Research on Financial Risk Identification and Prevention of Small and Medium-sized Construction Enterprises Based on ISM-MICMAC Model

Hao Wang[1, #], Ken Yikai Wu[2, #], Wenhui Lv[3, #, *]

[1]Department of Economic and Administration, Changsha University of Science and Technology, 410076, Changsha, China

[2]Suzhou High School of Jiangsu Province, 215007, Suzhou, China

[3]School of Economics and Finance, Henan University of Economics and Law, 450000, Henan, China

*Corresponding author: lvwenhui2022@163.com

[#]These authors contributed equally.

Abstract. This study uses the ISM (Interpretative Structural Modelling) to model, relies on expert judgment to obtain better results, reveals the hierarchical relationship between each risk, and indicates its role path in small and medium-sized construction enterprises. At the same time, the driving and dependent coordinator diagram of the MICMAC (Matriced Impacts Corises-Multiplication Appliance Classment) is used to further analyze the interaction mechanism of each risk. The study found that the financial risk identification was divided into the transition structure of 6 levels and 21 classes. Gross profit margin of sales and the number of real estate enterprises are two indirect factors affecting the financial risk of small and medium-sized construction enterprises. Asset-liability ratio, interest coverage ratio, and inventory turnover rate are the direct factors affecting the financial risks of small and medium-sized construction enterprises. Liquidity ratio, quick ratio, cash ratio, return on total assets, basic earnings per share, return on net assets, operating profit, turnover rate of accounts receivable, inventory turnover rate, net profit growth rate, operating profit growth rate, growth rate of return on net assets, total assets of the enterprise, the number of enterprise personnel, national fixed real estate investment quota and real estate sales area are the deep-seated factors affecting the financial risks of small and medium-sized construction enterprises, while the first solution of the driving factors such as turnover of total capital can also help reduce the risk of construction enterprise and enhance the vitality of the enterprise.

Keywords: ISM-MICMAC model; Small and medium-sized construction enterprises; Financial risk identification; Financial risk prevention

1. Introduction

The construction industry is the pillar industry of China's economy and plays an important role in the development of China's economy. However, the emergence of novel coronavirus and the tightening of real estate policies make the survival and development of small and medium-sized construction enterprises face great challenges. As a result, the project duration is extended, and the enterprise effectiveness has deteriorated, which could easily lead to financial risks for construction enterprises. Financial risk not only affects the development of small and medium-sized construction enterprises but also increases the transaction risk between the government, suppliers, banks, and other stakeholders. Therefore, it is very necessary to identify and predict the financial risk of small and medium-sized construction enterprises and take appropriate measures to prevent risks.

So far, a lot of financial risk studies for small and medium-sized construction enterprises have been carried out. For example, Hu [1] assessed the risks of the supply chain finance business of the construction industry based on the analytic hierarchy method and formulated reasonable preventive measures. Teng [2] used a triangular fuzzy number method to construct a credit risk evaluation model for construction enterprises. After that actual cases were evaluated, and some constructive suggestions on the prevention and resolution of credit risks were proposed. Karas et al. [3] analyzed the financial risks of construction enterprises in Czech by using traditional financial risk models and pointed out their shortcomings. Then, using the method of Receiver Operating Characteristic Curve, they improved the analysis accuracy based on the four main financial factors. Adeleke et al. [4] analyzed the impact of external factors such as politics, economy, technology, and regulations on the management and finance of Nigerian construction companies, and gave some suggestions on improving risk management. The authors [5-7] analyzed the financial risks of construction enterprises from various aspects such as financial risk management and control, contract signing risk, investment risk, tax risk, invoice risk, settlement risk, and put forward countermeasures to effectively prevent financial risks.

