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Research on the Influencing Factors of Investment Efficiency of Private Enterprises

-- Based on the DEMATEL-ISM-MICMAC Model

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Abstract

Through literature and Delphi method, the influencing factors of private enterprise investment efficiency are sorted out, and the DEMATEL-ISM-MICMAC model is creatively constructed, and the influencing factors of private enterprise investment efficiency are studied theoretically and empirically. It is found that financing constraints are the most critical factors affecting private enterprises in the construction of the DEMEL model, but the replacement of local officials is the deepest factor in the ISM model, and the turnover of local officials indirectly affects the investment efficiency of private enterprises by influencing financing constraints. This paper integrates the influencing factors of the investment efficiency of private enterprises for the first time to study together, presents the relationship between factors in the model, and provides a new method to improve the investment efficiency of private enterprises, which has important enlightenment and practical significance for the continuous low investment efficiency of private enterprises in China and the improvement of the private economy.

Keywords

Private Enterprises; Investment Efficiency; DEMATEL; ISM-MIACMAC.

1. Introduction

Private enterprises are an important force to promote China's economic and social development, according to the "Panorama Concise Comparative Analysis of Important Data of State-owned, Private and Foreign-funded Enterprises - Based on the Fourth Economic Census Data" shows that private enterprises with less than 30% of government scientific and technological resources, less than 40% of financial resources, created more than 50% of tax revenue and exports, more than 60% of investment and GDP, more than 70% of scientific and technological innovation and new products, and more than 80% of urban employment. However, in the face of today's complex domestic and foreign economic environment and the background of the new crown epidemic, private enterprises need to have a higher level of development, but the original local market has gradually saturated, and the competition in the external market has intensified, which puts forward higher requirements for private enterprises, whether in terms of investment efficiency or daily operation and management.

Zhuang Xudong et al. [1] found that a good pattern of "government-business coordination" was created to achieve sustainable win-win development of the government and enterprises, so as to improve the investment efficiency of enterprises. It can be seen that private enterprises have become an important economic pillar in China, and are increasingly regarded by the state as the object of focus and support. From 2012 to 2021, the proportion of private enterprises in China in the same period continued to rise, accounting for 79.4% to 92.1%, from the initial 10.857 million to 44.575 million, quadrupling in the past 10 years. However, the increase in the number of enterprises does not mean that the investment efficiency of enterprises has

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improved. For a long time, the investment efficiency of Chinese enterprises has generally not been high. Psychological theory mentions that the heavier the responsibility, the greater the pressure. As the "capillaries" of the economic body, private enterprises in China continue to face multiple pressures of "market iceberg, financing mountain, and transformation volcano"[2], which are not only affected by internal factors but also constrained by the external environment of enterprises, resulting in widespread inefficient investment[3].

The external environment of the enterprise has an interactive effect with the company's own behavior, and there is also a potential interaction between enterprises and entrepreneurs [4]. Up to now, scholars have achieved certain results in the research on the impact of enterprise investment efficiency, and literature has revealed many factors affecting enterprise investment efficiency. First, the factors of senior management and managers include power[5], length of service[6], age[7], overseas experience[8], academic experience[9], confidence[10], salary gap[11], policy perception[12], etc.; Second, factors at the enterprise level include property rights structure[13], investment cost[14], audit quality selection[15], comparability of accounting information[16], and the board's foreign investment authority[17]. Third, government factors include the degree of government intervention[7], the degree of fiscal transparency[18], the level of rule of law[19], and environmental regulation[20]. Fourth, political factors include political associations[21], party organization embedding[22], local official turnover[23], and political motives[24]. Fifth, financial factors include financing constraints[25], credit[26], and uncertainty in interest rates and exchange rates[27]; Sixth, other factors include the level of rule of law[19], information asymmetry[28], air pollution[29], etc.; However, the existing research fails to clearly identify the causal relationship and mechanism between factors and investment efficiency when examining the relationship between influencing factors and investment efficiency, or by constructing mathematical models to carry out theoretical analysis, or by grouping regression according to influencing factor indicators.

The innovation of this paper lies in: first, the research on the influencing factors of model on enterprise investment efficiency is introduced for the first time, which effectively expands the model method to solve the gap of enterprise investment efficiency; Second, according to previous research and analysis of enterprise data, the expert scoring mechanism has become a well-founded scoring (for the scoring between factors, the correlation mentioned in previous studies is directly scored, and the previous research is scored according to the company's data and factor similarity), reducing human subjectivity; Third, the role between factors is clarified through the model, and the investment efficiency (underinvestment, overinvestment) is represented by a chart path for the first time, which is clear and clear. Fourth, the integration of external factors and internal factors is more systematic than the previous study, and expands the new horizon of factors affecting the investment efficiency of private enterprises.

