

A Study on the Performances of Strategic Alliance in Liner Shipping

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Abstract : The purpose of this paper is to study a relationship between alliance success factors and performances of strategic alliance. In order to achieve the purpose of this research, factor analysis, reliability and validity and regression method are used. In conclusion, alliance success factors can be divided as mutual complementarity and information sharing factor, sharing and mutual agreement of vision and goal factor, performance management factor and culture and organization factor. According to regression results, all of four factors affects significantly dependent variables. Among them, mutual complementarity and information sharing mostly affects each dependent variable.

Key words : Strategic alliance, Alliance success factor, Alliance performance, Factor analysis, Multiple regression.

1. Introduction

The international liner shipping industry has been undergoing major structural changes caused by a number of factors such as globalization of business, increased level of international competition, capital requirements beyond the scope of a single firm, desire to share substantial risks embodied in single projects and rapid pace of technological development(Ryoo, 1999). Liner companies have responded to these changes by forming global alliances and engaging in mergers and acquisitions. Many of these organizational changes have reportedly been undertaken to include achieving global capability; enhancing levels of services; seeking ways of improving asset utilization; cost reduction; limiting competition and economies of scale(Ryoo, 1999). Consolidation among liner carriers has been taking place at a dramatic pace. Such a consolidation evolved from slot sharing arrangements among liner operators, to strategic alliances and finally to corporate mergers of major companies. The most recent was the merger of two giants in the container shipping business, Maersk-Sealand and P&O Nedlloyd in May 2005. Recently, member feature of global alliance has been reshuffled through M&A process and individual firm's objective in response to the turbulent environment. The purpose of this paper is to study a relationship between alliance success factors and performances of strategic alliance. In order to achieve the purpose of this research, factor analysis, reliability and

validity and regression method are used.

2. Literature Review

Strategic alliance is partnerships of two or more corporations or business units that work together to achieve strategically significant objectives that are mutually beneficial(Elemuti and Kathawala, 2001) and an agreement between firms to do business together in ways that go beyond normal company dealings, but fall short of a merger or a full partnership(Wheelen and Huger, 2000). The purpose of participants in a strategic alliance is to establish cooperative agreements on a global basis be enabling to facilitate their service scope extension and operating cost reduction. Eelmuti and Kathawala (2001) suggested the main reasons for creating strategic alliances were: entering new markets; obtaining new technology or best quality or cheapest cost; reducing financial risk and sharing costs of research and development; achieving or ensuring competitive advantage. Midoro and Pitto(2000) claimed the motivating factors of liner's strategic alliances were the need for risk and investment sharing, economies of scales, cost control, and a capability to increase service frequencies, globalization of world market and protracted poor profitability of most carriers. Gardner proposed the formation reasons of large strategic alliances were attributed to wider geographical scope, possibility to

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perform vessel planning and co-ordination on a global scale, risk and investment sharing, economies of scale, entry in new markets, increase in frequency of service and by combing purchasing power and volume. Ryoo(1999) suggested that the main objectives for alliance participation were strengthening cargo consolidation, spreading the financial risk of capital investment, achieving better vessel and container deployment to reduce costs and economies of scale, improving geographical coverage by rationalizing call patterns. As indicated above, companies could have many reasons and motives for participating in strategic alliances and these can vary, depending on both the industry in which a firm is involved and the type of alliance. However, partnership selection is perhaps the most important step in creating a successful alliance. A successful alliance requires the joining of two competent firms, seeking a similar goal and both intent on its success. Partner compatibility refers to the ability to plan and work together in a productive, solution-oriented manner.

Robert suggested elements for successful alliances were continuous CEO direction and involvement and compatible decision-making processes. Alster claimed cultural compatibility, in addition. However, Mutual agreement on co-operation objectives, continuous CEO direction and involvement, good interpersonal relation between partners, compatible decision-making processes and good understanding by both parties of competition and marketplace were suggested by Marcus. Porter and Fuller's study(1986) listed 4 factors: complementary contribution from partners, organizational compatibility, partner compatibility and mutual agreement on co-operation objectives. Bronder and Pritzi explained fundamental fit, strategic fit, cultural fit, clearly defined contract negotiation objectives, clear specification of communication channels and learning, adaptation and review as alliance success factors. Alliance success factors could be attributed to trust, senior management support, ability to meet performance expectations, definite goals, and partner compatibility (Whipple, 2000).

3. Research Methodology

Questionnaire survey are designed by 16 items representing alliance success factors, alliance performances and general conditions as shown in Table 2. Questionnaires were delivered to the liner shipping companies which have a capital stock over one hundred million KRW in Korea over the period 5th March~30th April, 2006. The return

rate for valid responses was 54%.

