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Influencing Factors of Firm Performance in Logistics Industry in China from Perspective of an Integrated Theoretical Framework

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Abstract: Under the background of E-business development, logistics industry has played more and more important role in economy development and social development. The paper focuses on the influencing factors of corporate competence in logistics industry in China. From perspective of industry economy, we take firm size into account, while from perspective of corporate resource theory, we take human resources into account. Based on the theory of corporate governance, we take corporate ownership into account and then we consider firm location based on the institutional theory. Then we have selected all 88 listed companies in Chinese logistics industry to make statistical analysis with three years data from 2011 to 2013. By studying the relationship between firm size, human resources, corporate property, firm location and enterprise competitiveness, the final study shows that firm size has no significant effect on the competitiveness of enterprises, and corporate human resources has a positive impact on the competitiveness of logistics enterprises, and the ownership has a certain influence on the competitive competence of logistics enterprises, and corporate performance is not affected by firm location. The findings can provide some references for management and development of Chinese logistics business.

Keywords: Logistics Industry; Firm performance; Corporate Competence; Human Resource

1 INTRODUCTION

The development of modern logistics has a very important significance on the balance of resources, optimizing the structure of the logistics industry, promoting the transformation and upgrading of the logistics industry and enhancing Chinese comprehensive strength. As a new complex industry, in 2009, the State Council promulgated "the plan of rebuilding and revitalization of the logistics industry" to support the development of the logistics industry, and made plan of the ten industry overall, of which nine industry revitalization need better and more professional and more efficient logistics services[1]. With the logistics industry prominent increasingly, modern logistics industry gradually gain advantage in the competition in the industry. In 2013, the logistics industry has made greater progress with the economic and policy support. The specialization and scale of Logistics significantly accelerate the process of industrial restructuring, and the annual total social logistics has reached 197.8 trillion yuan, increasing by 9.5 percent, rising to 18% in the rate of GDP[2]. After the twenty-first century, the country's environment has changed. Because of the policy changing, foreign logistics companies were allowed to enter Chinese logistics market, and international logistics companies have been flourishing in China, so the domestic traditional logistics companies face international competition, and the logistics industry is about to enter reform. With the escalation of competition among enterprises, to find other ways to reduce development costs and to enhance economic efficiency has become a new hot spot. However, the logistics industry has been called "the new world economy" and business "the third profit source", so the logistics industry has a more important role[3]. Whether China's logistics enterprises can occupy a place in the logistics business mainly depends on the strength of their competitive power in today's fierce competition in the market. Based on Chinese Listed Companies in the logistics business, the author analyzes the impact of firm

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size, business ownership, corporate human resources and enterprise in which area on the business performance, so as to improve the performance of logistics enterprises and provide targeted countermeasures and suggestions to enhance the competitive power of the logistics enterprises.

2 THEORETICAL BASIS AND FRAMEWORK

Domestic researches on the competitive power of the logistics enterprise divide two main areas. One area is to study the competitive power of the logistics enterprises by constructing the competitiveness system of logistics enterprise. For example, according to the characteristics of Chinese logistics business and value chain theory and the theory of competitiveness, Yi(2010) extracted the factors, including the six aspects of human resources, profitability, etc. and constructed the evaluation model of logistics enterprises on the basis of G-ANP method, and researched on the evaluation studies of the competitiveness of logistics enterprises, drew that human resources, innovation ability and marketing ability will have a positive influence on the competitive power of enterprises[4]. Through research, Li&Wang(2010) drew that the logistics enterprise business level, management level, the potential level are the key to the competitive power of logistics enterprises[5]. Another is to research logistics enterprise competitive power through related indicators and data of logistics business. Wang & Di(2005) used the independent information data fluctuation weighting method (DIDF), and extracted the appropriate data in the enterprise index, got the weight by AHP method, finally, he summarized and obtained the value of competitiveness of logistics enterprises, and explained assets, solvency, service capacity, profitability will affect the competitiveness of logistics enterprise[6]. Based on indicators of financial research, Liu(2013) drew the competitiveness of logistics enterprises is related with the capacity of operating, profitability, development and solvency[7].