2. Model Establishment

2.1. Based on the DEMATE Model, the Influencing Factors of the Project Investment Willingness of Enterprises are Analyzed

2.1.1. Calculation of Centrality and Causal Degree

Through the research on private enterprises in CNKI in the past five years and the CSMAR and Wind databases, the key factors affecting the investment efficiency of private enterprises were identified, and in order to ensure the accuracy of the influencing factors, "private enterprises + investment efficiency + factors" was specially used to check the relevant literature in the advanced search of CNKI, and finally 5 first-level indicators were sorted out for a total of 15 second-construction indicators, as shown in Table 1. According to the frequency of factors and existing research, the relationship between factors is scored accordingly, and for the factors

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that are not involved, through WeChat and other tools, experts in the field of investment efficiency of private enterprises are surveyed on a questionnaire survey, and the scoring results of experts are obtained by sorting out data, and finally a complete scoring model combining subjectivity and objectivity is formed. This is shown in Table 1.

Table 1. Influencing factors of investment efficiency of private enterprises

Numbering	Level 1 indicators	Level 2 indicators
A1	Personnel characteristics	Manager age
A2		Managerial education
A3		Managerial work experience
B1	Corporate governance	Executive Rights
B2		Equity incentives
B3		Investment authority of the Board of Directors
C1	Financial aspects	Credit supply cycle
C2		Loan interest rate
C3		Financing constraints
D1	Political factors	Political affiliation
D2		Promotion motivation
D3		Turnover of local officials
E1	External governance factors	The level of the rule of law
E2		The level of regional development
E3		Government finances are open and transparent

In order to scientifically evaluate the degree of influence between the influencing factors, the DEMATE model analysis method was used for research. The final result is shown in Table 2.

Table 2. Comprehensive impact matrix

	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	E1	E2	E3
A1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A2	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
A3	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
B1	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
B2	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
B3	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
C1	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00
C3	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.00	0.02	0.02	0.01	0.01	0.02	0.02
D1	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.02	0.00	0.00	0.01	0.00
D2	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.00
D3	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.01	0.01	0.00	0.02	0.02	0.02
E1	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
E2	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.00	0.01
E3	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.02	0.00

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2.2. Analysis of the Influencing Factors of Investment Intention of Carbon Sink Projects based on ISM-MICMAC Model

2.2.1. Construct a Structural Model for the Interpretation of the Influencing Factors of Enterprises' Willingness to Invest in Projects

(1) Find the reachability matrix H

Table 3. Up to matrix

	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	E1	E2	E3	Z
A1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
A2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
A3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
B1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	1
B2	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1
B3	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1
C1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
C2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
C3	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1
D1	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	1
D2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
D3	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
E1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
E2	0	0	0	1	1	1	1	1	1	1	1	0	0	1	0	1
E3	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1
Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(2) Multi-level ISM model construction for the influencing factors of enterprise project investment.

