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Application of Internal Audit in Risk Management of Private Enterprises in Southwest China

Taking Chongqing Binxin Group as an Example

Lin Xiao
Business School
Sichuan University
Chengdu, China

***Abstract*—With the rapid and steady development of China's economy and information technology, the living environment of the private enterprises has also undergone great changes, along with these changes, the various risks faced by the private enterprises are increasing and becoming more and more diversified. Especially the outbreak of financial crisis, the private enterprises in our country from all aspects have brought various degrees of loss. Therefore, faced with many risks, in order to adapt to the high uncertainty of economic environment and strengthen the requirements of risk management, the private enterprises must start from themselves, perfect the internal management, establish modern enterprise system and perfect the risk management of internal audit. And internal audit work is an important part of enterprise management control. Therefore, after briefly introducing the background and significance of the topic writing, this paper, taking the private enterprise in southwest China-Chongqing bin Xin Group as an example, using the Advanced audit evaluation model, puts forward a multilevel fuzzy comprehensive evaluation model of AHP, and verifies the validity of the model through empirical analysis, and concludes the full text.**

Keywords—internal audit; risk management; evaluation model; fuzzy comprehensive evaluation

I. INTRODUCTION

Preface Internal audit as a kind of enterprise internal objective consulting activities, with unique advantages and characteristics, makes business leaders and managers have turned their eyes to internal audit. In order to more effectively grasp the development opportunities of enterprises, they are aware of the involvement of internal audit in enterprise risk management and the importance of synergy and interaction between the two in an increasingly complex environment. Therefore, the establishment of enterprise internal audit system is very necessary. At present, the private enterprises under the guidance of relevant laws, regulations and regulations of the State, and combined with their own characteristics of enterprises have established a relatively perfect and reasonable internal audit system, the establishment of the system can greatly improve the security of enterprise management, as well as the accuracy of enterprise information, the long-term development of enterprises, and the improvement of economic benefits.

II. CONSTRUCTION OF AUDIT RISK LEVEL EVALUATION MODEL OF REAL ESTATE PROJECT OF CHONGQING BIN XIN GROUP

A. Selection Principle of Project Audit Risk Evaluation Index

The selection of Audit risk evaluation Index of real estate project of Chongqing Bin Xin Group is based on the principle of selection, and on the basis of the analysis of the influencing factors of audit, constructs the appraisal Index system of real estate project Audit, lays the foundation for the Audit risk assessment and management of Chongqing Bin Xin Group Real Estate Project. Criteria for the selection of Evaluation indicators:

First is the principle of comprehensiveness. The evaluation index system design should be able to reflect the risk situation of the assessment object in a systematic way, which not only reflects the performance of the object in the past, but also evaluates the future development, not only it can comprehensively reflect the status of the object, but also can comprehensively reflect the environment impact factors of the assessment object. In a word, the comprehensive principle of the system of evaluation indicators can fully reflect the real situation of the object of assessment.

Second is concise and scientific principle. In the evaluation Index system, the index selection follows the scientific principle, the index level setting must be appropriate, the index quantity should be appropriate, the index quantity too many must disperse the evaluators ' attention to the main problem, and the index quantity is too few to objectively reflect the borrower's risk rating level.

Next is the principle of pertinence. The indexes of Evaluation Index system are different in the evaluation object. In the same way, there are some differences in the index selection in the evaluation index system, and different evaluation index systems are chosen for different rating purposes.

And then is the principle of operability. The evaluation index system should follow the principle of operability, the evaluation Index system design and development should conform to the actual situation of Chinese real estate enterprises, on the basis of learning from foreign experience, design and develop a risk assessment index system with Chinese characteristics.

The last one is principle of legality. The establishment of real estate project Audit risk assessment system should abide by the relevant laws and regulations of our country, especially to choose the index of national policy to encourage development, so the construction of the real Estate Project Audit risk assessment system can reflect the trend of national economic policy and promote the development of national economy and society.

B. Project Audit Risk Evaluation Index System

According to the above selection principle, combined with the actual situation of Chongqing Bin Xin Group Real Estate Project Construction, this paper carries on the analysis investigation, carries on the summary to the risk Appraisal Index, has established "Chongqing bin Xin Group Real Estate Project Audit Risk Appraisal Index System", in order to understand the real estate project faces the audit risk. According to the risk list, it is necessary to make full use of the opportunity to forecast the risk of real estate project audit. The deployment of retreat should be considered at the same time as research, formulation, utilization and expansion of the program of results. And in the implementation period, closely monitor the risk changes, identify problems in time to take the transfer or mitigation measures.