In the above papers, the financial risks were investigated from some aspects, but the risk indicators they studied are incomplete. What's more, the above research usually involves qualitative and quantitative analysis, without exploring the hierarchical relationship and interdependence among the influencing factors. In this paper, we first construct an index system of financial risk influencing factors from six aspects: enterprise solvency, enterprise profitability, enterprise operation capacity, enterprise development ability, enterprise scale, and macro background; Then, based on the ISM model [8-9], the hierarchical relationship between influencing factors and the path of affecting the development of small and medium-sized construction enterprises are explored; the driving force and dependence of each risk factor are next analyzed by using the MICMAC model, and the important factors affecting the financial risk of small and medium-sized construction enterprises are determined; finally, the appropriate risk prevention strategies are given. The contributions of this paper are described as follows: 1) We first construct a financial risk influencing factor index system of small and medium-sized construction enterprises from six study aspects; 2) Using the ISM-MICMAC [10] model, the relationship between various risk indicators is analyzed, and the important factors relevant to the financial risks are ascertained; 3) Based on the analysis of risk indicators, appropriate financial risk prevention strategies are provided.

2. Construction of financial risk influencing factor index system

The financial risk factors affecting small and medium-sized construction enterprises include enterprise solvency, enterprise profitability, enterprise operation capacity, enterprise development ability, enterprise scale, macro background, etc. In the following, we will describe these risk factors.

2.1 Enterprise solvency

The solvency of an enterprise refers to the ability of an enterprise to repay its debts with its existing assets during its operation. The stronger the solvency of an enterprise, the higher the credit rating of the enterprise. The solvency of an enterprise will affect its financial risk. For instance, if the current ratio of an enterprise is greater than 200%, it indicates that the liquidity of the enterprise is strong; on the contrary, it indicates that the liquidity of the enterprise is weak. The higher the quick ratio of the enterprise, the higher the cash ratio of the enterprise, which indicates that the short-term solvency of the enterprise is stronger and the short-term financial risk of the enterprise is smaller. The higher the asset-liability ratio of an enterprise, the greater the financial risk of the enterprise. The higher the interest coverage ratio, the stronger the long-term solvency of the enterprise, and the smaller the financial risk of the enterprise.

2.2 Enterprise profitability

The stability and growth of the operation of small and medium-sized construction enterprises are reflected by their profitability. The good profitability of the enterprise indicates that the company operates stably and has great development potential; on the contrary, the normal operation of enterprises will usually be affected. For example, the higher the rate of return on total assets of an enterprise, the stronger the profitability of the enterprise, and the stronger the ability of the enterprise to resist risks. The higher the earnings per share, the higher the profitability of the enterprise, and the more stable the operation of the enterprise. The higher the gross profit rate of sales, the better the operation of the enterprise. The higher the return on net assets of an enterprise, the higher the return on investment, and the lower the probability of financial risk. The high operating profit of the enterprise indicates that the enterprise is in good operating condition.

2.3 Operating Capacity

The operating capacity of an enterprise mainly refers to the ability of an enterprise to operate various assets and earn profits. The better the operating capacity of an enterprise, the faster the asset turnover, the higher the liquidity, and the faster the profit. For example, the higher the total asset turnover rate, the stronger the enterprise's sales capacity, and the better the return on asset investment. The higher the turnover rate of accounts receivable, the stronger the solvency of the enterprise. If the accounts receivable can be recovered in time, the company's fund utilization efficiency can be greatly improved. The higher the inventory turnover rate, the faster the inventory turnover speed of the enterprise, the stronger the sales capacity of the enterprise, and the less the amount of working capital occupied in the inventory.

2.4 Development ability

The development ability of an enterprise also refers to the growth of an enterprise. It is the development potential formed by the continuous expansion and accumulation of an enterprise through its own production and operation activities. The development ability of an enterprise is related to the growth of its net profit, the growth rate of its operating profit, and the growth rate of its return on net assets. If the growth rate of the net profit of the enterprise is positive, the performance of the enterprise is increasing and the operation of the enterprise is normal; On the contrary, it indicates that the performance of the enterprise is declining and the operation of the enterprise is at risk. The positive growth rate of operating profit indicates that the enterprise is in good operating condition. If the growth rate of return on net assets is positive, the enterprise's profitability is good, and the enterprise's ability to resist risks is strong.

