

Construction of High-Quality Development Evaluation System for Listed Companies in Retail Industry in Era of Digital Economy

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Abstract. The investment of innovation capital of retail enterprises is increasing year by year, while there is a mismatch between the level of innovation capital investment and the quantity and quality of innovation talents. At this stage, it is particularly critical to continuously improve the social value of the retail industry in order to accelerate the sharing of development level. How to evaluate the high-quality development of retail listed companies more reasonably and effectively has become an urgent issue. Therefore, taking 75 retail listed companies as the research objects, this paper uses entropy weight method to evaluate the high-quality development of retail listed companies, and constructs the high-quality development evaluation system of retail listed companies in the digital economy era, and the results show that: the overall development quality level of retail enterprises in China is low, and in 2018-2021, the efficiency growth level of retail enterprises is low, the average closeness of the sub-goals of high-quality development of retail enterprises is social sharing, benefit growth, and innovative development, and the average closeness is 0.22, 0.24, and 0.05, respectively. There are serious imbalances in the development of the sub-goals. This paper Through horizontal comparison of the high-quality development of retail industry, this paper finds the common characteristics from the perspective of the industry and provides references for the high-quality development of retail listed companies.

1 INTRODUCTION

In recent years, the domestic economy is constantly developing and improving, and the number of listed enterprises in the retail industry is rapidly increasing [1]. With the rapid development of the retail industry, the financial management problem has become increasingly prominent, and the high-quality development of the retail industry has attracted attention [2]. Therefore, selecting scientific and reasonable evaluation indicators to build the high-quality development evaluation system of Listed Companies in the retail industry, and evaluating and analyzing the high-quality of the company can help the management to find out the deficiencies in the enterprise's operation in a timely manner, formulate optimization countermeasures, constantly improve the profit quality of the enterprise, enable the enterprise to have more economic growth space, and effectively improve the development speed and scale of the enterprise [3]. At present, the domestic economy is still gradually entering the period of high-quality growth [4], and high-quality sustained and stable growth will become the main development direction of the domestic economy. Therefore, it is particularly critical to accelerate the development of the real economy [5]. As an important part of the development of domestic real economy, the retail industry can reflect the economic growth [6]. Promoting the high-quality development of the retail industry is of

great significance to China's economic development [7]. Retail enterprises are one of the undertakers to promote high-quality economic development.

Since the formation of the high-quality development strategy in China, many scholars have generally proposed that the high-quality development of retail enterprises is particularly critical to social and economic development. Under the background of innovation, reform and integration of the retail industry, many scholars have made in-depth analysis on the high-quality development of the retail industry from the perspectives of development path and influencing factors [8, 9]. For many retail enterprises, in order to achieve high-quality development, they must first ensure their own development, which involves development efficiency and development quality. For the high-quality development of enterprises, it is particularly necessary to continuously improve the development quality of products, operations and services [10]. From the perspective of product quality, through comprehensive analysis of the quality brand, technological innovation and economic benefits of the current domestic retail industry, it is concluded that the current high-quality development level of the domestic retail industry is gradually improving [11]. At the present stage, there are few relevant research results in the domestic related research specifically aimed at the high-quality development of retail prices, and the systematic empirical measurement and evaluation analysis are more rare.

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Therefore, it is difficult to accurately measure the high-quality development level of domestic retail enterprises at the present stage, and it is also difficult to find many problems and problems faced by retail enterprises in the process of high-quality development. Based on this, this paper takes 75 retail listed companies as the research object, and constructs the high-quality development evaluation system of Retail Listed Companies in the digital economy era. Through the use of entropy weight method to evaluate the high-quality development of retail listed companies, the theoretical system of high-quality development evaluation can be fuller, providing a theoretical basis for the high-quality development evaluation of retail listed companies. Through the horizontal comparison of the high-quality development of retail industry, the common characteristics can be found from the perspective of industry, providing reference for the high-quality development of retail listed companies.

2 METHODOLOGY

2.1. Data collection and processing

All the relevant data of listed retail enterprises involved in the research of this paper are from guotai'an database. Through sorting and analyzing the annual reports and other relevant information issued by many domestic listed retail enterprises from 2018 to 2021, they serve as the data analysis basis of this research. At the same time, many types of abnormal Enterprises such as suspended listed enterprises and enterprises with abnormal values are removed from the listed retail enterprises to ensure the rationality of the sample Scientific and effective: after processing, the data of 75 retail listed companies are finally obtained, and the data are processed and analyzed with R language software.