This evaluation index system includes the project planning preparation factor layer, the project construction implementation factor layer and the project acceptance Rent Sale factor layer, as shown in "Table I".

TABLE I. CHONGQING BIN XIN GROUP REAL ESTATE PROJECT AUDIT RISK EVALUATION INDEX SYSTEM

Target Layer	Main factor layer	child element Layer
Chongqing bin Xin Group Audit risk Assessment	Preparation of project planning	Investment decisions
		Contract formation
		Tax assignment
		Socio-economic
		Personnel quality
	Implementation of Project construction	Project budget
		Bidding process
		Management Organization
		Audit supervision
		Construction personnel
	Project Acceptance rent and Sale	Acceptance procedures
		Project settlement
		Rent and sale process
		Owners ' performance

According to the principle of project audit risk assessment, the Engineering Management scoring index system in the United States and the project audit scoring standard in the group, and the Audit Risk Evaluation Index system of famous real estate group at home and abroad, this paper establishes the following three-store audit risk evaluation Index system of Chongqing bin Xin Group Real Estate Project. The first is the target layer, the second layer is the evaluation level, and the third is the pointer layer. P= { P1 P2 P3 } , then,

Prepare a collection of pointers for a project plan, P1= { P11 P12 P13 P14 P15 } = { Investment decision, contract formation, tax assignment, social economy, personnel quality } ;

A set of pointers for implementation of project construction, P2= { P21 P22 P23 P24 P25 } = { project budget, bidding process, management organization, audit supervision, construction personnel }

A collection of rental sales pointers for project acceptance, P3= { P31 P32 P33 P34 } = { acceptance procedure, project settlement, lease sale process, owner performance }

C. Construction of Comprehensive Evaluation Model for Project Audit Risk

1) Using analytic hierarchy process to determine the weight of each index of audit risk assessment system of Chongqing bin Xin Group Real Estate Project: In this section, we will focus on introducing the model of the method and ideas, the specific contents are as follows:

- Firstly, the weights of all indexes are determined by analytic hierarchy process.
- Fuzzy comprehensive evaluation method is a kind of evaluation means based on fuzzy mathematics. The fuzzy Comprehensive evaluation method uses the fuzzy mathematics principle, transforms the qualitative evaluation into the quantitative index, namely uses the fuzzy mathematics theory to the thing external factor quantification. The fuzzy comprehensive evaluation method can quantitatively deal with the qualitative problem, which makes the evaluation index system more scientific and comprehensive. The fuzzy comprehensive evaluation method is suitable for the analysis of non-deterministic problems, and can be used to analyze the fuzziness problem well. The evaluation step of fuzzy comprehensive evaluation method starts from the second layer, and then evaluates the second level index comprehensively after calculating the comprehensive value.

The evaluation process is:

Chongqing bin Xin Group Real Estate Project Audit risk assessment system is as follows:

First floor:

P= { P1 P2 P3 } (representing investment decision, contract formation, tax assignment, social economy, personnel quality)

Second level:

P1= { P11 P12 P13 P14 P15 } =(P11 P12 P13 P14 P15 representing investment decision, contract formation, tax assignment, social economy, personnel quality)

P2= { P21 P22 P23 P24 P25 } =(P21 P22 P23 P24 P25 representing the project budget, bidding process, management organization, audit supervision, construction personnel)

P3= { P31 P32 P33 P34 } =(P31 P32 P33 P34 on behalf of acceptance procedures, project settlement, rental sales process, the owner performance) Because of the design of Chongqing bin Xin Group Real Estate Project Audit risk assessment system is divided into two levels, so it is necessary to determine the weight of the hierarchy. In the process of application of AHP, first of all, we should analyze the causal relationship of each factor, divide the problem into several levels and form a trapezoid hierarchy: then establish the Judgment matrix,

The main process is based on a certain principle of the two elements of the degree of interaction between the comparison: after the specific algorithm to find the weight of each of the elements of each level, and consistency test: Finally to find the combination weight.

a) The determination of the first level index weight: The author compares the index element 22, constructs the comparison judgment Matrix, assumes the final index is P, the first level index is. Set a_{ij} as the elements of the judgment matrix, then a_{ij} is relative to P-layer pi relative to Pj's importance. That is, the importance of $a_{ij} = a_{ij} / a_j$, which we can draw $a_{ij}*a_{ji}=1$.

