Research Article
The Establishment of Risk Evaluation Index System for Small- and Medium-Sized Agency Bookkeeping Companies

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In recent years, China’s economy has developed rapidly; many small companies have risen rapidly; and the tax system has become more and more standardized. Because many small businesses cannot afford to hire full-time accountants, they opt to outsource accounting services, giving small- and medium-sized bookkeeping firms a large market space. However, these opportunities also bring huge operational risks to small- and medium-sized bookkeeping companies. The purpose of this research is to help such enterprises carry out risk management and reduce operational risks. This study uses an analytic hierarchy process and a fuzzy comprehensive assessment approach to successfully combine quantitative and qualitative analysis and create a multilevel analysis structure model of the risk management evaluation index system of small- and medium-sized agency accounting firms. The structural model is verified by a case, the specific risk score of each factor is calculated through the scores of 20 experts, and the importance of risk is judged according to the size of the score, indicating that the structural model is feasible.

1. Introduction

In order to promote the healthy development of the agency bookkeeping industry, the “Administrative Measures for Agency Bookkeeping” was officially implemented in May 2016, which once again standardized the institutional management of the agency bookkeeping industry [1], but this did not fundamentally solve the problem of industrial development. The Financial Accounting (2018) No. 32 document particularly emphasized the need to strictly manage agency bookkeeping institutions, establish and improve the integrity incentive and untrustworthy punishment mechanism for the agency bookkeeping industry, and regulate the management of industry associations [2]. In March 2019, the Ministry of Finance issued relevant regulations to simplify the application materials for agency bookkeeping qualifications, shorten the statutory approval time limit, and stimulate the vitality of market entities [3]. The bookkeeping industry has experienced nearly 30 years of development, from the traditional manual mode to the computerized mode [4]. Due to the development of artificial intelligence, the accounting and taxation of agency bookkeeping companies have gradually become intelligent [5], which has brought greater influence to small- and medium-sized bookkeeping companies, and the problem of risk management has become increasingly prominent [6].

2. Methodology

2.1. Basic Method Theory.

In the “Comprehensive Risk Management Framework” released by COSO in 2003, comprehensive risk management includes three dimensions [7] as shown in Figure 1.

The basic process of comprehensive risk management is divided into five steps. The implementation of risk management is inseparable from the communication of information [8]. Therefore, a complete risk management information system must be established [9], as shown in Figure 2.

The formation process of agency bookkeeping risk: risk event—risk taker—risk loss [10], as shown in Figure 3.
2.2. Choice of Risk Assessment Method. Risk assessment mainly refers to the qualitative or quantitative analysis of the probability and impact of risk events [11]. This research mainly adopts the analytic hierarchy process and the fuzzy comprehensive evaluation method to quantitatively analyze the risk of the agency bookkeeping company [12].

2.2.1. AHP. AHP is an analysis method based on hierarchical decision-making [13]. For unstructured and relatively complex decisions [14], the use of AHP will greatly reduce the amount of engineering [15].

The specific steps of AHP are as follows: (1) constructing the index system, (2) constructing the judgment matrix, (3) calculating the hierarchical weight [16], (4) checking the consistency of each layer, (5) calculating the combined weight, (6) total consistency test, and (7) determining the weight as shown in Figure 4.

2.2.2. Fuzzy Comprehensive Evaluation Method. The fuzzy comprehensive evaluation method is a comprehensive evaluation method that transforms qualitative evaluation into quantitative evaluation through the membership degree theory of fuzzy mathematics [17].

3. Establishment of the Risk Evaluation Index System for Small- and Medium-Sized Agency Bookkeeping Companies

3.1. Establishment of the Risk Assessment Index System. In practical applications, there are many types of risk factor identification methods [19], mainly including the following: (1) brainstorming method, (2) analysis process method [20], (3) analysis of relevant scenarios, (4) risk decomposition method [21], and (5) editing event tree method [22]. According to the actual situation of small- and medium-sized agency bookkeeping companies, this paper adopts the brainstorming method to identify the risk factors of these companies.
Organized and sent 20 experts to conduct in-depth research on small- and medium-sized bookkeeping companies. Through the discussion, summarize the main risks in five aspects: policy and legal risk, industry competition risk, information technology risk, undertaking business risk, and practitioner risk [23]. In the case of ensuring the comprehensiveness of the risk evaluation system, the risk evaluation index system in Table 1 is summarized and determined [24].