2.2 Index weight calculation and evaluation method

2.2.1 Index weight calculation.

Combined with subjective and objective weighting methods, the weight of high-quality development of retail enterprises is assigned by AHP entropy weight combination. This method has subjective and objective comprehensive advantages in the process of calculation and analysis. Using AHP to comprehensively analyze the relevant data can deeply explore the practical significance of different evaluation indicators from a more objective and comprehensive perspective. On this basis, the corresponding expert opinions are integrated, and the entropy weight method is used to objectively assign values to the data analysis results, so as to modify the subjective information in the data results and ensure the objectivity of the evaluation. Avoid single evaluation defect [12]. Assuming that the weight of the analytic hierarchy process is, the weight steps based on the combination weight are:

Step 1 is to dimensionless process the original data first:

Positive indicator, making:

$$y_{ij} = (x_{ij} - \min x_{ij}) / (\max x_{ij} - \min x_{ij}) \quad (1)$$

Negative indicator, making:

$$y_{ij} = (\max x_{ij} - x_{ij}) / (\max x_{ij} - \min x_{ij}) \quad (2)$$

Intermediate indicators, making

$$M = \max(|x_{ij} - x_{best}|)$$

Then, the formula is obtained as:

$$y_{ij} = 1 - (|x_{ij} - x_{best}| / M) \quad (3)$$

For interval type indicators, let

$$M = \max\{a - \min\{x_{ij}\}, \max\{x_{ij}\} - b\},$$

then, the formula (4) is obtained:

$$y_{ij} = \begin{cases} 1 - [(a - x) / M], & x < a \\ 1, & a \leq x \leq b \\ 1 - [(x - b) / M], & x > b \end{cases} \quad (4)$$

The corresponding normalization matrix is obtained after the above relevant calculation and analysis. Refer to formula (5) for details:

$$Y = [y_{ij}]_{m \times n} = \begin{bmatrix} y_{11} & y_{12} & \cdots & y_{1n} \\ y_{21} & y_{22} & \cdots & y_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ y_{m1} & y_{m2} & \cdots & y_{mn} \end{bmatrix} \quad (5)$$

Step 2: Based on the evaluation index corresponding to the j^{th} high-quality development level, analyze and confirm the competitiveness evaluation index weight corresponding to the proportion p_{ij} of the i^{th} enterprise, as shown in formula (6):

$$p_{ij} = y_{ij} / \sum_{i=1}^n y_{ij} \quad (6)$$

Step 3: calculate the entropy value e_j and the difference coefficient e_j , as follows:

$$e_j = -k \sum_{i=1}^n p_{ij} \ln(p_{ij}), \quad g_j = 1 - e_j \quad (7)$$

Step 4: calculate and analyze the weight w_j corresponding to the j -th evaluation index, and obtain the corresponding weight by entropy weight method. See formula (8):

$$w_j = g_j / \sum_{i=1}^n g_j \quad (8)$$

Step 5 is to conduct W_j^1 and W_j^2 , and the final index weight obtained is shown in formula (9):

$$W_j = w_j^1 w_j^2 / \sum_{i=1}^n w_j^1 w_j^2 = (w_1, w_2, \cdots, w_n)^T \quad (9)$$

2.3 TOPSIS evaluation model

TOPSIS evaluation method can apply various types of evaluation indicators and relevant data in the analysis process. Therefore, this method has strong universality.

Positive and negative ideal solutions can be set as corresponding index evaluation standards to carry out calculation and analysis of relevant closeness. The main advantage of TOPSIS evaluation model is that it can carry out local or overall evaluation and analysis, and can also carry out corresponding objective comprehensive evaluation and analysis through multiple relevant schemes by using multiple evaluation indicators.

$$V = \begin{bmatrix} w_1 y_{11} & w_2 y_{12} & \dots & w_n y_{1n} \\ w_1 y_{21} & w_2 y_{22} & \dots & w_n y_{2n} \\ \dots & \dots & \dots & \dots \\ w_1 y_{m1} & w_2 y_{m2} & \dots & w_n y_{mn} \end{bmatrix} = \begin{bmatrix} v_{11} & v_{12} & \dots & v_{1n} \\ v_{21} & v_{22} & \dots & v_{2n} \\ \dots & \dots & \dots & \dots \\ v_{m1} & v_{m2} & \dots & v_{mn} \end{bmatrix} \quad (10)$$