The a_{ij} is usually judged by the 1-9 scale method, and the 1-9 scale method is shown in "Table II" below.

TABLE II. COMPARISON JUDGMENT SCALE OF ELEMENTS OF 1-9 SCALE METHOD

aij	Judging results
1	For P, index Pi is just as important as PJ
3	For P, index Pi is more important than PJ.
5	For P, index PI is significantly more important than PJ.
7	For P, index pi is much more important than PJ.
9	For P, index Pi is extremely important than PJ
2, 4, 6, 8	In the middle of the above two neighboring judgment scales

The index formula of each layer weight is $W_{ij} = \frac{\sqrt[n]{\prod_{j=1}^{n} a_{ij}}}{\sum_{i=1}^{n}\sqrt[n]{\prod_{j=1}^{n} a_{ij}}}$

According to the formula, we first find the product of the elements in the row I of the judgment matrix.

$$M_{i:}M_i = \prod_{j=1}^{n} a_{ij}, i, j = 1,2,3\cdots, n$$

Then find out the N-square root of MI, the N-square root of MI is $\overline{W_i}$ then $\overline{W} = \sqrt[n]{M_i}$;

Finally, the weight of the first level index can be obtained by the normalized treatment, and the weights are W_i ; $W_i = \overline{W_i} \Big/ \sum_{j=1}^{n} \overline{W_j}$, then $P_1\ P_2 \ldots P_n$ The weight relative to the P layer is$W_1W_2\ldots W_n$.

b) Consistency test of judgment matrix: In the evaluation problem, the judgment matrix is only the estimate value of the personnel, because the different thinking mode may produce certain deviation to the final result, the other 1-9-order judgment scale as the 22 factor comparison result also becomes the reason which the judgment matrix deviates the consistency.

Finally we want to find out the weight of consistency test, through consistency test to find out the proportion can be accepted, otherwise readjust until satisfied, the process is as follows:

First, the maximum characteristic root of the judgment matrix is obtained:

The consistency index of the judgment matrix is:

CI is one of the consistency indices to be obtained, which is the accuracy index of the judgment standard given by the inspectors. The smaller the CI value, the higher the consistency of the judgment matrix, the higher the accuracy of the scoring. When the CI value is 0 o'clock, the judgment matrix is completely induced. Since the 1-9-order judgment scale also causes the deviation consistency of the judgment matrix, we introduce another consistent pointer Ri,ri as the mean random consistency pointer, which is used to eliminate the correction coefficients of the inconsistent judgment matrix caused by the matrix order effect.

The corresponding values currently referenced are shown in "Table III" below:

TABLE III. VALUE OF AVERAGE RANDOM CONSISTENCY POINTER RI

Order number	1	2	3	4	5	6	7	8	9	10	11
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49	1.51

The consistency ratio of the judgment matrix is CR:

CR=CI/RI

When $n \geq 3$, that is, the matrix is greater than the three-order matrix, $CR \leq 0.1$, the general view that the consistency of the judgement matrix is acceptable, according to the judgement matrix to find the weight is more accurate, when CR>O.1, prove that the deviation of the judgment matrix is too large, need to readjust the judgment matrix, until satisfied.

c) The determination of the second level index weight: The process of determining the second level of indicator weights is exactly the same as the first layer.

2) Using multilevel fuzzy Comprehensive evaluation method to evaluate each index: Fuzzy comprehensive evaluation is a comprehensive evaluation method based on fuzzy mathematics. According to the membership degree theory of fuzzy Mathematics, the comprehensive evaluation method transforms qualitative evaluation into quantitative evaluation, that is, to make a general evaluation of things or objects restricted by many factors by fuzzy mathematics. It has the characteristics of clear result and strong system, it can solve the problem of vague and difficult to quantify.