Combined with previous research, this paper argues, economies of scale can bring more benefits for the enterprise from the perspective of industrial economics, and the talent, especially professionals, is essential to enhance the competitiveness of enterprises from the perspective of human capital theory, and from the company governance perspective, the ownership of enterprise property right determines the perfection of corporate governance structure, which has a key effect on the enterprise performance, and from the perspective of system theory, the regional institutional environment will have a significant impact on development of enterprise[8]. Therefore, this article attempts to analyze the four factors' impacts on the performance of logistics enterprises and view the logistics industry as a research object for empirical test. In addition, the achievements and economic benefits that business managers get by adopting a series of management measures to achieve the goal of the companies ultimately reflect the financial statements by product output or sales, costs and benefits, stability and sustainability. The competitive power of logistics enterprises is reflected in the economic performance of enterprises, and corporate performance is related with many other factors. Therefore, this article reflects the overall competitive power of the listing logistic corporation through corporate performance indicators.

3 RESEARCH DESIGN

3.1 Sample

This paper selects companies related logistics industries as the research object to make empirical analysis. Because the size of some companies is small and operating conditions are uneven and all aspects can not be compared well, research enterprise mainly are listed companies, and the author pick up its 2011 - 2013 Annual data as the original data, and extract the required data as the data to analysis, and select the sample enterprise to carry on the classified summary. There are a total of 88 enterprises related logistics industry (56 of which in Shanghai Stock Exchange, 27 of which in Shenzhen Stock Exchange), which includes six enterprises in public

transportation industry , 27 enterprises in transport service industries, 15 enterprises in warehousing and logistics industries , 40 enterprises in transport facilities industries. The research focuses on the influence of different enterprises on the competitiveness of enterprises under different factors, and the enterprises are classified by industries and regions as follows:

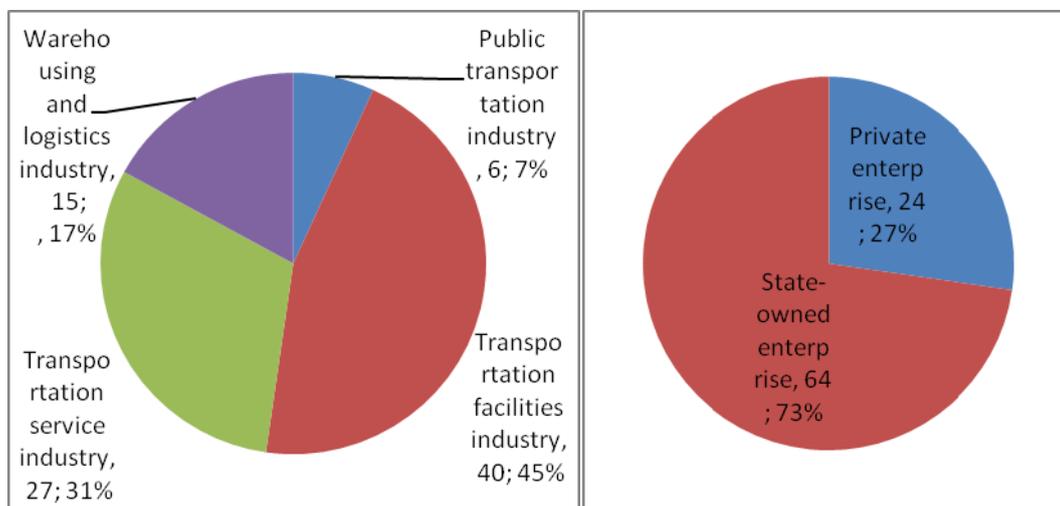


Figure 1 the number and the proportion of samples in different industry and ownership

3.2 Variable

In this study, the dependent variable is the competitive power of enterprises, including four variables: ROE, net profit rate ,net assets ratio , debt ratio .And the independent variable are the enterprise scale , the proportion of highly educated talent, enterprise property, the enterprise location . Various indicators are described as follows:

Table 1 the description of variables

Type	Variable name	symbol	computational formula
the dependent variable	return on equity	ROE	Net profit after tax ÷ net assets × 100%
	net profit rate	NPM	Net profit ÷ main business income × 100%
	net assets ratio	ER	Net assets ÷ total assets × 100%
	asset-liability ratio	DAR	Total liabilities ÷ total assets × 100%
the independent variable	enterprise scale	SIZE	The natural logarithm of total assets
	Staffing	HR	The proportion of higher education in the total number of enterprise
	Enterprise property	NAT	State-owned enterprises, private enterprises
	Enterprise location	REG	Northeast , north, east , south, central , southwest

