

Retraction

Retracted: Research on Accounting Intelligence System Modeling of Financial Performance Evaluation

Security and Communication Networks

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This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] Z. Chen, "Research on Accounting Intelligence System Modeling of Financial Performance Evaluation," *Security and Communication Networks*, vol. 2021, Article ID 5550382, 9 pages, 2021.

Research Article

Research on Accounting Intelligence System Modeling of Financial Performance Evaluation

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In the current competitive market environment, both enterprises and academia attach great importance to the research of financial performance evaluation. The quality of financial performance directly affects the sustainable development of enterprises. With the deepening of enterprise management concept, enterprises pay more attention to the use of financial performance evaluation analysis to promote the sound development of the whole enterprise. In order to understand the development status and development trend of enterprises and improve the efficiency of enterprise management, it is of great significance to establish a scientific and professional financial performance evaluation model for the sustainable development of enterprises. In this paper, based on FCM clustering algorithm, a fuzzy decision model is established. Combined with the factors affecting the financial performance of enterprises, the corresponding indicators are selected from the four aspects of profitability, operation ability, debt paying ability, and development ability to construct the financial performance evaluation system, and the comprehensive fuzzy evaluation model is constructed according to the financial evaluation system. This paper selects listed companies as the research object to evaluate and analyze the performance of enterprises. The results show that the overall performance of listed companies is not ideal and solvency, operation ability, and development ability need to be enhanced. Finally, in view of the problems existing in the listed enterprises, this paper puts forward the following countermeasures: implement cost assessment and pay attention to cost analysis to strengthen cost control; strengthen the cooperation between industrial chain enterprises and R&D departments; and pay attention to the use of talents and improve the ability of independent innovation.

1. Introduction

1.1. Research Background and Significance. With the continuous development of economy, the management mechanism of the company is gradually improved, and the financial performance evaluation of enterprises has attracted more and more attention. On the one hand, financial performance evaluation is of great significance to investors and other stakeholders; on the other hand, it also plays a very important role in the formulation and implementation of management plans. Enterprise financial performance analysis can timely grasp the situation of enterprise operation and make targeted decisions according to the evaluation results. The quality of financial performance has a direct impact on the sustainable development of an enterprise. The establishment of a financial performance evaluation system with scientific evaluation standards and methods is helpful

to the improvement of business operation. In order to improve the operation ability of enterprises and promote the long-term development of enterprises, it is of great significance to study the accounting intelligent system modeling of financial performance evaluation.

1.2. Research Content. This paper studies the current situation of financial performance evaluation at home and abroad based on the principles of financial performance evaluation and selects the corresponding indicators from four aspects of the enterprise's profitability, operation ability, solvency, and development ability to construct the financial performance evaluation system. Based on the FCM clustering algorithm, this paper establishes a fuzzy decision model and combines it with the financial performance evaluation system to build a comprehensive fuzzy evaluation

model. This paper selects the listed companies as the research object and analyzes the four indicators of debt paying ability, profit-making ability, operation ability, and development ability, respectively. According to the evaluation results of these four indicators, the comprehensive performance evaluation of enterprises is finally obtained. Finally, the corresponding countermeasures are put forward according to the existing problems of listed enterprises.

1.3. Organizational Structure. There are five sections in this paper.

Section 1 is the introduction, which mainly introduces the research background, research purpose, and significance of this paper and introduces the research ideas and content and the organizational structure of this paper.

Section 2 introduces the research status of financial performance evaluation at home and abroad, analyzes the adaptability of financial performance evaluation principles and fuzzy comprehensive evaluation theory in financial performance evaluation, and constructs the fuzzy judgment model. From the four aspects of profitability, operation ability, debt paying ability, and development ability, this paper selects the corresponding indicators to construct the financial performance evaluation system and finally constructs the comprehensive fuzzy evaluation model of this paper.

In Section 3, the source of experimental data is introduced. Secondly, the fuzzy c-means clustering algorithm is used in the experimental method. Finally, the original data are processed.

Section 4 selects the listed companies as the research object to evaluate and analyze the performance of enterprises and analyzes the problems existing in the listed companies according to the evaluation results.