3.2. Establishment of Risk Assessment Set. In order to make the evaluation effect clearer, the evaluation using gradients within a range of the evaluated risk factors is usually adopted [25]. Five different continuous grade categories are selected for the agency bookkeeping risk evaluation set, and the five evaluation results are "no risk," "small risk," "average risk," "high risk," and "huge risk." Specifically, it is represented by $V = \{V1, V2, V3, V4, V5\}$, in which the five evaluation results are, respectively, corresponding to the scores of "20," "40," "60," "80," and "100." Higher scores indicate greater risk, as shown in Table 2.

3.3. Establishment of Risk Indicator Weights

3.3.1. Establishing the Judgment Matrix. Use an appropriate scale to construct a judgment matrix by comparison [26] and establish a comparative judgment matrix $A$ for the risk indicators after statistical analysis:

$$ A = (a_{ij})_{n \times n} = \begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{pmatrix}. \quad (1) $$

3.3.2. Calculation of Criterion Layer Weights. The calculation of the weight of the criterion layer can be divided into three steps: one is to normalize the risk judgment matrix $A$ of the criterion layer of the company to obtain a new matrix $Z$ [27]. The weights are obtained by normalization [28]. The third is the matrix consistency test [29].

1) Normalize each column of the $A$ matrix to obtain a new matrix $Z$:

$$ Z_{ij} = \frac{A_{ij}}{\sum A_{ij}}. \quad (2) $$

2) The eigenvectors are obtained by summing each row of the matrix, and then the weights are obtained by normalizing the eigenvectors:

$$ W_i = \frac{Z_i}{\sum A_{ij}}. \quad (3) $$

$WA = (WA_1, WA_2, WA_3, WA_4, WA_5)$. From this, it can be concluded that WA1 to WA5 are the weight ratios of each risk factor index in each criterion layer, and the next work is to take a consistency check on the weight of each index obtained.

3) Matrix consistency test

We calculate the largest eigenroot as follows:

$$ \lambda_{\text{max}} = \sum \frac{(AW)_{ij}}{nW_i}. \quad (4) $$

where $\lambda_{\text{max}}$ represents the largest eigenvalue, $A$ represents the corresponding matrix, $W$ represents the eigenvector, and $i$ represents the corresponding element in the matrix. The CI scale is determined based on the characteristic root. The formula is as follows:

We calculate the consistency index of the judgment matrix as follows:

$$ CI = \frac{\lambda_{\text{max}} - n}{n - 1}. \quad (5) $$

Factor CR agreement was calculated according to the RI corresponding to the CI. In fact, RI is a constant, which represents the average random consistency index. According to the order of the matrix, the ratio of the matrix consistency index CI and the average random consistency index RI of the same order can be queried in the table, which is called the random consistency ratio. If the condition of $CR < 0.10$ is satisfied, it can indicate that the judgment matrix has passed the consistency check, and if it is not satisfied, it means that the consistency check has not passed [30].

We calculate the random consistency ratio as follows:
3.3.3. Calculation of Index Layer Weights and Comprehensive Weights. When determining other weights, you can also collect and analyze data and use the same method as above to calculate the standard layer judgment matrix weight.

According to the formula: the comprehensive weight of the indicator layer \( \text{weight of the indicator layer} \times \text{weight of the criterion layer} \), the comprehensive weight of each indicator of the company's indicator layer can be obtained by calculation.

Table 1: Risk evaluation index system.

| Target layer | Criterion layer | Indicator layer |
|--------------|-----------------|-----------------|
| Risk assessment influencing factors A of small- and medium-sized bookkeeping companies | Policy and legal risk A1 | Industry policy risk a11 |
| | Industry competition risk A2 | Risk a21 of low-price competition among peers |
| | Information technology risk A3 | Financial software technology risk a31 |
| | Undertaking business risk A4 | Delegator moral hazard a41 |
| | Practitioner risk A5 | Professional ethics hazard a52 |

Table 2: Risk assessment level.

| Risk level | Evaluation results | Evaluation scores |
|------------|--------------------|-------------------|
| 1          | No risk            | 20                |
| 2          | Small risk         | 40                |
| 3          | Average risk       | 60                |
| 4          | High risk          | 80                |
| 5          | Huge risk          | 100               |

\[
CR = \frac{CI}{R'} \tag{6}
\]

