Study on the hindrance mechanism of green finance promotion based on ISM-MICMAC

Nuolin Sun [1, #], Lei Yang [2, #], Tingting Lin [3, #, *]

[1] Guangxi University of Science and Technology, 545000, Liuzhou, China

[2] Sichuan Agricultural University, 611830, Chengdu, China

[3] Zhejiang Gongshang University Hangzhou College of Commerce, 311508, Hangzhou, China

* Corresponding author: linting_02@163.com

[#]These authors contributed equally.

Abstract. The G20 Sustainable Finance Report 2022 was adopted at the G20 Summit in 2022, signaling a global agreement on green finance in a growing number of nations. Since then, the use of financial instruments to accelerate the transition to green development and meet the dual carbon goal has gained significant public attention. In this essay, 18 variables that hinder the development of green finance are compiled and identified using a literature review methodology. The explanatory structural model (ISM) model is used to analyze the relationship mechanism between the impeding factors and the promotion of green finance, and the Matrices Impacts Croises-Multiplication Appliance Classement (MICMAC) approach is used to categorize the 18 impeding factors into the driving force-dependency classification. The results show that improving the surface factors with strong dependencies, such as willingness to use green transition funds, scope of supporting industries, capability of industrial restructuring, and difficulty of application, etc., is especially important for promoting green finance. Focus should also be placed on the deeper factors with strong driving forces, such as the lack of regulation of relevant national laws and the restricted freedom of local policy implementation, etc. This paper takes the hindering mechanism of green finance promotion as the research object, and researches to get the hindering chain of the influence of four different dimensional mechanisms on green finance promotion, which is helpful to provide the solution direction when green finance development faces problems.

Keywords: Green finance, Impediment mechanism, ISM, MICMAC.

1. Introduction

Green finance, which includes financial services for project investment and financing, project operation, and risk management in the fields of environmental protection, energy conservation, clean energy, green transportation, green buildings, etc., is an economic activity that supports environmental improvement, climate change, and the economical and efficient use of resources. Green financing can close the funding gap for green initiatives and offer financial assistance to reach energy conservation and emission reduction goals. The lack of local economic growth and the inconsistency of regulatory requirements are just two of the numerous barriers preventing the promotion of green financing from moving forward. Therefore, it is important to research the elements influencing the promotion of green finance as well as the barriers to it.

Environmental pollution will be brought on by urbanization and economic growth at a rapid pace, but it can be slowed down by technological advancement [1]. SME financing restrictions impede the growth of businesses' capacity for innovation; green finance rules have little impact on SMEs; and a shortage of funding for SMEs may impede the advancement of society's total capacity for innovation. Zhang and others [2] examined, for a research sample of manufacturing listed businesses in Shanghai and Shenzhen from 2007 to 2014, the relationship between internal finance, external financing, and green innovation. The inputs used in green innovation tend to be impacted by several external finance channels. Corporate green innovation can be encouraged by both internal and external financing [3,4]. Price fluctuations and sensitivity to negative shocks are higher for natural resource prices. As a result of the role that green investments play in the development of alternative energy sources, the risk is

diversified and volatility is decreased in the setting of volatile oil prices. By making secure green financial investments, we can further improve the energy situation and increase its contribution to the sustainability of the economy and environment. To lower CO2 emissions and advance human development, green investments are viewed as necessary. Governments must spend heavily and work in conjunction with the business community and the general public to achieve long-term sustainability with low greenhouse gas emissions [5].

Clean energy, green finance, green technology, and environmental responsibility all have intricate causal relationships. Progress towards reducing emissions and achieving the SDGs through clean energy is extremely fragile during a time of high economic uncertainty, so it is urgent to take precautions to support sustainable economic growth and improve environmental responsibility through green finance and investments in clean energy [6]. Through green finance, investments in renewable energy, and technology innovation, green and digital finance may increase environmental protection and lower CO2 emissions [7]. Green financing minimizes environmental impact and promotes environmental friendliness. Actual evidence from Asia suggests that the growth of green finance is in line with projections [8]. According to Mara Madaleno et al. (2022), green financing can direct collect capital to businesses that produce renewable energy or have minimal carbon emissions. The cost of capital rises and the volume of loans declines when non-compliant businesses acquire credit. Therefore, green finance can increase the effectiveness of capital allocation and move money from non-compliant businesses to low-pollution businesses [9]. Issue green bonds to promote renewable energy production, waste reduction, and energy efficiency. Fighting global warming with money and innovation and the effect of green financing on carbon reduction green finance considerably cuts carbon emissions over the short and long terms [10].

