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Research on Financial Performance Evaluation of Xiaoxiong Electric Appliance Based on Entropy Weight - TOPSIS Method

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Abstract: In recent years, the dual pressures of globalization and the new normal of epidemic situation have brought challenges to all walks of life, At the same time, the development of internet technology has spawned the rise of many emerging enterprises, and the competition among home appliance enterprises has become increasingly fierce. In this context, the financial performance of home appliance enterprises has become a hot topic. In order to comprehensively evaluate the financial performance of household appliance enterprises, this paper constructs a set of financial performance evaluation system for small household appliance enterprises based on the Standard Value of Enterprise Performance Evaluation issued by SASAC in 2023. Taking Xiaoxiong Electric as a specific case, this paper collects and calculates its main financial indicators from 2019 to 2023, and evaluates it with entropy weight -TOPSIS, In the evaluation process, we deeply analyze its existing problems in operation and management by combining the development status of the enterprise and the changes of performance index. In view of these problems, we put forward a series of operational countermeasures, aiming at helping Xiaoxiong Electric to improve the overall financial performance level, and at the same time providing reference for the performance research of other small household appliances enterprises.

Keywords: Entropy Weight-TOPSIS Method; Xiaoxiong Electric Appliance; Small Household Appliances Enterprises; Financial Performance Evaluation.

1. Introduction

Report to the 20th CPC National Congress of the Party clearly pointed out: "High-quality development is the primary task of building a socialist modern country in an all-round way" High-quality development sets strict standards for enterprises, and the high-quality development of enterprises is reflected in excellent financial performance to some extent. Financial performance evaluation, as an important tool to evaluate the operating results and financial situation of enterprises, is of great significance to the long-term development and competitiveness improvement of enterprises. Small household appliances refer to those household appliances with relatively low power output, low power consumption or compact body size, which do not belong to the category of high-power appliances, it mainly covers sweeping robots, electric toothbrushes and dishwashers. Compared with black and white household appliances, the penetration rate of small household appliances is low, so it has a broader growth space, according to "Explanation of Shenwan Industry Classification Standard 2021 Edition", small household appliances industry is newly added as the secondary industry of household appliances, After decades of development. China's small household appliances industry has been dominated by the continuous integration of resources and exports, and has now shown a rapid growth in domestic sales, which is the peak force to achieve sustainable economic development and healthy growth, However, at present, faced with the double challenges of rising prices of raw materials in the industry and the rise of smart home appliances, this has brought a big impact on the traditional business model. In this context, small household appliance enterprises not only need to make efforts in product innovation, technology research and development, marketing and other aspects, but also need to achieve accuracy and rationality in internal management, especially financial performance management, Therefore, how to scientifically and effectively evaluate the financial performance of small household appliances enterprises is of vital importance to guide enterprises to optimize management and enhance competitiveness.

After carefully combing the existing literature, we can find that the research on financial performance evaluation mainly presents three directions, First of all, the researchers discussed the potential influence of various factors on financial performance from different dimensions, including capital structure, carbon emission trading and ESG, such as Liu Yu, Sun Mingzhen and Wei Jinghong, and analyzed the internal relationship between capital structure and financial performance of agricultural listed companies in China in detail. Secondly, scholars have widely adopted a series of evaluation tools and methods, such as economic value added (EVA), entropy method, efficacy coefficient method, balanced scorecard, DuPont analysis method and so on, in order to build a comprehensive and accurate financial performance evaluation system. For example, Zhang Hongxia and Lai Chengling used entropy weight method to study the financial performance of Wanrun Technology. Finally, from a more macro and innovative perspective, the researchers made an in-depth analysis of financial performance from the perspectives of configuration, intermediary effect of corporate social responsibility and performance audit. in this direction, Zhang Zhijun, Ouyang Xi and Li Hua deeply analyzed the problems and deficiencies in their financial performance management from the perspective of performance audit, and put forward specific suggestions.