Because the high-level elements are determined by the lower elements, so we start with the second layer of fuzzy comprehensive evaluation, and then use the results to evaluate the second level, the specific process is as follows:

a) The second layer fuzzy comprehensive evaluation: Set up an evaluation set V={V1, V2, V3, V4, V5, V6, V7, V8, V9}, V1, V2, V3, V4, V5, V6, V7, V8, V9 said that there were no risks, extremely low risk, low risk, low risk, poor risk, appropriate risk, high risk, high risk and high risk. Set R-IJ (i=1,2, n; j=1, 2, m) to represent the second-level indicator PIJ of the index system, and the membership degree of VJ for the first J comment. The Rij value is the result of the statistical collation of the personnel rating.

The second level of single factor fuzzy evaluation matrix is:

$$R_i = \begin{pmatrix} r11 & r12 & \cdots r19 \\ r21 & r22 & \cdots r29 \\ rn1 & rn2 & \cdots rn9 \end{pmatrix}$$

In this paper, when i=l,2,3, N is 5,5,4 the third level of fuzzy comprehensive evaluation set is:

$$T_i = W_i * R_i = \left(W_{i1}, W_{i2}, \cdots W_{in}\right) * \begin{pmatrix} r11 & r12 & \cdots r19 \\ r21 & r22 & \cdots r29 \\ rn1 & rn2 & \cdots rn9 \end{pmatrix}$$

Where: i=l,2,3 and its corresponding N is 5,5,4 respectively. The T1,T2,T3 can judge the risk of the index P1,P2,P3 according to the maximum subordination principle.

b) The first layer fuzzy comprehensive evaluation: On the basis of the second layer fuzzy comprehensive evaluation, the first layer is fuzzy comprehensive evaluation. Set the final level of evaluation set to S then $T=W*(T_1T_2T_3)^T$:

$$S = W * \begin{bmatrix} T_1 \\ T_2 \\ T_3 \end{bmatrix} = \left(W_1, W_2, W_3\right) * \begin{pmatrix} t_{11} & t_{12} & \cdots t_{19} \\ t_{21} & t_{22} & \cdots t_{29} \\ t_{31} & t_{32} & \cdots t_{39} \end{pmatrix} = \left(S_1, S_2, S_3, S_4, S_5, S_6, S_7, S_8, S_9\right)$$

From the above calculation process, s not only considers the influence of the first level index, but also takes into account the influence of the second level index, which guarantees the accuracy of audit risk assessment information.

According to the principle of maximum subordination, we can find the maximum membership degree of set S and judge the final real estate project audit risk. In order to verify the validity of the above model and to give readers a deeper understanding of the model, I choose the X project of Chongqing bin Xin Group, fetch the relevant data of the project, repeat the steps described in the model, and examine the risk situation of the project.

The evaluation matrix of project related indicators is shown in the "Table IV":

TABLE IV. JUDGMENT MATRIX AND WEIGHT CALCULATION PROCESS

a_{ij}	P_1	P_2	P_3	-	-	$M_i = \prod_{j=1}^{n} a_{ij}$	$\overline{W_i} = \sqrt[n]{M_i}$	$W_i = \overline{W_i} / \sum_{j=1}^{n} \overline{W_j}$
P_1	1	1/5	1/3	-	-	0.0667	0.4055	0.1047
P_2	5	1	3	-	-	15	2.4662	0.6370
P_3	3	1/3	1	-	-	1	1	0.2583
a_{ij}	P_{11}	P_{12}	P_{13}	P_{14}	P_{15}			
P_{11}	1	1/5	1/3	1/5	1/7	0.0019	0.2857	0.0498
P_{12}	5	1	1/3	3	1/5	1	1.0000	0.1743
P_{13}	3	3	1	3	1/3	9	1.5518	0.2705
P_{12}	5	1/3	1/3	1	1/5	0.1111	0.6444	0.1123
P_{15}	7	5	1/3	5	1	58.3333	2.2552	0.3931
a_{ij}	P_{21}	P_{22}	P_{23}	P_{24}	P_{25}			
P_{21}	1	1/3	1	3	5	5	1.3797	0.2129
P_{22}	3	1	3	5	5	225	2.9542	0.4559
P_{23}	1	1/3	1	3	3	3	1.2457	0.1922
P_{24}	1/3	1/5	1/3	1	1/3	0.0074	0.3749	0.0579
P_{25}	1/5	1/5	1/3	3	1	0.0400	0.5253	0.0811
a_{ij}	P_{31}	P_{32}	P_{33}	P_{34}	-			
P_{31}	1	7	7	5	-	245	3.9563	0.6598
p_{32}	1/7	1	1/3	1	-	0.0476	0.4671	0.0779
P_{33}	1/7	3	1	3	-	1.2857	1.0648	0.1776
P_{34}	1/5	1	1/3	1	-	0.0667	0.5081	0.0847

