
Ecological and Financial Evaluation of China's New Energy and Environment Industry Listed Companies

Haiyan Sun ^{1*}

¹ Nanjing University of Finance and Economics Hongshan College, Nanjing, 210003, CHINA

* Corresponding author

Abstract

The new energy and environment industry is one of the seven strategic emerging industries in China. Its development is of great significance to the advancement of other strategic ecological industries. As the core content of business performance, financial performance can reflect the operating efficiency and performance of the business during a certain period of operation. How to scientifically and ecologically evaluate the financial performance of an enterprise has become an important topic in the field of financial research. This article selects the financial indicators of new energy listed companies from the four aspects of solvency, profitability, operational capacity and development capacity, and ecologically studies the financial performance of 103 selected new energy listed companies, and obtains the financial performance of new energy listed companies and propose solutions to existing problems.

Keywords: ecological evaluation, financial, new energy, environment, industry

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INTRODUCTION

Since the end of the year, China has started the work of strategic emerging industries, mainly seven emerging industries. These seven emerging industries refer to the seven industrial sectors identified in China's national strategic emerging industries planning and ecological and local supporting policies. The seven new environments include energy conservation and environmental protection, emerging information industry, bio-industry, new energy, and new energy and environment Industry. Automobiles, high-end equipment manufacturing and new materials show that the industrial framework of China's emerging strategy has formed a certain situation (Feng and Wang 2000). Among them, the new energy and environment industry is an industry with very broad development prospects. Because after the baptism of the global financial crisis, many countries used the development of new energy industries to get rid of and deal with the economic crisis, and create more job opportunities to promote the economic development of the entire country. At the 14th meeting of the Standing Committee of the Tenth National People's Congress at the 14th meeting of the 10th National People's Congress, the "Renewable Energy Law of the People's Republic of China" was passed on the year, month, and day, which marked the formal legalization of renewable energy in China. Renewable new energy and

environment industry; The development and application of new energy is not only a supplement and balance to existing scarce energy in Chinese ecosystem, but also can adjust the structure of future energy, in line with China's relevant industrial policies. It is an important part of the strategy for achieving sustainable development in China (Godoy and Morales 2012). It can be predicted that with the opening of the domestic market and the deepening of the global economic integration, the market environment faced by our country's enterprises will be more complicated and changeable. Under such environmental trends, enterprises must maintain a strong market competitiveness and continue to improve their operating efficiency. Therefore, enterprise performance evaluation has become a focus of academic concern. Enterprise performance evaluation is not only a major issue in corporate finance and other areas, but also a practical application problem. The performance evaluation of China's new energy and environment Industry listed companies is of great practical significance to investors and other stakeholders. Through the ecological evaluation of the performance of China's new energy listed companies, it can prompt investors to fully understand the performance of China's new energy and environment Industry listed companies, rationally invest in China's new energy listed companies, and avoid blind investment; it is conducive to more effective supervision and

management of operators to prevent them It will damage the interests of investors; it will help improve the overall level of business operators and reduce business risks; and it will help promote the development and progress of China's new energy and environment industry.

LITERATURE REVIEW

The Status of Foreign Research

(1) In terms of understanding of performance, Drucker believes that performance is the ability to perform the results of each work. Campbell thinks that performance is an act that consists of a series of actions that are related to the goal. Borna and Motowidlo believe that performance is the unity of task performance and relationship performance (Greer et al. 2008). Task performance is closely related to the specific content of the work, the company's core technology, and the proficiency of the work; relational performance is related to behavior and supports the completion of the former. Bernardino thinks that performance is a result and is a record created by a specific work activity. 2005 Murphy proposed that performance is the efficiency of the company to achieve its goals, which is also the meaning of the most commonly understood performance (Gueyie et al. 2013).

(2) Performance evaluation, as the name implies, is to evaluate the degree of performance by using a certain method model. In 2008 Peter defined performance evaluation: performance evaluation is the use of certain criteria to guide employees and organizations to achieve collective goals. It is a way to use incentive methods to achieve goals. This view holds that performance evaluation is not only an after-the-fact evaluation, but also a prior control and guidance. Before the 1980s, the evaluation of performance was mainly based on financial indicators. Later, because the financial indicators were all derived from historical data of the company and could not accurately reflect the current and subsequent company's operating conditions, the non-financial indicators were gradually introduced to compensate for this at the end of the 20th century. One deficiency. More representative is the Baudolich National Quality Award. It is a seven performance evaluation standard from strategic planning, knowledge management, human resources, leadership, customers and markets, process management and operating results. The company's sustainable development indicators such as innovation ability, executives' ability to resist pressure, growth rate, and development ability.

