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Full Length Research Paper

Empirical study on strategic transformation to supply chain service of FTCLCs under global financial crisis

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Under the global financial crisis, changes in external environment have positive impacts on strategic transformation of Foreign Trade-based Chinese Logistics Corporations (FTCLCs) to supply chain service. The paper adopts a seven-point Likert Scale analysis method and conducts a survey with questionnaire, and then makes factor analysis method to find out a necessary enterprise capability combination. The results indicate that there are 5 crucial factors which affect strategic transformation of FTCLCs: Operational capability inside, Strategy management capability, Profit mode capability, Flexible operation capability, and Control capability of operation, known as OSPFC. Moreover, the way to use OSPFC capability combination is discussed in detail in this paper. This paper would be useful for FTCLCs to detect capability defectives when making strategy decisions. Finally an empirical example, Shanghai Xinhai custom brokerage company in China is exemplified for reference.

Key words: Financial crisis, strategic transformation, supply chain service, capability combination model.

INTRODUCTION

The global financial crisis has led to obvious reduction of import and export trade volume in China since 2008, while this downward trend has intense impact on Chinese logistics industry. FTCLCs, including international freight forwarding enterprises, customs brokerage companies and international shipping and logistics enterprises were the first to be affected. Under this financial crisis environment, the problems that most FTCLCs are facing with include: business volume reduction, lack of funding, more risks, profit declining, and even deficit and bankruptcy. For example, some international shipping logistics corporations, such as COSCO, China Overseas logistics, etc. have run into business income and profit reduction problems seriously, and even negative profit; Another aspect, many freight forwarding enterprises could not escape from these troubles: sharp dropping in export orders, a disorderly market caused by low price competition, serious layoffs; As for customs brokerage companies, there was a sharp reduction in business volume, and the profits of most companies declined dramatically. Based on the prediction of China Federation of Logistics and Purchasing (CFLP), most logistics companies' business would decrease obviously, and their market growth would decline 20 - 30% less in general than last years, and more than 60% logistics companies would run into negative growth (He, 2008). Under this situation how to make the FTCLCs survive and develop needs to be addressed and solved urgently.

With the influences of the financial crisis, many FTCLCs are trying to seek for strategic transformation, while providing supply chain service is one critical orientation. Supply chain service means that based on up-down stream structure of production enterprise supply chain, service-based companies integrate and optimize the supply chain's material flow, information flow and capital flow in order to provide added-value services for purchase, production and distribution. Anderson Consulting Co. pointed out that more and more companies are realizing supply chain solution is the trend, which needs logistics companies to integrate resources, capabilities and technologies from other groups and conduct service innovation (Bumstead and Cannnons, 2002). Nathalie Fabbe-Costes et al. (2009) considered that supply chain integration (SCI) was becoming the developing trend of logistics outsourcing. The paper studied logistics services providers (LSP)' effects on supply chain integration and performance, which

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which considered LSP had natural advantages in supply chain integration and contained the basis to get in supply chain integration business. Supply chain integration service becomes the developing direction of many LSPs.

Although China is impacted by the financial crisis, supply chain service is showing good potentiality, and more and more logistics companies show their interests in this field. According to the study by CFLP on November 2008 in Shenzhen, the business volume in most local logistics companies reduced, but Shenzhen Yiyatong supply Chain Company achieved a growth rate of 300%, and gained the net profit of 28 million in the first half of the year. This company obtained great accomplishments in supply chain service innovations except its strong solidarity (He, 2008). Thus many trade-based domestic logistics companies are also trying to transform into supply chain service. For example, Shanghai Xinhai custom brokerage company established its subsidiary in January 2009 - Shanghai Xinhai supply Chain Company, and made a strategic planning of supply chain development in March 2009. Based on its original freight forwarding business, Shanghai Xinyun International Logistics Company established Shanghai Xinyun Supply Chain Management CO Ltd., which widen the supply chain links, such as procurement and sales, by making use of the freight forwarding network, and provide the customers integrated supply chain services with international import and export.