Section 5 is a summary and review of the full text; aiming at the problems reflected in the performance evaluation results of listed companies, it puts forward countermeasures to improve the financial operation of listed companies.

2. Theoretical Research and Methods of Financial Performance Evaluation Model

2.1. Research Status of Financial Performance Evaluation at Home and Abroad. Many foreign scholars have studied financial performance evaluation and intelligent analysis system. Xiaolan et al. has carried out in-depth research on financial performance evaluation system of knowledge intensive enterprises [1]. Korkmaz and Gurer proposed the pyramid model of performance evaluation, which extended the single level performance evaluation model to the multilevel model [2]. Haris et al. built a balanced scorecard and helped managers in charge of new technology development projects achieve project level product quality objectives [3]. Bogicevic et al. used a fuzzy multicriteria performance evaluation method to evaluate the urban public transport system [4]. Based on five commonly used comprehensive methods, Ic et al. conducted an empirical study on the performance of financing plans of three SMEs in Tanzania by selecting a number of financial indicators [5].

On the domestic front, Gangodawilage used the factor analysis method to evaluate and analyze the operating performance of agricultural listed enterprises [6]. Dyckhoff used the balanced scorecard to construct an enterprise performance evaluation index system from multiple dimensions to measure the quality status of enterprises [7]. Xiaolan et al. proposed that the enterprise performance evaluation should be divided into regions and industries, so as to make the evaluation indicators more specific and reasonable [1]. By combining the theoretical basis of key performance indicators and balanced scorecard, Haris et al. constructed the framework of financial performance evaluation of China's construction listed companies by using the method of weighting each index under the principle of analytic hierarchy process [3]. Song and Peng et al. used the factor analysis method to evaluate the financial performance of financial listed companies and analyzed the advantages and disadvantages of the company in financial management, in order to provide some objective reference for investors' rational investment [8].

2.2. Principles of Financial Performance Evaluation

2.2.1. Comprehensive Principle. The financial performance evaluation of enterprises is to grasp the current situation of enterprises and find out the problems existing in the operation and management according to the evaluation results, so as to take effective measures to improve the operation efficiency of enterprises [9]. Financial performance evaluation should be able to comprehensively reflect the business situation of the enterprise in all aspects.

2.2.2. The Principle of Objectivity. Financial performance evaluation should not only reflect the market environment but also emphasize the characteristics of the industry, combined with the characteristics of the enterprise itself. Therefore, the content of financial performance evaluation should be formulated objectively according to the internal and external characteristics of the enterprise.

2.2.3. Performance Principle. Financial performance evaluation is a part of business management activities. The purpose of financial performance evaluation is to find out the problems in business management, so as to improve the value creation ability of enterprises. Financial performance evaluation should focus on the contents that can directly reflect the financial performance of enterprises, such as profitability and future development.

2.3. Adaptability Analysis of Fuzzy Comprehensive Evaluation Theory in Financial Performance Evaluation

2.3.1. The Fuzzy Comprehensive Evaluation Method Has the Characteristics of High Objectivity and Reliability. The fuzzy comprehensive evaluation method uses the accurate membership degree to express the fuzziness of the evaluation object, which can make the evaluation object obtain a more

reasonable and objective evaluation result [6]. It is unnecessary to estimate the parameters when using fuzzy comprehensive evaluation, which greatly reduces the influence of subjective factors on the evaluation results and obtains a more objective and accurate evaluation result.

2.3.2. The Evaluation Results Are More Accurate. The result of fuzzy comprehensive evaluation is not a point value, but a vector value, which can provide more reference information for enterprises and has strong practicability.

2.3.3. It Can Reduce the Cost in the Evaluation Process. Due to the wide application of fuzzy comprehensive evaluation method, it has been developed into software program with high integration degree and faster calculation. It can greatly improve the efficiency of users and reduce the cost in the process of enterprise financial performance evaluation.

2.3.4. It Has Strong Information Processing Ability. Fuzzy comprehensive evaluation can deal with quantitative or qualitative information, and the requirements of these data information are not very strict, so it is convenient to judge things with large amount of data [10].

