The Prospect of Medical Device Companies Under the Background of COVID-19 Based on Factor Analysis and Regression Model

Mai Wang, Hongyu Cao, Xu Zhu, and Hongyan Wang(✉)

Yantai Institute, China Agricultural University, Shandong, China
wanghongyan0610@163.com

Abstract. With the continued impact of the new crown epidemic on the general social environment, the medical device industry has ushered in great opportunities. Among them, Andon Health is developing rapidly, and the company's market capitalization surged 10 times within a year, making it the leading company in the A-share market. This paper adopts factor analysis method to analyze 35 listed medical device companies including Andon Health from three aspects of profit quality continuity, growth and reliability, and to evaluate the internal factors affecting the profit quality level of Andon Health. The external influencing factors of the profit quality level of Andon Health are studied by multiple linear regression model.

Keywords: profit quality · factor analysis · medical devices · COVID-19 · regression analysis

1 Introduction

With the continuous expansion of medical research, medical devices are widely used in various fields and the industry is expanding rapidly. Andon Health, as a leading company in the medical device industry in recent years, has attracted many investors by the high quality of profits disclosed in its financial statements. From the theoretical point of view, the study of profit quality can promote the full disclosure of accounting information of listed companies and improve the relevance of accounting information; from the practical point of view, the evaluation of profit quality can provide a certain reference basis for the scientific decision-making of regulators, and also provide reference for investors to make investment decisions [1]. Combining the above factors, this paper uses the financial statements of Andon Health in recent years as the basis and conducts factor analysis with the profit data disclosed in the financial reports of 34 listed companies in the same industry in terms of the sustainability, growth and reliability of profit quality to derive its internal influencing factors; then analyzes the degree of Andon Health being affected by the epidemic by multiple linear regression to derive its external influencing factors.

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2 Sample Selection

2.1 Overall Sample Selection

In this paper, 35 medical device listed companies in the A-share market with operating revenues of more than $1 billion in 2021 were selected to conduct a multi-factor analysis method to study the level of internal profit indicators that affect profit quality. To ensure the accuracy of the study, the size of the 35 selected companies was evenly distributed. The following table shows the list of selected listed medical device companies.

2.2 Individual Sample Selection

Andon Health, which integrates R&D, production and domestic and international sales, occupies a significant share in the global HHCE-related medical instrument field. After the outbreak of the New Crown epidemic, Andon Health developed rapidly and received a large number of orders in overseas markets. In the first half of 2022, Andon Health's revenue was 23.27 billion yuan, up nearly 40 times year-on-year, and the company's market value soared 10 times, making it a star company in the A-share market [2]. In summary, it can be seen that Andon Health has developed rapidly with the epidemic, growing rapidly from a medium-sized company to a leading company in the medical device field, and is well suited as an individual sample for this paper's study.

3 Analysis of Internal Influencing Factors

1) Research methods and data sources

In this study, Factor Analysis, a multivariate statistical analysis method for multiple variables, is used to reduce the dimensionality of high-dimensional data by grouping those closely related variables into one category, i.e., into several composite factors, or principal or common factors, and by using a minimum number of common factors to reflect most of the information of the original data [3]. Using this research technique, we can easily identify the main factors affecting the profit quality of listed medical device companies and their influence (Table 1).

The original data in this paper were obtained from the annual reports of 35 listed companies in 2021, and the relevant data were processed and tested using SPSS22.0 statistical software and Excel 2019 software.

2) Indicator selection.

In this paper, the level of profit quality of medical device companies is reflected comprehensively through three aspects of sustainability, growth and reliability, and seven indicators are mainly selected as evaluation indicators: return on total assets (X_1), return on equity (X_2), cash inflow structure ratio (X_3), operating profit margin (X_4), cash flow ratio (X_5), net profit growth rate (X_6), operating income growth rate (X_7), and the selection of indicators borrowed from Li Haiyan [1], Qi Fei [4] and Jiang Hong,

Table 1. Sample list of listed medical device companies

Company Name		
Myriad Medical	Chutian Technology	Happy Heart Medical
Intco Medical	ST Kehua	Sunwing Medical
Dean Diagnostics	Mike Bio	Ribbon Instruments
LOPE Medical	Shandong Pharmacy Glass	Nine Strong Bio
Oriental Bio	Anto Bio	Open Medical
Xinhua Medical	Wanfu Bio	Optronics
Runda Medical	Matilda Bio	San-Xin Medical
Blue Sail Medical	Jianfan Bio	Wandong Medical
Daan Genetics	Kemp Bio	Vitality Medical
United Imaging Medical	Andon Health	Chunli Medical
Yuyue Medical	Corfu Medical	Paulette
Heatscape Bio	Meikang Bio	

Kong Rong and Dai Wei [5] as the variables set in the study of profit quality of listed companies. As shown in Table 2.