(3) Performance evaluation of financial indicators arises from the emergence and diversification of joint-stock companies. In the middle of the 19th century, the joint-stock system made the separation of corporate ownership and management rights, and the dominant position of owners and creditors became increasingly prominent. In order to meet the different information needs of creditors and investors, the content of the evaluation also added solvency indicators and profit indicators based on the original single cost indicator. The change of this evaluation subject and evaluation content can be illustrated by two examples: First, the Wall scoring method was proposed. In his research in the early 20th century, Alexander Wall first put forward the concept of creditability index, using the ratio of corporate-owned capital, current ratio, fixed asset turnover rate, fixed assets ratio, own capital turnover rate, inventory turnover rate, respectively. The collection rate of turnover is 7 indicators to evaluate the credit level of the company. Although there are many problems with the Wall scoring method, Alexander's method of evaluating corporate financial benefits has opened up the way for corporate financial performance evaluation. Second, the DuPont analysis system was proposed. At the beginning of the 20th century, the merger of individual independent companies became the typical organizational structure of the period. DuPont is one of them (Howard 1982). How to put limited funds into high-yield activities has become the focus of people's research. To address this issue, DuPont has designed a number of operating and budgeting indicators to coordinate the operations of various departments and to allocate resources effectively. The main indicator is the equity interest rate (Jin-long and Xu-ge 2016, Kehoe et al. 1995).

(4) The innovation performance evaluation system is represented by BSC. Since the 1990s, the global economic integration has brought about tremendous changes in the macro-environment faced by business operations. Only by forming core competitiveness can an enterprise achieve its goals and maintain sustainable development. Therefore, strategic culture and core competitiveness have become the focus of research. Financial non-financial information is combined for research. Non-financial indicators mainly emphasize the role of intangible capital such as innovation, learning, knowledge, and culture. BSC's research on David Norton and Robert Kaplan is composed of four aspects: customer, internal process, learning, and finance (Li-Na et al. 2016). It makes financial non-financial, long-term and short-term

combined, and enables management to go from a wider field and a higher perspective. Examine the company's performance and develop company strategy. During the same period, Lea and Parker revised the indicator system; Lynch and Cross studied the relationship between indicators and strategy. Rachel Cooper focused on the interaction between indicators and developed a performance evaluation matrix.

Current Status of Domestic Research

Compared with foreign countries, China's enterprises have started late in the evaluation of financial performance, and later with the improvement of the national economy,

Only gradually enriched and developed. Government departments and non-government organizations have played an important role in the development of the enterprise performance evaluation system, which has promoted the introduction of theory, method innovation and practice promotion.

Exploration of corporate performance evaluation by domestic government agencies

At the end of the 1980s, the National Bureau of Statistics, the Ministry of Finance, the State Development Planning Commission and the People's Bank of China jointly issued eight assessment indicators, including labor productivity, sales profitability, and capital profit and taxation rate, but no parallel comprehensive evaluation method was developed. Therefore, these eight assessment indicators have not been applied in practice. With the gradual establishment of China's socialist market economic system, the evaluation of enterprises has also started from multiple perspectives. As a result, China has gradually adopted a comprehensive evaluation method for financial indicators. In 1993, the Ministry of Finance issued the "General Principles of Corporate Finance". From the three aspects of solvency, profitability, and operational capability, the eight indicators together constitute a comprehensive evaluation system for corporate financial performance. In 1995, the Ministry of Finance promulgated the "Enterprise Economic Benefit Evaluation Index System (Trial)". The index system has a certain number of deletions and additions to the original indicators, and finally selected 10 indicators to jointly form the final performance. Indicator evaluation system. In 1999, in order to fully reflect the production and operation status of the company and the performance of the operators, four ministries and commissions including the Ministry of Finance and the State Economic and Trade

Commission jointly issued two detailed rules to unify the performance evaluation standards of state-owned enterprises. The evaluation index system combines financial indicators with Combining non-financial indicators, an evaluation index system was established based on the four aspects of the company's capital efficiency status, asset operating status, debt repayment ability status and development capability status. In 2002, the "Company Performance Operating Rules (Amendment)" was re-enacted jointly by the Ministry of Finance, the State Economic and Trade Commission and other departments. With the revised "Operational Rules," the evaluation method was more reasonable, more operative, and more adaptable. This is the most comprehensive corporate evaluation system in China so far.

Research on company performance evaluation based on factor analysis

Liu and Statistics (2015) used factor analysis to empirically analyze the financial performance of 30 agricultural listed companies in China and evaluated them comprehensively. The author selected four aspects, a total of 14 indicators, and finally obtained the financial performance scores and rankings of 30 agricultural listed companies. Poel et al. (2007) used factor analysis to reflect the financial performance from four aspects in a highly comprehensive manner. The analysis showed that the overall profitability and operational ability of China's real estate industry are good, but polarization, uneven development, and poor development ability, etc. Problems have also become increasingly prominent. The results show that the analysis results obtained by using factor analysis method are consistent with the actual situation of the company, which also verifies the feasibility of the method. Shrivastava et al. (2014) believes that the financial risks of colleges and universities are mainly affected by the rationality of the use of funds, the ability to repay debts, the ability to pay cash, and the ability to bear the risk of joint liability. Therefore, it uses factor analysis to conduct empirical analysis on these four aspects.