To sum up, Chinese scholars have made a thorough study of financial performance from different angles and

perspectives, and in the process of practical exploration, the research methods of financial performance are gradually being optimized and perfected. After repeated empirical tests, Chinese scholars generally believe that the entropy weight - TOPSIS method has shown high applicability in evaluating the financial performance of enterprises. With its objectivity and accuracy, this method has been widely used in many industries, such as medical care, minerals, real estate and department stores. However, its application in household appliances industry is still insufficient, mainly focusing on the performance evaluation of Gree Electric by major household appliances enterprises such as Sun Yuzhong and Yang Runchen, and the research in small household appliances enterprises still needs to be improved. Therefore, in the research of this article, Xiaoxiong Electric, which is a strong representative in the small household appliance industry, is selected as the research case, and the entropy TOPSIS method is adopted to establish a performance evaluation model suitable for the enterprise, so as to comprehensively evaluate the financial performance of the company, and at the same time, it also provides an important reference for the performance analysis of other small household appliance enterprises.

2. Second, The Performance Evaluation Index System Design and Model Construction

2.1. The Basic Principle of Entropy Weight Method

Entropy weight -TOPSIS method is a multi-dimensional evaluation technology, which combines the advantages of entropy weight method and TOPSIS method, and aims to build an objective and scientific performance evaluation model for enterprises, based on the concept of entropy, entropy weight method objectively determines the weight of each evaluation index by measuring the degree of variation. Specifically, the smaller the entropy value of the index, the greater the degree of variation, and the richer the information provided, thus occupying a more important position and enjoying a higher weight in the evaluation. TOPSIS distance rule is to normalize the original data and calculate the distance between each evaluation target and the positive ideal solution (optimal solution) and the negative ideal solution (worst solution), so as to evaluate the quality of each target. The entropy weight TOPSIS method measures the famous indexes according to the difference between the indexes, and obtains the entropy value and weight through a series of calculations. There is no subjective factor in the process, so the entropy weight TOPSIS method can greatly prevent the influence of artificial subjective factors.

2.2. Construction of Performance Evaluation Model

1. Design of index system

This paper refers to the Standard Value of Enterprise Performance Evaluation compiled by the State-owned Assets Supervision and Administration Commission (SASAC)in 2023, and selects 13 financial performance evaluation indicators that can reflect the financial situation of Xiaoxiong Electric Company from four aspects: debt repayment, profitability, operation and growth, as shown in Table 1.

Table 1. Performance evaluation indicators

Evaluation content	Evaluating indicator	nature
debt paying ability	liquidity ratio	Moderate index
	quick ratio	Moderate index
	Asset-liability ratio	Moderate index
profitability	Rate of Return on Common Stockholders' Equity	Positive index
	Operating profit rate	Positive index
	rate of return on total assets	Positive index
Operating capacity	Inventory turnover	Positive index
	turnover of total assets	Positive index
	Receivable Turnover ratio	Positive index
	current assets turnover	Positive index
Growth ability	net profit growth rate	Positive index
	Capital accumulation rate	Positive index
	total assets growth rate	Positive index

2.Construction of performance evaluation model

1) determine the original data matrix

For example, to evaluate the financial performance of Bear Electric for N years, the original matrix X should be prepared. Where n is the number of objects, m is the number of indicators, and X_{nm} is the scoring data of different objects under different indicators.

$$X = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1m} \\ x_{21} & x_{22} & \cdots & x_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ x_{n1} & x_{n2} & \cdots & x_{nm} \end{bmatrix} \quad (1)$$

2) matrix normalization

In order to avoid the influence of different index properties

on the results, formula (2) is used to forward the positive indicators in the matrix, and formula (3) is used to standardize the current ratio, quick ratio and asset-liability ratio in the matrix to obtain a standardized matrix.

Positive indicators:

$$z_{ij}' = \frac{x_{ij} - x_j^{\min}}{x_j^{\max} - x_j^{\min}} \tag{2}$$

Moderate index:

$$z'_{ij} = \begin{cases} 1 - \frac{a - x_{ij}}{\max\left(a - x_j^{\min}, x_j^{\max} - b\right)} & , x_{ij} < a \\ 1 & , a \le x_{ij} \le b \\ 1 - \frac{x_{ij} - b}{\max\left(a - x_j^{\min}, x_j^{\max} - b\right)} & , x_{ij} > b \end{cases} \tag{3}$$

3) Define standardized values.