The positive and negative ideal solutions V^+ and V^- are determined by V , as follows:

$$\begin{aligned} V^+ &= (\max v_{i1}, \max v_{i2}, \dots, \max v_{in}), \\ V^- &= (\min v_{i1}, \min v_{i2}, \dots, \min v_{in}) \end{aligned} \quad (11)$$

Calculate the Euclidean distance D^+ and D^- between each retail enterprise and the positive and negative ideal solutions. See formula (12) for details:

$$\begin{aligned} D_i^+ &= \sqrt{\sum_{j=1}^n (v_{ij} - v_j^+)^2}, \\ D_i^- &= \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2} \end{aligned} \quad (12)$$

Calculate and analyze the relative closeness B_i . The relative closeness B_i represents the evaluation value of the high-quality development level corresponding to the enterprise in the matrix. Its value is usually within 0 and 1. If the value is closer to 1, the higher the development quality of the retail enterprise. See formula (13):

$$B_i = D_i^- / (D_i^+ + D_i^-) \quad (13)$$

3 CONSTRUCTION OF EVALUATION SYSTEM FOR HIGH-QUALITY DEVELOPMENT OF RETAIL ENTERPRISES

3.1 Basis for construction of high-quality development evaluation system of retail enterprises

The high-quality development of retail enterprises includes economic development efficiency, quality, power and people's livelihood. The core of high-quality development of retail enterprises is growth [13]. It mainly involves development efficiency and development quality. From the perspective of rapid development of economic benefits, enterprises must have outstanding performance in many aspects such as solvency and profitability; in terms of enterprise production efficiency,

Therefore, it can truly show the development status of different high-quality development evaluation indicators, and thus deeply understand the high-quality development level. In the process of analysis, multiply the indexes in each row of Y and the corresponding weights, and finally obtain the corresponding weighted normalization matrix:

$$V = \{W_j \times Y_{ij}\}_{m \times n}$$

in the process of enterprise development, it is necessary to reasonably allocate various relevant factors, obtain more output through reasonable input, and finally achieve the highest input-output efficiency corresponding to various factors such as technology and capital. In the development process, we should always pay attention to the innovative development strategy, and at the same time, make the high-quality development of domestic retail enterprises gradually develop from the original growth power to the scientific and technological innovation development [14]. For retail enterprises, content is the core in the process of high-quality development, and innovation is the basis for achieving high-quality development. The important focus of implementing innovation strategy is product and service innovation. Enterprises attach importance to and increase the investment in scientific and technological research and development, so as to improve production efficiency, gain competitive advantages, and promote innovation to become the driving force of high-quality development [15]. The high-quality development of retail enterprises is for the purpose of sharing. With the continuous transformation and development of the market economy, the comprehensive sharing of development achievements has gradually become an important issue that many retail enterprises need to face in the development. In order to achieve high-quality development, retail enterprises must enhance their sense of social responsibility and pay attention to various social related issues such as employment rate and tax contribution.

3.2 Construction of evaluation system for high-quality development of retail enterprises

In the research process of this paper, based on the principles of systematization and scientificity, and combined with the benefit growth and development practice of retail enterprises as the research focus, the evaluation index system for high-quality development of retail industry involving multiple secondary indicators such as innovative capital and multiple indicators such as asset liability ratio has been gradually formed. See Table 1.

Table 1. Evaluation index system for high-quality development of retail industry

Target layer	Sub target	Weight	Secondary indicators	Weight	Standard indicators	Weight
Evaluation index system of high quality development of retail industry	Benefit growth	0.405	Solvency	0.1585	Asset liability ratio	0.0697
					Current ratio	0.0888
			Operating level	0.0694	Total asset turnover	0.0694
			Profitability	0.1159	Refined profit margin	0.1159
			Growth level	0.0812	Growth rate of operating revenue	0.0812
			Operating efficiency	0.0883	labour productivity	0.0883
	Innovation-driven development	0.372	Innovation capital	0.1162	Capital output efficiency	0.1162
			Innovative talents	0.0869	Proportion of highly educated talents	0.0869
	Social sharing	0.223	outbound investment	0.1142	Annual foreign investment amount	0.1142
			Employee rights	0.1075	Growth rate of employee compensation payable	0.0402
					Annual employment growth rate	0.0673
					Asset tax rate	0.0441
			social value	0.0619	Social donation	0.0178