2.5 Enterprise scale

The enterprise scale is classified according to relevant standards and regulations. The scale of an enterprise is related to its total assets and the number of employees. If the scale of enterprise asset stock is too small, it will be difficult to meet the needs of enterprise operation and affect the normal operation of the enterprise. The too large scale of an asset stock will lead to idle assets, slow capital turnover, and affect the utilization efficiency of assets. If a business wants to maintain its operations, it must borrow long-term / short-term debts. The number of enterprise personnel, as an indicator of enterprise type, is simple and clear. There is no direct relationship between the operating efficiency of an enterprise and the number of personnel. Under the situation of the epidemic, flexible employment and improving the quality of personnel are particularly important to improve the operating efficiency of an enterprise.

2.6 Macro background

Macro background refers to all external macro forces that affect the development of industries and enterprises. The construction projects of small and medium-sized construction enterprises is usually related to regional development and people's livelihood construction, and the government often gets involved. The bidding of the project is easily affected by the macro-economy and policy guidance. Therefore, the credit risk investigation of the construction industry cannot ignore the overall industry environment. Based on the characteristics of small and medium-sized construction enterprises, this paper selects three macro factors, the national fixed real estate investment quota, the real estate sales area, and the number of real estate enterprises, as evaluation indicators to evaluate the risk of small and medium-sized construction enterprises from a macro perspective. Generally speaking, with the increase in fixed real estate investment quota, the business environment of construction enterprises will be better. As the sales area of real estate and the number of real estate enterprises increase, the turnover of construction enterprises will increase.

To sum up, table 1 lists the financial risk factors affecting small and medium-sized construction enterprises.

3. ISM method

ISM method means interpretive structural model methods, it is used to express the relationship between the complex influence factors in the form of a matrix, using the matrix operations, decomposition, and mathematical tools to deal with these factors, thus decomposing the complex system into several subsystems with hierarchical relationships and eventually build a multi-level hierarchical structure model. The method is universal and effective in the analysis of internal factors and is very suitable for the study of multi-discipline systems with complex relationships and unclear influence structures. Therefore, this paper intends to use ISM method to explore financial risk identification problems in small and medium-sized construction enterprises and their preventive measures.

Table 1. Financial risk factors of small and medium-sized construction enterprises

First-level indicators	Second-level indicators	Code	Reference
Enterprise solvency	Current ratio	S_1	[1],[2],[3]
	Quick ratio	S_2	
	Cash ratio	S_3	
	Asset-liability ratio	S_4	
	Interest coverage ratio	S_5	
Enterprise profitability	Rate of return on total assets	S_6	[1],[2],[3],[6]
	Basic earnings per share	S_7	
	Gross profit margin	S_8	
	Return on equity	S_9	
	Operating profit	S_{10}	
Operating capacity	Turnover of total capital	S_{11}	[1],[3],[6]
	Average accounts receivable turnover ratio	S_{12}	
	Inventory turnover rate	S_{13}	
Development ability	Net profit growth rate	S_{14}	[2],[3]
	Operating profit growth rate	S_{15}	
	Return on equity growth rate	S_{16}	
Enterprise scale	Total assets of the enterprise	S_{17}	[1],[4]
	The number of enterprise personnel	S_{18}	
Macro background	Annual national fixed real estate investment	S_{19}	[2]
	The total area of real estate sales every year	S_{20}	
	Number of real estate enterprises	S_{21}	

The ISM calculation procedure is as follows:

STEP 1: Construct system components set S.

$$S = \{S_1, S_2, \dots, S_n\} \tag{1}$$

where S_i($i = 1,2..., n$) denotes the ith element in the system.

STEP 2: Determine the adjacency matrix A and reachable matrix B for the above set.