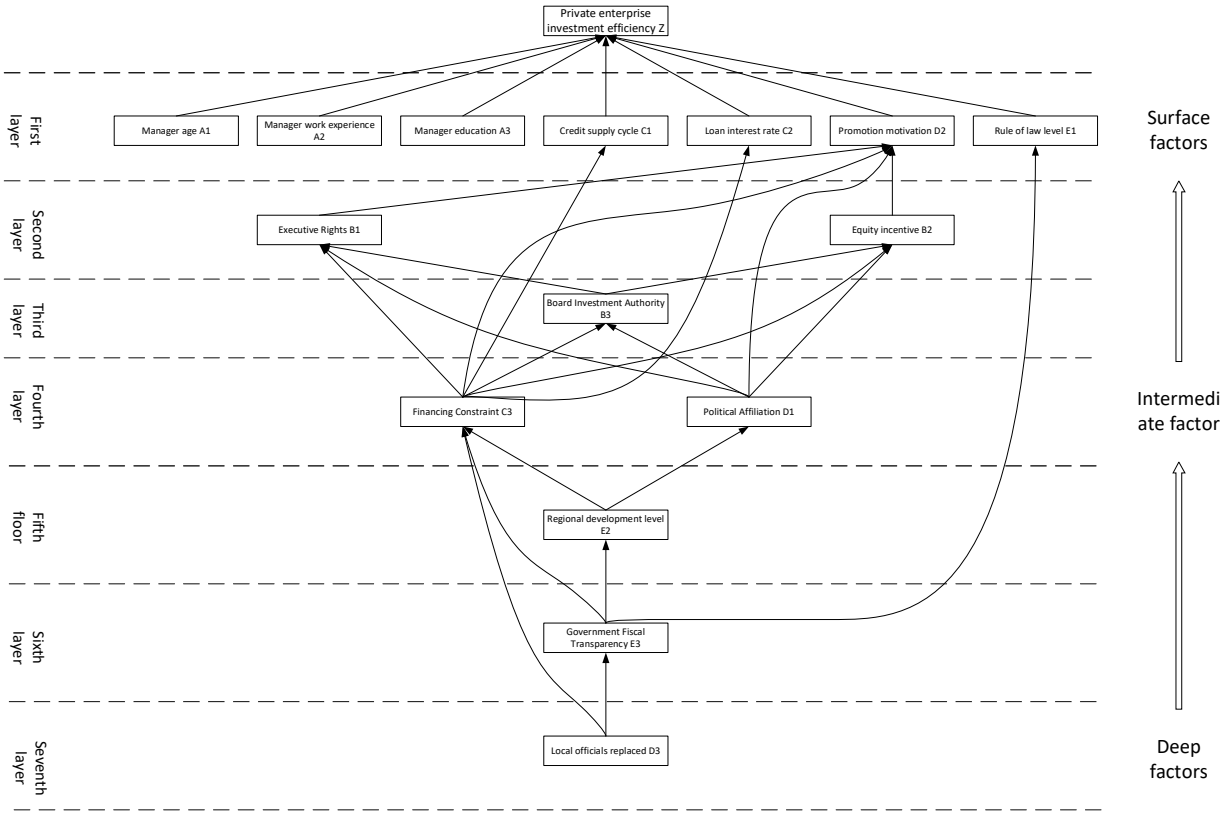

Figure 1. ISM model

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2.2.2. Construction of MICMAC Analysis Diagram (Dependency-drive Relationship)

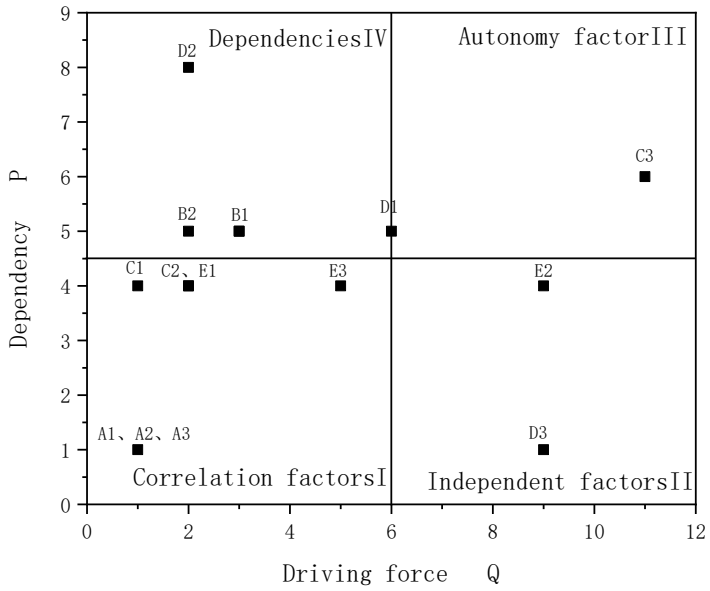

Figure 2. MICMAC model

3. Conclusion

In order to improve the investment efficiency of private enterprises in the new era and new background, the following suggestions are put forward based on the analysis of the model construction results:

(1) Avoid frequent turnover of officials. Local officials' appointments and policies should be as continuous as possible, such as reducing abnormal succession and implementing inter-provincial exchanges, so that economic activity entities can form stable psychological expectations and keep investment levels stable. Because every change of officials will bring a new round of investment impulses or underinvestment, to ensure the stability of the rectification of officialdom, only by controlling the frequency of turnover within a reasonable range can the local economy operate in a stable cycle.

(2) The government should reduce the degree of intervention in the market, change its own functions, change from "intervention" to "service", and give more play to the role of the market in allocating resources; It is necessary to accelerate the construction of the green finance development system, guide and increase the allocation of green financial resources in the environmental protection industry, and alleviate the financing pressure of environmental protection enterprises. Promote the work of improving the level of financial development, easing the constraints on enterprise financing, and improving the supervision and management functions of financial intermediaries.

(3) Improve the level of the rule of law, enhance the degree of investor protection, create a good competitive environment for listed companies as a whole, and promote the healthy and stable development of the company, for enterprises with different property rights, the mechanism of the external governance environment is not exactly the same, so the government and relevant departments can not adopt a "one-size-fits-all" approach when formulating policies, should carefully formulate policy content and implementation mechanisms, as far as possible to ensure the consistency and stability of policies, so as to reduce the negative impact caused by policy changes, Promote the healthy and stable development of enterprises.

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(4) Good economic policy transparency can enable enterprises to form more accurate and consistent expectations at the micro level, thereby reducing potential economic policy uncertainty, which is crucial for corporate investment strategies, to better let the market play a decisive role in the allocation of resources, but also to define the boundary of the visible hand of the government, so that the government can return to its original functions and play its due role in the process of protecting the market economy.

It should be noted that there are certain limitations in this study. The influencing factors of the investment efficiency of China's private enterprises are not only those listed in this article, these factors are the conclusions reached through the research of scholars in the past five years and through the query of the database and the method of expert survey scoring. However, the factors are dynamic and change with the context of the times. In different eras, different influencing factors may occur, and the mechanism of action between influencing factors is also different. This paper is only studied from the 13th Five-Year Plan to the current position, so the subsequent research on the investment efficiency of private enterprises is dynamically changing at any time.

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