In terms of the dimension of benefit growth, the quality of benefit growth is measured by the enterprise's operating level and solvency. The liquidity ratio and asset liability ratio can reflect the solvency of many retail enterprises, while the total asset turnover rate can reflect the overall operating level of many retail enterprises. The profitability of retail enterprises is characterized by the net profit rate, As an important indicator, the growth rate of business income can reflect the growth level of retail enterprises; from the perspective of benefit growth, the operating efficiency can be used to measure the corresponding benefit growth efficiency, and the operating efficiency of enterprises involves many indicators such as labor productivity. From the perspective of innovation and development, the operation and development of retail enterprises mainly involve two aspects: innovative talents and innovative capital. Capital output efficiency is usually used to represent the corresponding innovative capital. Meanwhile, innovative talents are usually represented by the proportion of highly educated talents to all employees. From the perspective of social sharing, social sharing includes protecting the rights and interests of employees and social values. The rights and interests of enterprise employees are characterized by the growth rate of employee compensation payable and the growth rate of annual employment. Social donations and other related indicators can reflect the social value of enterprises.

4 EMPIRICAL ANALYSIS

In the process of this research, the relevant data and information of 75 domestic retail listed enterprises were comprehensively analyzed, and the R language software

was used to comprehensively measure and analyze the high-quality development level and benefit growth of many retail enterprises.

4.1 Evaluation results and analysis of sub objectives of high-quality development

4.1.1 Benefit growth

Figure 1 shows the evaluation results of benefit growth level. It can be seen that from 2018 to 2021, the benefit growth level of retail enterprises is low, with an average closeness of 0.22. The closeness degree of retail enterprises' benefit growth in the past four years fluctuates slightly. The closeness degree is the highest in 2018, 0.30, 0.17 in 2019, 0.21 in 2020, and 0.20 in 2021.

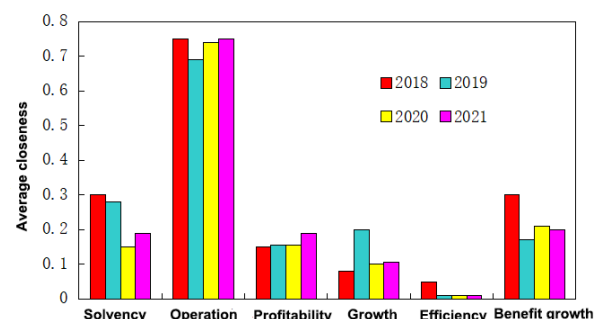


Fig. 1. Results of the evaluation of the level of benefit growth

Based on the analysis of the five indicators of the efficiency growth of retail enterprises, the operating level is higher than 0.69. The closeness of each index is not higher than 0.30. The closeness of solvency, growth level

and profitability is between 0.1 and 0.3; the closeness degree of its operation efficiency is within 0.1, and the corresponding weight proportion reaches 8.83%. Therefore, it will have a certain negative impact on the future development of the enterprise and economic growth. In the future, many retail enterprises will have great development space in many aspects such as the growth rate of operating income and the efficiency of capital output. Through a comprehensive analysis of the year-on-year development of various indicators, it can be found that the growth of retail enterprises and the overall development of their profitability and operation level are relatively stable. From the perspective of constant capacity, this indicator will decrease from 2018 to 2020, but it will show an increasing trend in 2021; at the same time, the operating efficiency also shows a development trend of decreasing and increasing. Since 2019, the domestic retail enterprises have shown a trend of overall gradual growth. This development trend is consistent with the development trend of the overall benefit growth level of enterprises, which also means that there is a large correlation between the enterprise's benefit growth and the enterprise's operating efficiency.