Currently, the study to reveal the relationship between the financial crisis and FTCLCs' strategic transformation to supply chain service is at its initial stage. As the financial crisis has a great impact on the development of foreign trade-based logistics companies in China, questionnaire survey was conducted to analyze strategic transformation to supply chain service of FTCLCs, which will be helpful for FTCLCs to develop crisis strategies, and to master the developing trend of supply chain service transformation.

Literature review

Impacts of the financial crisis on Chinese logistics enterprises

The global financial crisis was penetrating to the solid economy all over the world; meanwhile Chinese logistics industry was severely affected by the crisis, and the development is stuck by various difficulties. Therefore, the impacts of the financial crisis on logistics companies are concerned by many scholars in China. Through the case study of Shanghai Hengyun Logistics Company, Song and Hou (2009) elaborated that Chinese logistics companies, especially FTCLCs were extremely weak in front of the financial crisis. Feng (2009) indicated that this financial crisis led to the global economic downturn, and brought actual and potential impacts on the developing logistics industry. Under the financial conditions, the challenges to the slowing development of Chinese logistics companies were analyzed, at the same time opportunities of the logistics industry upgrading and service level promoting behind the market were summarized. Yang (2009) pointed out that with the spreading of the U.S. sub-prime lending crisis and the whole slowdown of global economy growth speed, the international import and export trade was impacted severely, so were FTCLCs. From international logistics, domestic logistics and business logistics these three aspects, the impacts of financial crisis on Chinese logistics companies were analyzed.

Coping strategies of logistics companies, especially FTCLCs

For the financial crisis on Chinese foreign trade logistics enterprises, many scholars have put forward a number of logistics strategies. For example, Yang (2009) proposed strategies like increasing government investments and guiding strength, promoting joint development between logistics and production companies, and improving service capabilities of logistics companies. Tao and Wang (2009) introduced the basic situation of Chinese logistics economic operation, and then conducted SWOT analysis to the impacts of the financial crisis on Chinese logistics industry. On this basis strategies to deal with the crisis were discussed and supply chain service models based on the network information technology were presented. Li and Cao (2009) considered that government should increase political supports, optimize enterprise resources, fasten the professional talents training and develop third-party logistics. The financial crisis influenced severely on logistics companies in Guangdong province, which has a high degree of dependence on foreign trade. Lv and Zhang (2009) carried out a research about this problem and discussed the development of international logistics in Guangdong from macro and micro aspects.

Research of capability combinations that logistics development strategies need

Integrated strategy capability of logistics companies

Logistics enterprises are external providers that offer part or all the enterprises logistics functions through professional, large-scale, network and information operations, with the best logistics services by the lowest logistics costs, so as to enhance market competitiveness of customers' products. Thus logistics companies not only need to emphasize the integration of required resources but also the integration of capability resources because integration strategy is one of the important strategies of logistics companies.

Kahn and Mentzer (1996) considered that logistics integration was the developing direction of logistics enterprises, and the integration among different departments should be paid much attention to, which would produce better customer service, better management of inventory levels, more accurate prediction results, and greater customer and employee satisfaction.

In chapter 3 of the book "*21st Century logistics: making supply chain integration a reality*" by Bowersox et al. (1999) discussed 6 types of integration: customer integration, internal integration, material and service supplier integration, technology and planning integration, evaluation integration, and relationship integration. And the book pointed out that the more types of integration are, the larger the size of the integration is becoming.

Slater (2000) discussed that as the third-party logistics service providers reduce the costs and increase the service levels, the logistics enterprises not only emphasize the competences, but also pay more attention to the cooperation with each other, and realize the resource integration and network association.

Persson and Virum (2001) analyzed the development strategies of logistics service providers, dividing logistics service providers into four categories based on operational complexity and asset specificity: basic logistics operator, advanced logistics network, specialized logistics operator and logistics integrator. They considered the emergence of integrated logistics providers resulted from resource integration strategies.

Delfmann et al. (2002) presented four types of logistics service providers (LSP) in terms of service type. The first type provides standardized logistics services, such as transportation and storage etc.; the second type packs these services together in order to meet the requirements of customers; the third type provides services based on personalized demands of customers. Currently, most logistics companies are trying to develop towards the second and the third type of LSP, thus integration becomes an important strategy.