Table 1 Questionnaire distribution and collection

Details	Liner shipping operators
Distribution number	455
Collection number	246
Valid response ratio	54 %
survey period	5th March ~ 30th April, 2006

Table 2 Questionnaire items

Variables	Items	Scale
Alliance success factors	1~16	Interval
Alliance performances	1~5	Interval
General conditions	1~4	nominal

On the basis of literature survey above-mentioned, 16 alliance success factors are selected as independent variables. These variables are composed of mutual complementary resource (x1), flexible decision-making system (x2), co-participation in decision-making (x3), information sharing (x4), compatible information (x5), voluntary effort and commitment (x6), clear recognition of objective (x7), sharing and mutual agreement of vision and goal (x8), CEO involvement and support (x9), understanding business cooperation and allotted task (x10), performance-risk allocation (x11), performance management system (x12), co-entry objective feature (x13), internal capability (x14), cultural fit (x15) and similarity of organizational culture (x16). These variables are measured by 5-point scale indicating the importance degree of items.

The dependent variables(global network building, enhancing logistic service, reducing excessive competition, economic scale effect, enhancing cost competitiveness) is as measured by 5-point scale indicating the importance degree of items.

This study's hypothesis are as follows;

- (H1) Alliance factors affect the global network building.
- (H2) Alliance factors affect enhancing logistic service.
- (H3) Alliance factors affect reducing excessive competition.
- (H4) Alliance factors affect the economic scale effect.
- (H5) Alliance factors affect enhancing cost competitiveness.

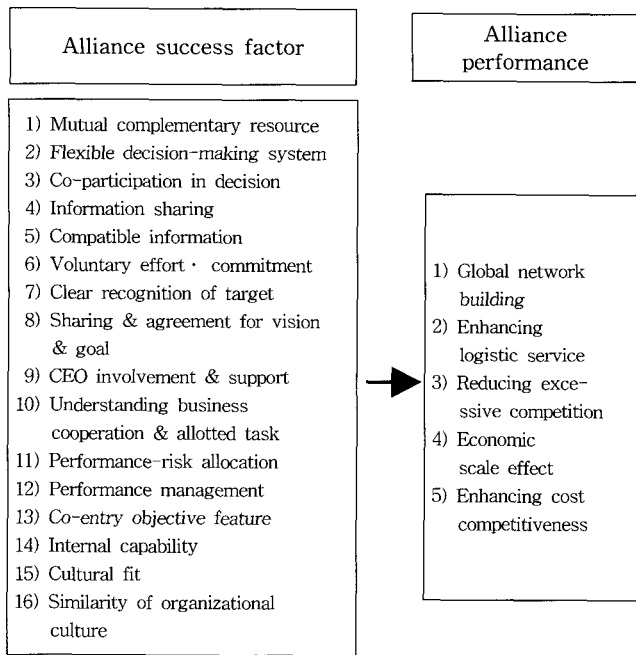


Fig. 1 Research Model

4. Result of Survey Analysis

Main factors of alliance success examined by principal axis factoring and varimax rotation method are composed of 4 factor dimensions such as mutual complementarity and information sharing, sharing and agreement of vision and goal, performance management and cultural and organization, and can be depicted as the result of Factor analysis in Table 3 and Reliability analysis in Table 4.

Table 3 Factor analysis of alliance success factors

Factor	Variables	Factor loading				Community
		1	2	3	4	
Mutual complementarity & information sharing (factor1)	mutual complementary resource	.672	.359	.324	.132	.704
	flexible decision-making system	.779	.321	.181	.040	.745
	co-participation in decision-making	.590	.209	.507	.172	.678
	information sharing	.623	.254	.349	.244	.634
	compatible information	.633	.197	.341	.249	.617
	voluntary effort & commitment	.708	.266	.150	.302	.685
Sharing & agreement of vision & goal (factor2)	clear recognition of objective	.292	.733	.270	.143	.716
	sharing & mutual agreement of vision & goal	.193	.762	.289	.220	.750
	CEO involvement & support	.331	.686	.318	.117	.695
	understanding business cooperation & allotted task	.454	.658	.237	.151	.719

Performance management (factor3)	performance-risk allocation	.248	.330	.715	.075	.687
	performance management system	.247	.309	.761	.168	.763
	co-entry objective feature	.361	.285	.635	.181	.648
	internal capability	.582	.247	.531	.163	.708
Culture and organization (factor4)	cultural fit	.109	.151	.163	.874	.824
	similarity of organizational culture	.319	.179	.121	.812	.808
Factor Fit	Eigenvalue	3.84	2.87	2.78	1.88	
	Variance(%)	23.9	17.9	17.4	11.7	71.1
Model Fit	Kaiser-Meyer-Olkin measure=.950, Bartlett' $\chi^2 = 2280.419, df = 120, P = .000$					

* Principal axis factoring and varimax rotation method is used

Table 4 Reliability of alliance success factors

Factor	Variables	mean	S · D	mean* order	order	reliability coefficient
Factor1	x1	3.47	.929	9.14	6	.895
	x2	3.42	.925	8.71	8	
	x3	3.32	.897	8.10	11	
	x4	3.37	.934	8.50	9	
	x5	3.56	.813	9.61	3	
	x6	3.52	1.000	9.35	5	
	sub total	3.44	0.921			
Factor2	x7	3.61	.875	9.97	1	.863
	x8	3.20	.927	7.58	14	
	x9	3.52	.970	9.50	4	
	x10	3.56	.923	9.66	2	
	sub total	3.45	0.926			
Factor3	x11	3.40	.965	8.74	7	.848
	x12	3.23	.937	7.62	13	
	x13	3.24	.978	7.73	12	
	x14	3.35	.972	8.42	10	
	sub total	3.29	0.962			
Factor4	x15	2.93	.835	6.12	16	.773
	x16	3.15	.900	7.23	15	
	sub total	3.04	0.87			
Total		3.365	.930			.943

*N=233, Kendall'W(a)=.070, $\chi^2 = 245.576, df = 15, P = .000$

The most important alliance performance variable is reducing excessive competition, and followed by enhancing cost competitiveness, enhancing logistic service and global network building.