3) The process of empirical analysis.

a) Test the appropriateness of factor analysis

The suitability of the factors was analyzed using Bartlett's sphericity test and KMO test, and the results of the analysis are shown in Table 3.

The test value of KMO was 0.770. According to the criteria given by statistician Kaiser, KMO values less than 0.5 are not suitable for factor analysis. The result of this test is 0.770 is greater than 0.5, so it meets the criteria and is suitable for factor analysis. The significance approximated by Bartlett's sphericity test is less than the significance level of 0.05, so the null hypothesis is rejected and suitable for factor analysis.

b) Examining the explanatory power of the principal factors

The common metrics were tested for each indicator, resulting in Table 4 (see the table). According to Table 4, it can be seen that the common metrics of the seven indicators are basically above 90%, so the extracted common factors have an extremely strong explanatory power for the original variables.

c) Determine the number of main factors

Based on the individual factors explaining the total variance of the original indicator variables, the following table was derived using principal component analysis in factor analysis.

From the data in Table 5, it can be seen that the eigenvalues of the first three factors are greater than 1 and the cumulative variance contribution rate reaches 93.779%, that

Table 2. List of profit quality evaluation indicators

Indicator Type	Indicator Name	Calculation formula	Indicator Description
Indicators reflecting growth	Return on Total Assets	Net profit/total assets average total	This indicator reflects the reliability of the enterprise's profitability in terms of asset operation. Generally speaking, the larger this indicator is, the higher the degree of "quantitative" protection of the enterprise's profitability.
	Return on equity	Net income/Year-end shareholders' income	Return on equity is an important indicator reflecting the profitability of listed companies, the larger the indicator, the stronger the profitability
	Cash Flow Ratio	Net cash flow from operations/period-end current liabilities	This indicator is used to measure the extent to which cash flows from operating activities can cover current liabilities; the larger the indicator, the better the growth prospects of the company.
	Operating Margin	Operating profit/operating income	The greater the indicator, the greater the profitability of the company and the higher the quality of its profits

(*continued*)

Table 2. (*continued*)

Indicator Type	Indicator Name	Calculation formula	Indicator Description
	Net profit growth rate	(Net income for the period - Net income for the previous period)/Net income for the previous period	The larger the indicator, the better the future earnings expectations of the company and the higher the quality of profits
Indicators reflecting growth	Growth rate of main business revenue	(Current period's revenue from main business - Previous period's revenue from main business)/Previous period's revenue from main business	The larger the indicator, the better the future earnings expectations of the company and the higher the quality of profits
Indicators reflecting continuity	Cash inflow structure ratio	Cash inflow from operating activities/total cash inflow	The larger the indicator, the higher the degree of stability of the company's operation and profitability, and the higher the quality of profitability

Table 3. Bartlett's test of sphericity and KMO test

Kaiser-Meyer-Olkin Measurement of Sampling Adequacy		**0.770**
Bartlett's spherical calibration	Approximate Cardinality	269.345
	df	21
	Significance	0.000

is, these three factors reflect 93.779% of the overall information with very little missing information, and it is very appropriate to use them to replace the original indicator variables for profit quality evaluation of listed companies of medical devices. These three factors are the main factors.

d) Rotate the factor loading matrix

The three principal factors derived by the above process must have certain economic significance, otherwise the factor extraction remains unsuccessful. To facilitate a reasonable interpretation of each factor loading, this paper uses the maximum variance method

Table 4. Common metrics for indicators

	Start	**Fetch**
Return on Total Assets	1.000	0.959
Return on equity	1.000	0.949
Cash inflow structure ratio	1.000	0.996
Operating Margin	1.000	0.937
Cash Flow Ratio	1.000	0.818
Net profit growth rate	1.000	0.948
Operating income growth rate	1.000	0.956

Table 5. Total variance of the original variables explained by the factors

Factor	**Eigenvalue**	**Starting Eigenvalue Variance contribution %**	**Cumulative variance contribution %**
1	4.436	63.373	63.373
2	1.109	15.849	79.222
3	1.019	14.557	93.779
4	0.248	3.537	97.317
5	0.109	1.556	98.873
6	0.059	0.838	99.710
7	0.020	0.290	100.000

to implement an orthogonal rotation of the factor loading matrix, and the rotated factor loading matrix is as follows.