Calculate the proportion of the value of the I-th object under the J-th indicator to the indicator P_{ij}, At this time, the standardized matrix is Z.

$$P_{ij} = z_{ij} / \sum_{i=1}^{n} z_{ij}, (j = 1,2,\cdots,m) \tag{4}$$

4) Calculate the entropy value of evaluation index E_j.Calculate the entropy value of the j-th index, The greater the entropy value, the smaller the utility value of the information provided.

$$E_j = -\frac{1}{\ln n} \sum_{i=1}^{n} P_{ij} \ln P_{ij}, (j = 1,2,\cdots,m) \tag{5}$$

5) Calculate the difference coefficient of evaluation index G_j, The greater the difference coefficient, the greater the evaluation effect and the smaller the entropy value.

$$G_j = 1 - E_j \tag{6}$$

6) Determine the entropy weight of evaluation index W_jG_j.Set the entropy weight of index J, and normalize the difference coefficient of evaluation index to get the index weight.

$$W_j = \frac{G_j}{\sum_{j=1}^{m} G_j} \tag{7}$$

7) Construct a weighting matrix, and each column of the standardized matrix Z is multiplied by the corresponding weight.

$$Z = \begin{bmatrix} \omega_1 * z_{11} & \omega_2 * z_{12} & \cdots & \omega_m * z_{1m} \\ \omega_1 * z_{21} & \omega_2 * z_{22} & \cdots & \omega_m * z_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ \omega_1 * z_{n1} & \omega_2 * z_{n2} & \cdots & \omega_m * z_{nm} \end{bmatrix} \tag{8}$$

The weighted normalization matrix Z at this time is:

$$Z_{ij} = \begin{bmatrix} Z_{11} & Z_{12} & \cdots & Z_{1n} \\ Z_{21} & Z_{22} & \dots & Z_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ Z_{m1} & Z_{m2} & \dots & Z_{mn} \end{bmatrix} \tag{9}$$

8) Determine positive and negative ideal solutions. The positive ideal solution consists of the maximum value of each column element in the weighted standardized matrix, and the negative ideal solution consists of the minimum value of each column element.

Positive ideal solution:

$$\begin{aligned} Z^+ &= (Z_1^+, Z_2^+, \cdots, Z_m^+) \\ &= (\max\{z_{11}, z_{21}, \cdots, z_{n1}\}, \max\{z_{12}, z_{22}, \cdots, z_{n2}\}, \cdots, \max\{z_{1m}, z_{2m}, \cdots, z_{nm}\}) \end{aligned} \tag{10}$$

Negative ideal solution:

$$\begin{aligned} Z^- &= (Z_1^-, Z_2^-, \cdots, Z_m^-) \\ &= (\min\{z_{11}, z_{21}, \cdots, z_{n1}\}, \min\{z_{12}, z_{22}, \cdots, z_{n2}\}, \cdots, \min\{z_{1m}, z_{2m}, \cdots, z_{nm}\}) \end{aligned} \tag{11}$$

9) Use Euclidean distance to calculate the distance between the object and the positive ideal solution and the negative ideal solution.

$$\begin{aligned} D_i^+ &= \sqrt{\sum_{j=1}^{m} \left(Z_j^+ - z_{ij}\right)^2} \\ D_i^- &= \sqrt{\sum_{j=1}^{m} \left(Z_j^- - z_{ij}\right)^2} \end{aligned} \tag{12}$$

10) Calculate the relative closeness with the negative ideal solution distance and sort it. The relative closeness is between 0 and 1, and the greater it is, the farther it is from the negative ideal solution, the better.

$$S_i = \frac{D_i^-}{D_i^+ + D_i^-} \tag{13}$$

3. Third, The Performance Evaluation and Analysis of Xiaoxiong Electric Appliances

3.1. Company Profile

Since its establishment in March 2006, Xiaoxiong Electric has always adhered to the spirit of innovation, and deeply applied cloud big data technology to the development, research, design and production of creative small household appliances.