Table 5 Dependent variable statistics

dependent variable	average	S · D
Global network building	3.50	.909
Enhancing logistic service	3.53	.900
Reducing excessive competition	3.62	.971
Economic scale effect	3.26	.932
Enhancing cost competitiveness	3.59	.927

According to regression results in Table 6 ~ Table 10, all of four factors influence alliance performance significantly.

Regression results of reducing excessive competition represent that all factors affect reducing excessive competition significantly. Among four factors, factor 1(mutual complementarity and information sharing) most affects reducing excessive competition and followed by factor 2, 3 and 4.

Table 6 Regression results of reducing excessive competition

variables	B	S.E.	Beta	t value	P value
constant	3.644	.050		72.194	.000*
factor1	.402	.051	.414	7.955	.000*
factor2	.372	.051	.382	7.352	.000*
factor3	.187	.051	.192	3.687	.000*
factor4	.166	.051	.171	3.281	.001*
$R^2 = .383, F = 35.425, P = .000$					

* Sig. level; * p<0.01

In case of economic scale effect, factor 1(mutual complementarity and information sharing) most affects economic scale effect and followed by factor 2, 4 and 3.

Table 7 Regression results of economic scale effect

variables	B	S.E.	Beta	t	P
constant	3.266	.048		67.673	.000*
factor1	.343	.048	.365	7.093	.000*
factor2	.334	.048	.355	6.915	.000*
factor3	.215	.048	.228	4.441	.000*
factor4	.277	.048	.294	5.726	.000*
$R^2 = .398, F = 37.661, P = .000$					

* Sig. level; * p<0.01

Following the similar results above as shown in Table 8~Table 10, regression results indicate that factor 1 most affects enhancing cost competitiveness, enhancing logistics service and global network building respectively and followed by factor 2. In conclusion, it can be said that factor 1 most affects dependent variables.

Table 8 Regression results of enhancing cost competitiveness

variables	B	S.E.	Beta	t	P
constant	3.618	.042		87.126	.000*
factor1	.502	.042	.548	12.066	.000*
factor2	.352	.042	.384	8.463	.000*
factor3	.181	.042	.197	4.342	.000*
factor4	.192	.042	.209	4.610	.000*
$R^2 = .530, F = 64.332, P = .000$					

* Sig. level; * p<0.01

Table 9 Regression results of enhancing logistic service

variables	B	S.E.	Beta	t	P
constant	3.541	.042		84.276	.000*
factor1	.473	.042	.522	11.226	.000*
factor2	.313	.042	.346	7.438	.000*
factor3	.218	.042	.241	5.173	.000*
factor4	.213	.042	.235	5.052	.000*
$R^2 = .506, F = 58.409, P = .000$					

* Sig. level; * p<0.01

Table 10 Regression results of global network building

variables	B	S.E.	Beta	t	P
constant	3.502	.044		80.120	.000*
factor1	.479	.044	.521	10.929	.000*
factor2	.275	.044	.299	6.270	.000*
factor3	.152	.044	.165	3.468	.001*
factor4	.284	.044	.309	6.485	.000*
$R^2 = .483, F = 53.207, P = .000$					

* Sig. level; * p<0.01

5. Conclusions

The findings and summary of this article are suggested as followings.

First, alliance success factors can be divided as mutual complementarity and information sharing factor, sharing & mutual agreement of vision and goal factor, performance management factor and culture and organization factor. And also these four factors are recognized very importantly for successful strategic alliance formation.

Second, among four factors, the most important factor is analyzed as the mutual complementarity and information sharing including mutual complementary resource, flexible decision-making system, co-participation in decision-making, information sharing and compatible information. Next is followed by sharing & agreement of vision and goal indicating clear recognition of objective, CEO involvement and support and understanding business cooperation & allotted task.

Third, the most important alliance performance variable is reducing excessive competition, and followed by enhancing cost competitiveness, enhancing logistics service and global network building.

Fourth, according to regression results, all of four factors affects significantly dependent variables. Among them, mutual complementarity & information sharing most affects each dependent variable and followed by factor 2(sharing

and mutual agreement of vision and goal). Nevertheless, this paper did not measure and consider financial and qualifiable variables in order to verify alliance success factor affecting alliance performance and also not include various foreign-flagged liner operators within samples. More concrete and commonly accepted research will be carried out.

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