Liu and Statistics (2015) focuses on the characteristics of listed banks. Based on the traditional financial analysis model, which only considers debt repayment ability, profitability, operational ability, and growth ability, it adds market value and builds a financial analysis system for listed banks. Scientifically evaluate the financial performance of listed banks. Silva et al. (2017) integrated previous research, selected 12 financial indicators to use factor analysis method, established a model of business growth, and evaluated

the growth of Chinese enterprises. However, the results of the evaluation were somewhat lopsided and lacked objectivity. Zhang et al. (2014) applied factor analysis method and based on the connotation and characteristics of strategic emerging industries, combined with Hebei's resource endowments and comparative advantages, proposed to promote new materials and new energy and environment industries, and cultivate and expand high-end equipment manufacturing industry. The bio-industry and the new-generation information technology industry will promote the sustainable development of the emerging marine industry and fully open up the development space for the energy-saving and environmental protection industries. Spears (1980) based on the existing financial evaluation indicators, based on the 2011 A-share listed companies in Shaanxi Province as the research object, to build a corporate financial competitiveness evaluation system. The research shows that profitability plays a leading role in the evaluation of the financial competitiveness of listed companies in Shaanxi; the overall level of financial competitiveness of Shaanxi's listed divisions is not high, and the strength distribution is pyramidal. On this basis, the author puts forward policy recommendations for improving the financial competitiveness of listed companies in Shaanxi Province. Zhang et al. (2014), based on the financial indicators of listed companies, used factor analysis to empirically study the competitiveness of listed coal companies. First, they obtained the competitiveness scores and comprehensive rankings of 41 listed coal companies, followed by an analysis of the listed companies. Advantages and disadvantages, and finally draw conclusions and make recommendations to provide reference for coal listed companies to develop competitive strategies and improve their own competitiveness.

Research on the performance evaluation of China's new energy and environment Industry listed companies

On the one hand, for domestic energy companies, domestic experts and scholars analyze their operating performance. Silva et al. (2017) mainly studied the relationship between performance and financial risks of listed companies in energy, and the timeliness of information disclosure. The author selected three years of observations from 102 sample companies for research. The results show that the company's performance and the timeliness of information disclosure are positively correlated. Financial risks can affect the company's operating performance and thus have an impact on the timeliness of information

disclosure. Wang and Zhao (2011) Researched the relationship between capital structure and operating performance of energy listed companies, selected samples for empirical analysis, and the results showed that there is a correlation between capital structure and corporate operating performance. Energy listed companies must use financial leverage rationally to improve listed companies. business performance. Wang and Zhao (2011) built a three-dimensional financial performance evaluation system in which energy companies integrate financial, social, and environmental interests, and evaluated and analyzed the financial performance of 19 listed energy companies. On the other hand, domestic experts and scholars have used different methods to conduct research on the issue of energy efficiency. Wang Bing,

Yalcin et al. (2012) used a test based on the factors that affect the total factor energy efficiency under environmental constraints. DEA's directional distance function method studies China's inter-provincial total factor energy efficiency. Yang and Zhong-Li (2013) used the multi-factor model with GARCH process to study the effects of stock market yields, interest rate term premiums, etc. on the excess returns of nearly 30 industry sectors in China. Yalcin et al. (2012) used exponential decomposition analysis to decompose the efficiency of energy use and identify the main factors that can affect energy efficiency. Zhang et al. (2014) with 29 provinces in China the data from 1995 to 2008 are samples, and the differences in the energy utilization efficiency between regions and the complexity of the changes are examined. Wang and Zhao (2011) empirically analyzed the influencing factors of total factor CO₂ abatement efficiency in 30 provinces in China, and found that the technical factors of energy use and carbon emissions are related to changes in CO₂ abatement efficiency and CO₂ abatement efficiency. The rate has a strong positive impact. At this stage, improving the technical efficiency and technological level of energy use and carbon emissions is a key factor in improving the efficiency of China's total factor carbon emission reduction. Some scholars in China have also conducted research on the performance evaluation of new energy and environment Industry listed companies. Zhang et al. (2014) the analysis of 46 new energy listed companies at home and abroad using factor analysis method shows that the current rapid development of new energy and environment industry, but the profitability is not strong, this is mainly due to high financing costs. Liu and Statistics (2015) evaluated the performance of listed companies in the new energy