As a fully integrated enterprise of "creative small household appliances+Internet" Xiaoxiong Electric has not only performed well in the traditional manufacturing field, but also achieved a perfect connection with the Internet in product sales channels. In2019, Bear Electric was successfully listed on the Shenzhen Stock Exchange, which marked its steady development and outstanding market performance. From 2016 to 2023, the compound growth rate of revenue exceeded 20%, which fully demonstrated its strong growth trend and market competitiveness. At present, Xiaoxiong Electric has built a perfect three-level R&D system and has five intelligent manufacturing bases, which provide a strong guarantee for product R&D and production with advanced production equipment and technology. The products independently developed by the company have covered more than 80 categories and more than 900models, covering a wide range of products, including kitchen appliances, household appliances, personal care, baby products and household products, which meet the diverse needs of different consumers. With its professional ability and market insight in the field of creative small household appliances, Xiaoxiong Electric always brings high-quality and personalized products to consumers and wins the favor and love of consumers. During the period of double 11 in 2023, the company's multi-category sales ranked first in the whole network, which won the love and trust of countless young people.

3.2. The Company's Operating Conditions

According to the financial statements disclosed by Xiaoxiong Electric in 2019-2023, although the total operating income, operating profit and net profit decreased in2021,

there was an upward trend on the whole with little fluctuation, which fully showed that the profitability of the company was stable. From the profit indicators. The net profit rate of enterprises is relatively high, which decreased in 2021According to the company's disclosure information, this is mainly due to the explosive growth caused by the COVID-19 epidemic in the same period in 2020, so the base is relatively high. At the same time, due to the rapid growth of similar small household appliances market, other enterprises have also entered this field, leading to increasingly fierce market competition. This situation improved in 2022 and 2023Overall, the profitability of Bear Electric is strong and growing steadily.

The solvency and capital structure data of Bear Electric are shown in Table 2. Generally speaking, the standard value of current ratio in home appliance industry is1.5.From 2019 to 2023, the current ratio of Xiaoxiong Electric Appliances has remained above 1.5. Although there are some fluctuations, in general, the company has strong quick liquidity. As far as 2023 is concerned, the current ratio of Xiaoxiong Electric is 1.80, Compared with the current ratio of Jiuyang enterprises in the same industry, it is only 1.3, and its short-term solvency is in the forefront of the industry. as far as long-term solvency is concerned, the asset-liability ratio of Xiaoxiong Electric has been maintained at around 50%, which is relatively stable. Therefore, this paper holds that the short-term and long-term solvency of Xiaoxiong Electric is excellent, and the financial risk is within the normal limits.

Table 2. List of solvency indicators of Xiaoxiong Electric Appliances

age	2019	2020	2021	2022	2023
liquidity ratio	2.3	1.72	1.69	1.78	1.8
quick ratio	1.76	1.36	1.24	1.44	1.48
Asset-liability ratio (%)	34.26	46.56	42.8	51.43	49.2

According to Table 3, the turnover rate of total assets of Xiaoxiong Electric Appliances is decreasing year by year from 2019 to 2023. Combined with the changing trend of the company's operating income during this period, this paper holds that the annual decline of its indicators should be related to the increase of the company's assets because the operating income of Xiaoxiong Electric is increasing year by year, this shows that Xiaoxiong Electric has failed to effectively use its assets for business activities. Furthermore, the relatively high turnover rate of accounts receivable of Xiaoxiong Electric Appliances indicates that its accounts receivable has a relatively long age and slow collection speed, so enterprises cannot realize them quickly. In addition, although the inventory turnover rate of Xiaoxiong Electric has increased in 2020, on the whole, it has shown a trend of decreasing year by year. This shows that the level of Bear Electric in inventory management needs to be gradually improved, To sum up, the overall operating capacity of Bear Electric needs to be improved.