Table 6. Factor loading matrix after rotation

	Components		
	1	**2**	**3**
Operating profit margin (X_4)	0.958	0.076	-0.113
Cash flow ratio (X_5)	0.867	0.257	0.020
Return on equity (X_2)	0.853	0.442	0.161
Return on total assets (X_1)	0.799	0.558	0.097
Net profit growth rate (X_6)	0.201	0.952	-0.029
Operating income growth rate (X_7)	0.332	0.919	-0.020
Cash inflow structure ratio (X_3)	0.019	-0.024	0.998

From Table 6, it can be seen that

- Operating profit margin, cash flow ratio, return on equity, and return on total assets have high loadings on the first factor F_1, and the first factor F_1 mainly explains these four variables, indicating that the first factor F_1 mainly reflects the reliability of profit.
- Net profit growth rate and operating income growth rate have high loadings on the second factor F_2, and the second factor F_2 mainly explains these two variables, indicating that the second factor F_2 mainly reflects the growth of profit.
- The structural ratio of cash inflows has a high loading on the third factor F_3, and the third factor F_3 mainly explains this one variable, indicating that the third factor F_3 mainly reflects the persistence of profits.

The analysis shows that the meaning of each factor becomes clear and easy to study after rotation.

e) Calculate the factor score

In this paper, the regression method was used to estimate the factor score coefficients, and the score coefficients were tabulated as follows.

From Table 7, the score functions for the three common factors.

First common factor.

$$F1 = 0.196x1 + 0.259x2 - 0.026x3 + 0.445x4 + 0.334x5 - 1.220x6 - 0.146x7 \tag{1}$$

Second common factor.

$$F2 = 0.102x1 + 0.008x2 - 0.013x3 - 0.272x4 - 0.121x5 + 0.562x6 + 0.496x7 \tag{2}$$

Third common factor.

$$F3 = 0.064x1 + 0.121x2 + 0.959x3 - 0.150x4 - 0.016x5 - 0.028x6 - 0.026x7 \tag{3}$$

Table 7. of scoring coefficients

	Factor		
	F_1	**F_2**	**F_3**
Return on Total Assets	0.196	0.102	0.064
Return on equity	0.259	0.008	0.121
Cash inflow structure ratio	-0.026	-0.013	0.959
Operating Margin	0.445	-0.272	-0.150
Cash Flow Ratio	0.334	-0.121	-0.016
Net profit growth rate	-0.220	0.562	-0.028
Operating income growth rate	-0.146	0.496	-0.026

Table 8. Contribution of variance after rotation

Factor	Feature Root	Variance contribution rate (%)	Cumulative variance contribution (%)
1	3.188	45.540	45.540
2	2.332	33.308	78.848
3	1.045	14.931	93.779

The evaluation of the profit quality of a listed company cannot only look at one of the aspects, but should be studied and analyzed in a comprehensive way. In this paper, we adopt the method of calculating the weighted total score of factors, and use the variance contribution rate of each factor as the weight to calculate the comprehensive score of factors, and the variance contribution rate used in the calculation is the rotated variance contribution rate, as the following Table 8.

Composite score formula.

$$F = (45.540\% \times 33.308\% \times F2 + 14.931\% \times F3)/93.779\% \quad (4)$$

where F is the composite score of profit quality of a medical device listed company, and Fi (i = 1,2,3) is the score of each main factor of a medical device listed company.

4 Data Analysis

After the above steps, 35 listed medical device companies were substituted into the factor score calculation formula for the calculation of factor score and the calculation of composite score, and the calculation results were ranked from highest to lowest by composite score as follows (Table 9).

Generally speaking, listed companies with scores greater than 0 have higher profit quality in the overall sample, and the larger the value, the higher the profit quality; scores equal to 0 or close to 0 indicate that their profit quality is at an average level; scores less than 0 indicate that their profit quality is relatively poor, and they need to actively adjust their management ideas to promote the improvement of corporate profit quality. Based on the scores, the following conclusions can be drawn about the profit quality of listed medical device companies.