and environment industry from both static and dynamic aspects. The static performance was measured using the DEA model of nonparametric methods. The dynamic operating performance was measured using the Malmquist index. Finally, several suggestions were made, pay attention to the innovation of science and technology, pay attention to the cultivation of innovative talents; improve the efficiency of resource allocation; Yalcin et al. (2012) evaluated the performance of new energy companies in Chongqing, and the results showed that the new energy and environment industry in Chongqing has great potential and potential. The author believes that studying the performance status of new energy and environment companies in Chongqing is conducive to promoting the improvement and development of the entire new energy market. Yang and Zhong-Li (2013) from the perspective of financial performance, taking into account the influencing factors of financial disclosure quality, refer to T&D index, DuPont analysis and other related studies to construct the index system, and use factor analysis to research the financial performance of new energy and environment Industry listed companies. In summary, in terms of foreign countries, the United States has always been at the forefront of the world in the study of corporate financial performance evaluation. From the early 20th century, the earliest standard cost system to DuPont analysis, Wall score, to EVA and balance meter. Divide card. U.S. experts and scholars gradually enriched the effectiveness and objectivity of financial performance evaluation. By summarizing, we found that each method has various degrees of defects. DuPont analysis and Balanced Scorecard are not applicable to the comparative analysis of inter-enterprise performance. They are more applicable to the performance evaluation of a single company. However, EVA does not have comprehensiveness. It's just one aspect of economic value added. Therefore, I believe DuPont analysis, balanced scorecard and EVA are not suitable for this study.

Domestically, China's research on financial performance is relatively late compared to foreign countries. Domestically, the relevant research on the financial performance of new energy and environment Industry listed companies is based on empirical research. The existing related research provides reference for China's new energy listed companies to understand their position in the industry and their own existing problems in management and management, and promotes the development of new energy and

environment Industry listed companies. In domestic research on performance evaluation, most of them combine financial indicators with non-financial indicators. However, most of the financial performance evaluation questions only consider financial indicators. We can think of financial performance evaluation as an aspect of corporate performance evaluation. In order to strive for objectivity, this paper only considers objective financial indicators when it comes to evaluating the financial performance of new energy and environment Industry listed companies. The author considers that domestic research based on new energy and environment Industry listed companies is relatively rare. The research on the financial performance of new energy and environment Industry listed companies is lacking. The only research methods are also not unified. The conclusions are very different and the reference value is relatively small. Therefore, the author wants to be more scientifically and objectively evaluate the financial performance of new energy and environment Industry listed companies, we plan to construct a more targeted financial performance evaluation system.

EMPIRICAL ANALYSIS

Method Selection

The establishment of an enterprise financial performance indicator system is an important part of the financial performance evaluation. The main methods used are Analytic Hierarchy Process (AHP), fuzzy comprehensive evaluation method, etc. The evaluation process of these methods is concise, but the problem of information overlap between evaluation indicators may make performance evaluation results unsatisfactory. In order to better evaluate corporate financial performance, this paper uses factor analysis to reduce the selected indicators to several important factors, instead of the original variables to evaluate corporate financial performance. The principle of factor analysis is to analyze the relationship between multiple variables through dimensionality reduction. The variables with higher correlations are divided into the same category, and several variables are summarized by several comprehensive factors to reduce the variables. Number, identify the main influencing factors, reduce the complexity of analysis, and increase work efficiency. The main use steps of the factor analysis method are as follows: First, the data is standardized, then the correlation matrix of the sample data is calculated, the characteristic root and the feature vector of the correlation matrix are obtained, and the number of main factors is determined again according to the cumulative contribution rate. Factor loading matrix,

Table 1. Main evaluation indicators

Basic indicators	Specific indicators
	Assets and liabilities X ₁
	Quick ratio X ₂
Solvency	Cash ratio X ₃
	Earned multiples of interest X ₄
	net assets income rate X ₅
Profitability	Return on total assets X ₆
	Earnings per share X ₇
	Post-tax operating net profit rate X ₈
	ratio of profits to cost X ₉
	Total asset turnover X ₁₀
Operating capacity	Liquidity turnover rate X ₁₁
	Inventory turnover X ₁₂
	Account receivable turnover rate X ₁₃
	Revenue growth rate X ₁₄
Development ability	Operating profit growth rate X ₁₅
	Net profit growth rate X ₁₆
	Total asset growth rate X ₁₇
	Turnover of net assets X ₁₈

Table 2. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.559
Bartlett's Test of Sphericity	Approx. Chi-Square	526.365
	df	93
	sig.	0

and finally build a factor model to calculate the composite score.