2.4. Fuzzy Decision Model. The fuzzy decision model is established based on fuzzy c-means clustering algorithm. Since the evaluation system uses a lot of means such as comparison, analysis, and judgment, the rationality of the mathematical model should be considered, which not only ensures the correctness of the evaluation but also seeks the best value within the range of data values and also takes into account the weight requirements of evaluation indicators [11]. The fuzzy decision model can be established step by step according to the data flow.

Financial performance is divided into four grades: good and poor. According to the quantitative change law of the development of financial performance level, for a specific enterprise's financial performance, its status level will not belong to three different status levels at the same time.

For the characteristic values a_1 , a_2 , a_3 , and a_4 , the fuzzy c-means clustering algorithm is used to process the data in the sample database. For the characteristic parameters with excellent membership, they can be expressed as follows:

$$\mu_{j,1} = \begin{cases} 1, & P_j < a_1, \\ \frac{a_2 - P_j}{a_2 - a_1}, & a_1 < P_j < a_2, \\ 0 & P_j > a_2. \end{cases} \quad (1)$$

For the characteristic parameter with good membership, it can be expressed as

$$\mu_{j,2} = \begin{cases} 0, & P_j < a_1, \\ \frac{P_j - a_1}{a_2 - a_1}, & a_1 < P_j < a_2, \\ \frac{a_3 - P_j}{a_3 - a_2}, & a_2 < P_j < a_3, \\ 0, & P_j > a_3. \end{cases} \quad (2)$$

For the characteristic parameters whose membership degree is qualified, it can be expressed as follows:

$$\mu_{j,3} = \begin{cases} 0, & P_j < a_2, \\ \frac{P_j - a_2}{a_3 - a_2}, & a_2 < P_j < a_3, \\ \frac{a_4 - P_j}{a_4 - a_3}, & a_3 < P_j < a_4, \\ 0, & P_j > a_4. \end{cases} \quad (3)$$

The characteristic parameters with poor membership can be expressed as follows:

$$\mu_{j,4} = \begin{cases} 0, & P_j < a_3, \\ \frac{a_4 - P_j}{a_4 - a_3}, & a_3 < P_j < a_4, \\ 1, & P_j > a_4. \end{cases} \quad (4)$$

Among them, P_j is the feature in the feature vector P , and $\mu_{j,1}, \mu_{j,2}, \mu_{j,3}, \mu_{j,4}$ is the membership degree of the j , and they represent characteristic quantity to the four performance grades of excellent, good, qualified, and poor, respectively.

The fuzzy matrix K is obtained from the above membership degree:

$$K = \begin{bmatrix} \mu_{11} & \mu_{12} & \cdots & \mu_{1m} \\ \mu_{21} & \mu_{22} & \cdots & \mu_{2m} \\ \vdots & \vdots & \vdots & \vdots \\ \mu_{n1} & \mu_{n2} & \cdots & \mu_{nm} \end{bmatrix}, \quad (5)$$

where n is the number of index parameters and m is the number of financial performance level grades.

The weight of each characteristic parameter is calculated by the maximum deviation weight calculation method:

$$v_j = \frac{\sum_{g=1}^m \sum_{q=1}^m |u_{jg} - u_{jq}|}{\sum_{j=1}^m \sum_{g=1}^m \sum_{q=1}^m |u_{jg} - u_{jq}|}, \quad j = 1, 2, \dots, m, \quad (6)$$

where g and q are the financial performance statuses of different enterprises, j is the extracted characteristic

parameter, and $|u_{jg} - u_{jq}|$ is the absolute value of each membership degree deviation of characteristic parameter j . At this time, the final evaluation result matrix B is obtained:

$$B = V \circ K, \quad (7)$$

where $V = [v_1, v_2, \dots, v_m]$, “ \circ ” are fuzzy operators, each element of matrix B represents the membership degree of sample data to each financial performance status grade, and the final evaluation result is obtained according to the principle of maximum membership degree.