3.4. Application of the Fuzzy Comprehensive Evaluation Method. After the weight of each risk factor index is obtained, the membership degree of the fuzzy comprehensive evaluation set should be calculated next, and the fuzzy comprehensive evaluation should be implemented by combining the weight and the membership degree [31]. The determination of membership degree is highly subjective, requiring each evaluation expert to be careful [32]. The membership matrix function usually refers to a new matrix that is synthesized after the evaluation indicators of all matrices are rated by membership [33], as shown in the following formula:

\[
R = \begin{pmatrix}
     r_{11} & \cdots & r_{1n} \\
     \vdots & \ddots & \vdots \\
     r_{m1} & \cdots & r_{mn}
\end{pmatrix} \tag{7}
\]

\[
R \text{ can be regarded as a mapping of the matrix membership evaluation set, and the membership degree is treated as a condition of fuzzy operation, and the fuzzy evaluation result can be obtained by multiplying it by the weight. The specific calculation formula is shown in the following formula:}
\]

\[
B = W \cdot R = (W1, W2, W3, \dotsc, Wn) \cdot \begin{pmatrix}
     r_{11} & \cdots & r_{1n} \\
     \vdots & \ddots & \vdots \\
     r_{m1} & \cdots & r_{mn}
\end{pmatrix} \tag{8}
\]

Formula (8) can be used to calculate the fuzzy comprehensive evaluation score of the five matrices of the criterion layer "A1" to "A5." From the above calculation ideas, usually use "very important, relatively important, generally important, less important, very unimportant," the 5-level satisfaction evaluation level that makes a reasonable
evaluation of all evaluation indicators, so as to obtain the membership degree. Twenty experts selected Appendix B and obtained the evaluation frequency table after statistics. The corresponding membership degree matrix can be obtained by obtaining the membership degree of each index.

4. Case Validation

4.1. Case Situation. HIG bookkeeping company was established in 2013. It is a typical small- and medium-sized bookkeeping company in China. The company has a registered capital of 1 million yuan. Its business scope includes accounting business consulting services, accounting consultants, agency bookkeeping services [34], agency financial and tax reporting services, agent for industrial and commercial registration, enterprise annual report service, agent for various licenses, and agent for trademark registration and patent application [35].

After the discussion of 20 experts, the final conclusion is drawn to the HIG company’s agency bookkeeping risk formation table, as shown in Table 3.

4.2. Establishment of Risk Factor Indicator Weights

4.2.1. Constructing the Judgment Matrix. A total of 20 experts were invited for this case, including 3 managers and deputy managers of the company; one person in charge of each department of Administration Department, Operation Department, Business Department, and Finance Department; and 13 external financial experts. After statistical analysis, a comparison (judgment) matrix A is established for the risk indicators:

\[
A = (a_{ij})_{n \times n} = \begin{pmatrix}
a_{11} & a_{12} & \cdots & a_{1n} \\
a_{21} & a_{22} & \cdots & a_{2n} \\
& \vdots & \ddots & \vdots \\
a_{m1} & a_{m2} & \cdots & a_{mn}
\end{pmatrix},
\]

where

\[
A = \begin{pmatrix}
1 & 4 & \frac{1}{2} & 3 & \frac{1}{3} \\
\frac{1}{4} & 1 & \frac{1}{1} & \frac{1}{1} & \frac{1}{4} \\
2 & 4 & 1 & \frac{3}{1} & \frac{1}{2} \\
\frac{1}{3} & 3 & \frac{1}{3} & \frac{1}{1} & \frac{1}{5} \\
3 & 4 & 2 & 5 & 1
\end{pmatrix}.
\]

4.2.2. Calculation of Criterion Layer Weights

(1) Normalize each column of the A matrix to obtain a new matrix Z as follows:

\[
Z_{ij} = \frac{A_{ij}}{\sum A_{ij}},
\]

\[
Z = \begin{pmatrix}
0.15 & 0.25 & 0.12 & 0.24 & 0.15 \\
0.04 & 0.06 & 0.06 & 0.03 & 0.11 \\
0.30 & 0.25 & 0.24 & 0.24 & 0.22 \\
0.05 & 0.19 & 0.08 & 0.08 & 0.09 \\
0.46 & 0.25 & 0.49 & 0.41 & 0.44
\end{pmatrix}.
\]

(2) The eigenvectors are obtained by summing each row of the matrix, and then the weights are obtained by normalizing the eigenvectors [36]:

\[
W_i = \frac{Z_i}{\sum A_{ij}}.
\]

(3) Matrix consistency test

We calculate the largest eigenroot as follows:

\[
\lambda_{max} = \frac{\sum (AW)_{ij}}{nW_i}.
\]

Here, \(\lambda_{max} = 5.2541\).