VARIABLE SELECTION AND DATA SOURCES

Variable Selection

Based on the data needs in the factor analysis process, this paper guarantees comprehensive and non-redundant indicators. The following 18 financial indicators are selected from the four aspects of solvency, operational capacity, profitability, and growth capacity to evaluate the financial performance of the company. Completely and accurately analyze the financial performance of new energy and environment Industry listed companies (see **Table 1**).

This article is based on the standard of the industry's division of Flushing Finance and selects the data of new energy companies' financial reports listed in Shanghai and Shenzhen. In order to avoid the unreliability of one year's data, this article selects the average of five years of financial data from 2010 to 2017 as the basis for analysis. It excludes ST-type new energy companies with incomplete financial data and abnormal financial indicators. A total of 130 new energy and environment Industry listed companies were selected. The company data is a research sample. The research data in this article comes from Wind River Wind Database, CSMAR Database, Flushing Finance, etc.

EMPIRICAL TEST

Fitness Test

In factor analysis, the fitness test is indispensable. Through the fitness test, it can be known whether the factor molecular method is correct. This article uses the Bartlett sphere test and the KMO test to first standardize the study data and the KMO and Bartlett tests. The closer the KMO value is, the better the original variable is for factor analysis; the closer to zero, the less suitable for factor analysis. If the Bartlett sphere test has a large statistic and the corresponding P value is less than the significance level, it indicates that it is suitable for factor analysis; otherwise, it is not suitable for factor analysis. The KMO and Bartlett test results show (**Table 2**) that the KMO statistic is 0.559, which is obviously greater than the basic requirement of 0.5, the statistical value of X₂ is 526.365, and the significance probability is 0.000, which is less than 1%. Therefore, the factor analysis used in this paper is appropriate.

Extraction of Common Factors

Analyzing the commonality of variables is an important aspect of extracting common factors. If the extraction results show that the higher the commonality of variables, the lower the degree of information loss, the more appropriate it is to use factor analysis. When the principal component extraction factor is used, the initial common degree is set to 1, the closer the common degree of extraction is to 1, the almost all the original information of the variable can be explained by

Table 3. Analysis of Common Factors' Variance Contribution Rate

ingredient	Initial feature value			The square sum of the load of the extraction factor			The square sum of the load of the extraction factor after rotation		
	total	Variance contribution rate %	Cumulative contribution rate %	total	Variance contribution rate %	Cumulative contribution rate %	total	Variance contribution rate %	Cumulative contribution rate %
1	3.236	0.312	0.312	3.236	0.312	0.312	3.016	0.223	0.223
2	2.265	0.185	0.497	2.265	0.211	0.497	2.156	0.172	0.395
3	1.893	0.132	0.629	1.893	0.149	0.629	1.993	0.152	0.547
4	1.269	0.101	0.730	1.269	0.101	0.730	1.523	0.148	0.695
5	1.126	0.068	0.798	1.19	0.095	0.798	1.412	0.103	0.798
6	0.921	0.033	0.831						
7	0.856	0.031	0.862						
8	0.723	0.028	0.890						
9	0.702	0.021	0.911						
10	0.632	0.016	0.927						
11	0.521	0.014	0.941						
12	0.441	0.012	0.953						
13	0.332	0.011	0.964						
14	0.214	0.010	0.974						
15	0.123	0.009	0.983						
16	0.098	0.008	0.991						
17	0.082	0.005	0.996						
18	0.041	0.004	1.000						

the selected common factor. Therefore, the method of extracting factors using principal components is very suitable in this study, and the extracted common factors can explain the original variables well and the factor analysis results are good. **Table 3** is the explanatory table of the total variance. The higher the variance contribution factor of a common factor, the stronger its explanatory power. It can measure the indicators that measure the importance of common factors.

As shown in **Table 3**, the common factor was selected based on the criteria with eigenvalue greater than 1, and 5 factors were selected. The cumulative variance contribution rate was 79.8%, indicating that the 5 common factors explained 78.9 of the total variance of the original variable. %. The original sample information is less lost and the factor analysis result is more ideal.

Factor Loading Matrix Rotation

The purpose of factor rotation is to make the load value of a certain variable on a certain factor approach 1 by rotation, and the load value on other factors tends to 0. Finally, this main factor is used as the representative of the meaning of this variable. And explain this main factor with variables. After the number of common factors has been determined, the maximum factor rotation can be used to obtain the six factor rotation factor load matrix. The factors are named in this paper. The rotated factor load matrix is shown in **Table 4**.

From **Table 4**, it can be seen that the five common factors are named according to the load of the rotated

factor load matrix and each index on each common factor. Factor 1 has a relatively large load value in terms of return on net assets, which reflects the profitability of listed companies in New Energy and names it as a profit factor. Factor 2 has a larger factor load factor in terms of quick-moving ratios and reflects the solvency of enterprises, which is named debt repayment factor. Factor 3 has a larger factor load value on the growth rate of operating revenue and other factors, reflecting the growth ability of the company. It is named growth factor 1. Factor 4 has a larger factor load factor in terms of total asset turnover, etc., reflecting the company's operating capacity, which is named as the operating factor. Factor 5 has a larger factor load value in terms of growth rate of operating profit and reflects the growth capability of the company, which is named growth factor 2. The above four aspects can basically synthesize the financial performance of the company.