Lemoine and Dagnaes (2003) studied the globalization strategy and business organization network of the third-party LSP, and considered that the current third-party LSPs were implementing global resources integration strategies, and improving business organization structure with network.

Lai (2004) used Factor Analysis method and got four types of LSPs according to the service capability displayed by each type, including traditional freight forwarders, transformers, full-service providers and nichers. The emergence of these four types of LSPs is the result of integrated strategies.

Gimenez and Ventura (2005) examined the impact of logistics-production, logistics-marketing interface and the external integration on logistics performance. The results indicated that internal and external integration influenced each other. Integration in the logistics-marketing interface did not reduce the costs and leading-time, while the integration in the logistics-production interface did improve the performance measures, and so did the integration among the external supply chain members.

Service innovation strategy

With the variability of customers' demands, more and more logistics companies are paying more attention to the service innovation strategies, and strengthening the innovation in service contents, service models and service technologies in order to meet the logistic demands of customers.

Daugherty et al. (1996) examined customer demands to the third-party LSP services from the purchasers' perceptions. The result showed that more and more customers expected that the third-party LSPs strengthened the service innovation and provided more added- value services.

Lin (2006) and Lin (2008) studied the deterministic factors influencing the adoption of technological innovations by logistics enterprises in China and investigated the influences of new technologies on supply chain performance. The results showed that the adoption of technological innovations was significantly influenced by technology level, organizational and environmental characteristics, meanwhile utilizing new technologies would increase supply chain performance for the logistics industry in China.

Bearth (2008) found that although the ranking may appear to be little changed in the composition of the 2008 edition of TRANSPORT TOPICS' Top 50 Logistics Companies, many top-class logistics enterprises like UPS, DHL, Schneider have provided more types of services, designed more service solutions and fastened the innovation steps.

Risk management strategy

With the development of economic globalization, logistics enterprises will confront with a wide range of risks in the market competition, and how to identify, assess, monitor and control risks have become the hot issues that every one concerns. Due to the complex reasons of forming into the enterprise risks, strengthening risk management could enable enterprises to reduce and eliminate risks, to survive and develop better. Many Chinese logistics companies like COSCO and Sinotrans have already paid attention to risk management strategies.

Turnbull (2007) believed that once there were non-compliant suppliers or unreliable service, the most important thing was to ensure the timeliness and effectiveness of logistics operations, so risk management had become an important means.

Woodham (2008) considered that supply chain were displaying the vulnerability and flexibility of logistics,

therefore, it's necessary for logistics companies to enhance risk management in order to weaken the risk factors and increase the anti-risk capability.

Information strategy

Since 1990s, constant information technology innovation has achieved the sustainable development of information industry, and popularization of information network, which makes information become into the marked features of global socio-economic development. In the 21st century, information has a more profound influence on socio-economic development. Information and globalization are interwoven with each other, which promotes the global industrial division and economic restructuring, and reshapes the global economic competing patterns. So more and more companies especially logistics companies are paying more attention to information strategies.

Langley et al. (1995) examined microcomputer functions in the logistics information strategy among manufacturing and merchandising firms in the US. The results presented the results of 3 consecutive yearly studies, which included the in-depth telephone interviews with 100 logistics executives. A number of trends were documented regarding microcomputer use in logistics.

Piplani et al. (2004) studied the information technology use of the third-party LSP in Singapore. It indicated that more and more service providers were either planning to establish the special IT department or gain more profits with the current IT technology.

Haughton (2006) with questionnaires studied quantitatively eight small or medium sized declaration enterprises in Canada, the results indicated that information and communication technology was becoming the applied trend among small or medium sized declaration enterprises widely, and the main motivation lied in that operation efficiency can be improved greatly.

Paulraj and Chen (2007) explored the relations among buyer-supplier relationships, information technology and external logistics integration. The results showed that information technology promoted the relation forming between buyer-supplier relationships and logistics integration.

Haughton (2006) found that logistics and information technology strategies were developed and implemented in a parallel way by both local and multinational food multiple retailers in Greece. A financial ratio analysis was carried out for these firms, suggesting that multinational firms possessed greater operational efficiency at both secondary and in-store distribution operations compared with domestic firms, largely due to their integration of logistics and information technology operations.