We calculate the consistency index of the judgment matrix as follows:

\[
CI = \frac{\lambda_{max} - n}{n - 1}.
\]

Here, \(CI = 0.0635\).

The average random consistency index is shown in Table 4. We calculate the random consistency ratio as follows:

\[
CR = \frac{CI}{RI}.
\]

Here, CR = 0.0567 < 0.10.

Therefore, it can be determined that \(WA = (0.1827, 0.0596, 0.2522, 0.0977, 0.4078)\) is the criterion layer weight that satisfies the consistency test conditions.

4.2.3. Calculation of Indicator Layer Weights. Using the same method as above, the standard layer judgment matrix weights are calculated as shown in Tables 5–9, respectively.

\[
\lambda_{max} = 3.0735 \quad \text{and} \quad CR = 0.0707 < 0.10.
\]

Indicator layer weights for policy legal risks: \(WA_1 = (0.1717, 0.4414, 0.3869)\).
Table 3: Risk formation table of HIG’s agency bookkeeping.

| Risk factor                          | Possible risk events                          | Risk taker       | Risk loss                                      |
|--------------------------------------|-----------------------------------------------|------------------|-----------------------------------------------|
| Policy and legal risks               | Inadequate state support for the industry     | HIG company      | Loss of business development                  |
|                                      | Contractual dispute                            | HIG company      | Loss of business management                   |
|                                      | Irregularities in the industry                 | HIG company      | Loss of business development                  |
|                                      | Industry price disorder                         | HIG company      | Loss of business development                  |
| Industry competition risk            | Market share is seized by newcomers           | HIG company      | Loss of business development                  |
| Information technology risk          | No competitive advantage                        | HIG company      | Loss of business development                  |
|                                      | Intelligent financial software                 | HIG company      | Loss of business development                  |
|                                      | Loss of financial data                         | HIG company      | Loss of business development                  |
|                                      | Poor communication of internal information     | HIG company      | Loss of business management                   |
| Undertaking business risk            | Principal’s tax evasion                        | HIG company      | Loss of business management                   |
|                                      | Loss of customer data                          | HIG company, Entrusting company | Loss of service quality                      |
|                                      | Distortion of accounting information           | HIG company      | Loss of service quality                       |
|                                      | Not received service fee                        | HIG company      | Loss of business management                   |
|                                      | Unprofessional staff                           | HIG company      | Loss of service quality                       |
|                                      | The moral quality of the employees is not high, and they make false accounts | HIG company      | Loss of service quality                       |
| Practitioner risk                    | Employee training is not appropriate, or if they learn skills, they will leave | HIG company      | Loss of labor costs                           |
|                                      | Resign after being familiar with the operation process, revealing business opportunities | HIG company      | Loss of business talent                       |

Table 4: Mean random consistency indicator.

| Order, $n$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|------------|---|---|---|---|---|---|---|---|---|
| RI         | 0 | 0 | 0.52 | 0.89 | 1.12 | 1.26 | 1.36 | 1.41 | 1.46 |

Table 5: The scoring results of the policy and legal risk indicator layer.

| Policy and legal risk A1 | Industry policy risk a11 | Legal and regulatory risks a12 | Industry regulatory risk a13 | Wi  |
|--------------------------|--------------------------|-------------------------------|------------------------------|-----|
| Industry policy risk a11 | 1                        | 1/2                           | 1/3                          | 0.1717 |
| Legal and regulatory risks a12 | 2                        | 1                             | 3/2                          | 0.4414 |
| Industry regulatory risk a13 | 3                        | 2/3                           | 1                            | 0.3869 |

Table 6: The scoring results of the industry competition risk index layer.

| Industry competition risk A2 | Risk a21 of low-price competition among peers | Infiltrator substitution risk a22 | Service homogenization risk a23 | Wi  |
|-----------------------------|-----------------------------------------------|----------------------------------|--------------------------------|-----|
| Risk a21 of low-price competition among peers | 1                              | 1/4                             | 1/5                           | 0.0994 |
| Infiltrator substitution risk a22 | 4                              | 1                              | 2/3                           | 0.3736 |
| Service homogenization risk a23 | 5                              | 3/2                             | 1                             | 0.5270 |
The indicator layer weight of industry competition risk:

\[ WA_2 = (0.0994, 0.3736, 0.5270) \]

\[ \lambda_{max} = 3.0037 \text{ and } CR = 0.0036 < 0.10. \]