4.1.2 Innovative development.

Figure 2 shows the evaluation results of innovation development level. It can be seen from Fig. 2 that among the two indicators of innovation development, the level of enterprise innovation capital is much higher than the level of enterprise innovation talents. The closeness of innovation capital has increased first and then decreased in the past four years. It was the lowest in 2018, 0.18, and the highest in 2020, 0.28. The change trend of innovative talent indicators is relatively stable, and it remains stable after a slight decline in 2018-2019. The average closeness is 0.04 and 0.03 respectively.

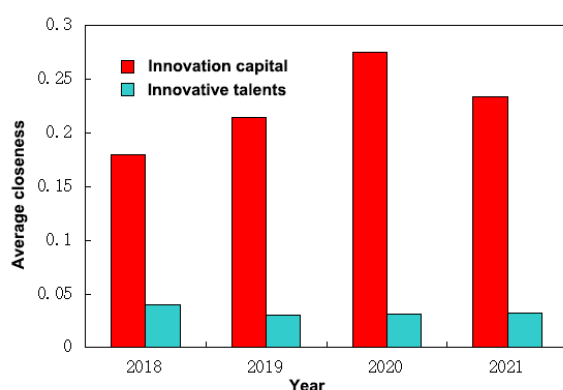


Fig. 2. Evaluation results of innovation and development level

As innovative capital and innovative talents account for 20.31% of the whole index, retail enterprises increase their investment in innovative capital year by year, but the shortage of innovative talents will hinder the development of retail enterprises. It can be seen that there is an unbalanced development between the level of innovative

capital investment and the quantity and quality of innovative talents in the development of retail enterprises.

4.1.3 Social sharing.

Figure 3 shows the evaluation results of social sharing level. From Figure 3, it can be seen that from the perspective of social sharing, the achievement indicators of employee rights and interests sharing are better than the social value contribution indicators. The level of employee rights and interests protection and the overall level of social sharing are consistent in terms of the overall development trend. In 2019, the closeness of employee rights and interests indicators decreased significantly, and gradually increased from 2020 to 2021. Although the overall improvement was relatively small, it also reached above 0.1 level. This also means that retail enterprises have made certain contributions in improving the social employment rate and improving employee compensation. As the corresponding social value contribution of retail enterprises is relatively small, in addition, most retail enterprises pay relatively low attention to social donations and other aspects. In the process of improving the level of shared development at this stage, it is particularly critical to continuously improve the current social value contribution of retail enterprises.

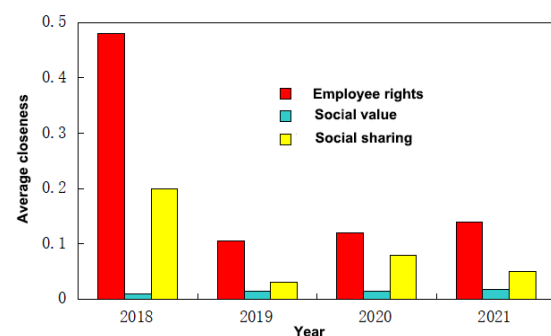


Fig. 3. Results of the evaluation of social sharing levels

4.2 Comprehensive evaluation results and analysis of high-quality development

From 2018 to 2021, among the average closeness of high-quality development sub goals of retail enterprises in the process of operation and development, the average closeness corresponding to social sharing reached 0.22, the average closeness corresponding to benefit growth reached 0.24, and the average closeness corresponding to innovation development reached 0.05. There is a serious imbalance in the development of each sub goal. In the past four years, the closeness of the sub goal of innovation and development ability was less than 0.1, and its contribution rate to high-quality development was 37.20%. In the high development quality index system, the weights of social sharing and benefit growth are 40.50% and 22.30% respectively. The key to the high-quality development of retail industry is to achieve innovative development. In the past four years, the closeness of high-quality

development of retail enterprises has fluctuated greatly, showing a trend of decreasing first and then increasing. The development quality of retail enterprises has been in a downward trend in the first three years. The development quality level is the highest in 2018, and the decrease is large in 2019. Figure 4 shows the trend change of the high-quality development level of retail enterprises.