2.5. Establishment of Enterprise Financial Performance Evaluation System

2.5.1. *Principle of Index Selection.* This paper follows the following principles when selecting financial indicators:

- (1) The principle of comprehensiveness and importance: comprehensiveness means that financial indicators should be able to reflect the financial situation of an enterprise from different directions and levels and reflect all aspects of the enterprise's operating ability, so as to comprehensively evaluate the business performance of an enterprise [12]. The principle of materiality refers to selecting representative and important financial indicators and controlling the selection and quantity of financial indicators.
- (2) The principle of desirability and effectiveness: desirability means that the financial indicators selected in this paper can be calculated from the financial reports of listed companies, and there is no missing value in the financial statements. Effectiveness means that the financial indicators should be avoided to ensure the quality of the selected financial indicators and prevent redundancy and inefficiency.
- (3) The principle of unity and comparability: unity means that the selected financial indicators should have a unified dimension in order to improve the quality of principal component analysis and ensure the accuracy of performance evaluation of listed companies [13]. The financial indicators selected in this paper can comprehensively reflect the comprehensive ability of listed companies, so as to make the established performance evaluation system more valuable.

2.5.2. *Selection of Financial Performance Indicators.* According to the selection principle of the above financial indicators, this paper designs two levels of indicators, including four first-class indicators: profit-making, operation, debt repayment, and development, and 12 second-class indicators, which basically include most elements of financial performance of enterprises.

- (1) Solvency: solvency analysis is to analyze the enterprise's ability to repay long-term or short-term debt. The solvency of an enterprise can reflect the financial risk faced by the enterprise in its business activities and more directly reflect the financial situation of the enterprise [14]. Generally, it is divided into short-term solvency and long-term solvency. The short-term solvency mainly reflects the asset liquidity of an enterprise, which is positively correlated with the asset flow. The stronger the liquidity is, the stronger the short-term solvency of the enterprise is; the long-term solvency mainly reflects in the financial security and financial stability, which is an important point to measure the stability of enterprise operation [15]. It is usually measured by the asset liability ratio. The lower the asset liability ratio is, the higher the degree of debt protection is. Both short-term solvency and long-term solvency are closely related to the sustainable development of enterprises.

This paper mainly selects asset liability ratio, quick ratio, and current ratio. It is generally believed that the asset liability ratio is 50%, the quick ratio is 1 : 1, and the current ratio is 2 : 1.

- (2) Operational capacity: operational capacity analysis mainly refers to the analysis of the efficiency and benefits of asset management and utilization. The efficiency of asset management and utilization mainly refers to the turnover rate of enterprise assets, while the efficiency mainly refers to the ratio between the output and the asset occupation in the process of operation [16]. In essence, the whole production and operation process of an enterprise is the process of continuously putting in funds, constantly adjusting the existing asset portfolio, continuously consuming the original assets, and forming new assets [17]. Operational capacity is the microperformance of social productivity in enterprises, which refers to the material energy generated by the allocation, combination, and interaction of enterprise's own resources to promote the operation and development of enterprises.

This paper mainly selects the turnover rate of accounts receivable, the turnover rate of fixed assets, and the turnover rate of total assets. Generally speaking, the higher the turnover rate of accounts receivable is, the stronger the liquidity is; the higher the turnover ratio of fixed assets is, the higher the utilization rate of fixed assets is and the better the management level is; the greater the total assets ratio, the better the management efficiency.

- (3) Profitability: profitability is the ability of an enterprise to profit from business activities by means of marketing. It is the comprehensive embodiment of marketing ability, profitability ability, and risk aversion ability [18]. For the profit-making ability of enterprises, it is a relative concept, that is, the profit is relative to a certain investment. The higher the profit

rate, the stronger the profitability of the enterprise, the lower the profit margin, and the worse the profitability. Profitability is the most basic financial ability of an enterprise [19]. It is the goal of every enterprise to obtain profits continuously, stably, and maximally. At the same time, it is also the basic guarantee for its survival and development, which is very important to the enterprise [20].

This paper mainly selects three indicators: asset profit rate, return on investment capital, and net operating interest rate. The higher the value of return on investment capital, the better the operation effect of the enterprise; the higher the net profit rate, the better the profit ability.

- (4) Capacity development: the development ability of an enterprise is the future development potential accumulated in the long-term business activities of the enterprise. The stronger the development ability of the enterprise, the greater the potential of the enterprise and the longer it can stand [21]. The main content of development capability analysis includes growth rate analysis and residual income analysis. The former refers to the analysis of the growth of assets, sales revenue, income, etc., while the latter refers to the judgment of the growth of enterprises by comparing the changes of residual income in different periods [22].