The indicator layer weights for information technology risk:

\[ WA_3 = (0.6300, 0.1515, 0.2185) \]

\[ \lambda_{max} = 4.1315 \text{ and } CR = 0.0493 < 0.10. \]

The indicator layer weights for undertaking business risks:

\[ WA_4 = (0.2664, 0.0840, 0.5083, 0.1413) \]

\[ \lambda_{max} = 4.1471 \text{ and } CR = 0.0551 < 0.10. \]

The weight of the practitioner risk indicator layer:

\[ WA_5 = (0.5325, 0.2542, 0.0911, 0.1222) \]

### 4.2.4. Calculation of Comprehensive Weight of Index Layer

According to the formula: the comprehensive weight of the indicator layer = the weight of the indicator layer \times the weight of the criterion layer, the comprehensive weight of each indicator in the indicator layer of HIG can be obtained by calculation, as shown in Table 10.

It can be found from Table 10 that the top three comprehensive weights of the indicator layer are professional skills risk, financial software technology risk, and professional ethics risk.

### 4.3. Application of the Fuzzy Comprehensive Evaluation Method

#### 4.3.1. Establishment of the Membership Matrix

Twenty experts selected Appendix B and obtained the evaluation frequency table after statistics, as shown in Table 11.

Taking the membership evaluation of a11 as an example, it is very important for 2 experts to choose a11; the choice of 8 experts is more important; the choice of 2 experts is generally important; the choice of 2 experts is not very important; and the choice of no experts is very unimportant.

Then the membership degree of a11 is as follows: \[ r_{11} = (0.1, 0.4, 0.4, 0.1, 0) \]. and so on, the corresponding membership degree matrix can be obtained by obtaining the membership degree of each index.
### Table 10: The comprehensive weight of the indicators of the HIG company's indicator layer.

| Index                                      | Policy and legal risk A1 | Industry competition risk A2 | Information technology risk A3 | Undertaking business risk A4 | Practitioner risk A5 | The comprehensive weight of the indicator layer | Rank the top three |
|--------------------------------------------|--------------------------|------------------------------|--------------------------------|----------------------------|----------------------|------------------------------------------------|-------------------|
| Industry policy risk a11                  | 0.1717                   | 0.0994                       | 0.2522                         | 0.0977                    | 0.4078               | 0.0314                                         | 2                 |
| Legal and regulatory risks a12            | 0.4414                   |                              |                                |                           |                      | 0.0806                                         |                   |
| Industry regulatory risk a13              | 0.3869                   |                              |                                |                           |                      | 0.0707                                         |                   |
| Risk a21 of low-price competition among peers | 0.0994                   |                              |                                |                           |                      | 0.0059                                         |                   |
| Infiltrator substitution risk a22         | 0.3736                   |                              |                                |                           |                      | 0.0223                                         |                   |
| Service homogenization risk a23           | 0.5270                   |                              |                                |                           |                      | 0.0314                                         |                   |
| Financial software technology risk a31    |                          | 0.6300                       |                                |                           |                      | 0.1589                                         | 2                 |
| Financial data access risk a32            |                          |                              | 0.1515                         |                           |                      | 0.0382                                         |                   |
| Internal information process risk a33     |                          |                              | 0.2185                         |                           |                      | 0.0551                                         |                   |
| Delegator moral hazard a41               |                          |                              |                                | 0.2664                    |                      | 0.0260                                         |                   |
| Risk a42 of loss of customer data         |                          |                              |                                | 0.0840                    |                      | 0.0082                                         |                   |
| Accounting information distortion risk a43|                          |                              |                                | 0.5083                    |                      | 0.0497                                         |                   |
| Service charge recovery risk a44          |                          |                              |                                | 0.1413                    |                      | 0.0138                                         |                   |
| Professional skills risk a51             |                          |                              |                                |                           | 0.5325               | 0.2171                                         | 1                 |
| Professional ethics hazard a52            |                          |                              |                                | 0.2542                    | 0.1037               |                                               |                   |
| Employee training risk a53               |                          |                              |                                | 0.0911                    | 0.0371               |                                               |                   |
| Liquidity risk a54                       |                          |                              |                                |                           | 0.1222               | 0.0498                                         |                   |
Table 11: Statistical table of frequency of satisfaction evaluation of five levels of risk factors.

