

Identifying Key Success Factors of Cross-border Mergers and Acquisitions for Chinese State-owned Enterprises

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Abstract—In recent years, China has vigorously promoted domestic enterprises to conduct direct foreign investment and promote the internationalization of Chinese enterprises. State-owned enterprises in China are the main exporters of China's foreign direct investment. Research on the factors of success or failure in cross-border mergers and acquisitions (M&A) is gradually attracting the attention of scholars all over the world. This paper discusses the successful factors of Chinese state-owned enterprises' cross-border M&A by studying the relevant literature and drawing on previous research and achievements. From the Zephyr M&A transaction database, this paper selects 481 valid transaction data of Chinese state-owned enterprises' cross-border mergers and acquisitions from 1997 to 2017 using the seven influencing factors selected by the analytic hierarchy process as variables and introduces a binary logistic regression model to analyze the sample data by using SPSS software. This paper classifies success factors into three categories: macro level, micro level and transaction level. By using the analytic hierarchy process (AHP) to determine the index weight of different levels, the main three categories can be management system of host country, host divided into seven influencing factors, which include the host country economy system, country and home country from formal institution, informal system from the host country and home country, the acquiring firm's experience of transnational M&A, target company industry on the sensitivity of the host country, and acquisitions.

Keywords—OFDI; M&A; SOE; success factor; China

I. INTRODUCTION

With the deepening of economic integration in the globalization, the rapid development of world information technology, the share of foreign direct investment is also growing. Cross-border M&A is increasingly becoming the mainstream of international foreign direct investment way. Therefore, the purpose of this paper is to study Chinese enterprises, especially Chinese state-owned enterprises and to study the successful factors for the successful completion of cross-border mergers and acquisitions so as to improve the success rate of mergers and acquisitions of Chinese state-owned enterprises.

This paper is mainly divided into four parts. In the first part, the background of the topic and the purpose of this research will be introduced. Secondly, literature review on relevant research achievements of China's Outward Foreign Direct Investment (OFDI) is demonstrated. In part three, Logistic regression model was introduced and the principal component analysis method was used for empirical analysis, and the results were obtained. Finally, this research ends with the conclusion.

II. LITERATURE REVIEW

Beginning to study the successful factors of OFDI of Chinese state-owned enterprises, the concept of OFDI can be firstly clarified. According to China's statistical system to define the Foreign Direct Investment in 2004, Outward Foreign Direct Investment refers to the domestic investors using tangible cash, equipment and other physical or intangible assets such as technology, management skills to buy or set up abroad (overseas) enterprise in Hong Kong, Macao and Taiwan outside China. However, the foreign investment not only refers to foreign direct investment, but also includes investment by injecting capital into the invested object in the form of securities, options, futures, trust insurance and other financial instruments issued by the state or other enterprises. OFDI can be conducted in a variety of ways, including the establishment of sole proprietorship, joint venture and alliance, the establishment of overseas companies, or the acquisition of control and ownership of enterprises or projects through mergers and acquisitions or equity participation. Chinese state-owned enterprises have a certain degree of control or ownership over the enterprise capital, which means as long as the asset input subject of the enterprise belongs to the state-owned asset management department, the enterprise is a state-owned enterprise (regulations on the registration and administration of enterprise legal person of the People's Republic of China, 2016). According to [1], China's unique system and industrial environment are the driving factors of Chinese enterprises' OFDI which support from the government. Technology and publicity did not drive the transnational expansion of Chinese enterprises, while human resources played a significant positive role in the OFDI of Chinese enterprises. According to

[2], China's OFDI in recent years has four main characteristics: the main way of China's OFDI is through transnational mergers and acquisitions, the target enterprises of China's OFDI are mostly failed enterprises, which often lead to the sluggish performance of enterprises after M&A, and political resistance from developed host countries. According to the research of [3], the institutional development of the mother country and the competition in the domestic market can effectively alleviate the negative effects brought by state-controlled and state-owned enterprises on OFDI.