Table 3. List of Operating Capability Indicators of Xiaoxiong Electric Appliances

age	2019	2020	2021	2022	2023
Inventory turnover rate (times)	4.74	5.13	4.22	4.13	4.70
Total assets turnover rate (times)	1.5	1.18	0.99	0.97	0.92
Accounts receivable turnover rate (times)	31.03	32.7	29.37	42.65	42.18

3.3. Performance Evaluation and Analysis

According to the different properties of the selected indicators, the positive indicators are standardized by Formula (2), and the three moderate indicators, namely current ratio, quick ratio and asset-liability ratio, are standardized by Formula (3).Referring to the Standard Value of Enterprise Performance Evaluation issued by the State Council State-owned Assets Supervision and Administration Commission and the excellent value of financial indicators in the household appliance manufacturing industry in 2023, the standard value of moderate indicators is set as: current ratio 2.quick ratio 1.211 and asset-liability ratio 49%, It is concluded that the dimensionless matrix has a value of 0, and in order to ensure the validity of the value, non-negative translation is carried out, The normalized matrix obtained according to Formula (4) is shown in Table 4.

According to formula (5), the entropy value of evaluation index is calculated, formula (6) calculates the difference coefficient of each index, and formula (7) normalizes the difference coefficient to get the entropy weight, The calculation results are shown in Table 5.

After obtaining the entropy weight of each index, the weighted norm matrix constructed by TOPSIS method according to Formula (8) is shown in Table 6.

Positive and negative ideal solutions are determined, and the results are shown in Table 7.

Calculate the Euclidean distance of positive and negative ideal solutions according to formula (12), and calculate the relative closeness of each index according to formula (13), and then make a comprehensive ranking. The results are shown in Table 8.

Table 4. Standardized Matrix in 2019-2023

index	2019	2020	2021	2022	2023
Flow ratio(X1)	1.0323	1.0968	1.0000	1.2903	1.3548
Quick action ratio (X2)	1.0000	1.7286	1.9472	1.5829	1.5100
Asset-liability ratio (%) (X3)	1.3371	1.0956	1.1694	1.0000	1.0438
Return on equity(%)(X4)	2.0000	1.6167	1.0000	1.2178	1.2198
Operating profit margin(%)(X5)	1.6246	2.0000	1.0000	1.5184	1.2384
Return on total assets(%)(X6)	2.0000	1.8359	1.0000	1.1864	1.1293
Inventory turnover rate (times))(X7)	1.6100	2.0000	1.0900	1.0000	1.5700
Total assets turnover rate (times)(X8)	2.0000	1.4483	1.1207	1.0862	1.0000
Accounts receivable turnover rate (times)(X9)	1.1250	1.2508	1.0000	2.0000	1.9646
Turnover rate of current assets (times)(X10)	2.0000	1.2933	1.0533	1.0800	1.0000
Net profit growth rate(%)(X11)	1.8331	2.0000	1.0000	1.7510	1.5254
Capital accumulation rate(%)(X12)	2.0000	1.0530	1.0000	1.0371	1.0417
Total assets growth rate (%)(X13)	2.0000	1.3390	1.0000	1.2608	1.0887

Table 5. Entropy value, coefficient of difference and weight from 2019 to 2023

Primary index	Secondary index	Entropy value	coefficient of variation	weight	Criterion layer weight
Debt paying ability	X1	0.9954	0.0046	0.0197	9%
	X2	0.9864	0.0136	0.0574	
	X3	0.9967	0.0033	0.0141	
profitability	X4	0.9809	0.0191	0.0809	26%
	X5	0.9833	0.0167	0.0707	
	X6	0.9755	0.0245	0.1038	
operating capacity	X7	0.9800	0.0200	0.0846	39%
	X8	0.9779	0.0221	0.0937	
	X9	0.9740	0.0260	0.1100	
	X10	0.9764	0.0236	0.0997	
Growth ability	X11	0.9846	0.0154	0.0650	27%
	X12	0.9727	0.0273	0.1157	
	X13	0.9799	0.0201	0.0849	

According to the second-level index entropy weight and the first-level index criterion layer weight calculated in Table 2, the index weight map of Xiaoxiong Electric from 2019 to 2023 is drawn, as shown in Figure 1.