Lai et al. (2008) explored the impact of electronic integration of intra-organizational and inter-organizational business processes on organizational performance in terms of logistics cost and service improvements. Their empirical findings revealed that electronic integration was positively associated with logistics performance in cost.

Other strategy capabilities

Other strategies are concerned by many scholars, such as service standardization strategy, management innovation strategy, financial strategy, knowledge strategy etc.

Menon et al. (1998) studied the criteria for selecting 3PL services providers and found management innovation and financial stability were very important, because customers were generally more emphasized on these two criteria.

Dawson (2000) considered that knowledge capability, as invisibly transferring ability, played an important role on organization development and strategy, and logistics enterprises should pay attention to it.

Capability combination strategies

Some scholars have made some studies in capability combinations. For example, Lynch et al. (2000) used structural equation model to study the relationships among logistics capability, strategy and performance. The logistics capability combinations presented included added-value services capability and process capability. Carbone and Stone (2005) investigated the top 20 3PL services providers during 1998 to 2004, and focused on merging, reorganization and alliances among them. The results demonstrated that these companies paid close attention to resources integration during development and to services expansion and innovation. They advised 3PL services providers should care the portfolio effect of service innovation strategy and resource integration strategy.

Besides logistics companies, some scholars researched general strategy combinations of enterprise development. Ansoff and McDonnell (1990) proposed two kinds of capability combinations, one is functional capability (such as marketing, production, research and development capability), the other one is general management capability (like growth management, multiple management).

Montealegre (2002) considered that capability resources combination of e-commerce venture included organization culture, information technology, social network and leadership capability. Li et al. (2006) studied development strategies of Chinese township and village enterprises, and revealed the development path of their capability combinations. Chew et al. (2008) studied core capabilities and competition strategies of Chinese small and medium-sized enterprises, and considered that core capabilities are closely related to competition strategies, in which core capabilities included entrepreneurship, marketing and innovation capability; and potential competition strategies included cost, quality, distribution