Prior research has mainly focused on one aspect of the promotion of green finance, such as the motivations influencing the implementation of green finance policies, the process of implementing green finance policies, and the results of developing green finance, failing to thoroughly analyze the barriers to the promotion of green finance, and currently, there is no collation or summary of the influencing factors.

The purpose of this study is to examine the intricate interplay of variables that affect the development of green finance in the private sector and to define the significance of the challenges that must be overcome. This is crucial for the success of green finance. To promote green finance, this study first develops 18 indicators of four factors that affect the growth of green finance. To clearly describe the inherent structure and hierarchy of the barriers to the promotion of green finance, a clear hierarchical structure model utilizing the ISM is constructed based on this. and examine the links and interactions among these elements using the MICMAC approach. This approach can aid in the development of tailored countermeasures for the successful promotion of green financing.

This study enables a more thorough analysis of the obstacles impeding the spread of green financing and its general interrelationships. The study method can be made more thorough and logical by stratifying the influencing components to offer a foundation for the systematic control of green finance diffusion.

2. Construction of a system of impediments to the promotion of green finance

2.1. Macro factors

The promotion of green finance cannot be accomplished without innovation in the financial system, which is required to create financial instruments and lower the risks of investing in green projects. Additionally, the formation of green financial outcomes cannot be accomplished without fiscal policy, government regulation, and legal-related norms, which require national responsibility and cooperation. Through local involvement and public interaction, crowdfunding can help close any potential financing gaps for regional aspirations and needs [11]. Varied phases of development result in different preferences for energy sources. For example, developing nations favor cheap fossil fuels as an energy

source, which puts obstacles in the way of the use of green energy and discourages the promotion of green finance.

In conclusion, the following are the macro-level influencing elements that are chosen in this section to restrict the promotion of green finance: the absence of national legislation (A1) and the unstable macro-financial development (A2). Low energy conversion efficiency (A3) and lax international contract enforcement (A4)

2.2. Micro factors

Green innovation may be influenced by green funding. Muhammad Irfan et al. (2021) claim that industrial structure, economic growth, and investment in R&D are the main transmission mechanisms via which green finance influences green innovation [12]. Green finance also achieves its energy savings and emission reduction goals through green innovation. Regional levels of green innovation are highly influenced by green finance, and green finance will create incentives for green innovation by supporting economic growth, industrial structure optimization, and R&D investment.

As a whole, the following micro-level influencing factors work against the promotion of green finance: a limited range of supporting sectors (B1), limited freedom in implementing local policies (B2), a lack of regional transformation (B3), a lack of industrial restructuring (B4), and a lack of ability to coordinate economic development (B5).

2.3. Product factors

Green credit, green financial bonds, green financial insurance, and other green financial goods can be categorized as service forms of green financial products. The primary issuers of green bonds are still mostly local commercial banks and large state-owned enterprises, as well as some listed corporations, even though the issue size of green bonds in China is progressively expanding and the state's support for green bonds is growing. While compliance with straightforward and affordable green financial services products will promote the promotion of green financial products, the interest rate cost of using various green financial services products and the contractual cost may influence the acceptance of green finance by enterprises.

The following factors, at the product level, inhibit the promotion of green finance: a lack of business scale (C1), a conflict between the boards of directors of controlling shareholders of enterprises (C2), a lack of willingness to use green transition funds (C3), and a lack of political ties between businesses and the government (C4).