| Risk factor | Very important Frequency | Relatively important Frequency | Generally important Frequency | Less important Frequency | Very unimportant Frequency |
|-------------|--------------------------|--------------------------------|-------------------------------|-------------------------|---------------------------|
| Policy and legal risk A1 | 4 | 6 | 8 | 2 | 0 |
| Industry policy risk a11 | 2 | 8 | 8 | 2 | 0 |
| Legal and regulatory risks a12 | 4 | 8 | 6 | 2 | 0 |
| Industry regulatory risk a13 | 2 | 6 | 8 | 4 | 0 |
| Industry competition risk A2 | 2 | 6 | 8 | 4 | 0 |
| Risk a21 of low-price competition among peers | 2 | 4 | 10 | 2 | 2 |
| Infiltrator substitution risk a22 | 0 | 6 | 10 | 2 | 2 |
| Service homogenization risk a23 | 2 | 2 | 10 | 4 | 2 |
| Information technology risk A3 | 4 | 6 | 8 | 2 | 0 |
| Financial software technology risk a31 | 6 | 6 | 4 | 2 | 2 |
| Financial data access risk a32 | 2 | 8 | 6 | 4 | 0 |
| Internal information process risk a33 | 2 | 6 | 8 | 4 | 0 |
| Undertaking business risk A4 | 4 | 4 | 8 | 4 | 0 |
| Delegator moral hazard a41 | 0 | 6 | 8 | 4 | 2 |
| Risk a42 of loss of customer data | 2 | 6 | 8 | 2 | 2 |
| Accounting information distortion risk a43 | 2 | 8 | 8 | 4 | 0 |
| Service charge recovery risk a44 | 0 | 6 | 8 | 4 | 2 |
| Practitioner risk A5 | 2 | 6 | 10 | 2 | 0 |
| Professional skills risk a51 | 2 | 8 | 8 | 2 | 0 |
| Professional ethics hazard a52 | 2 | 6 | 8 | 4 | 0 |
| Employee training risk a53 | 0 | 6 | 10 | 4 | 0 |
| Liquidity risk a54 | 2 | 4 | 10 | 2 | 2 |

4.3.2. Fuzzy Operations. Taking the criterion-level indicator of policy and legal risk as an example, according to formula (8), its membership algorithm is

\[ B = W \cdot R \]

\[ = (0.1717, 0.4414, 0.3569) \]

\[ = \begin{pmatrix} 0.1 & 0.4 & 0.4 & 0.1 & 0 \\ 0.2 & 0.4 & 0.3 & 0.1 & 0 \\ 0.1 & 0.3 & 0.4 & 0.2 & 0 \end{pmatrix} \]

\[ \cdot \begin{pmatrix} 0.0909 & 0.341 & 0.4213 & 0.1345 & 0.0122 \\ 0.0563 & 0.3338 & 0.3807 & 0.1823 & 0.0468 \\ 0.226 & 0.3151 & 0.2589 & 0.137 & 0.063 \\ 0.0626 & 0.1847 & 0.4414 & 0.3569 & 0 \end{pmatrix} \]

\[ = \begin{pmatrix} 0.1411 & 0.3523 & 0.3439 & 0.1327 & 0 \\ 0.0626 & 0.1847 & 0.4414 & 0.3569 & 0 \end{pmatrix} \]

\[ \cdot \begin{pmatrix} 0.0909 & 0.341 & 0.4213 & 0.1345 & 0.0122 \\ 0.0563 & 0.3338 & 0.3807 & 0.1823 & 0.0468 \\ 0.226 & 0.3151 & 0.2589 & 0.137 & 0.063 \\ 0.0626 & 0.1847 & 0.4414 & 0.3569 & 0 \end{pmatrix} \]

The same can be obtained:

\[ B_2 = (0.0626, 0.1847, 0.5, 0.1527, 0.1) \]

\[ B_3 = (0.226, 0.3151, 0.2589, 0.137, 0.063) \]

\[ B_4 = (0.0592, 0.3508, 0.4, 0.1916, 0.0492) \]

\[ B_5 = (0.0909, 0.341, 0.4213, 0.1345, 0.0122) \]