Enterprise property (Nat) and enterprise location(Reg) as dummy variables in the model , for dummies Nat, private enterprises = 1 , State-owned enterprise= 0 ; for the enterprise location Reg, the northeast region is as a relative term , and the others : North (R1), East China (R2), South China (R3), Central (R4), southwest (R5),are expressed as follows :

NORTHEAST: R1 = 0, R2 = 0, R3 = 0, R4 = 0, R5 = 0;

NORTH : R1 = 1, R2 = 0, R3 = 0, R4 = 0, R5 = 0;

EAST : $R_1 = 0, R_2 = 1, R_3 = 0, R_4 = 0, R_5 = 0;$

SOUTH : $R_1 = 0, R_2 = 0, R_3 = 1, R_4 = 0, R_5 = 0;$

CENTRAL : $R_1 = 0, R_2 = 0, R_3 = 0, R_4 = 1, R_5 = 0;$

SOUTHWEST : $R_1 = 0, R_2 = 0, R_3 = 0, R_4 = 0, R_5 = 1;$

3.3 Model :

Model 1 for ROE

$$ROE = a + b * SIZE + c * HR + d * NAT + e * R_1 + f * R_2 + g * R_3 + h * R_4 + i * R_5 + u$$

Model 2 for Net profit rate

$$NPM = a + b * SIZE + c * HR + d * NAT + e * R_1 + f * R_2 + g * R_3 + h * R_4 + i * R_5 + u$$

Model 3 for Net assets ratio:

$$ER = a + b * SIZE + c * HR + d * NAT + e * R_1 + f * R_2 + g * R_3 + h * R_4 + i * R_5 + u$$

Model 4 for Asset-liability ratio:

$$DAR = a + b * SIZE + c * HR + d * NAT + e * R_1 + f * R_2 + g * R_3 + h * R_4 + i * R_5 + u$$

4 STATISTICAL ANALYSIS

4.1 Descriptive statistics

Descriptive statistics on the 2011-2013 data of 64 state-owned enterprises and 24 private enterprises are carried out, and the results are shown in Table 2. It can be seen that the difference of the characteristic values of variables is a little among state-owned enterprises and private enterprises and the overall sample. Specifically, the state-owned enterprises have more advantages over the private enterprises in total assets and net profit ratio, which actually reflects the state-owned enterprises have relatively strong capital strength, and profits of the state-owned enterprises increase steadily, and the development of the state-owned enterprises are also relatively stable. However, the private enterprises have more advantages over the state-owned enterprises in ROE and proportion of higher educated personnel, indicating the development of private enterprises is faster. The private enterprises focus on financing, selling and spending more to attract higher talent.

Table 2 Descriptive statistics of the sample enterprises in different property

	Statistic	ROE	NPM	ER	DAR	Size	Hr
Totality	Mean	5.95	16.1	49.86	46.12	22.56	51.68
	Maximum	22.82	125.66	96.98	117.96	25.88	100
	Minimum	-145.41	-57.26	-16.18	2.18	18.95	4.83
	Standard deviation	19.37	21.7	22.91	22.79	1.47	21.19
	Statistic	ROE	NPM	ER	DAR	Size	Hr
State-owned enterprises	Mean	5.27	17.1	51.46	44.98	22.8	49.77
	Maximum	22.82	125.65	96.97	117.96	25.88	100
	Minimum	-145.42	-57.25	-16.18	2.18	20.25	7.02
	Standard deviation	21.96	21.54	23.16	23.12	1.32	21.76
	Statistic	ROE	NPM	ER	DAR	Size	Hr
Private enterprises	Mean	7.74	13.49	45.7	49.09	21.9	56.8
	Maximum	22.17	81.19	89.49	93.72	25.78	98
	Minimum	-18.77	-11.25	6.22	10.46	18.94	4.83
	Standard deviation	9.26	21.92	21.68	21.57	1.68	19.11

4.2 Regression Analysis

By SPSS software, we make regression analysis aiming at four regression analysis models. The results are shown in the Table 3.