2.4. Corporate factors

The variables that affect a company's decision to use green financial services products within the company are more complicated at the firm level. Conflicting interests among equity holders, those in charge of carrying out the company's operations, individual investors, and financial managers can significantly influence corporate decisions. The size of the company's development and its financial indicators determine the use of various financing strategies, and the amount of free cash the company has on hand directly influences its willingness to use green finance funds. The degree to which a corporation implements national policies is also influenced externally by its relationship with the government, which has an impact on the promotion of green financing.

Finally, the company-level influencing elements that limit the promotion of green finance (D5) are low guarantor rating (D1), high utilization costs (D2), high application difficulties (D3), high contractual agreement costs (D4), and redundant agreement terms.

Table 1 lists the elements that contribute to the barriers to the promotion of green financing that was developed in this article.

Table 1. Table of Barriers for Promoting Green Finance

Tier 1 indicators	Secondary indicators	Indicator Description
Macro factors (A)	The Absence of National Legislation (A1)	The development of green finance is hampered by ambiguous or even harmful policies that are relevant.
	The Unstable Macro Financial Development (A2)	National macro-financial trends could provide systemic threats to the green financing industry.
	Low energy conversion efficiency (A3)	The country's energy mix is dominated by fossil fuels, with little adoption of new energy sources and the low cost of adopting fossil fuels and the high cost of using new energy sources for green finance.
	lax international contract enforcement(A4)	International frameworks for cooperation on emissions reductions, such as the Paris Pact, are under-implemented
Micro factors (B)	a limited range of supporting sectors (B1)	Inadequate green finance policies, too little in the range of industries supported
	limited freedom in implementing local policies (B2)	Low freedom for local governments to implement green finance policies, resulting in limitations for local governments in implementing green finance policies
	A Lack of Regional Transformation (B3)	Low regional green transition intensity and low green financial demand
	a lack of industrial restructuring (B4)	The region has poor capacity for industrial restructuring, one is speed and the other is quality. Heavy industrial areas are unable to achieve industrial upgrades faster in the face of economic development pressures, and thus have low demand for green financial counterpart industries
	a lack of ability to coordinate economic development (B5)	Weak regional economic development potential, low levels of financial sector development, low levels of demand for financing, and consequently weak green finance demand
Firm-level factors (C)	The following factors, at the product level, inhibit the promotion of green finance: a lack of business scale (C1)	Small business volumes and low demand for financial borrowing
	conflict between the boards of directors controlling shareholders of enterprises (C2)	disagreements on green finance between shareholders and the board of directors, as well as competing stakeholder interests—the board of directors wants to maximize the value of the firm, while shareholders want to maximize the value of their equity—lead to shortsightedness.
	a lack of willingness to use green transition funds (C3)	Companies with strong cash flow that don't need a lot of green finance
	a lack of political ties between businesses and the government (C4)	Privately held companies or companies with few ties to the state might not be able to make the state-recommended green transition.
Product Level Factors (D)	low guarantor rating (D1)	resulting in the comparatively low collateral value of green bonds
	high utilisation costs (D2)	High interest rates and other related financial costs are a strain on the company.
	high application difficulties (D3)	In recognizing green firms, the standards for distinguishing green activity are excessively stringent.
	high contractual agreement costs (D4)	The agreed-upon emission reductions are too difficult to put into practice, render the contract null and unenforceable, or pose serious dangers to the Green Bond's successful completion.
	redundant agreement terms are the company-level influencing elements that restrict the promotion of green finance (D5)	confusing contractual clauses that prevent promotion

3. ISM Method

Interpretative Structural Model (ISM), which Professor J. Warfield first suggested in 1973, is a popular technique for systems engineering analysis. The model, which is primarily a qualitative study, is used to investigate the structure of a system with numerous variables and complex relationships. Its advantage is that it can transform the tangled web of complex relationships between various factors into a multi-level, easily understandable, hierarchical recursive structural model, which can then be used to support decision-makers theoretically. The findings are then represented in a hierarchical directed topology diagram after the relationship between the factors is mapped into a directed graph and a structure matrix.[13]:

STEP1: Establish the set of factors

The index elements are selected according to the research problem to form a factor set, which is denoted as $S = \{S_i | i = 0,1, \cdots, n\}$. Where, S_i is the ith factor in the factor set.