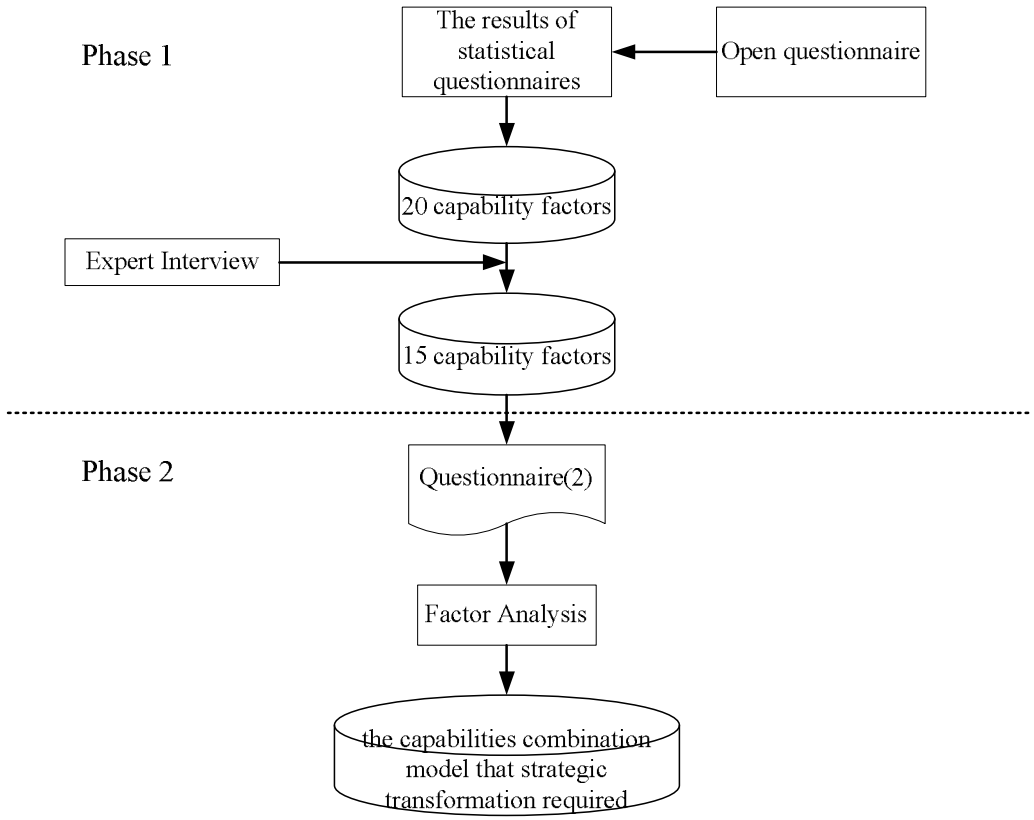

Figure 1. Research process.

and cooperation.

METHODOLOGY

The research process of the analysis of the capability combination which supports FTCLCs' strategic transformation is shown in Figure 1.

Survey areas selection

In order to know the influence of financial crisis on FTCLCs completely, the surveys were conducted in the eastern coastal areas of China which covered more than 80% of total import and export volume of foreign trade. Key areas are Pearl River Delta region, Yangzi River Delta region and Bo Hai Coastal Region. Taken the availability of samples into consideration, five cities were selected for surveys: Shenzhen in Pearl River Delta region, Shanghai, Nanjing and Hangzhou in Yangzi Delta region, and Tianjin in Bo Hai Coastal Region.

Survey time determination

The impact of financial crisis on China has been deepening in 2009. Thus, the survey time was from Jan.2009 to Aug.2009. The exact time included January, March, May, July and August. In Jan.8th, 2009, the author participated in the "Logistics Enterprises and Financial Crisis" forum held by Shanghai Port Logistics Association.

In January. 16th, 2009, the surveys among customs brokers and logistics enterprises were conducted in the 10th anniversary conference by Shanghai Brokerage Association. From Mar.23th to Mar.27th, the author attended the forum on development of logistics enterprises in Nanjing, Jiangsu province. From May 3th to May 9th the forum of key logistics enterprises was attended in Hangzhou, Zhejiang. At the end of July, the surveys among foreign trade logistics enterprises were investigated in Tianjin. At the end of August, the surveys on foreign trade logistics enterprises were made in Shenzhen. With all these efforts, the original data and reports were obtained.

Profile of survey samples

Since the survey time and places varied, the number of samples was different in each phase. The questionnaires summary to study the 5 areas was shown in Table 1, and the questionnaires were open. Respondents were required to list key capability factors influencing strategic transformation of foreign trade logistics enterprises according to degree of importance. The total number of questionnaires delivered in the 5 areas was 363, in which 248 were returned. The return rate was 68.32%. After the collection, statistic analysis of the questionnaires was made, 20 key factors which had influence on enterprise strategic transformation were found out. The 20 factors are shown in Table 2.

As shown in table 2, among the 20 influencing factors, the highest frequency occurred is the integration capability of logistics resources, which is mentioned by 190 respondents.

And the second highest is the control ability of supply chain costs, which is mentioned by 182 respondents. The third one is the

Table 1. Profile of the questionnaires from different areas.