According to whether there is a direct influence relationship between factors S_i and S_j, the adjacent matrix between factors $A=(A_{ij})_{n\times n}$ is determined and its definition is as follows:

$$A_{ij} = \begin{cases} 1, & S_i \text{ and } S_j \text{ have a direct binary relationship} \\ 0, & S_i \text{ and } S_j \text{ haven't a direct binary relationship} \end{cases} \quad (2)$$

The adjacent matrix A is added to the identity matrix I. If matrix B satisfies the following conditions, the reachable matrix B of A is obtained.

$$(A+I)^{K-1} \neq (A+I)^{K} = (A+I)^{K+1} = B \quad (3)$$

STEP 3: Hierarchy formation

According to the obtained reachable matrix B, factors are divided. The division of factors can more clearly determine the hierarchy of each other, which is conducive to the construction of a scientific hierarchical model.

Step 4: Explain the establishment of the structural model.

Through the calculation analysis of steps 1 to step 3 together with the reduction and the hierarchical process of the classification results, the hierarchical structure model of system elements is obtained.

4. MICMAC method

MICMAC analysis method is cross-multiplication matrix analysis. The reachable matrix constructed by ISM is used to calculate the driving force and dependence of each factor. Then the influencing factors are divided into four quadrants by MICMAC analysis, namely the spontaneous cluster in the first quadrant, the dependent cluster in the second quadrant, the linkage cluster in the third quadrant, and the independent cluster in the fourth quadrant. The abscissa is dependent, and the ordinate is the driving force. Therefore, it is also known as the driving force-dependence matrix. Using MICMAC to analyze the driving force and dependence of various influencing factors in small and medium-sized construction enterprises, it is convenient to understand the essential role of factors in the system, which can provide new solutions for the identification of financial risks in small and medium-sized construction enterprises.

MICMAC calculation steps are as follows :

MICMAC analysis is carried out based on the reachable matrix B. Dependency refers to the number of elements corresponding to 1 in the column of each factor in B, and the driving force is the number of elements corresponding to 1 in the row of each factor in B. The coordinate axis is divided into four parts, namely, spontaneous cluster, dependent cluster, linkage cluster, and independent cluster.

STEP 1:

$$E_j = \sum_{i=1}^{n} K_{ij},\ j = 1,2,\ldots \quad (4)$$

$$F_i = \sum_{j=1}^{n} K_{ij},\ i = 1,2,\ldots \quad (5)$$

In the formula, K_{ij} is the risk factor in reachable matrix B, i is the row of risk factors, and j is the column of risk factors.

Then calculate the average of driving force and dependence, and use this average as the quadrant boundary.

STEP 2:

According to the reachable matrix, the driving force and dependence degree are calculated, and all factors are divided into the four following quadrants of the driving force and dependence space so that the driving force and dependence of each influencing factor of small and medium-sized construction enterprises can be obtained.

5. Case analysis

5.1 Construction of risk ISM model

5.1.1 Adjacent matrix A

To analyze the influence of these factors on the financial risk of small and medium-sized construction enterprises, the first step of constructing the ISM model needs to clarify the logical relationship between these factors. To reduce the errors caused by the bias of experts and the subjectivity of opinions on the final results, this paper first passes through the ISM group discussion and then combines the financial risk characteristics of small and medium-sized construction enterprises with the opinions of experts to determine the logical relationship between various factors and obtain the adjacency matrix A.

$$A=\begin{bmatrix}
0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&1&0&0&0&0&0\\
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0&0&0&0&0&0&0&0&1&1&0&0&0&0&0&0&1&0&0&0&0\\
0&0&0&0&0&0&0&1&1&0&0&0&0&0&0&0&1&1&0&0&1\\
0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&1\\
0&0&0&0&0&0&0&1&0&0&0&0&0&0&1&0&0&0&1&0&0\\
0&0&0&0&0&1&1&0&0&0&0&0&0&0&0&0&1&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0\\
1&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&1&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
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0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&1&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&1&0&0&1&0&0&0&1\\
1&0&0&0&0&0&0&0&0&0&0&1&0&0&0&0&1&0&0&1&1\\
0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&1\\
0&0&0&0&0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0
\end{bmatrix} \tag{6}$$