STEP2: Build the adjacency Boolean matrix

Brainstorming, expert scoring, and Delphi methods are used to construct the adjacency Boolean matrix A, which is used to determine the influence relationship between factors in the factor set.

$$A = (a_{ij})_{m \times n} \tag{1}$$

Where, $a_{ij} = 1$ means S_i directly affects S_j and $a_{ij} = 0$ means S_i has no direct effect on S_j.

STEP3:Build the reachability matrix

The reachability matrix is a visual representation of the extent to which a directed node can be reached, and in addition plays a complementary role to the adjacency matrix to reflect all direct or indirect relationships between factors. The calculation is as follows:

$$(A + I) \neq (A + I)^2 \neq \cdots \neq (A + I)^n = (A + I)^{n+1} = M \tag{2}$$

Where, A is the adjacency matrix, I is the unit matrix, and n is the number of iterations.

4. 4 MICMAC Method

Matrices Impacts Croises-Multiplication Appliance Classement (MICMAC) was proposed by scholars J.C. Duperrin and M. Gobet in 1973 to analyze the interrelationships and interactions between factors in a system, and is commonly used to identify the variables in a system with high The MICMAC method is based on the matrix multiplication principle, through the iteration of matrix multiplication between factors, the relationship between factors will tend to stabilize, and the results of the relationship will be shown visually as the drive-dependence axis, and eventually the factors of the system will be classified into spontaneous, linked, independent, and Dependent four categories, the classification schematic is shown in Figure 1, and the specific analysis steps are as follows. [13]:

STEP1:Calculate the D_i driving force and dependency R_j for each factor of the reachable matrix

$$D_i = \sum_{j=1}^{n} A_{ij} (i = 1,2,3 \cdots \cdots) \tag{3}$$

$$R_i = \sum_{j=1}^{n} A_{ij} (i = 1,2,3 \cdots \cdots) \tag{4}$$

Where, A_{ij} is the factor in the reachable matrix, D_i is the driving degree of the factor to other factors, and R_i is the dependency degree of the factor by other factors.

STEP2:Calculate the mean value of drive and dependency as quadrant demarcation criteria, and each factor is divided into quadrants corresponding to the results of the reachability matrix calculation.

$$AVE(D_i) = \frac{\sum_{I=1}^{n} D_i}{N} \tag{5}$$

$$AVE(R_i) = \frac{\sum_{I=1}^{n} D_i}{N} \tag{6}$$

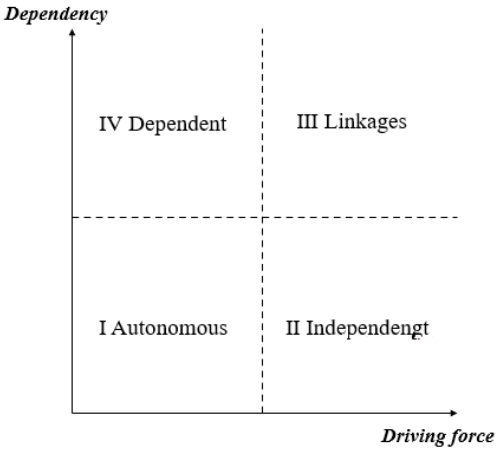

Figure 1. Schematic diagram of MICMAC classification

5. Green finance promotion impediment mechanism ISM-MICMAC model calculation

5.1. Data Collection

There may be direct or indirect correlations between various impediments to green finance promotion. In this paper, we use the Delphi method to invite three experts in related fields to make a two-by-two comparison of the factors impeding the long-term promotion of green finance, in order to generate an adjacency matrix.Because each impediment may have indirect interactions, only the direct influence relationship between the factors is considered, and the indirect influence relationship is ignored. If the hindering factor S_i directly affects the hindering aspect S_j, then note $S_{ij}=1(i\neq j)$, and if the hindering factor S_i does not directly affect the hindering factor S_j, then note $S_{ij}=0(i\neq j)$. Create the adjacency matrix A, as shown in Table 2.