A. The Macro Level Factors

Overseas acquisitions are affected by macro institutional factors, and their acquisitions must meet the requirements of laws and regulations at home and abroad and be approved by relevant authorities. According to the federal antitrust law of the United States, a merger will not be approved if it obviously leads to monopoly or reduces competition [4]. Similar competition regulations have appeared in about 90 countries around the world. Every merger and acquisition is required to go through the corresponding approval process, and the relevant authority has the right to stop illegal mergers and acquisitions according to the law [1]. The authorities often prevent the implementation of mergers and acquisitions on the grounds of protecting local enterprises or maintaining national security out of consideration of non-market factors [5]. The influence of similar government and political forcing on Chinese companies, especially state-owned ones, is so prominent that overseas mergers and acquisitions by Chinese companies are often subject to non-market factors or even forced out of the bidding process by political pressure.

B. The Micro Level Factors

In Economics, traditional empirical curve utility theory shows that the more frequently a task is performed, the lower the cost of performing the task is. With the accumulation of production experience, the ratio of input to output will continuously improve. This principle is also applicable to OFDI activities, and it is believed that the M&A experience accumulated in the past can be applied to new M&A activities. [6] also put forward a similar opinion, holding that the existing direct investment in the host country is conducive to the further investment of the enterprise and other Chinese enterprises in the host country, because the enterprise has accumulated investment experience in the host country market, and this experience can be shared by more Chinese enterprises. The success or failure of overseas M&A by Chinese enterprises is also related to the technological content of the target enterprises. [7] found that one of the important motivations for Chinese enterprises to conduct overseas mergers and acquisitions was to acquire overseas advanced technology.

C. Transaction Factors

The correlation between the target enterprise and the business scope of the acquirer will have an impact on the final result of the merger and acquisition activities. When the industrial matching degree of the two parties is low or completely mismatched, the reaction from the external market

and investors caused by the announcement of merger intention is usually negative. Some studies have shown that the market believes that an unrelated combination will bring about dis-economy, or that the acquirer will overpay [8]. Investors believe that mergers and acquisitions between industries with low industry matching cannot bring benefits, but only harm the interests of the owners of the target enterprise. The selection of international investment institutions should also be cautious, as the level and popularity of the institutions are uneven. Enterprises should carefully judge the qualifications of the professional consultants hired and objectively measure the real role of the professional consultants in the transaction [9].

III. RESEARCH METHOD AND ANALYSIS

A. Sample and Data Collection

Data sources of this paper are from Zephyr international M&A research field M&A analysis database. From 1997 to the end of 2017, a total of 5,376 cross-border mergers and acquisitions of Chinese enterprises were recorded in Zephyr database. After filtering, the Chinese state-owned enterprises eventually got 481 effective samples of Chinese state-owned enterprises transnational mergers and acquisitions.

B. Analysis

Since the dependent variable in this paper is a binary dummy variable, the Logistic binary regression model is introduced for parameter estimation. In the model P is the success probability of Chinese state-owned enterprises' cross-border M&A; X is the model variable vector; α is constant; β is the regression coefficient vector.

In this paper, before the regression analysis of 481 sample data, the col-linearity test of independent variables and control variables is required, and the variance inflation factor value (VIF) is introduced as the test quantity. All the coefficients of independent variables are 0 which are not established, and at least one independent variable can predict the dependent variable effectively. The joint action of dependent variable and control variables have significant effect on the dependent variable, and it is not significant for a single factor effect on the dependent variable. It can also be seen that the variance inflation factor (VIF), the inverse of tolerance of all 7 variables is less than 10 and tolerance is greater than 0.1, which verifies that there is no serious col-linearity problem in the model in this paper.

Subsequently, 481 eligible sample data selected from Zephyr database are used to analyze by the binary Logistic regression model. The explanatory constant = 0.374 and the probability Sig. = 0.000 < 0.05, indicating that the constant is significant. The informal distance Sig. value in the variable is 0.137, the experience Sig. value in M & A is 0.296, and the sensitive Sig. value in the industry is 0.176, which is more than 0.05 and exceeds the significant level. Since these three variables are not significant, it should be considered whether to remove the variables from the equation. However, since the Sig. value measured by the President is 0.002 < 0.05, it shows that the overall variables are significant. Informal distance,

M&A experience and industry sensitivity can be added to the original equation. The Hosmer and Lemeshow test is a test of equation fitting degree, making a hypothesis that there is no deviation in fitting. Since $\text{Sig.} = 0.221 > 0.05$, it is shown that the probability value is far greater than the significance level which means the test value is not significant, so the original assumption is not rejected. It is considered that there is basically no deviation between the fitting equation and the real equation in this paper and the model estimation fits the sample data on the acceptable level.