As can be seen from the figure, we can clearly see that the impact of the first-class indicators on the financial performance evaluation results of Xiaoxiong Electric presents a prominent gradient, Among them, the influence of operational capacity is the most significant, followed by growth capacity, profitability ranks third, and solvency is relatively weak. The influence of each level index on the financial performance of Xiaoxiong Electric Appliance is quite different, and the solvency weight is only 9%. Among these indicators, development ability and operation ability are particularly critical, and they have a decisive impact on the financial performance level of Xiaoxiong Electric. Specifically, the weight of operational capacity is as high as 39%, ranking first among all indicators, which highlights the

core position of enterprise future operation management in improving financial performance. At the same time, the development ability can not be ignored, and its weight reaches 27%,ranking second, indicating that Xiaoxiong Electric must ensure the steady improvement of its development ability when pursuing financial performance growth. Profitability and solvency rank third and fourth, but there is little difference between development ability and profitability in the weight of the standard layer, accounting for 27%and 26%respectively. Therefore, the improvement of the financial performance level of Xiaoxiong Electric cannot be separated from the enhancement of profitability.

Table 6. Weighted Normative Matrix

index	2019	2020	2021	2022	2023
X1	0.0203	0.0216	0.0197	0.0254	0.0266
X2	0.0574	0.0992	0.1117	0.0908	0.0866
X3	0.0189	0.0154	0.0165	0.0141	0.0147
X4	0.1619	0.1309	0.0809	0.0986	0.0987
X5	0.1148	0.1413	0.0707	0.1073	0.0875
X6	0.2075	0.1905	0.1038	0.1231	0.1172
X7	0.1362	0.1692	0.0922	0.0846	0.1328
X8	0.1874	0.1357	0.1050	0.1018	0.0937
X9	0.1237	0.1376	0.1100	0.2200	0.2161
X10	0.1993	0.1289	0.1050	0.1076	0.0997
X11	0.1191	0.1300	0.0650	0.1138	0.0991
X12	0.2314	0.1218	0.1157	0.1200	0.1205
X13	0.1697	0.1136	0.0849	0.1070	0.0924

Table 7. Positive and negative ideal solutions of evaluation index system in 2019-2023

index	Positive ideal solution	Negative ideal solution
X1	0.0266	0.0197
X2	0.1117	0.0574
X3	0.0189	0.0141
X4	0.1619	0.0809
X5	0.1413	0.0707
X6	0.2075	0.1038
X7	0.1692	0.0846
X8	0.1874	0.0937
X9	0.2200	0.1100
X10	0.1993	0.0997
X11	0.1300	0.0650
X12	0.2314	0.1157
X13	0.1697	0.0849

Table 8. Relative posting progress and comprehensive ranking from 2019 to 2023

age	Positive ideal solution distance D+	Negative ideal solution distance D-	Relative proximity s	Sort
2019	0.1190	0.2537	0.6807	1
2020	0.1761	0.1800	0.5054	2
2021	0.2844	0.0563	0.1653	5
2022	0.2286	0.1352	0.3717	3
2023	0.2345	0.1285	0.3540	4



Figure 1. Weight chart of indicators of Xiaoxiong Electric from 2019 to 2023

In the evaluation of solvency, the influence of secondary indicators presents a clear step, in which X3, the asset-liability ratio, is the most significant, followed byX1 current ratio, and finally X2 quick ratio. This is reflected in the fact that the asset-liability ratio plays a decisive role when considering the solvency of enterprises, and its weight is the highest, leaving the deepest imprint on the solvency of enterprises. Followed by the current ratio, which shows the short-term liquidity of the enterprise and also shows the debt repayment ability. Although the quick ratio is equally necessary, its influence is slightly inferior to the first two. Therefore, if the management wants to ensure the solvency of the company, it should pay attention to the improvement of asset quality, increase current assets, speed up the capital turnover of enterprises, reduce the dependence on long-term and short-term loans, and operate scientifically with debt.