According to the above theory, we know that in the calculation of the weight of the index we have to conduct a consistency test to prevent the personal thinking of the person and the matrix of the order deviation caused by the final result of the deviation. In the previous discussion, when N=3, the final $CR \leq 0.1$ proved that the consistency of the judgment matrix was satisfying. The following illustration shows the process of calculating the CR based on the calculation formula. First, we find the product of each judgment matrix and the weight (AW) I, then divide the result by the product of the order and the weight (AW) I/NW, then find out the Λ max by the formula, and Λ max the formula of the CI, and finally the CR value as shown in "Table V".

TABLE V. ILLUSTRATES IN DETAIL THE PROCESS OF THE CONSISTENCY TEST OF THE JUDGMENT MATRIX

	w_i	(AW)	$(AW)_i/nW$	$\lambda_{max}=\sum_{i=1}^{n}(AW)i/nW_i$	$CI=(\lambda_{max}-n)/(n-1)$	CR=CI/RI
P_1	0.1047	0.3182	1.0128	3.0385	0.0193	0.0331 (n=3, RI=O.58)
P_2	o.6370	1.9355	1.0128			
P_3	0.2583	0.7848	1.0128			
P_{11}	0.0498	0.2534	1.0178	5.3268	0.0817	0.0729 (n=5, RI=1.12)
P_{12}	0.1743	0.9291	1.0660			
P_{13}	0.2705	1.4108	1.0431			
P_{12}	0.1123	0.5882	1.0474			
P_{15}	0.3931	2.2650	1.1524			
P_{21}	0.2129	1.1361	1.0671	5.3100	0.0775	0.0692 (n=5,RI=1.12)
P_{22}	0.4559	2.3660	1.0380			
P_{23}	0.1922	0.9739	1.0132			
P_{24}	0.0579	0.3111	1.0754			
P_{25}	0.0811	0.4525	1.1163			
P_{31}	0.6598	2.8718	1.0882	4.2159	0.0720	0.0799 (n=4,RI=0.9)
P_{32}	0.0779	0.3161	1.0144			
P_{33}	0.1776	0.7598	1.0696			
P_{34}	0.0847	0.3538	1.0438			

According to the above calculation results, we can see that the CR value of the judgement matrix is not greater than 0.1, which proves that the consistency of the judgement matrices is acceptable.

So the weight calculated in this paper is desirable, the weight statistic results are reported as follows "Table VI":

TABLE VI. CHONGQING BIN XIN GROUP X PROJECT OF THE WEIGHT OF THE INDICATORS

General indicators	The first level is relative to the overall index	The second level is relative to the first layer
Chongqing bin Xin Group X project P	Preparation of project planningP_1(0.1047)	Investment decisionsP_{11}(0.0498)
		Contract formationP_{12}(0.1743)
		Tax assignmentP_{13}(0.2704)
		Socio-economicP_{14}(0.1123)
		Personnel qualityP_{15}(0.3930)
	Implementation of Project constructionP_2(0.6369)	Project budgetP_{21}(0.2129)
		Bidding processP_{22}(0.4559)
		Management OrganizationP_{23}(0.1922)
		Audit supervisionP_{24}(0.0578)
		Construction personnelP_{25}(0.0810)
	Project Acceptance and rent collectionP_3(0.2582)	Acceptance proceduresP_{31}(0.6597)
		Project settlementP_{32}(0.0779)
		Rent and sale processP_{33}(0.1775)
		Owners ' performanceP_{34}(0.0847)

3) Audit risk assessment of Chongqing Bin Xin Group X project based on fuzzy Comprehensive evaluation method

a) Determine the audit risk assessment factor set of Chongqing bin Xin Group X project: Chongqing bin Xin

Group X Project Audit Risk assessment system first-level indicators have three, the first level evaluation factor set for the ={project planning preparation, project construction implementation, project acceptance and rental; the second level evaluation factor set is {personnel quality, contract formation, social economy, tax assignment, investment decision}, {Project budget, bidding process, Management Organization, audit supervision, other property}, {Acceptance procedure record, project settlement, lease sale process, owner performance record}.

b) Chongqing Bin Xin Group X Project audit risk assessment comments set: Chongqing bin Xin Group X Project Audit Risk Assessment comments Set 9 evaluation level for V={V1,V2,V3,V4,V5,V6,V7,V8,V9}, said the risk is very low, low risk, low risk, general risk, poor risk, high risk, high risk level.