Tested by Hosmer and Lemeshow, there are 481 data in the total column, which is consistent with the data size of the sample in this paper. 285 successful cross-border mergers and acquisitions of Chinese state-owned enterprises have been observed. 6 variables' Sig. values are all higher than 0.05, except the acquisition ratio's, showing no significant difference. The correlation matrix shows that there may be too high correlation among variables. And it is necessary to use principal component analysis to reduce the dimension of the seven variables in order to reduce the correlation between variables and improve the Sig. value of variables in the equation.

In this paper, the KMO measure (Kaiser-Meyer-Olkin measure of sampling adequacy test) is used to compare the correlation coefficient and partial correlation coefficient between variables before using principal component analysis to reduce the dimension of the successful factors of cross-border M&A in Chinese state-owned enterprises. When $\text{KMO} > 0.9$, the data is suitable; when $0.8 < \text{KMO} < 0.9$, the data is suitable; when $0.7 < \text{KMO} < 0.8$, the data is generally appropriate; when $0.6 < \text{KMO} < 0.7$, the data is not suitable; when KMO When below 0.5, principal component analysis is not recommended for data. By using the data matrix calculated by SPSS software, the $\text{KMO}=0.704$, and Bartlett Sphericity test $\text{Sig.}=0.000 < 0.05$ are obtained. The conclusion is that the data is suitable for principal component analysis, as in the following Table I.

By using SPSS software, the eigenvalues of the correlation matrix and the principal component contribution table are obtained. The cumulative contribution rate of the first four features is $0.732\%+17.657\%+16.651\%+11.976\%=87.016\%>85\%$.

Choosing four main components can basically reflect the information of the origin factor index. SPSS also obtains the rotating principal component load matrix corresponding to the factor index and the principal component.

It can be concluded that the major factors in the first principal component are the formal system distance (ID) (0.958), the economic system EI (0.953) and the management system RI (0.927). The first principal components can be classified as formal system and formal system distance factor. In the second principal component, AO (0.751) accounted for the largest proportion, followed by M&A experience (EX) (0.625), and the second principal component (cross-border M&A experience and acquisition ratio). In the third principal component, the major factors are informal system distance CD (0.672) and industry-sensitive TI (0.609). The third principal

component can be classified as the target enterprise selection (region and industry) for cross-border M & A. In the fourth principal component, the informal system distance CD (0.566) is relatively large. As a result, the four principal component expressions are:

$$F1=0.953EI+0.927RI+0.958ID-0.129CD-0.144EX-0.312TI-0.176AO$$

$$F2=0.011EI+0.103RI+0.009ID+0.399CD+0.625EX+0.336TI-0.751AO$$

$$F3=0.040EI+0.148RI+0.069ID+0.672CD-0.515EX+0.609TI+0.223AO$$

$$F4=-0.032EI+0.092RI-0.017ID+0.566CD+0.349EX-0.489TI+0.384AO$$

After calculation, the dimension of 7 variables is reduced to 4 variables.

The results of binary Logistic regression analysis after reducing dimension are as follows:

As the data shown in the table above, variables F1, F2, F4's Sig. are less than 0.05, but the Sig. of F3 is not significant ($0.152 > 0.05$). Because the four principal components of F1, F2, F3 and F4 are all factors formed again after dimension reduction and their composition is the comprehensive performance of the original seven influential factors divided into four groups. F1 represents the economic system, the political system and the formal distance. F2 represents the acquisition ratio and M&A experience. F3 indicates the informal distance, and F4 indicates the sensitivity of the target industry. According to the results of regression analysis, the factors related to the success or failure of Chinese state-owned enterprises (SOEs)'s cross-border merger include the economic system ,political system and formal system distance, the ratio of acquisition, the experience of M& A and the sensitivity of target industry, while the distance between host country and China has little effect on the success or failure of cross-border M&A of Chinese state-owned enterprises.