In terms of profitability, the degree of influence of secondary indicators from large to small is X6>X4>X5, that is, total return on assets > return on net assets >operating profit rate, It can be known that the return on total assets and the return on net assets have the greatest impact on the profitability of Xiaoxiong Electric. Therefore, Xiaoxiong Electric should focus on the strategic management of funds. devote itself to improving the efficiency of the use of assets, and enhance the profitability of the company's products through reasonable strategies to ensure the sustained and steady development of the company.

In terms of operational capacity, the influence degree of secondary indicators from large to small is X9>X10>X8>X7, that is, accounts receivable turnover >current assets turnover > total assets turnover > inventory turnover, there is a smal difference in the weights of the secondary indicators, among which the turnover rate of accounts receivable has the highest weight, which has the most critical impact on operating capacity. When improving the operation ability of the enterprise, Bear Electric should first pay attention to the turnover ability of accounts receivable, payattention to the timely recovery of accounts receivable and notes receivable, and strengthen the management of credit sales and accounts receivable. Secondly, theinfluence of the turnover rate of current assets on operational capacity is second to the first place, so we should also pay attention to improving the management of current assets and strengthening the effective utilization of current assets. In terms of development ability, the degree of influence of secondary indicators is X12>X13>X11, that is, capital accumulation rate > total assets growth rate > net profit growth rate. Capital accumulation rate and total assets growth rate are the leading factors affecting the development ability of Xiaoxiong Electric. Among them the capital accumulation rate has the highest weight, so the management of Xiaoxiong Electric should pay attention to investment management and technological innovation. Secondly, the weight of the growth rate of total assets ranks second in the influence on the

development ability, so Bear Electric should pay attention to opening up sales channels, promoting a significant increase in product sales revenue, increasing the speed of total assets and enhancing the development ability of enterprises.

4. Conclusion and Suggestion

4.1. Research Conclusion

The above results of relative closeness are used to rank risks, as shown in Table5. The ranking order of financial performance is: 2019, 2020, 2022, 2023 and 2021.Based on the related theory of entropy weight TOPSIS method, the greater the relative closeness, the better the financial performance, and the smaller the relative closeness, the worse the financial performance. With the help of the ranking results, the financial performance trend chart is drawn, as shown in Figure 2, and the changes in each year are more direct and clearer.

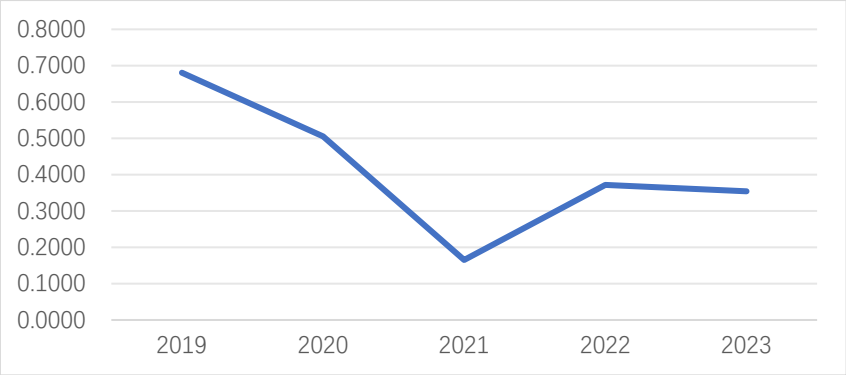


Figure 2. Line chart of comprehensive score of financial performance of Xiaoxiong Electric from 2019 to 2023

Overall, Bear Electric has the best comprehensive financial performance in 2019in the past decade, ranking first. Ranked fifth in 2021, with the worst financial performance. Among them, the financial situation in 2019-2021 deteriorated year by year, reaching the lowest in 2021, and the relative closeness fell to 0.1653. By consulting the relevant literature, it is mainly because of the influence of trade wars and epidemic situation, and at the same time, the fiery "home economy" has further saturated the small household appliances market that has entered the initial stage of saturation, However, after 2021, the financial performance of Xiaoxiong Electric has gradually recovered; to sum up, Xiaoxiong Electric has a clear development trend and good financial performance in the past two years. In the past two years, the financial performance is poor, and the financial competitiveness needs to be further improved.