From the status of the composite score, there are 11 out of 35 medical device listed companies with positive composite score (F), accounting for 31.43% of the whole sample, while the remaining one company's score is only slightly greater than 1; there are 24 companies with negative composite score (F), accounting for 68.57% of the whole sample, and the composite score of all companies is greater than -1. This indicates that the overall profit this indicates that the overall profit quality of listed medical device companies is average. Among them, except for Jianfan Bio, which ranks first with a composite score of 2.380, the difference between the composite scores of other listed companies is not very large, indicating that the overall development of the front-end companies

Table 9. Ranking of listed COMPANIES OF MEDICAL DEVICES by factors and overall score

Name of listed company	F_1		F_2		F_3		Overall Score F and Ranking Rank	
	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking
Jianfan Bio	0.939	7	5.412	1	0.008	19	2.380	1
Yuyue Medical	2.305	2	0.248	4	1.361	3	1.424	2
Myriad Medical	2.376	1	-0.966	35	1.038	6	0.976	3
Heatscape Bio	1.814	3	0.142	6	-0.524	25	0.848	4
Oriental Bio	1.421	5	-0.446	31	0.700	8	0.643	5
United Imaging Medical	0.415	9	-0.410	30	1.937	1	0.364	6
Kemp Bio	1.797	4	-0.777	34	-1.595	34	0.343	7
Shandong Pharmacy Glass	0.505	8	-0.513	32	1.656	2	0.327	8
Optronics	0.338	11	-0.121	14	0.514	10	0.203	9
Mike Bio	0.249	12	-0.407	29	1.294	5	0.182	10
Sunwing Medical	0.401	10	-0.005	10	-1.199	30	0.002	11
Happy Heart Medical	1.210	6	-0.639	33	-2.281	35	-0.003	12
Paulette	-0.377	20	-0.078	12	0.416	12	-0.145	13
Xinhua Medical	-0.321	19	-0.194	22	0.310	16	-0.175	14
Wanfu Bio	-0.079	14	-0.283	26	-0.307	23	-0.188	15
Chutian Technology	-0.556	24	-0.150	16	0.688	9	-0.214	16
Andon Health	-0.067	13	-0.188	21	-0.772	27	-0.222	17
LOPE Medical	-1.056	33	0.193	5	1.350	4	-0.229	18
Intco Medical	-0.651	25	0.041	8	0.405	13	-0.237	19
ST Kehua	-0.882	29	0.357	3	0.328	14	-0.250	20
San-Xin Medical	-1.025	32	0.989	2	-0.726	26	-0.262	21
Blue Sail Medical	-0.537	23	-0.157	17	0.318	15	-0.266	22
Anto Bio	-0.227	18	-0.045	11	-0.893	28	-0.268	23
Open Medical	-0.181	16	-0.121	13	-0.942	29	-0.281	24
Chunli Medical	-0.394	21	-0.380	28	0.130	18	-0.305	25

(*continued*)

Table 9. (*continued*)

Name of listed company	F_1		F_2		F_3		Overall Score F and Ranking Rank	
	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking
Daan Genetics	-0.132	15	-0.297	27	-1.313	31	-0.379	26
Nine Strong Bio	-0.193	17	-0.171	18	-1.416	33	-0.380	27
Matilda Bio	-0.995	31	-0.222	24	0.979	7	-0.406	28
Ribbon Instruments	-0.811	28	-0.150	15	0.147	17	-0.424	29
Runda Medical	-0.753	27	-0.172	19	-0.042	20	-0.433	30
Vitality Medical	-0.668	26	-0.207	23	-0.232	22	-0.435	31
Dean Diagnostics	-0.941	30	0.098	7	-0.309	24	-0.471	32
Meikang Bio	-0.443	22	-0.236	25	-1.327	32	-0.510	33
Wandong Medical	-1.390	35	0.038	9	0.437	11	-0.592	34
Corfu Medical	-1.094	34	-0.184	20	-0.135	21	-0.618	35

in the medical device industry is more balanced. This indicates the development of the medical device industry. The analysis also shows that most of the top 10 companies in the composite score do not excel in all aspects. 10 companies excel in reliability, but their growth and sustainability in terms of profit quality are poor. On the other hand, the bottom-ranked companies are not poor in all indicators. For example, San-Xin Medical ranked very high in terms of growth. These phenomena on the one hand show that the reliability of profit quality is crucial for listed medical device companies, and reliability is the key to improve the competitiveness of enterprises in this industry; on the other hand, it shows that enterprises only focus on one aspect of profit quality and neglect the overall balanced development. However, to truly improve the profit quality of listed companies and achieve sustainable development, enterprises must focus on the balanced development of reliability, growth and sustainability of profit quality.