This paper mainly selects three indicators: the growth rate of net intangible assets, the growth rate of net flow of main business, and the growth rate of total assets. It is found that the growth rate of net intangible assets, the growth rate of net flow of main business, and the growth rate of total assets are positively correlated with the development and growth of enterprises.

2.6. Construction of Comprehensive Fuzzy Evaluation Model. The fuzzy evaluation matrix of the solvency index, operational capacity index, profitability index, and development ability index is $K_1, K_2, K_3,$ and $K_4,$ respectively. By calculating their weight vectors $V_1, V_2, V_3,$ and $V_4,$ the evaluation results $B_1, B_2, B_3,$ and B_4 are obtained, and the comprehensive evaluation matrix $K = [B_1, B_2, B_3, B_4, B_4]$; calculate the weight vector V of the obtained comprehensive matrix $K,$ and finally get the comprehensive evaluation result $B.$ Each element of the matrix B represents the membership degree of the sample data to each financial performance status grade and obtains the final evaluation result according to the principle of maximum membership degree.

3. Experimental Design of Accounting Intelligence System for Financial Performance Evaluation

3.1. Source and Description of Experimental Data. This paper selects 2014–2018 annual financial statements of a listed company as experimental data. Through the fuzzy judgment

model, this paper analyzes the evaluation results of its debt paying ability, profit-making ability, operation ability, and development ability and then obtains the overall performance evaluation results of the company through the comprehensive fuzzy evaluation model.

3.2. Experimental Methods. FCM clustering algorithm clusters data according to similarity principle. Any clustering algorithm must establish its own similarity measurement standard. Generally, the distance between two samples in the feature space is used to calculate the similarity of samples. The commonly used distance metrics include the following.

Euclidean distance:

$$d(i, j) = \left(\sum_{k=1}^s (x^{ik} - x^{jk})^2 \right)^{0.5}, \quad (8)$$

where x_{ik} is the k th index in the i th sample; x_{jk} is the k th index in the j th sample; and $d(i, j)$ is the Euclidean distance between the i th data and the j th data; the larger the value is, the farther the two data are and the lower the similarity is.

Manhattan distance:

$$d(i, j) = \sum_{k=1}^s |x^{ik} - x^{jk}|. \quad (9)$$

Minkowski distance:

$$d(i, j) = \left(\sum_{k=1}^s (x^{ik} - x^{jk})^p \right)^{1/p}. \quad (10)$$

Suppose the dataset is $X = \{x_1, x_2, \dots, x_n\} \in R^s,$ the number of data is $n,$ and each data has s attributes. $O = \{o_1, o_2, \dots, o_k\}$ is the number of cluster centers. The dataset is divided into k groups ($1 < k < n$), and v_i is the i cluster center. $U = [u_{ij}]_{k \times n},$ where $u_{ij} \in [0, 1]$ and U is the membership matrix of data points and cluster centers. Then, the objective function of FCM clustering algorithm can be expressed as follows:

$$\min J_m(U, O) = \sum_{i=1}^k \sum_{j=1}^m u_{ij}^m d_{ij}^2, \quad (11)$$

where $m \in [1, +\infty]$ is the fuzzy index, u_{ij} is the fuzzy membership degree of data x_j to the cluster center $o_i,$ and $d_{ij} = \|x_j - v_i\|$ is the Euclidean distance between data x_j and cluster center $o_i.$ For the membership degree $u_{ij},$ the sum of membership degrees of all cluster centers of the same data is 1, and the value of each membership degree meets the following requirements:

$$\begin{cases} \sum_{i=1}^k u_{ij} = 1, \sum_{j=1}^n u_{ij} > 0, & u_{ij} \geq 0, 1 \leq j \leq n, 1 \leq i \leq k. \end{cases} \quad (12)$$

The derivative of the objective function can be obtained as follows:

$$\left\{ \begin{array}{l} o_i = \frac{\sum_{j=1}^n u_{ij} x_j}{\sum_{j=1}^n u_{ij}^m}, \quad i = 1, 2, \dots, k, \\ \\ u_{ij} = \begin{cases} \left[\sum_{r=1}^k \left(\frac{d_{ij}}{d_{rj}} \right)^{(2/(m-1))} \right]^{-1}, & d_{ij} \neq 0; \\ 1, & d_{ij} = 0; \\ 0, & d_{kj} = 0, k \neq i. \end{cases} \end{array} \right. \quad (13)$$

FCM randomly selects and initializes membership matrix U , adjusts membership matrix and cluster center (U, O) , and iteratively calculates the minimum value of objective function to obtain the optimal membership matrix.

