analyzing the investment value of an enterprise itself is of great significance. The investment value analysis report mainly analyzes and studies the background of the project, the current development trend of the industry, and various indicators of the enterprise, so as to make an objective judgment on the investment value of the enterprise. The main function of investment value analysis is to bring data into the formula by means of a pre-established investment value evaluation system, and then obtain the scores of the investment values of each enterprise. By subdividing the scores, not only can we get the magnitude of the investment values among different enterprises, but also we can guide the investment ability of each specific rule. It can be more intuitive to prescribe the right remedy and determine the problems that need to be noted for further enhancing the investment value of the enterprise in the future. In the big data era, higher requirements are put forward for the analysis of the investment value of enterprises.

2. Introduction

2.1. Research Contents and Methods

2.1.1. Research Contents

Deeply understand the development and current situation of the research on the investment value of current listed companies. Using the big data thinking, based on the financial statements of Zhenhua Heavy Industries, from the macro aspects of the development of the market economy and national policies, using SPSS software, through the analysis of financial indicators, compare the indicators of Zhenhua Heavy Industries with those of the same industry, and analyze the operating ability, profitability and solvency of Zhenhua Heavy Industries. By substituting the obtained indicators into the pre-constructed indicator evaluation system and substituting them into the formula for calculation, the final scores of each enterprise are obtained. Determine the investment value of Shanghai Zhenhua Heavy Industries and provide suggestions for future improvement.

2.1.2. Research Method

(1) The literature review method utilizes the network, books in the library, and other channels for obtaining literature to acquire and accumulate relevant theoretical knowledge as the theoretical basis for this article. (2) The empirical research method conducts a preliminary understanding of the development status and operation of Zhenhua Heavy Industries from aspects such as financial statements, annual interest rates, and annual profits. (3) The case study method starts from other

companies and analyzes the similarities between these companies and Zhenhua Heavy Industries. By comparing the investment situations of these companies, the investment value of the target company to be analyzed is determined.

2.2. Research Purpose and Significance

Studying the investment value of listed companies is of great significance to the stable development of the market economy. The quality of the investment activity itself determines whether the final investment can make a profit. Therefore, scientifically analyzing the investment value of an enterprise itself is of great significance. The investment value analysis report mainly analyzes and studies the background of the project, the current development trend of the industry, and various indicators of the enterprise, so as to make an objective judgment on the investment value of the enterprise.

The main function of investment value analysis is to use the pre-established investment value evaluation system, substitute the data into the formula, and then obtain the scores of the investment values of each enterprise finally. By subdividing the scores, not only can we get the size of the investment values among enterprises, but also can guide the investment ability of each specific rule. It can be more intuitive to prescribe the right medicine and determine the problems that need to be noticed in further enhancing the enterprise's investment value in the future. In the big data era, higher requirements are put forward for the analysis of enterprise investment value.

3. The Construction of the Evaluation Index System and Evaluation Model for the Investment Value of Listed Companies

After filtering the data, it is necessary to process the data. However, since the content and units expressed by different data are different, it is necessary to standardize the data so that the original data can be converted into dimensionless index evaluation values, and the values of each index are at the same quantity level, enabling comprehensive evaluation and analysis.

The results after standardizing the data. Click Analyze - Descriptive Statistics - Descriptives, transform variables, and save the variables separately. To achieve descriptive statistics and standardization of the data, as shown in Table 1.

Table 1. Descriptive Statistical Table

	Number	Minimum value	Maximum value	Mean value	Standard Deviation
eps	25	-4.14	16.55	3.33	4.31
bps	25	-12.31	173.76	41.1324	47.5305
gpm	25	-64.25	100.02	54.1584	35.8034
npm	25	-275132.2	1623.72	-10914.3916	55046.28
roe	25	-941.73	58.19	-25.48	191.28
roa	25	-12.07	23.21	8.2996	7.77523
sper	25	-4.84	324233.66	12984.8200	64843.51350
ttm	25	-4850.00	10313.04	568.5428	2389.02843
yoy	25	-54413.73	84426.96	1566.5332	20460.34141
ato	25	0.00	1.12	0.2308	0.20609
fatr	25	0.00	16.5484	352.55	70.08563
cato	25	0.00	3.13	0.4076	0.59252
Itr	25	0.00	263.03	11.1508	52.47797
Artr	25	0.00	15795.91	1403.7692	4341.50471
Cr	25	0.04	74.77	6.5092	14.48992
Aptr	25	0.00	101.15	5.2192	20.00033
Er	25	0.01	2569.72	103.5828	513.77950
Qr	25	0.01	70.15	5.6076	13.69870
Cr	25	0.13	6882.66	489.6204	1353.21930
Alr	25	1.37	477.35	50.9064	91.15532
Em	25	1.01	301.61	13.7432	59.97807
Assets	25	1.23	9481.29	3493.2676	2404.89586
Or	25	0.00	1406.57	508.6304	406.91359
Op	25	-34.94	286.86	29.8852	64.98916
Number	25				

After filtering the data, it is necessary to process the data. However, due to the different content and units represented by different data, it is necessary to standardize the data so that the raw data can be converted into dimensionless index evaluation values, with each index value at the same level of magnitude for comprehensive evaluation analysis. The above charts are the results after descriptive statistics.