For Andon Health, its composite score is -0.222, ranking 17th and in the middle of the pack. For a "dark horse" company with the epidemic, this performance is impressive enough, reflecting the great potential of the epidemic to promote medical device companies. In terms of the main factors, Andon Health has performed well in terms of the reliability of profit quality, which shows its emphasis on operating activities and its sufficient cash security. However, Andon Health performs poorly in terms of sustainability and growth of profit quality, ranking at the bottom. This indicates that it has serious problems in long-term profitability, and its own growth is poor and lacks room for growth, presumably because it is overly dependent on industries brought about by the epidemic and lacks advantages in its own core industries.

5 Analysis of External Influencing Factors

1) Overview

As a result of the New Crown epidemic, the global demand for medical devices, especially new coronavirus testing reagents, has increased dramatically, and numerous brands of reagents have appeared on the market, one of which is Andon Health's New Crown ihealth kit. Andon Health received authorization from the U.S. FDA EUA in late 2021, making it the first company in China to receive this authorization status for fully Chinese-made output reagents, and its performance has skyrocketed as a result. Detailed data is shown in the Table 10. (Note: ODM/OEM products are diabetes diagnosis and treatment items that Andon Health has been developing for many years, which are its main items and strengths; traditional hardware products are Andon Health's traditional business).

2) Analysis of the impact of environmental factors on Andon Health based on multiple linear regression

a) Model building

This analysis determines the extent of the impact of external environmental factors on Andon Health by examining the impact of revenue from each product on Andon Health's operating income. The impact of the epidemic is represented by the revenue of ihealth products, the impact of its core business is represented by the revenue of ODM/OEM products, and the impact of its traditional business is represented by the revenue of traditional hardware products. Taking the data in Table 5, let the operating revenue be Y, the revenue of ihealth products be x_1, the revenue of ODM/OEM products be x_2, and the revenue of traditional hardware products be x_3, and build the regression model from this.

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon \tag{5}$$

b) Regression analysis

In this paper, linear regression analysis of the above model was performed using SPSS22.0 software.

Table 10. Andon Health's revenue by product for each half year from mid-2020 to mid-2022 (Unit: RMB million)

	Mid-2020		**End of 2020**		**Mid 2021**		**End of 2021**		**Mid 2022**	
ihealth Products	79256	76.17%	62568	64.65%	30412	53.45%	155574	85.05%	2305228	99.08%
ODM/OEM products	10900	10.48%	10491	10.84%	12070	21.21%	17660	9.65%	7492	0.32%
Traditional Hardware Products	2861	2.75%	3671	3.79%	3213	5.65%	4149	2.27%	2392	0.10%
Other Products	11034	10.60%	20055	20.72%	11204	19.69%	5528	3.02%	11541	0.50%
Operating income	104051	100.00%	96785	100.00%	56899	100.00%	182911	100.00%	2326653	100.00%

Data source: Tianjin Andon Health Electronics Company Limited Annual Report 2020–2021, Tianjin Andon Health Electronics Company Limited Interim Report 2020–2022.

Multicollinearity test. This analysis uses the value of VIF to determine whether multicollinearity exists, and it is generally considered that when VIF > 10, multicollinearity exists. From the Table 11, the VIF values of x_1, x_2, x_3 are less than 10, that is, there is no multicollinearity, and the test is passed. (See Table 6).

Residual test. Through the residuals of the normal p-p diagram, observe whether the residuals of the model is better to obey the normal distribution, see the figure below. As can be seen from Fig. 1, the standardized residuals are scattered nearly symmetrically distributed on both sides of the line, approximately linear distribution, which can be obtained from the standardized residuals of business income is normally distributed, that is, through the test.

According to the established linear regression model, the integrated above test passed, it is known that the equation valuation is valid and the resulting regression equation is as follows.

$$Y = 11848.401 + 0.998x1 + (-1.66x2) + 10.867x3 \tag{6}$$

The regression coefficients are shown in the Table 12.