Normalized to get:

\[ B_1 = (0.1455, 0.3632, 0.3545, 0.1368, 0) \]

\[ B_2 = (0.0626, 0.1847, 0.5, 0.1527, 0.1) \]

\[ B_3 = (0.226, 0.3151, 0.2589, 0.137, 0.063) \]

\[ B_4 = (0.0592, 0.3508, 0.4, 0.1916, 0.0492) \]

\[ B_5 = (0.0909, 0.341, 0.4213, 0.1345, 0.0122) \]

Target layer fuzzy evaluation results:

\[ B = W \cdot R = (0.1533, 0.2902, 0.4408, 0.1157, 0) \]
Table 12: Criterion level scoring form.

| Scale | Definition | Instruction |
|-------|------------|-------------|
| 1     | Equally important | The $M$ metric is as important as the $N$ metric |
| 2     | Importance is between 1 and 3 | |
| 3     | Slightly important | The $M$ index is slightly more important than the $N$ index |
| 4     | Obviously important | The importance is between 3 and 5 |
| 5     | Much more important | The $M$ index is significantly more important than the $N$ index |
| 6     | Extremely important | The importance is between 7 and 9 |

Note: if the ratio of the $M$ index to the $N$ index is $a$, then the ratio of the $N$ index to the $M$ index is $1/a$.

Table 13: Scoring table of policy and legal risk indicator layer.

| Policy and legal risk A1 | Industry policy risk a11 | Legal and regulatory risks a12 | Industry regulatory risk a13 |
|--------------------------|--------------------------|-------------------------------|-------------------------------|
| Industry policy risk a11 | 1                         |                               | 1                            |
| Legal and regulatory risks a12 | 1                 |                               |                               |
| Industry regulatory risk a13 | 1                      |                               |                               |

Table 14: Scoring table of industry competition risk indicator layer.

| Risk assessment A | Policy and legal risk A1 | Industry competition risk A2 | Information technology risk A3 | Undertaking business risk A4 | Practitioner risk A5 |
|-------------------|--------------------------|-----------------------------|-------------------------------|-----------------------------|----------------------|
| Policy and legal risk A1 | 1                         |                             |                               |                             |                      |
| Industry competition risk A2 | 1                         |                             |                               |                             |                      |
| Information technology risk A3 | 1                      |                             |                               |                             |                      |
| Undertaking business risk A4 | 1                         |                             |                               |                             |                      |
| Practitioner risk A5 | 1                         |                             |                               |                             |                      |

Table 15: Scoring table for the information technology risk indicator layer.

| Information technology risk A3 | Financial software technology risk a31 | Financial data access risk a32 | Internal information process risk a33 |
|--------------------------------|--------------------------------------|-------------------------------|-------------------------------------|
| Financial software technology risk a31 | 1                         |                               |                                     |
| Financial data access risk a32 | 1                         |                               |                                     |
| Internal information process risk a33 | 1                      |                               |                                     |
Using the corresponding scores of the previous evaluation set, the risk scores of each factor can be obtained by operation:

\[ B_1 = 0.1455 \times 20 + 0.3632 \times 40 + 0.3545 \times 60 + 0.1368 \times 80 = 49.65 \]

\[ B_2 = 0.0626 \times 20 + 0.1847 \times 40 + 0.5 \times 60 + 0.1527 \times 80 = 60.86 \]

\[ B_3 = 0.226 \times 20 + 0.3151 \times 40 + 0.2589 \times 60 + 0.137 \times 80 = 49.92 \]

\[ B_4 = 0.0563 \times 20 + 0.3338 \times 40 + 0.3807 \times 60 + 0.1823 \times 80 + 0.0468 \times 100 = 56.58 \]

4.4. **Analysis of Risk Assessment Results.** From the results of the fuzzy comprehensive evaluation, the influence of each risk factor in the criterion layer can be comprehensively analyzed; the degree of attention to the risk factors can be determined; and corresponding countermeasures can be formulated. Finally, analyze the main risk factors, focus

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**Table 16:** Scoring table for the risk indicator layer of undertaking business.

| Undertaking business risk A4 | Delegator moral hazard a41 | Risk a42 of loss of customer data | Accounting information distortion risk a43 | Service charge recovery risk a44 |
|-----------------------------|---------------------------|----------------------------------|------------------------------------------|-------------------------------|
| Delegator moral hazard a41 | 1                         |                                  |                                           |                               |
| Risk a42 of loss of customer data |                        |                                  |                                           |                               |
| Accounting information distortion risk a43 |                  |                                  |                                           |                               |
| Service charge recovery risk a44 |                  |                                  |                                           |                               |