4.2. Optimization Suggestions

4.2.1. Reduce Capital Occupation and Establish Strategic Cooperation.

In the procurement channel, notes payable and accounts payable occupy a dominant position, and their total amount continues to grow, which reflects that Xiaoxiong Electric has occupied the funds of upstream suppliers quite prominently. Accounts payable, in particular, increased from 584 million yuan in 2019 to 1.713billion yuan in 2023. Although the efficiency of fund management in procurement channels has been improved, it may also put pressure on the capital flow of suppliers and threaten the long-term partnership between the two parties. Compared with Midea, a giant in the industry, Xiaoxiong Electric still has a significant gap in brand, influence and discourse power, Therefore, maintaining good relations with upstream and downstream enterprises and building a stable supply chain system are crucial to the stable development of Xiaoxiong Electric. In terms of fund management, Bear Electric should prudently use external funds to curb excessive consumption, and at the same time ensure abundant internal funds to maintain liquidity and solvency. In addition, we can learn from Midea Group's supplier classification management strategy, systematically manage suppliers and find long-term partners, and reduce non-value-added activities and enhance the value-added effect of supply chain through resource sharing and complementary advantages. This not only optimizes the utilization of working capital, but also lays the foundation for establishing strategic cooperative partnership with some upstream suppliers.

4.2.2. Increase R&D Investment and Pay Attention to Development Efficiency.

Insufficient investment in R&D expenses and unsatisfactory transformation of R&D results make the market competitiveness of enterprises insufficient, in terms of R&D innovation, it is suggested that Xiaoxiong Electric should increase R&D investment on the one hand and maintain its competitiveness; On the other hand, we need to pay attention to development efficiency.

In strengthening supply chain management and optimizing capital utilization, Xiaoxiong Electric can take a series of carefully designed measures to achieve more efficient and accurate operation: first, according to different fields or links of the company's operation, set up targeted R&D teams, recruit high-standard researchers, and provide superior working conditions and salary benefits to attract more outstanding talents; Secondly, regular performance evaluation and training are conducted for researchers to improve R&D efficiency, accelerate the development of diversified products, and provide scientific support for the development of the entire supply chain, Furthermore, deepen the cooperative relationship with universities and research institutions, jointly carry out pioneering and remarkable research projects, and promote the R&D process of enterprises with the help of external forces; In addition, strengthen the comprehensive protection of enterprise patents and other intellectual property rights, and build a complete and detailed intellectual property management system to prevent technology leakage and plagiarism; Finally, make scientific R&D plan and budget, arrange scientific research funds, make the investment benefit of enterprises better play, reduce unnecessary investment waste, rationally allocate R&D resources according to market demand and technology

development trend, and ensure that R&D achievements help enterprises to develop sustainably.

4.2.3. Improve the Internal Control System and Speed up the Inventory Turnover.

In order to enhance its operational capacity, enterprises should focus on strengthening the management of current assets. Especially in inventory management. Enterprises should implement the following key measures: first, continuously improve the inventory-related rules and regulations, ensure the standardization of inventory management processes, and establish a scientific and reasonable procurement and inventory management system, so as to fundamentally reduce unnecessary expenses. Secondly, while strictly implementing cost control, it is also necessary to ensure that the quality of inventory is not affected. Therefore, it is necessary to deeply optimize the internal control system of inventory, strengthen internal supervision, achieve more efficient and high-quality inventory, do a good job in market research, accurately predict supply and demand, and strive to achieve a balance between supply and demand. In the process of expanding sales channels, we should not only strengthen the monitoring and analysis of market prices, but also strengthen production planning. improve the accuracy of production forecasting, make reasonable arrangements for inventory and procurement time, and make use of the integration of internal resources in order to reduce production and manufacturing costs, we should integrate internal resources to achieve the optimal allocation of resources.

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