3.3. Data Processing

3.3.1. Dimensionless Treatment. The data obtained in this paper have their own dimensions, and the original data are dimensionless for subsequent evaluation process:

$$\begin{aligned} \text{positive indicator : } x_{ij} &= \frac{x_{ij} - \min_i x_{ij}}{\max_i x_{ij} - \min_i x_{ij}} * 4, \\ \text{inverse index : } x_{ij} &= \frac{\max_i x_{ij} - x_{ij}}{\max_i x_{ij} - \min_i x_{ij}} * 4. \end{aligned} \quad (14)$$

4. Experimental Analysis of Accounting Intelligence System for Financial Performance Evaluation

4.1. Solvency Analysis. The data values of current ratio (LD), quick ratio (SD), and asset liability ratio (ZCF) of the company's solvency from 2012 to 2019 are shown in Table 1. From 2012 to 2019, the index evaluation results obtained by the evaluation model are good, excellent, good, good, good, good, qualified, and good.

The trend changes of various indicators of solvency from 2012 to 2019 are analyzed, as shown in Figure 1. It can be seen from Figure 1 that the three indicators of LD, SD, and ZCF have little change in these five years. From the current ratio value, the LD index value of these five years is above 1.5, and from the quick ratio value, the SD value of these five years is between 1 and 2, which indicates that the overall short-term solvency of the enterprise is good. From 2016 to 2017, the value of LD and SD showed a relatively large upward trend, indicating that the short-term solvency of enterprises increased during this period. From the asset liability ratio index value, the index value of ZCF is above 0.5 in these five years, indicating that the enterprise has strong long-term solvency.

TABLE 1: Index data of current ratio, quick ratio, and asset liability ratio from 2012 to 2019.

	2012	2013	2014	2015	2016	2017	2018	2019
LD	1.586	1.762	1.634	2.198	1.534	1.856	1.264	1.471
SD	1.428	1.821	1.239	1.374	1.582	1.298	1.564	1.482
ZCF	0.669	0.513	0.741	0.625	0.543	0.539	0.571	0.612

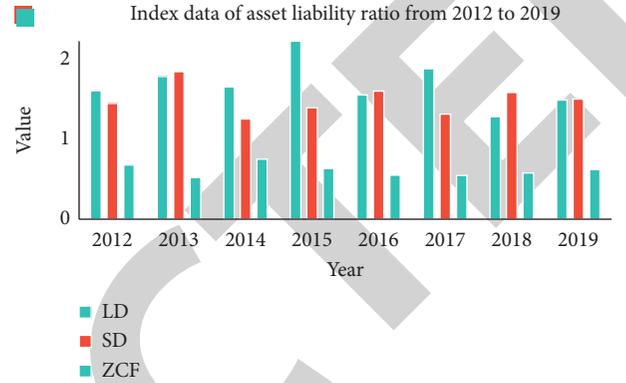


FIGURE 1: Change trend chart of enterprise solvency index value.

4.2. Operation Capacity Analysis. The operating capacity of an enterprise is mainly analyzed from three index values: the turnover rate of accounts receivable (YSZ), the turnover rate of fixed assets (GDZ), and the turnover rate of total assets (ZZ). The index data of operating capacity of enterprises from 2012 to 2019 are shown in Figure 2. It can be seen from Figure 2 that the YSZ index value of the enterprise decreased year by year from 2012 to 2019 and gradually tended to be flat, indicating that during the five-year period, the enterprise's operating capacity decreased year by year, while in 2015, its YSZ value reached the maximum value in recent years. In 2015, the enterprise was in a state of rapid development, and the company's liquidity was strong. From 2012 to 2019, the value of the ZZ index of enterprises has gradually declined during the five years, but the difference was not obvious in recent three years, indicating that the overall operating capacity of enterprises is poorer than that in 2014, but there is a trend of gradual stability. From the point of view of GDZ index value, there is a large upward trend from 2014 to 2015. According to the survey, it is found that the reason is that new projects were opened in this year and gradually improved into fixed assets, so the GDZ index value changed greatly from 2014 to 2016.