**Table 17:** Scoring table for practitioner risk indicator tiers.

| Practitioner risk A5 | Professional skills risk a51 | Professional ethics hazard a52 | Employee training risk a53 | Liquidity risk a54 |
|----------------------|-------------------------------|-------------------------------|---------------------------|-------------------|
| Professional skills risk a51 | 1                             |                               |                           |                   |
| Professional ethics hazard a52 |                               | 1                             |                           |                   |
| Employee training risk a53 |                               |                               | 1                         |                   |
| Liquidity risk a54 |                               |                               |                           | 1                 |

**Table 18:** Risk factor membership questionnaire.

| Risk factor | Very important | Relatively important | Generally important | Less important | Very unimportant |
|-------------|----------------|----------------------|---------------------|----------------|------------------|
| Policy and legal risk A1 |                 |                      |                     |                |                  |
| Industry policy risk a11 |                 |                      |                     |                |                  |
| Legal and regulatory risks a12 |             |                      |                     |                |                  |
| Industry regulatory risk a13 |                |                      |                     |                |                  |
| Industry competition risk A2 |               |                      |                     |                |                  |
| Risk a21 of low-price competition among peers |      |                      |                     |                |                  |
| Infiltrator substitution risk a22 |           |                      |                     |                |                  |
| Service homogenization risk a23 |            |                      |                     |                |                  |
| Information technology risk A3 |              |                      |                     |                |                  |
| Financial software technology risk a31 |         |                      |                     |                |                  |
| Financial data access risk a32 |              |                      |                     |                |                  |
| Internal information process risk a33 |         |                      |                     |                |                  |
| Undertaking business risk A4 |               |                      |                     |                |                  |
| Delegator moral hazard a41 |                |                      |                     |                |                  |
| Risk a42 of loss of customer data |          |                      |                     |                |                  |
| Accounting information distortion risk a43 |         |                      |                     |                |                  |
| Service charge recovery risk a44 |              |                      |                     |                |                  |
| Practitioner risk A5 |                 |                      |                     |                |                  |
| Professional skills risk a51 |                |                      |                     |                |                  |
| Professional ethics hazard a52 |               |                      |                     |                |                  |
| Employee training risk a53 |                |                      |                     |                |                  |
| Liquidity risk a54 |                 |                      |                     |                |                  |

**B5 = 0.0909 \times 20 + 0.341 \times 40 + 0.4213 \times 60 + 0.1345 \times 80 + 0.0122 \times 100 = 52.72**

**B = 0.1533 \times 20 + 0.2902 \times 40 + 0.4408 \times 60 + 0.1157 \times 80 = 50.38**
5. Discussion

The main research methods of this study are the analytic hierarchy process and the fuzzy comprehensive evaluation method. Analytic hierarchy process is a decision analysis method that combines qualitative and quantitative analysis to solve complex multiobjective problems; the relative importance of each decision-making scheme is given; the weight of each standard of each decision-making scheme is reasonably given; and the weights are used to obtain the superior and inferior order of each scheme, which can be effectively applied to those problems that are difficult to solve by quantitative methods. The fuzzy comprehensive evaluation method is a comprehensive evaluation method that transforms qualitative evaluation into quantitative evaluation through the membership degree theory of fuzzy mathematics. The above two methods are greatly influenced by personal subjectivity, have certain limitations, and need to be improved.

6. Conclusions

There are now few small- and medium-sized bookkeeping firms, and the industry’s future prospects are unclear. Future social and economic development are inextricably linked to long-term sustainable development. As a result, there are fewer studies on these organisations that are relevant, and risk management studies are more beneficial. This study uses an analytic hierarchy process and a fuzzy comprehensive assessment approach to successfully combine quantitative and qualitative analysis and create a multilevel analysis structure model of the risk management evaluation index system of small- and medium-sized agency accounting firms. The specific risk score of each factor is calculated through the scores of 20 experts, and the importance of risk is judged according to the size of the score, which helps the company formulate corresponding risk measures. This research provides a reference for the risk management of enterprises in this industry and has certain research value.

Appendix

A. Questionnaire for Risk Assessment Indicators

Using the following Saaty’s 1–9 scale values, please rate each risk factor in the risk evaluation index system from Tables 12–17.

B. Risk Factor Membership Questionnaire

Please use the “✔” symbol to select the importance level of different risk factors (Table 18).

Data Availability

The data set can be accessed upon request.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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