Nine evaluation levels shall not be implemented.

c) Determine the index weight of audit risk assessment of Chongqing Bin Xin Group X project: The above section uses the analytic hierarchy process to calculate to Chongqing Bin Xin Group X Project Audit risk assessment at all levels of index weight values are:

The weight of the first level indicator is:

$$w = (0.1047, 0.6370, 0.2583)$$

Two-level indicator weights are,

$$w_1 = (0.0498, 0.1743, 0.2705, 0.1123, 0.3931)$$

$$w_2 = (0.2129, 0.4559, 0.1922, 0.0579, 0.0811)$$

$$w_3 = (0.6598, 0.0779, 0.1776, 0.0847)$$

d) Constructing the first-level judgment matrix by the actual investigation of the project: For a more comprehensive understanding of Chongqing Bin Xin Group X Project Audit risk assessment, through the distribution of questionnaires to the project management to collect the audit risk assessment of Chongqing Bin Xin Group x project data. A total of 23 questionnaires were randomly distributed in this survey, of which 21 effective questionnaires were collected and the effective rate was 91.3%.

Participants in the survey according to Chongqing bin Xin Group X Project Audit risk assessment level to choose, the choice of comments for risk is very low, low risk, low risk, risk general, poor risk, high risk, high risk, high risk, not implemented as shown in "Table VII".

TABLE VII. SUMMARY OF AUDITING RISK ASSESSMENT QUESTIONNAIRE FOR CHONGQING BINXIN GROUP X PROJECT

Assessment indicators	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9
Investment decisionsP_{11}	2	8	9	2	0	0	0	0	0
Contract formationP_{12}	1	5	10	4	1	0	0	0	0
Tax assignmentP_{l3}	1	7	10	3	0	0	0	0	0
Socio-economicP_{14}	1	4	13	2	1	0	0	0	0
Personnel qualityP_{l5}	5	10	4	1	1	0	0	0	0
Project budgetP_{21}	0	4	8	8	1	0	0	0	0
Bidding processP_{22}	0	2	5	11	2	1	0	0	0
Management OrganizationP_{23}	1	6	9	4	1	0	0	0	0
Audit supervisionP_{24}	0	0	0	4	10	5	2	0	0
Construction personnelP_{25}	0	0	1	8	9	2	1	0	0
Acceptance proceduresP_{31}	0	1	6	12	2	0	0	0	0
Project settlementP_{32}	0	2	5	10	3	1	0	0	0
Rent and sale processP_{33}	0	2	4	5	6	3	1	0	0
Owners ' performanceP_{34}	0	2	4	8	5	1	1	0	0

The first line of data indicates that for the "investment decision", 2 of the 21 personnel believe that the X Project audit risk assessment result is "extremely low risk", 8 staff considered the evaluation as "Low-risk" and 9 considered the result to be "very low risk" and 2 considered the result to be "risk General", 0 persons considered the evaluation as "less risky", 0 staff members considered the evaluation result to be "higher risk", 0 were of the opinion that the evaluation result was "high risk" and 0 considered that the evaluation result was "high risk level and 0 persons considered that the evaluation result was" not implemented ". Staff evaluation law a total of 21 people if the number of a certain evaluation rating of a certain indicator is p, then the degree of membership of this rating is P/21, such as the membership of the first evaluation index (2/21 8/21 9/21 2/21 0/21 0/21 0/21 0/21 0/21).