5.1.2 Reachable matrix B

Adjacent matrix A shows the direct relationship between the various factors, but it cannot reflect the indirect relationship between the various factors. Therefore, it is necessary to reflect the direct and indirect relationship between the various factors through reachable matrix B. The calculation method of the reachable matrix makes use of the operational properties of the Boolean matrix. According to Boolean matrix operation rules, when the adjacency matrix A satisfies $(\mathrm{A}+\mathrm{I})^{\mathrm{K}-1} \neq (\mathrm{A}+\mathrm{I})^{\mathrm{K}} = (\mathrm{A}+\mathrm{I})^{\mathrm{K}+1} = \mathrm{B}$, then B is the reachable matrix, where I is the unit matrix. The reachable matrix B can represent the direct and indirect effects between the elements of S_1—S_{21} and the transitivity between the elements.

$$B=\begin{bmatrix}
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
0&0&1&1&1&0&0&1&0&0&0&0&1&0&0&1&0&0&0&0&1\\
0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
0&0&0&1&1&0&0&1&0&0&0&0&1&0&0&0&0&0&0&0&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&1&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
0&0&0&1&1&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
0&0&0&1&1&0&0&1&0&0&0&0&1&0&0&1&0&0&0&0&1\\
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1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
1&1&0&1&1&1&1&1&1&1&0&1&1&1&1&0&1&1&1&1&1\\
0&0&0&1&1&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&1
\end{bmatrix} \tag{7}$$

5.1.3 Hierarchy of risk factors

After calculating the reachable matrix B, it is necessary to decompose the reachable matrix and establish the structural model. The set of influencing factors with matrix element 1 in the ith row where the influencing factor S_i is in the matrix is $R(S_i)$, namely the reachable set of influencing factor S_i; the set of influencing factors with matrix element 1 in column j of influencing factor S_i is $Q(S_i)$, namely the antecedent set of influencing factor S_i. The intersection $R(S_i)\cap Q(S_i)$ between the two is denoted by $C(S_i)$.

When $R(S_i)\cap Q(S_i)=R(S_i)$, then element S_i is the highest element; after the element is obtained, it is divided, and the same method is used to obtain the hierarchical distribution of the remaining elements until the last level of elements is divided. As shown in Table 2, the final iteration result is: the first level is S_4, S_5 ; the second level is S_{13}; the third level is S_{21}; the fourth level is S_8 ; the fifth level is S_1, S_2, S_6, S_7, S_9, $S_{10}, S_{12}, S_{14}, S_{15}, S_{16}, S_{17}, S_{18}, S_{19}, S_{20}$; the sixth level is S_3, S_{11}.

Table 2. Hierarchical division

Hierarchy	Factor
L_1	S_4, S_5
L_2	S_{13}
L_3	S_{21}
L_4	S_8
L_5	S_1, S_2, S_6, S_7, S_9, $S_{10}, S_{12}, S_{14}, S_{15}, S_{16}, S_{17}, S_{18}, S_{19}, S_{20}$
L_6	S_3, S_{11}