Table 4. Factor Load Matrix Rotation

indicators	factor				
	1	2	3	4	5
Assets and liabilities X ₁	-0.112	-0.862	-0.012	0.189	-0.069
Quick ratio X ₂	0.153	0.885	0.165	-0.126	-0.102
Cash ratio X ₃	0.133	0.832	0.163	-0.096	-0.123
Earned multiples of interest X ₄	0.553	-0.236	-0.026	-0.115	-0.442
net assets income rate X ₅	0.886	0.064	0.162	0.196	0.223
Return on total assets X ₆	0.882	0.432	0.165	0.098	0.086
Earnings per share X ₇	0.812	0.036	0.086	0.126	0.096
Post-tax operating net profit rate X ₈	0.423	0.563	0.235	-0.236	0.336
ratio of profits to cost X ₉	0.852	0.312	0.132	0.155	0.169
Total asset turnover X ₁₀	0.362	-0.223	-0.123	0.821	-0.156
Liquidity turnover rate X ₁₁	0.223	-0.332	-0.129	0.814	-0.085
Inventory turnover X ₁₂	0.168	-0.212	0.425	0.662	-0.123
Account receivable turnover rate X ₁₃	-0.226	0.159	-0.201	0.756	0.236
Revenue growth rate X ₁₄	0.225	-0.058	0.896	-0.023	0.158
Operating profit growth rate X ₁₅	0.336	-0.125	0.096	-0.157	0.775
Net profit growth rate X ₁₆	0.238	-0.058	0.169	-0.058	0.882
Total asset growth rate X ₁₇	0.093	0.231	0.716	-0.102	0.056
Turnover of net assets X ₁₈	0.102	0.321	0.852	-0.125	0.169

Table 5. Factor score coefficient matrix

indicators	factor				
	1	2	3	4	5
Assets and liabilities X ₁	0.021	-0.256	0.056	-0.026	-0.058
Quick ratio X ₂	-0.02	0.269	-0.26	0.058	-0.102
Cash ratio X ₃	-0.025	0.296	-0.018	0.062	-0.085
Earned multiples of interest X ₄	0.263	-0.015	-0.012	-0.125	-0.326
net assets income rate X ₅	0.225	-0.18	-0.015	-0.016	0.026
Return on total assets X ₆	0.212	-0.056	-0.052	0.015	-0.153
Earnings per share X ₇	0.056	-0.052	-0.041	-0.125	-0.056
Post-tax operating net profit rate X ₈	0.069	0.125	0.008	-0.052	0.156
ratio of profits to cost X ₉	0.216	-0.059	-0.026	0.018	0.058
Total asset turnover X ₁₀	0.098	-0.035	-0.025	0.256	-0.156
Liquidity turnover rate X ₁₁	0.023	-0.026	-0.036	0.459	-0.015
Inventory turnover X ₁₂	-0.039	0.26	0.253	0.286	-0.156
Account receivable turnover rate X ₁₃	-0.025	-0.069	-0.059	0.563	0.269
Revenue growth rate X ₁₄	-0.008	0.412	0.632	-0.091	-0.026
Operating profit growth rate X ₁₅	0.059	-0.052	-0.015	-0.096	0.659
Net profit growth rate X ₁₆	0.008	-0.123	-0.005	0.009	0.326
Total asset growth rate X ₁₇	0.098	0.369	0.365	0.069	-0.152
Turnover of net assets X ₁₈	0.065	0.332	0.369	-0.012	0.096

Calculate Factor Scores and Composite Scores

Each factor score

The linear combination of factors can be obtained from the factor score coefficient matrix. The scores of the main factors can be obtained by using the stata13.0 software running results. The score coefficient matrix of each factor is shown in **Table 5**.