Table 3 Regression Model analysis results

	Model 1		Model 2		Model 3		Model 4	
Variables	Coefficient	Sig.	Coefficient	Sig.	Coefficient	Sig.	Coefficient	Sig.
Size	-0.402	0.786	-3.549*	0.03	-4.651**	0.009	4.864**	0.006
Hr	0.095	0.344	0.247*	0.025	-0.082	0.484	0.073	0.528
Nat	-1.153	0.826	-16.254**	0.005	-13.143*	0.034	10.903*	0.075
R1	-6.131	0.522	1.053	0.919	-7.066	0.527	7.613	0.492
R2	2.543	0.764	-7.589	0.41	-14.665	0.14	12.931	0.189
R3	1.622	0.853	1.521	0.873	-11.983	0.242	13.51	0.184
R4	-24.248*	0.032	-16.048	0.187	-30.642*	0.021	31.883*	0.015
R5	5.558	0.667	27.475*	0.053	-9.124	0.545	11.26	0.452
F	1.595		2.351*		1.925*		1.98*	
Sig.	0.14		0.025		0.068		0.06	
Ajust-R Square	0.052		0.111		0.078		0.083	

Model 1 results show that ROE has no significant correlation with firm size, the proportion of higher educated talent, the property and the regions, which may be due to the number of years is not enough and the sample data is not accurate enough ,so the statistical model fails.

Model 2 results show that the Sig. of the net profit rate with firm size, the proportion of higher educated talent and the property of the company is less than 0.1, passing the examination. At the same time, the coefficient of firm size equals to -3.549, which is less than 0, indicating that the more the total assets are, the more unfavorably the net profit rate increases. It may be due to the increase of business scale makes the management more difficult, thus affecting the acquisition of the net profit. The coefficient of the proportion of higher educated talent equals to 0.247, which is greater than 0, indicating the higher educated talent have a positive effect on the net profit ratio and the competitive power of enterprises .The coefficient of corporate property is -16.254. As dummies, you can draw the net profit ratio of state-owned enterprises is higher than private enterprises, which may be due to state-owned enterprises have more policy support, so state-owned enterprises have a greater advantage in brand effectiveness, brand recognition and financing. In the regional aspect, only the southwestern region passes the examination, which indicates that the net profit ratio of the southwest region is higher than that in the northeast.

Model 3 results indicate that the Sig. of firm size and the property is less than 0.1, passing examination. At the same time, the coefficient of firm size is equal to -4.651, which is less than 0, that is the larger the scale of enterprises is, the more unfavorable the ratio of net assets is. The coefficient of ownership is equal to -13.143, which is less than 0, indicating that ratio of net assets in state-owned enterprises is higher than that in private enterprises .Because the state-owned enterprises are relatively larger than private enterprises and enterprise size has big impact to net assets ratio, the net assets ratio of state-owned enterprises is higher. In the regional aspect, the coefficient of the central is -30.642, indicating central China's net assets ratio is less compared to that in the northeast.

Model 4 results indicate that the Sig. of total assets and enterprise property is less than 0.1, passing test. At the same time, the coefficient of total assets equals to 4.864 , which is more than 0, reflecting that the increase of

total assets will lead to the increase of the asset-liability ratio. The coefficient of enterprise property is equal to 10.903, which is greater than 0, indicating that the asset-liability ratio of private enterprises is greater than state-owned enterprises. Private enterprises finance harder and have bigger funding gap, so private enterprises have more debt, thus causing asset-liability ratio greater. The coefficient of the central region is 31.883, which is higher than that in the northeast.

5 CONCLUSIONS AND RECOMMENDATIONS

This study investigated the relation between the competitive power of enterprises with the character of enterprises staff, firm size, property and corporate location, etc. By establishing multiple regression model, analyze the data of listed companies of China's logistics industry.

(1) The total assets have a negative influence on net assets ratio and other factors. Therefore, the total assets that are larger are not good for the improvement of the competitive power of enterprises. The assets of an enterprise grows, and the scale expands, but the problems can be more and more. In the development process of the enterprise, we can not see the expansion of corporate assets only, but should conduct in the business fundamental, focus on details of enterprises and improve the management system to ensure the stable development of enterprises, so as to improve the competitive power of enterprises.