5.1.4 ISM model analysis

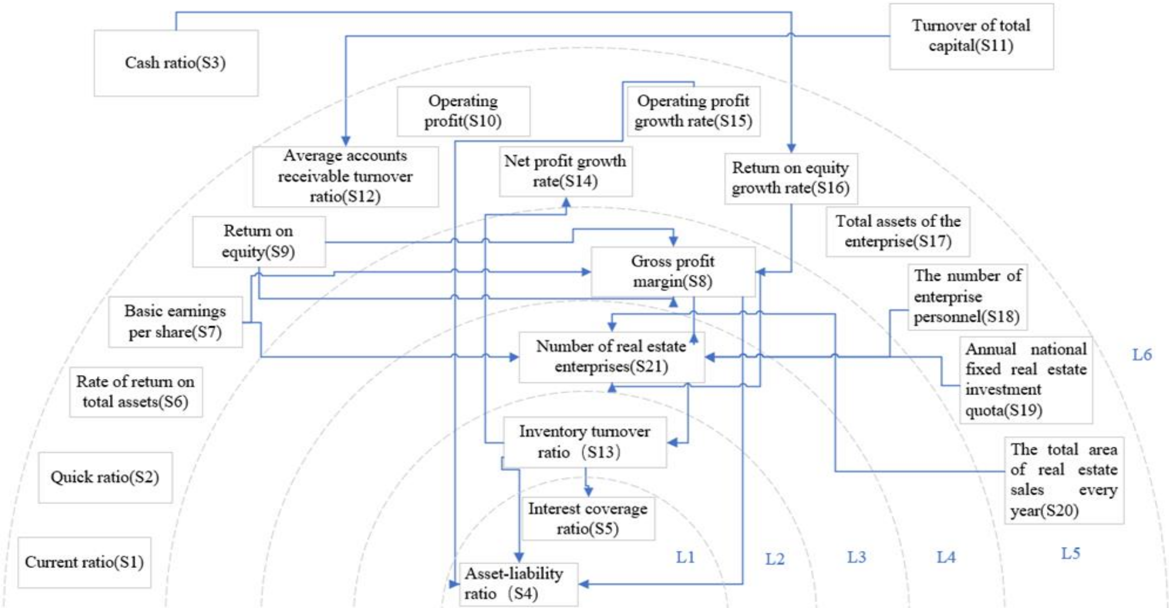

Figure 1. Explanation of structural models

According to the interpretative structural model, the six factors can be divided into three categories: direct factors (L_1, L_2), indirect factors (L_3, L_4) and deep factors (L_5, L_6).

There are three factors in the two layers of L_1 and L_2, which are the direct factors affecting the financial risks of small and medium-sized construction enterprises, including asset-liability ratio, interest coverage ratio, and inventory turnover rate. They are the surface factors that affect the financial risks of small and medium-sized construction enterprises and the ultimate goal of the system. These two factors are mainly solved by indirect and deep influencing factors.

L_3 and L_4 are two indirect factors affecting the financial risk of small and medium-sized construction enterprises, including the number of real estate enterprises and sales gross margin. These two layers belong to the middle layer and play a connecting role in the whole explanatory structure model. The middle layer factor is both an influencing factor and an affected factor.

A total of 16 factors at L_5 and L_6 levels are the deep-seated factors affecting the financial risks of small and medium-sized construction enterprises, including current ratio, quick ratio, return on total assets, basic earnings per share, return on net assets, operating profit, accounts receivable turnover rate, net profit growth rate, operating profit growth rate, return on net assets growth rate, total assets of enterprises, the number of enterprise personnel, annual national fixed property investment, annual total sales area of real estate, cash ratio and total asset turnover rate. Deep factors are the fundamental factors that directly or indirectly affect other grade factors. Starting from these factors, multiple transmission paths can generate the factors of the system.

5.2 MlCMAC analysis

5.2.1 MICMAC Calculation Analysis

Based on the reachability matrix B obtained above, the driving force and dependence of the influencing factors are obtained. The driving force of influencing factors can be obtained by calculating the number of influencing factors with matrix element 1 in the ith row of influencing factor S_i in the matrix; the dependence of influencing factors can be obtained by calculating the number of influencing factors whose matrix element is 1 in the I column of the influencing factor S_i in the matrix.