According to the factor score coefficient matrix, the five common factor processing models are obtained.

$$F1 = 0.021X_1 - 0.020X_2 - 0.025X_3 + 0.263X_4 + 0.225X_5 + 0.212X_6 + 0.056X_7 + 0.069X_8 + 0.216X_9 + 0.098X_{10} + 0.023X_{11} - 0.039X_{12} - 0.025X_{13} - 0.008X_{14} + 0.059X_{15} + 0.008X_{16} + 0.098X_{17} + 0.065X_{18}$$

$$F2 = -0.256X_1 + 0.269X_2 + 0.296X_3 - 0.015X_4 - 0.18X_5 + 0.056X_6 - 0.052X_7 + 0.125X_8 - 0.059X_9 -$$

$$0.35X_{10} - 0.026X_{11} + 0.26X_{12} - 0.069X_{13} + 0.412X_{14} - 0.052X_{15} - 0.005X_{16} + 0.369X_{17} + 0.332X_{18};$$

$$F3 = 0.056X_1 - 0.26X_2 - 0.018X_3 - 0.012X_4 - 0.015X_5 - 0.052X_6 - 0.041X_7 + 0.008X_8 - 0.026X_9 - 0.025X_{10} - 0.036X_{11} + 0.253X_{12} - 0.059X_{13} + 0.632X_{14} - 0.015X_{15} - 0.005X_{16} + 0.365X_{17} + 0.369X_{18};$$

$$F4 = -0.026X_1 + 0.058X_2 + 0.062X_3 - 0.125X_4 - 0.016X_5 + 0.015X_6 - 0.125X_7 - 0.052X_8 - 0.018X_9 + 0.256X_{10} + 0.459X_{11} + 0.286X_{12} + 0.563X_{13} - 0.091X_{14} - 0.096X_{15} + 0.009X_{16} + 0.069X_{17} - 0.008X_{18};$$

$$F5 = -0.058X_1 - 0.102X_2 - 0.085X_3 - 0.326X_4 + 0.026X_5 - 0.153X_6 + 0.056X_7 + 0.156X_8 + 0.058X_9 - 0.156X_{10} - 0.015X_{11} - 0.156X_{12} + 0.269X_{13} - 0.026X_{14} + 0.659X_{15} + 0.326X_{16} - 0.152X_{17} + 0.096X_{18}.$$

Table 6. Factor Composite Score

Firm	Profitability factor		Debt repayment factor		Growth factor 1		Operational factors		Growth factor 2		overall Score	
	Score	Sorting	Score	Sorting	Score	Sorting	Score	Sorting	Score	Sorting	Score	Sorting
ZHEJIANG HUAYOU COBALT CO., LTD	4.123	1	1.51	9	3.332	1	0.216	53	0.045	39	1.492	1
Nanjing Hanrui Cobalt Co.,Ltd.	3.263	9	3.02	2	0.211	52	0.112	61	0.048	31	1.115	2
FAW CAR CO.,Ltd.	2.361	18	0.92	62	0.258	29	1.236	19	2.651	1	1.100	3
Beijing Easpring Material Technology CO.,LTD.	3.523	2	1.01	54	0.256	33	1.011	28	0.351	26	1.075	4
GUANGDONG GOLDEN GLASS TECHNOLOGIES LIMITED	1.123	32	1.57	8	0.331	23	3.335	1	0.695	22	1.048	5
...
HUAYI ELECTRIC COMPANY LIMITED	0.112	69	-1.2	99	-0.85	89	0.256	47	-0.92	86	-0.304	99
SINOVEL WIND GROUP CO.,LTD.	-0.16	82	-0.5	81	-0.698	85	-0.258	92	-0.91	75	-0.323	100
BEIQI FOTON MOTOR CO.,LTD.	-0.43	90	-0.3	71	-0.589	78	-0.769	101	-0.58	68	-0.380	101
Guangdong Meiyang jixiang Hydropower Co.,Ltd.	-1.97	86	-0.8	92	-0.498	71	-0.257	91	-0.33	62	-0.649	102
JIANGSU SUNSHINE CO.,LTD.	-3.3	102	-0.6	85	-0.257	62	-0.158	79	-1	95	-0.911	103

Factor comprehensive score

According to stata13.0, after calculating the 5 factors of the sample of 103 new energy and environment Industry listed companies, in order to better evaluate the financial performance of the listed company, it is necessary to substitute each factor score into the comprehensive evaluation model to calculate the new energy market. The company's financial performance comprehensive score, in order to evaluate the financial performance of China's new energy listed companies, the specific scores and rankings are shown in **Table 6**.

$$F = 0.205F_1 + 0.132F_2 + 0.123F_3 + 0.149F_4 + 0.105F_5$$

Analysis of Empirical Research Results

From the overall score, the top ten are Huayou Cobalt Industry and Hanrui Cobalt Co., although the overall ranking is high, but there are also some problems. Even if the financial performance is better, the factor scores are not all positive, indicating that there are some problems in the production and operation of new energy and environment Industry listed companies. However, through analysis, it can clearly identify shortcomings, so that timely corrections can be made, financial performance can be improved, and corporate governance can be improved. From the analysis results, it can be seen that only the performance of FAW Car's various performances is relatively high, indicating that the company has developed in an overall and balanced manner and the overall performance level is relatively high. The Huayou Cobalt Group's

operating ability and growth ability ranked first in the overall score are relatively poor, but overall it is higher than the average. Because its solvency and profitability are very good, the comprehensive score ranks first. Name, which also sees the importance of solvency and profitability on the financial performance of listed companies. The operating capacity of the diamond glass is very good, but the other few capabilities are not ideal, indicating that enterprises only focus on a single ability will affect the development of the company. On the whole, companies with top solvency and profitability rank well in terms of overall performance scores. On the contrary, its overall performance score is ranked lower. Other capabilities do not show this characteristic, which shows that solvency and profitability are very important for the financial performance of listed companies.