(2) Proportion of internal high educated talent in the total personnel of the enterprise has a positive correlation with the net profit ratio. The more high educated talent in a company are, the better the competitive power of logistics enterprises is. Of course, it is not a better thing that the total number of personnel is the more and more. The number of personnel have to be controlled within a certain range, otherwise forming more and more swelling personnel structure. The increase of the number of companies should reflect the enhance of personnel professional, improvement of the quality of human labor and the increase of education level of talent, so will the development of enterprises promote.

(3) The property and location are not the key factors to affect the competitiveness of the enterprise. The financing capacity, market share ratio and the degree of standardization of the state-owned company is better than private company, but the management system and intense mechanism of the private enterprise is more advanced, and the decision-making process of the private enterprise is more quickly, and the organizational structure of the private enterprise is easier. Different companies have different strengths and weaknesses, so it is difficult to explain what kind of business enterprise is more competitive.

(4) Our region span is relatively large, so the degree of development in the various regions is not the same. Seen from the table, the central region has a greater role in promoting the competitiveness of enterprises. But in fact, in recent years, the Chinese government has published some policies for regions like the west that are less developed, thus attracting a large number of new businesses. In addition, the logistics industry, business and service shops are throughout the country. A place where produce and consume needs logistics, so the logistics industry, unlike other production enterprises, is within regional restrictions. So the logistics industry of each area is same thing, and the influence that the region on the competitiveness of logistics enterprises is not great.

Based on these findings, we propose the following recommendations for the development of logistics enterprises:

(1) Deepen the reform of property rights. Many large-scale logistics enterprises are transformed by the transport enterprise or warehousing business, so there are still many imperfections. At the same time, many companies blindly pursue the expansion of scale, ignoring the internal stability, thereby reducing the company's market competitiveness, making enterprises at a disadvantage location of the competition [8]. Therefore, we must establish a more sound internal management mechanism. Firstly, carry out internal integration of company, and optimize the allocation of resources within the enterprise, and promote the logistics enterprise reform,

and strengthen their own management service level, and improve a sound management system. Secondly, strengthen the integrated service, and develop innovative technologies, and complete wide intelligence and information technology of enterprise. The function of our traditional logistics enterprises is single, therefore developing the service that are strongly related, improving full service of the logistics, developing integrated service in the basis of original service. Moreover, we must integrate logistics resources, establish the logistics alliance, accelerate the construction of Internet of things, develop and innovate the information technology, and realize the transformation of wide information technology of the logistics.

(2) Exploit and attract human resources. Chinese logistics industry has been in rapid development period, but the lack of the talent still limits the development of Chinese logistics enterprises. Human resource is a key on the development of enterprises. How to attract the talent relates to the speed of development of logistics enterprises. First, we should pay attention to the development of logistics professional education. Logistics is interdisciplinary, relating to a multiple technology subjects. Although the logistics course has been popular in various colleges and universities[9], but in fact the logistics companies need graduates with relevant work experience in the logistics, but some college students have only theoretical knowledge, so it is difficult to meet the needs of enterprises. Therefore, enterprises should establish personnel training relations with the colleges and universities. The colleges and universities provide logistics personnel with the enterprises, and companies provide experience for students, which can solve the shortage of talent and make trained logistics personnel more targeted to fit the need of corporate sector. Second, the relevant state departments should formulate long-term logistics personnel training plan and spend more money and effort to build a better modern logistics theory and logistics disciplines education system. Pay attention to school education and in-service education, guide business and industry organizations to join personnel training programs, and implement the relevant qualification system of logistics employees, making logistics personnel more useful.

(3) Locate the areas of the development of logistics enterprises. Our county is widespread, and development of the various regions is uneven, and logistics legal system is not perfect, and logistics policy is not comprehensive, so single company that wants to develop a wide range of logistics services will face even greater difficulties and obstacles. At the same time, the resources and energy spent by a company within a area is limited[10]. So should focus on the area of development and make plan on the future development. Choose proper region and identify the development strategic. Establish the development of its core business in the region. Strengthen the advantages of regional logistics services and logistics network services. Logistics companies need to integrate their own operational capabilities, capabilities of investment of assets, logistics services objects and logistics management capabilities and other factors, thus to determine their development scope and development region. It is blind to expand region and develop lax business, thus losing their core competitiveness. A mature logistics business need to have a clear geographical positioning for their own development, but not blindly expand the business scope.

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