4.3. Profitability Analysis. The analysis of enterprise profitability mainly includes three index values: return on assets (ZL), return on invested capital (TZH), and net operating interest rate (JJ). The evaluation results obtained by using the evaluation model from 2012 to 2019 are good, good, poor, good, good, and qualified. The profitability index data of enterprises from 2012 to 2019 are shown in Figure 3. It can be seen from Figure 3 that the ZL index value of the enterprise decreased year by year from 2014 to 2016 and reached the lowest value in 2016. After 2016, the ZL value first increased and then decreased, indicating that the overall profit

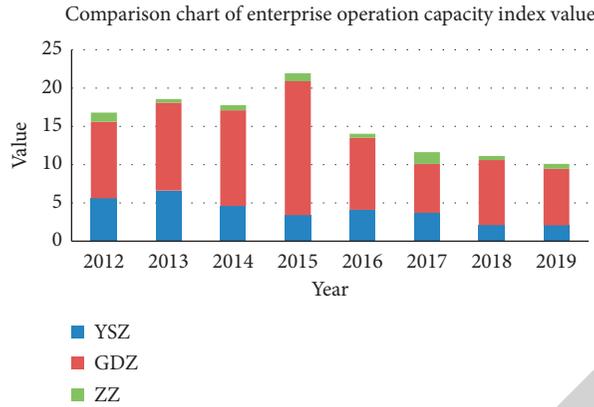


FIGURE 2: Comparison chart of enterprise operation capacity index value.

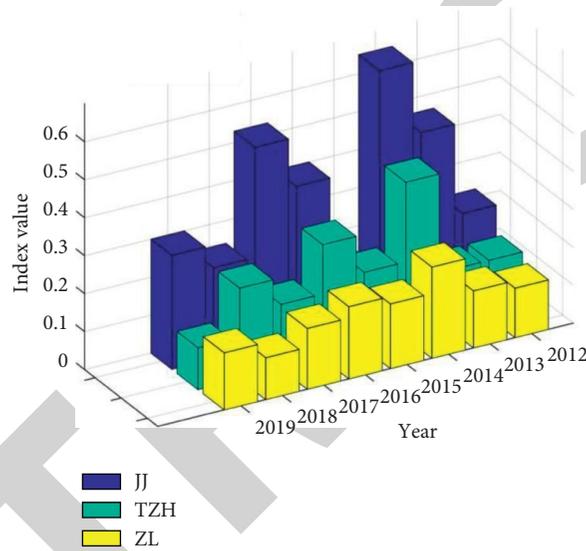


FIGURE 3: Comparison chart of enterprise profitability index value.

situation of the enterprise is not very good. According to the index value of return on investment capital, it fluctuates greatly in these five years. From the index value of operating net interest rate, its trend in these five years is consistent with the change trend of ZL index value. This shows that the business situation of the enterprise in recent years is not stable, and the profitability needs to be strengthened.

4.4. Development Capability Analysis. The analysis of enterprise development capability mainly includes three indicators: the growth rate of net intangible assets (WZJZ), the growth rate of net flow of main business (ZYJZ), and the growth rate of total assets (ZZL). The data of WZJZ, ZYJZ, and ZZL in the company’s development ability from 2012 to 2019 are shown in Table 2. The evaluation results obtained by using the evaluation model are good, qualified, poor, qualified, and good from 2012 to 2019.

From the index value of the growth rate of total assets in Table 2, although there are fluctuations, the overall situation is in a positive growth state. From the index value of the net

TABLE 2: Index data of enterprise development ability from 2012 to 2019.

	2012	2013	2014	2015	2016	2017	2018	2019
WZJZ	1.987	0.264	-0.078	0.364	0.449	0.531	0.245	0.301
ZYJZ	0.469	0.107	-0.249	-0.053	0.378	0.172	0.241	0.113
ZZL	0.465	0.967	0.109	0.346	0.485	0.754	0.633	0.441

growth rate of intangible assets, there was a negative value in 2016, indicating that the enterprises did not achieve good results in innovation in this year. From the growth rate of net flow of main business, the index value in 2014 was -0.249 and that in 2015 was -0.053, showing negative values, indicating that the company’s profit from sales during the two years was less than the total value of procurement expenses. For a more convenient and intuitive analysis of the enterprise development ability from 2012 to 2019, the trend chart is shown in Figure 4.