5.2.2 Results analysis of MICMAC

Firstly, the driving force and dependence of each influencing factor are represented by the coordinate axis, the dependence is represented by the abscissa, and the driving force is represented by the ordinate. Then corresponding to the four quadrants of the coordinate axis, the first quadrant is the spontaneous factor, the second quadrant is the dependent factor, the third quadrant is the linkage factor, and the fourth quadrant is the independent factor. The greater the driving force, the greater the impact of other factors; the greater the dependence is, the greater the dependence of the influencing factor on other influencing factors is. The driving force-dependence quadrant distribution is shown in Figure 2

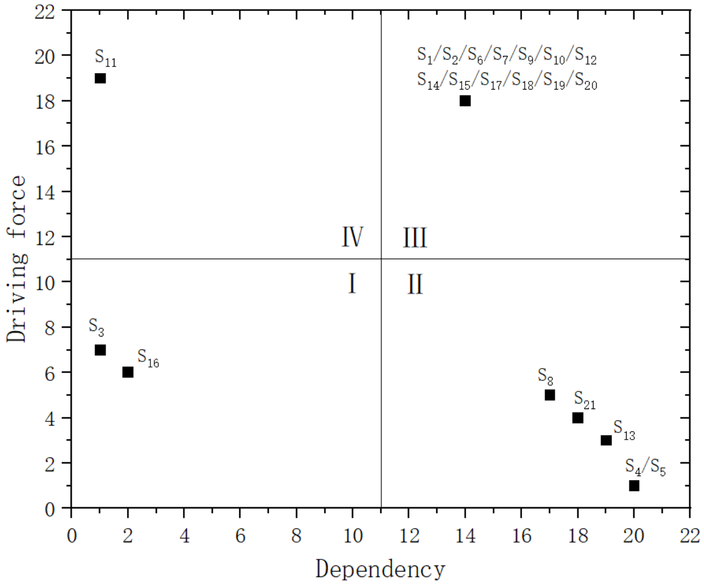

Figure 2. The driving force-dependent distribution of financial risk factors in small and medium-sized construction enterprises

The first quadrant spontaneous factors include: cash ratio S_3, return on equity growth rate S_{16}. The driving force and dependence of spontaneous factors are relatively low, indicating a weak correlation with the system.

The second quadrant dependence factors include: gross profit margin S_8, Number of real estate enterprises S_{21} , inventory turnover rate S_{13}, asset-liability ratio S_4, interest coverage ration S_5. The driving force of the dependence factor is small, but the dependence is large, which is caused by the connection of other influencing factors.

The third quadrant linkage factors include: liquidity ratio S_1, quick ratio S_2, return on total assets S_6, basic earnings per share S_7, return on net assets S_9, operating profit S_{10}, average accounts receivable turnover ratio S_{12} , net profit growth rate S_{14}, operating profit growth rate S_{15}, total assets of the enterprise S_{17} , The number of enterprise personnel S_{18}, annual national fixed real estate investment quota S_{19} and annual total sales area of real estate S_{20}. The dependence and driving force of linkage factors are very strong. Any change in it may affect other influencing factors. In turn, it will also affect itself, making it extremely unstable.

Fourth quadrant independent factors include: total over of total capital S_{11}. This factor is deep in the explanatory structure model, which has a strong impact on other factors and a greater driving force, and this factor is not easily affected by other factors, independent of other factors.

6. Conclusion

Through the establishment of the Interpretative Structural Modelling (ISM) and Matriced Impacts Corises-Multiplication Appliance Classment (MICMAC), this study combs the mechanism of the hierarchical relationship between the various influencing factors and the development of the small and medium-sized construction enterprises and discusses the driving and force of the factors.

After the above analysis, it is found that gross profit margin of sales and the number of real estate enterprises are two indirect factors affecting the financial risk of small and medium-sized construction enterprises. Asset-liability ratio, interest coverage ratio, and inventory turnover rate are the direct factors affecting the financial risks of small and medium-sized construction enterprises. Liquidity ratio, quick ratio, cash ratio, return on total assets, basic earnings per share, return on net assets, operating profit, turnover rate of accounts receivable, inventory turnover rate, net profit growth rate, operating profit growth rate, growth rate of return on net assets, total assets of the enterprise, the number of enterprise personnel, national fixed real estate investment quota and real estate sales area are the deep-seated factors affecting the financial risks of small and medium-sized construction enterprises The results of the study have certain scientific and universality, and have certain application and guiding value for practical problems of small and medium-sized construction enterprises and the small and medium-sized construction enterprises.

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