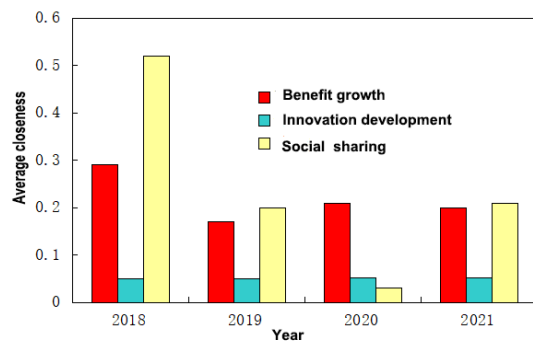


Fig. 4. Changes in the trend of high-quality development level of retail enterprises

Through the comprehensive analysis of Figure 4, it can be found that in the development process of retail enterprises in 2018, social sharing and benefit growth are relatively close to the development quality; in the development process of retail enterprises in 2019, the closeness corresponding to the three different targets of social sharing, innovation development and benefit growth will be reduced, which will lead to the reduction of the overall development quality level; in 2020, the growth level of enterprise benefits has increased, but the social sharing has decreased, and the closeness has decreased to 0.03, resulting in the lowest level of overall high-quality development; in 2021, due to the substantial improvement of social sharing level, the overall development quality will pick up.

5 SUGGESTIONS ON HIGH-QUALITY DEVELOPMENT OF RETAIL LISTED COMPANIES

In the process of development, retail enterprises should pay attention to the high-quality development strategy proposed by China, take high-quality development as the basis for enterprise development, form corresponding systematic quality improvement related plans, take the long-term and stable development of economic benefits as the development basis, and use the innovation ability of enterprises as the main driving force to continuously optimize and upgrade the structure. In the future development process, domestic retail enterprises should pay attention to the three aspects of development scale, speed and quality benefit, and explore a scientific enterprise growth model. Retail enterprises should expand the depth and breadth of information application, improve the level of enterprise intelligence and improve production efficiency; update ideas, learn from experience and promote self-development. Each retail

enterprise should improve the efficiency of factor resource allocation in the international division of labor and cooperation, and deeply integrate into the global industrial chain according to its own development. Retail enterprises should actively build an internal innovation system, optimize the input of various types of related knowledge elements such as innovative talents, and constantly improve the human resource support ability of enterprises. The government encourages enterprises to assume social responsibility and encourages retail enterprises with outstanding contributions. Retail enterprises should combine social value and social responsibility with enterprise operation and development, and truly reflect them in various operation and development projects.

6 CONCLUSION

Taking 75 retail listed companies as the research object, this paper builds the high-quality development evaluation system of Retail Listed Companies in the digital economy era. The evaluation system consists of three first-class indicators, 10 second-class indicators and 13 characterization indicators. Based on the analysis of the high-quality development level of many domestic retail listed companies from 2018 to 2021, the following relevant conclusions are reached:

(1) The overall development quality level of retail enterprises in China is low. From 2018 to 2021, the economic benefit growth level of retail enterprises is generally relatively low, and the average closeness can only reach 0.22; the closeness of solvency, growth level and profitability is between 0.1 and 0.3; the closeness degree corresponding to the operation efficiency is within 0.1, but the corresponding weight proportion reaches 8.83%. Therefore, it will have a certain negative impact on the benefit development of domestic retail enterprises.

(2) In the two indicators of innovation and development, the level of innovation talents of enterprises is higher and the level of innovation capital is much higher. The investment of innovation capital of retail enterprises is increasing year by year. The shortage of innovation talents will hinder the development of retail enterprises. There is a mismatch between the level of innovation capital investment and the quantity and quality of innovation talents. Retail enterprises provide relatively little contribution to social value in the development process, and pay relatively low attention to targeted poverty alleviation and other aspects in the development process. At this stage, it is particularly critical to continuously improve the social value of the retail industry in order to accelerate the sharing of development level.

(3) From 2018 to 2021, among the average closeness of high-quality development sub goals of retail enterprises in the process of operation and development, the average closeness of social sharing reached 0.22, the average closeness of benefit growth reached 0.24, and the average closeness of innovation development reached 0.05. There

are serious imbalances in the development of their respective goals.

Through the research on the high-quality development evaluation of retail listed companies, the key variables affecting their high-quality development are found out, and through the construction of the high-quality development evaluation system of retail listed companies, the development status of retail listed companies is obtained, which provides useful reference for the development of China's retail listed companies and promotes the healthy and sustainable development of China's retail listed companies. In the future, we should increase the training of innovative talents and the investment of innovative capital in the retail industry to continuously improve the social value of the retail industry.

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