As can be seen from Figure 4, from 2012 to 2019, the WZJZ index value and ZYJZ index value showed a trend of first decrease and then increase in these five years, indicating

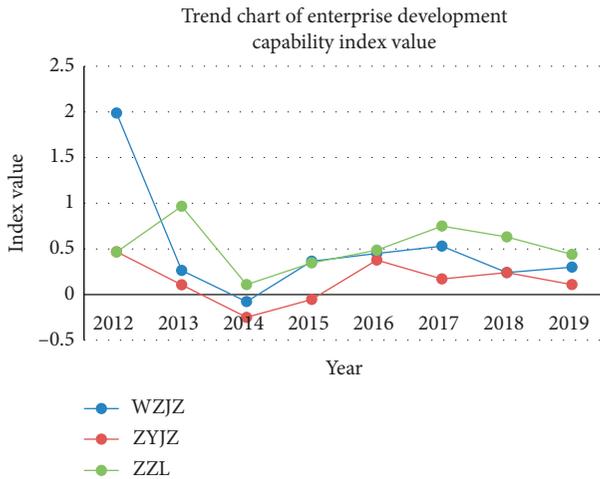


FIGURE 4: Trend chart of enterprise development capability index value.

that enterprises gradually transition from growth period to stable period. From the change trend of ZZL index value, the overall change fluctuation is not big, indicating that the development of the enterprise is in a relatively stable state, but the overall development situation is general.

Combined with the evaluation results of the four indicators, the overall evaluation results of financial performance in 2012–2019 are good, good, poor, qualified, and qualified. From the results of performance evaluation, the development of enterprises is not optimistic from 2012 to 2019, which shows that there is still a lot of room for improvement in the process of business management.

5. Conclusions

On the basis of consulting the research status at home and abroad, this paper analyzes the adaptability of financial performance evaluation principles and fuzzy comprehensive evaluation theory in financial performance. In this paper, the enterprise financial performance index parameters are collected into four aspects: profitability, operational capacity, solvency, and development ability, and the corresponding indicators are selected to construct the performance evaluation system. In this paper, a comprehensive fuzzy evaluation model based on FCM clustering algorithm is proposed. Applying the model to the evaluation system of enterprise financial performance can reduce the cost in the evaluation process.

In this paper, listed companies are selected as the experimental research objects, and the operating capacity, profitability, solvency, and development ability of listed companies are analyzed in detail. According to these four indicators, the final enterprise performance evaluation results are obtained. The research results show that the operation status of listed enterprises is not optimistic, and the development of enterprises is at a disadvantage. The following suggestions are to help enterprises improve the overall operating efficiency: implement cost assessment and pay attention to cost analysis to strengthen cost control. For listed companies, the cost of main business accounts for a large part of the total, but the failure to improve

the operation capacity will lead to the reduction of enterprise profits. Therefore, we can control the cost by implementing cost assessment and focusing on the analysis of main business cost. Enterprises should strengthen the cooperation between enterprises in the industrial chain and R&D departments. Through cooperation with enterprises in the industrial chain, we can supervise the product quality and improve the competitiveness of enterprises. Cooperation with R&D departments can enhance the innovation ability of enterprises and provide the basis for sustainable development of enterprises. Attaching importance to the use of talents, improving the ability of independent innovation, and having a strong talent team can improve the enterprises. The key to sustainable growth ability is that enterprises should improve the mechanism of personnel training and use and constantly improve the product innovation of listed companies, so as to improve the competitiveness and financial ability of enterprises.

Since this study mainly selects financial indicators to evaluate the performance of enterprises, with the diversified development of performance evaluation subjects, various stakeholders put forward different evaluation requirements for enterprise performance evaluation. The follow-up research can introduce nonfinancial indicators on the basis of financial performance evaluation to conduct comprehensive evaluation of enterprise performance.

Data Availability

No data were used to support this study.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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