The data of other indicators and the membership degree so that the record of the data in "Table VIII":

TABLE VIII. CHONGQING BIN XIN GROUP X PROJECT AUDIT RISK ASSESSMENT MEMBERSHIP TABLE

Assessment indicators	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9
Investment decisionsP_{11}	2/21	8/21	9/21	2/21	0/21	0/21	0/21	0/21	0/21
Contract formationP_{12}	1/21	5/21	10/21	4/21	1/21	0/21	0/21	0/21	0/21
Tax assignmentP_{13}	1/21	7/21	10/21	3/21	0/21	0/21	0/21	0/21	0/21
Socio-economicP_{14}	1/21	4/21	13/21	2/21	1/21	0/21	0/21	0/21	0/21
Personnel qualityP_{15}	5/21	10/21	4/21	1/21	1/21	0/21	0/21	0/21	0/21
Project budgetP_{21}	0/21	4/21	8/21	8/21	1/21	0/21	0/21	0/21	0/21
Bidding processP_{22}	0/21	2/21	5/21	11/21	2/21	1/21	0/21	0/21	0/21
Management OrganizationP_{23}	1/21	6/21	9/21	4/21	1/21	0/21	0/21	0/21	0/21
Audit supervisionP_{24}	0/21	0/21	0/21	4/21	10/21	5/21	2/21	0/21	0/21
Construction personnelP_{25}	0/21	0/21	1/21	8/21	9/21	2/21	1/21	0/21	0/21
Acceptance proceduresP_{31}	0/21	1/21	6/21	12/21	2/21	0/21	0/21	0/21	0/21
Project settlementP_{32}	0/21	2/21	5/21	10/21	3/21	1/21	0/21	0/21	0/21
Rent and sale processP_{33}	0/21	2/21	4/21	5/21	6/21	3/21	1/21	0/21	0/21
Owners' performance P_{34}	0/21	2/21	4/21	8/21	5/21	1/21	1/21	0/21	0/21

e) The Fuzzy comprehensive evaluation on audit risk of X project of Chongqing bin Xin Group: According to the above table, the fuzzy Comprehensive evaluation matrix corresponding to three first-level indexes is as follows,

$$R_1 = \begin{bmatrix} 2/21 & 8/21 & 9/21 & 2/21 & 0/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 5/21 & 10/21 & 4/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 7/21 & 10/21 & 3/21 & 0/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 4/21 & 13/21 & 2/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 5/21 & 10/21 & 4/21 & 1/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \end{bmatrix}$$

$$R_2 = \begin{bmatrix} 0/21 & 4/21 & 8/21 & 8/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 5/21 & 11/21 & 2/21 & 1/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 6/21 & 9/21 & 4/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 0/21 & 0/21 & 4/21 & 10/21 & 5/21 & 2/21 & 0/21 & 0/21 \\ 0/21 & 0/21 & 1/21 & 8/21 & 9/21 & 2/21 & 1/21 & 0/21 & 0/21 \end{bmatrix}$$

$$R_3 = \begin{bmatrix} 0/21 & 1/21 & 6/21 & 12/21 & 2/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 5/21 & 10/21 & 3/21 & 1/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 4/21 & 5/21 & 6/21 & 3/21 & 1/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 4/21 & 8/21 & 5/21 & 1/21 & 1/21 & 0/21 & 0/21 \end{bmatrix}$$

Using $M(\square,\oplus)$ The result of first-level fuzzy comprehensive evaluation is obtained by calculating the weighted average operator,

$$T_1 = w_1 R_1$$

$$= (0.0498, 0.1743, 0.2705, 0.1123, 0.3931) \begin{bmatrix} 2/21 & 8/21 & 9/21 & 2/21 & 0/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 5/21 & 10/21 & 4/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 7/21 & 10/21 & 3/21 & 0/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 4/21 & 13/21 & 2/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 5/21 & 10/21 & 4/21 & 1/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \end{bmatrix}$$

$$= (0.1249, 0.3592, 0.3775, 0.1060, 0.0324, 0, 0, 0, 0)$$

$$T_2 = w_2 R_2$$

$$= (0.2129, 0.4559, 0.1922, 0.0579, 0.0811) \begin{bmatrix} 0/21 & 4/21 & 8/21 & 8/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 5/21 & 11/21 & 2/21 & 1/21 & 0/21 & 0/21 & 0/21 \\ 1/21 & 6/21 & 9/21 & 4/21 & 1/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 0/21 & 0/21 & 4/21 & 10/21 & 5/21 & 2/21 & 0/21 & 0/21 \\ 0/21 & 0/21 & 1/21 & 8/21 & 9/21 & 2/21 & 1/21 & 0/21 & 0/21 \end{bmatrix}$$