Preprocess the data, eliminate blank values, and then standardize it to enable comparison between different datasets, laying a foundation for subsequent principal component analysis. When conducting principal component analysis, perform a KMO test on the data to determine if factor analysis is appropriate. Based on the resulting KMO factor value, decide whether it is suitable for analysis. If factor analysis is deemed appropriate, proceed with detailed analysis of the common factor variance plot, scree plot, and total variance explained plot. Determine the number of factors (which can be seen from both the total variance explained plot and the scree plot), use SPSS to export the component matrix and rotated matrix after rotation, calculate the scores for each factor, and subsequently use the calculation formula to plug in the values to obtain the final scores, thereby comparing the competitiveness of various enterprises.

Table 2. Competency Assessment Table for Each Company

	Factor One Score	Factor Ranking	Factor twoScore	Factor Ranking	Factor three Score	Factor Ranking	Score	Ranking
A	0.06877	2	-0.207	21	-0.011	18	-0.15073	13
B	-0.7877	21	0.57	1	-0.01437	19	-0.22737	21
C	-0.29583	19	0.1878	2	-0.05199	21	-0.15999	15
D	-0.247596	17	0.1763	3	0.0422	8	-0.02906	2
E	-0.2735	18	0.1127	4	0.0337	9	-0.12699	10
F	-0.168153	10	-0.003	9	0.04547	6	-0.12573	8
G	-0.297957	20	0.1168	5	-0.0368	20	-0.21794	20
H	-0.2030	13	0.0024	8	0.0322	11	-0.16841	17
I	-0.2094	15	-0.014	12	0.0741	3	-0.14981	12
J	-0.2086	14	-0.0034	10	0.0329	10	-0.17918	18
K	-0.1792	11	0.0048	7	-0.0053	17	-0.17978	19
L	0.02683	3	-0.1217	19	0.0426	7	-0.0523	4
M	-0.19	12	-0.0071	11	0.0456	5	-0.15154	14
N	-0.0577	7	-0.0947	17	0.0249	13	-0.12756	9
O	-0.0359	6	-0.0845	16	0.00418	14	-0.1163	7
P	-0.016	4	-0.06	14	0.002376	16	-0.07373	6
Q	-0.105	8	-0.0679	15	0.1028	2	-0.07058	5
R	-0.234	16	0.0376	6	0.0317	12	-0.16466	16
S	0.0816	1	-0.1159	18	0.059	4	0.0247	1
T	-0.1132	9	-0.0172	13	0.00287	15	-0.12762	11
U	-0.0314	5	-0.12466	20	0.11728	1	-0.03811	3

Table 2 is the competitiveness assessment table for each company, which shows the final score of each company's competitiveness, as well as the scores and rankings of various factors. By using the scores of each factor and plugging them into the pre-constructed assessment formula: Y=U1*X1+U2*X2+U3*X3 Xi=Ci/(C1+C2+C3), the specific score of the company can be obtained. The high or low scores indicate the position of the company among many others, and comparing the scores between companies can very intuitively show the size of a company's investment competitiveness. At the same time, by comparing the scores of each factor and the vertical comparison between factors, it is possible to determine the future development direction of the enterprise. This is also a point that must be present in the assessment model.

4. Summary

The factors affecting an enterprise's competitiveness are multiple. To evaluate the competitiveness of an enterprise itself, it is necessary to determine its factors by identifying several of the most important factors and determining their weights. Judging from the conclusions drawn in this article, an enterprise's debt repayment ability, its own scale, and its profitability are important factors affecting its competitiveness. Since Shanghai Zhenhua Heavy Industry is a state-owned enterprise with labor and technology intensity, if it wants to have strong competitiveness, it should focus on enhancing its debt repayment ability, which can enhance the enterprise's own reputation and the strong debt repayment ability can save the enterprise a lot of unnecessary resource waste and further promote the development of the enterprise. To achieve all-round development, other factors of enterprise competitiveness cannot be ignored either. Only an enterprise that remedies all its weaknesses can have a competitive advantage among numerous enterprises. For example, the scale of the enterprise and its profitability. Although the proportion is not large, they also have an impact on the enterprise.

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