As can be seen from Table 12, the p-values of x_1, x_2 and x_3 are less than 0.05 and pass the significance test. The coefficient of x1 is 0.998 which is approximately 1, indicating

Table 11. Covariance test

Model independent variables	Covariance statistics
(Constant)	VIF
x_1	1.881
x_2	3.820
x_3	4.550

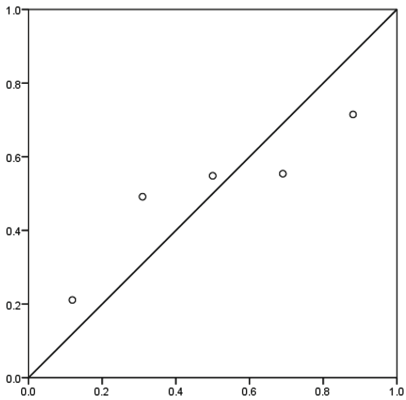

Fig. 1. The residuals of operating income are normal p-p plots.

Table 12. Regression coefficients

Models	Non-standardized coefficient		Standardization factor		
	B	Standard error	Beta	T	Significance
(Constant)	11848.401	721.307		16.426	0.039
x_1	0.998	0.000	1.001	7300.412	0.000***
x_2	-1.662	0.052	-0.006	-31.914	0.020**
x_3	10.867	0.309	0.007	35.136	0.018**

Note: ***, ** indicate significant at 0.01, 0.05 levels, respectively

that for every 10,000 yuan increase in ihealth revenue, the corresponding operating income of Jiu'an Healthcare increases by about 10,000 yuan. Combined with the actual situation, it can be seen that the reason for this is that ihealth's revenue accounts for more than 75% on average in this observation period, and in the most recent period, it accounts for more than 99%, which has greatly exceeded the percentage of other revenues. (See Table 10 for details.) Therefore, the change in ihealth's revenue has been equivalent to the change in Andon Health's operating income, i.e., the revenue from the environment (epidemic) is now equivalent to Andon Health's revenue.

In addition, the coefficient $\beta 3 = 10.867$ of x3 is much higher than that of $\beta 1$ and $\beta 2$, which, when combined with the actual situation, shows that the revenue of traditional hardware products accounts for a smaller and smaller proportion of the operating income, and finally its influence can be almost ignored (see Table 10 for details), therefore, the reason for its larger coefficient is that the change of operating income is much larger than that of traditional hardware products, which leads to the "illusion" that the traditional business has a very large influence on the operating income of Jiu'an Healthcare on the surface. The "illusion" of a very large impact of traditional business on Andon Health's operating income.

As can be seen from Table 12, the coefficient $\beta 2$ of x2 is negative, i.e. the revenue of ODM/OEM products has a negative impact on the operating income, which is in essence a contradiction between Andon Health's long-term main business and the new crown reagent products. As we all know, a company can always survive and remain competitive without its R&D capability and long-term industrial layout, a momentary windfall of wealth cannot guarantee its stable and healthy future development path. Andon Health's technological advantage in reagents is almost non-existent, and the few patents it owns belong to the ODM/OEM product area. Once the epidemic stabilizes or the demand for ihealth kits in overseas markets declines or even is no longer needed, Andon Health may face a heavy blow. Therefore, although environmental factors have led to a dramatic increase in Andon Health's operating income, it still has to focus on long-term interests and devote itself to the development and promotion of its core industries.

6 Conclusion

Under the influence of the new crown epidemic, the medical device industry has developed rapidly and is favored by investors. Andon Health has grown rapidly during this period with the help of its efficient business model and product strategy. However, it still has shortcomings in terms of profit growth and sustainability. Andon Health should make up for the shortcomings related to profit quality and focus on long-term earnings to make the company more robust and sustainable in the post-epidemic era.

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References

1. Li, H. Evaluation of Profit Quality of Listed Companies Based on Factor Analysis--An example of listed companies in Anhui Province [J]. Friends of Accounting, 2012, (20).
2. Chen, R. “The king of demons” Andon Health [J]. China Entrepreneur, 2022, (03):70-74.
3. Hu, W.W., Li, Z. A comparative study of M&A performance of technology companies under different financing methods-an empirical analysis based on factor analysis and Wilcoxon signed rank test [J]. Shanghai Economic Research, 2019, (11).
4. Qi, F. A New Perspective on Profit Quality Analysis [J]. Guangxi Accounting, 2002, (11).
5. Jiang, H., Kong, R., Dai, W. An empirical analysis of factors influencing profit quality of IPO companies [J]. Science and Technology Management Research, 2012, 32 (08).