SUGGESTIONS FOR IMPROVING THE FINANCIAL PERFORMANCE OF LISTED COMPANIES IN NEW ENERGY AND ENVIRONMENT INDUSTRY

Optimize the Capital Structure of New Energy Listed Companies

The new energy and environment industry is constantly evolving and changing, and the product life cycle of new energy listed companies is also undergoing development and changes, and the capital structure has been continuously optimized to suit the capital characteristics and funding needs of different stages. Empirical studies have found that the capital structure

of new energy listed companies is not reasonable, and the capital structure of some listed companies is seriously out of balance, and the ratio of assets to liabilities is too high or too low. One listed company's capital is 100% equity capital. Although there is no risk of debts not being repaid at maturity, the financial risk is 0, but the high equity capital ratio will hinder the long-term development of the company, and it cannot fully utilize the corporate financial leverage. . The sample company's asset-liability ratio can reach as high as 86%, which is far greater than the normal level of 50%. Moreover, the company's solvency is low, there are high financial risks, and there is a risk that the capital chain will break. Therefore, in the future development of new energy listed companies, we should pay attention to the balance between equity capital and debt capital, make full use of financial leverage under the premise of reducing corporate risks.

Strengthen Cash Flow Management of New Energy and Environment Industry Listed Companies

Enterprises can scientifically forecast market demand, rationally arrange production cycles, minimize inventory costs for inventory use, formulate reasonable credit policies, accelerate recovery of accounts receivable, increase receivables turnover rate, and streamline the company's redundant business. Processes, improve staff efficiency, reduce unnecessary capital expenditures; dispose of assets with low utilization rates, recover funds, and comprehensively consider the balance between risk and return, and invest limited funds in projects with high efficiency and high returns. That is, through the control of the production and sales process, the control of the collection period of accounts receivable, the control of cost expenses and the control of project investment, the cash flow management of new energy and environment Industry listed companies will be strengthened.

Improve the Company's Various Innovation Capabilities

Only by improving the level of innovation capability of new energy listed companies, exploring the industry connection between new energy industries and traditional energy industries, promoting the coordinated development of industries, and rational allocation of energy, can we upgrade the new energy and environment industry from multiple angles and layers. Creativity. The need to increase the innovation capability of new energy listed companies mainly includes the following aspects: (a) Improve the independent innovation capability and mechanism of

new energy listed companies; (ii) Enterprises must establish and improve the mechanism for the selection and employment of independent innovation; must improve the pay distribution system and establish independent innovation; The incentive mechanism; to establish a clear responsibility and rights, and an efficient operation of the innovative management system; to clear the innovation responsibilities and division of labor within China's new energy and environment Industry listed companies; to integrate various types of innovation resources and improve the overall innovation capability of China's new energy listed companies (Dieperink et al. 2004). In addition, China's new energy listed companies must strengthen the construction of independent innovation infrastructure, build a platform for independent innovation, improve the equipment and resources needed for independent innovation, and improve the entire information network.

Improve the Independent Research and Development Capabilities of New Energy Listed Companies

From the above comprehensive analysis, we can see that in recent years, China's new energy listed companies have improved their independent research and development capabilities, but their technological innovation capabilities are still seriously inadequate, especially some core technologies still rely on foreign countries. Therefore, China's new energy listed companies must attach particular importance to technological innovation capabilities and implement innovation strategies to improve their own research and development capabilities. China's new energy and environment Industry listed companies should increase the proportion of research and development funds and continue to increase investment in R&D. The cultivation of innovative talents to improve the self-innovation mechanism requires the continuous cultivation of innovative talents; it must be good at discovering and using talents; and it must pay attention to cultivating innovative talents in the long term. By strengthening training, the employees' overall quality and capability will be continuously improved, and sufficient talents in various fields with sound quality and reasonable structure will be stored for building innovative companies. In order to create a new energy enterprise innovation culture, we must strengthen the building of an innovative culture, cultivate the innovative spirit of the employees, fully stimulate the innovation enthusiasm of the employees, and make independent innovation a cultural atmosphere, a

cultural atmosphere in which everyone actively participates. We must reward employees who have made outstanding contributions to technological innovation and management innovation. We must also vigorously promote innovation so that every employee in the company is brave in innovation and willing to innovate.

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