Table 2. Adjacency matrix A

	A_1	A_2	A_3	A_4	B_1	B_2	B_3	B_4	B_5	C_1	C_2	C_3	C_4	D_1	D_2	D_3	D_4	D_5
A_1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
A_2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
A_3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
A_4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
B_1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
B_2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1
B_3	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
B_4	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
B_5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
C_1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
C_2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
C_3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C_4	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
D_1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0
D_2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
D_3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1
D_4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
D_5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.2. ISM Construction and Analysis

Combining equation (2) with the iterative operation to obtain the reachable matrix R, according to Table 2. The operation procedure follows: introduce the unit matrix I based on the adjacency matrix and then performed Boolean operations using Matlab software to obtain the reachable matrix R, as shown in Table 3.

Table 3. Reachability matrix R

	A_1	A_2	A_3	A_4	B_1	B_2	B_3	B_4	B_5	C_1	C_2	C_3	C_4	D_1	D_2	D_3	D_4	D_5	Driving force
A_1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	15
A_2	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	12
A_3	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
A_4	0	0	0	1	1	0	1	1	0	1	0	1	0	0	0	0	0	0	6
B_1	0	0	0	0	1	0	1	1	0	1	0	1	0	0	0	0	0	0	5
B_2	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	15
B_3	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	4
B_4	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	4
B_5	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	5
C_1	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	4
C_2	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	12
C_3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
C_4	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	12
D_1	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	0	0	1	12
D_2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
D_3	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	14
D_4	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	14
D_5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Dependency	1	8	1	9	10	1	14	14	1	14	8	17	8	8	9	4	4	9	140

Each factor impeding the sustainable development of green finance in the system is divided into different levels based on the reachability matrix R. The division of all impeding factors in each level is obtained by iterating the antecedent set and reachability set of all impeding factors. The final ISM hierarchical directed graph is drawn, as shown in Figure 1.

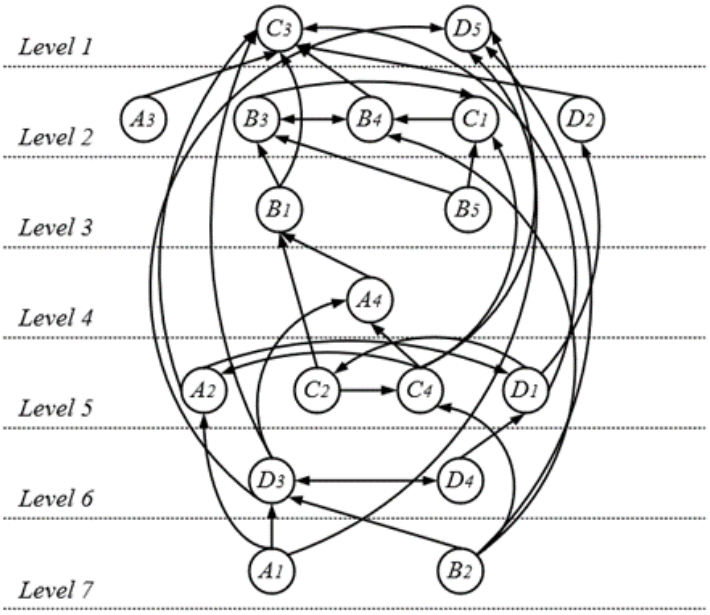

Figure 2. Hindering factors of green credit sustainable development

Top-level obstacles: As shown in Figure 1, the two top-level obstacles to green finance promotion are low willingness to use green transition funds (C_3) and complicated agreement terms (D_5), which

are the most direct obstacles to green finance promotion. This layer is primarily solved by removing the intermediate and bottom obstacles.

Bottom-up obstructive factors: As shown in Figure 1, the obstructive factors at Level 7 are the temporary lack of regulation of relevant national laws (A_1) and the low freedom of local policy implementation (B_2), which are the most profound and most fundamental factors impeding the promotion of green finance and are the primary consideration for breaking down the barriers to the promotion of green finance.