According to the data in the table, B represents the correlation coefficient, B (F1) and B (F2) are positive numbers, indicating that F1, F2 is positively correlated with dependent variable Y, while B (F4) is negative number, indicating that F4 is negatively correlated with dependent variable Y. For F1, the higher the comprehensive index of economic system and political system and formal system distance is, the higher the success rate of cross-border mergers and acquisitions of state-owned enterprises in China is. However, this conclusion is unable to verify several hypotheses of the problem due to the comprehensiveness of the principal component F1, In addition, for F2, the higher the composite index of acquisition ratio and M&A experience is, the higher the success rate of cross-border mergers and acquisitions of state-owned enterprises in China is. Considering the component matrix of principal component analysis (PCA), the proportion of acquisition ratio AO in principal component F2 is -0.751 and the ratio of M&A experience EX is 0.625, which indicates that the acquisition ratio has a negative effect on F2, while M&A experience has a positive effect.

TABLE I. TEST OF KMO AND BARTLETT

Kaiser-Meyer-Olkin measure of sampling adequacy		.704
Sphericity Test of Bartlett	Approximate chi-square	1662.954
	df	21
	Sig.	.000

TABLE II. VARIABLES IN EQUATIONS

		B	S.E,	Wal	df	Sig.	Exp
				s			(B)
Step 1a	F1	.023	.010	5.661	1	.017	1.023
	F2	.756	.354	4.568	1	.033	2.130
	F3	-.264	.184	2.056	1	.152	.768
	F4	1.081	.546	3.924	1	.048	.339
	Constant	-.999	.545	3.360	1	.067	.368

Therefore, the combination of acquisition ratio and M&A experience will indeed have a positive impact on the success of cross-border M&A of state-owned enterprises. But under the same conditions, the higher the acquisition ratio is, the lower the success rate of M&A transactions are; The more experienced the acquirer is, the higher the success rate of M&A transaction is, which successfully validates the hypothesis D. But in view of the comprehensiveness of F2 after dimension reduction, this paper recognizes that successful validation of this hypothesis is not strong enough. Finally, the regression result of principal component F4 shows that the success rate of M&A is lower when the target industry of cross-border M&A of Chinese state-owned enterprises is sensitive industry under equal conditions being equal. That means when the target industry of state-owned enterprise M & A is non-sensitive industry, the success rate of M&A is higher.

IV. CONCLUSION

According to the analysis of the success factors of cross-border mergers and acquisitions of Chinese state-owned enterprises, this also reduces the failure of Chinese companies to invest abroad and helps Chinese companies to avoid the huge losses caused by the failure of foreign investment. This thesis explores the success factors of cross-border mergers and acquisitions of Chinese state-owned enterprises by consulting the relevant literature both at home and abroad, using for reference the research and achievements of predecessors.

The article classifies success factors into three categories: macro level, micro level, and transaction level. Overseas acquisitions are affected by macro institutional elements, the acquisition must be in accordance with domestic and foreign laws and regulations and approve by the relevant authorities. For a complex overseas M&A transaction, it will inevitably be affected by a series of institutional factors in the host country.

On the micro level, the relevant research which was the past successful experience in M&A activities in the service industry can make contribution on the following M&A project of the enterprise. An important motivation for Chinese companies to conduct overseas mergers and acquisitions is to obtain advanced technology from overseas, but the difference in technology levels between enterprises will hinder the progress of mergers and acquisitions. The transaction element reflected that the business scope of the target company and the acquirer will have an impact on the final result of the M&A activity. The internationalization process of Chinese companies is still in its infancy, and the awareness of related companies is still very limited when the investment and financing activities in the international capital market are becoming more frequent.

Based on the above results, there are proposals for the future development strategy of cross-border M&A of Chinese state-owned enterprises. Three strategic opinions are given from the perspectives of enterprise and government, including the target countries and enterprises of cross-border M&A in enterprises, cross-border M&A methods and cultivate high-quality professionals. Furthermore, the government should improve the China's Institutional quality to achieve international integration. The government can introduce relevant guidelines for cross-border mergers and acquisitions as well as foster the internationalization of various Chinese companies such as state-owned enterprises, small or medium-sized enterprises and private enterprises.

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