$$= (0.0092, 0.1389, 0.2759, 0.3984, 0.1250, 0.0432, 0.0094, 0, 0)$$

$$T_3 = w_3 R_3$$

$$= (0.6598, 0.0779, 0.1776, 0.0847) \begin{bmatrix} 0/21 & 1/21 & 6/21 & 12/21 & 2/21 & 0/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 5/21 & 10/21 & 3/21 & 1/21 & 0/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 4/21 & 5/21 & 6/21 & 3/21 & 1/21 & 0/21 & 0/21 \\ 0/21 & 2/21 & 4/21 & 8/21 & 5/21 & 1/21 & 1/21 & 0/21 & 0/21 \end{bmatrix}$$

$$= (0, 0.0638, 0.2570, 0.4887, 0.1449, 0.0331, 0.0125, 0, 0)$$

f) The second-level fuzzy comprehensive evaluation on audit risk of X project of Chongqing bin Xin Group: The results of these three first-level indices are synthesized as rows of matrices to create a new matrix T,

$$T = \begin{bmatrix} 0.1249 & 0.3592 & 0.3775 & 0.1060 & 0.0324 & 0 & 0 & 0 & 0 \\ 0.0092 & 0.1389 & 0.2759 & 0.3984 & 0.1250 & 0.0432 & 0.0094 & 0 & 0 \\ 0 & 0.0638 & 0.2570 & 0.4887 & 0.1449 & 0.0331 & 0.0125 & 0 & 0 \end{bmatrix}$$

Each row of the new matrix represents the membership of three first-level indicators.

The results of the second-level fuzzy comprehensive evaluation of the audit risk in Chongqing Bin Xin Group X project are as follows,

$$S = w \cdot T$$

$$= (0.1047, 0.6370, 0.2583) \begin{bmatrix} 0.1249 & 0.3592 & 0.3775 & 0.1060 & 0.0324 & 0 & 0 & 0 & 0 \\ 0.0092 & 0.1389 & 0.2759 & 0.3984 & 0.1250 & 0.0432 & 0.0094 & 0 & 0 \\ 0 & 0.0638 & 0.2570 & 0.4887 & 0.1449 & 0.0331 & 0.0125 & 0 & 0 \end{bmatrix}$$

$$= (0.0189, 0.1426, 0.2817, 0.3911, 0.1205, 0.0361, 0.0092, 0, 0)$$

The model constructed in this paper is firstly to determine the weight of X Project Audit risk index by AHP, and then make comprehensive evaluation on the X Project audit risk of Chongqing Bin Xin Group by Fuzzy Comprehensive evaluation method. The results of the audit risk assessment of Chongqing Bin Xin Group X Project show that the total risk is in the "extremely low risk" membership of 0.0189, that is, the probability of 1.89% is "extremely low risk", in the "lower risk" membership of 0.1426, that is, 14.26% of the likelihood of "lower risk" , the "risk is very low" membership of 0.2817, that is, 28.17% of the probability of "very low risk", in the "risk" of the membership of 0.3911, that is, 39.11% of the possibility of "risk", in the "poor risk" membership of 0.1205, that is 12.05% The possibility of "poor risk"; the membership degree of "higher risk" is 0.0361, that is, the probability of 3.61% is "higher risk", and the membership degree of "high risk" is 0.0092, that is, the probability of 0.92% is "high risk" and "high risk" and "no implementation". The degree of membership is 0 that is in the "high risk" and "no implementation" of the possibility of 0.

Therefore, according to the principle of maximum membership degree in Fuzzy Mathematics theory, it can be seen that the comprehensive evaluation of audit risk of the X project of Chongqing bin Xin Group is "lower risk".

III. CONCLUSION

In short, no matter what kind of enterprises, in order to achieve a smoother development, the key point is to establish an internal audit system. The future development of internal audit must be a trend of effective fitting with business layer, not only the early warning of risk in the business environment, but also the risk-oriented and enterprise value-added. The development of internal audit under the framework of comprehensive project risk management will bring more challenges and opportunities for internal audit in risk control and so on.

The strengthening of enterprise project risk management will definitely give the new function orientation of internal audit, and further strengthen the position of internal audit in corporate governance structure.

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