Other influencing factors between the top and bottom levels: the impediments located at Levels 2, 3, 4, 5, and 6 are intermediate factors that impede the promotion of green finance. Low level of regional transformation (B_3), weak ability to develop business scale (C_1), too high cost of utilization (D_2) and too narrow range of supported industries (B_1), weak ability to organize economic development (B_5), weak execution of international contracts (A_4), strained relationship with the board of directors of controlling shareholders of enterprises (C_2), low level of rating of guarantee entities (D_1) and contra High contractual costs (D_4) are not directly related to the underlying impediments, which include low energy use conversion efficiency (A_3) and a lack of organizational economic development capacity (B_5). Although these two factors are not at the bottom of the system, they are the impediments that must be addressed independently. They are also the more difficult impediments in promoting green finance.

5.3. MICMAC Construction and Analysis

According to the calculation results of the reachable matrix R Table 3, the average value of both driving force and dependence degree is 7.78, which is used as the quadrant divider. The final MICMAC analysis chart of hindering factors is obtained after the results of the driving force, and the dependency of each hindering factor is distributed to each quadrant in turn, as shown in Figure 2.

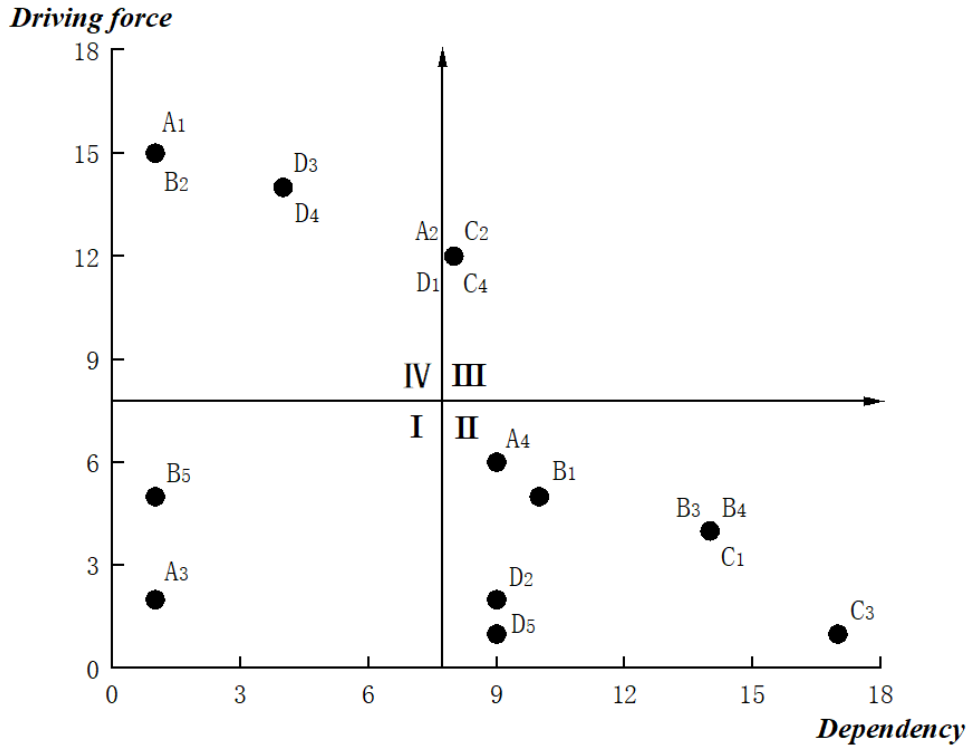

Figure 3. MICMAC score of hindering factors

Based on the driving force and dependency values in Figure 2 and dividing all hindering factors into different quadrants, it was discovered that the factors impeding the promotion of green finance could be classified into four types: spontaneous factors, dependent factors, linkage factors, and independent factors. Each factor that impedes the promotion of green finance was subjected to a MICMAC analysis.

In quadrant I, spontaneous factors include low energy conversion efficiency (A_3) and weak organizational economic development capacity (B_5). As shown in Figure 1, these two hindering factors are the only ones in the intermediate hierarchy that have no direct influence on the underlying hindering factors. They have a driving force as well as a degree of dependence, so even though their driving force and dependence are low, the special meaning of the indicator's position in the hierarchical directed graph is taken into account when dealing with the impediments of the entire system in an integrated manner. Low energy use conversion efficiency (A_3) and a lack of organizational economic development capacity ($B_{5)}$ should be given special attention and consideration.

In quadrant II, dependency factors include poor international contract execution (A_4), a too-narrow range of supported industries ($B_{1)}$, a low level of regional transformation (B_3), a lack of capacity for industrial restructuring (B_4), a lack of capacity for organizing economic development (B_5), a lack of capacity for business scale development (C_1), a lack of willingness to use green transformation funds (C_3), a high utilization cost (D_2), and redundant terms of engagement (D_5). These impediments are highly dependent on and vulnerable to other factors. For example, low willingness to use green transformation funds (C_3) is influenced by seven factors, including unstable macro-financial development (A_2), low efficiency of energy utilization and transformation (A_3), narrow scope of supporting industries (B1), weak capacity of industrial restructuring (B_4), low level of rating of guarantee entities (D_1), high utilization cost (D_2), and serious difficulty of application (D_3). The impediments in this quadrant can be made benign by strengthening control over other impediments that affect them, thereby promoting the long-term promotion and development of green finance.

In quadrant III, the linkage factors include unstable macro-financial development (A_2), the strained relationship between the board of directors of the enterprise's controlling shareholders (C_2), the low level of political connection between the enterprise and the government (C_4), and low level of rating of the guarantee subject (D_1). As illustrated in Figure 1, these four impediments are all located in Level 5, and each one influences the others. As a result, in the process of promoting green finance, these four strongly related obstructive factors should be taken into account as a whole, which can improve the effect of dealing with obstruction.

In quadrant IV, independent factors include relevant national laws that are not yet regulated (A_1), limited freedom of local policy implementation (B_2), the serious difficulty of application (D_3), and the high cost of contractual agreements (D_4). These impediments have a strong driving force and can be regarded as the source of impediments to the promotion of green finance. They are not only not easily influenced by other factors, but they also have a wide range of effects on other factors, and once these factors are damaged, a series of "butterfly effects" will occur, so they must be taken into account. As shown in Fig. 1, the lack of national laws (A_1) and the low freedom of local policy implementation (B_2) are at the bottom of the hierarchy, while the difficulty of application (D_3) and the high cost of contractual agreements (D_4) are at the top. In some ways, this suggests that the factors in the more profound tier may be more influential.

6. Conclusion

In this paper, the mechanism of impediments to the promotion of green finance is studied by using the literature analysis method and the ISM-MICMAC model. The conclusions are obtained by analyzing the multilayer recursive directed graph of impediments to the promotion of green finance constructed by the ISM model and the driving force-dependency quadrant graph constructed by the MICMAC method as follows.

(1) Low willingness to use green transformation funds and redundant agreement terms are the most direct factors hindering the development of green finance; the temporary lack of regulation of relevant national laws and low freedom of local policy implementation are the key factors hindering the development of green finance; low efficiency of energy use transformation and weak organizational

economic development capacity are the more difficult hindering factors in the process of green finance development.

(2) To promote the sustainable development of green finance, we need to focus on improving the willingness to use green transformation funds and the ability to adjust industrial structure, expanding the scope of green finance support industries, focusing on the implementation of policies from the central to the local level, and focusing on improving the energy conversion rate, reducing costs and application difficulties.

The goal of this paper is to provide a theoretical foundation and a development path for the early achievement of the double carbon goal and green transformation. It examines the influence mechanisms that impede the promotion of green finance from the perspective of system engineering, clarifies the hierarchical relationships and paths of action among the hindering factors using the ISM-MICMAC model, and thoroughly explains the driving force and dependency characteristics of each hindering factor.

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