	Shanghai	Nanjing	Hangzhou	Tianjin	Shenzhen
Survey time	January, 2009	March, 2009	May, 2009	July, 2009	August, 2009
Questionnaire return	Delivery 55 Return 38 Return rate 69.1%	Delivery 56 Return 42 Return rate 75%	Delivery 58 Return 46 Return rate 79.3%	Delivery 96 Return 60 Return rate 62.5%	Delivery 98 Return 62 Return rate 63.2%
Enterprise character	**(N(%))**	**(N(%))**	**(N(%))**	**(N(%))**	**(N(%))**
country-owned enterprise	10(26.3)	12(28.57)	6(13.04)	9(15)	8(12.9)
private enterprise	9(23.7)	15(35.70)	26(56.52)	30(50.00)	36(58.1)
Sino-foreign joint venture	3(7.9)	7(16.67)	7(15.27)	7(11.67)	6(9.7)
collective enterprise	12(31.6)	4(9.52)	5(10.86)	10(16.67)	10(16.1)
others	4(10.5)	4(9.52)	2(4.35)	4(6.67)	2(3.2)
Enterprise assets					
1.5 - 5million	8(21.1)	8(19.05)	4(8.70)	22(36.67)	21(33.87)
5 - 10 million	10(26.3)	21(50)	25(54.34)	26(43.33)	23(37.09)
>10 million	20(52.6)	14(30.95)	17(36.95)	12(20.00)	18(29.0)
Number of employees					
20 - 50	3(7.9)	0(0)	0(0)	6(10.00)	8(12.9)
50 - 100	5(13.2)	4(9.52)	7(15.27)	10(16.67)	11(17.74)
100 - 300	7(18.4)	16(38.10)	19(41.3)	16(26.67)	15(21.19)
300-500	6(15.8)	14(33.33)	12(26.09)	15(25)	18(29.0)
>500	17(44.7)	8(19.05)	8(17.39)	13(21.67)	12(19.4)
Working experience					
3 - 5 years	3(8.1)	7(16.67)	10(21.74)	18(30.00)	17(27.42)
5 - 7 years	2(5.4)	21(50)	22(47.83)	24(40.00)	21(33.87)
>8 years	33(86.5)	14(33.33)	14(30.43)	18(30.00)	24(32.3)
Position					
staff	1(2.7)	2(4.76)	4(8.70)	11(18.33)	8(12.9)
supervisor	1(2.7)	10(23.81)	13(28.26)	18(30.00)	16(25.8)
manager	25(64.9)	18(42.86)	15(32.6)	25(41.67)	26(41.9)
Chief official	11(29.7)	12(28.57)	14(30.43)	6(10.00)	12(19.4)
Age					
<25	1(2.7)	2(4.76)	2(4.35)	8(13.33)	9(14.51)
25 - 35	10(27.0)	17(40.47)	21(45.65)	30(50.00)	29(46.77)
36 - 55	14(37.8)	24(54.76)	23(50)	22(36.67)	24(38.7)

Table 2. Results list of the open questionnaire.

Key capability factor	Mentioned times
Integration capability of logistics resources	190
Control capability of supply chain costs	182
Emergency management capability	41
Innovation capability of logistics services	125
Large-scale operation capability	56
Ability of logistics information	64
Standard operation capability	28
Supply chain risk management capability	69
Human resources management capability	53
Brand management capability	25
Marketing capability	64
Leadership capability	56
Financial management capability	40
Capital operation capability	45
Strategy implementation capability	83
Corporate culture capability	19
Institutional innovation capability	35
Ability to manage customer relationships	40
The core technical capabilities	54
Government-enterprise relations capability	25

Table 3. The results of expert interview.

Key capability factor	Mentioned times
Integration capability of logistics resources	6
Control capability of supply chain costs	5
Innovation capability of logistics services	6
Strategy implementation capability	5
Supply chain risk management capability	3
Ability of logistics information	4
Marketing capability	3
Large-scale operation capability	3
Human resources management capability	2
Leadership capability	4
Capital operation capability	3
Financial management capability	2
Emergency management capability	2
Standard operation capability	2
Brand management capability	2

innovation capability of logistics services, mentioned by 125 people. The forth one is strategy implementation capability, mentioned by 83 people. The fifth one is supply chain risk management capability, which is mentioned by 69 people.

Expert Interview

After the open questionnaire, 6 experts were interviewed, 2 of whom are professors on logistics, another 2 are high-level managers of logistics companies, and the rest 2 are directors of logistics operation. Among the 20 capability factors, 15 key factors were selected more than 2 times by them as the base of the 2nd phase questionnaire. These factors are shown in table 3.

RESULTS

Questionnaire and samples

Based on the results of the questionnaire survey in the

Table 4. Profile of the respondent.

	Category	Number	Percentage
Business Type	Freight forwarding business	89	35.60
	Shipping companies	32	12.80
	Customs companies	57	22.80
	Integrated Logistics Enterprises	49	19.60
	Others	23	9.20
Business Nature	State-owned	32	12.80
	Private-owned	142	56.80
	Sino-foreign joint venture	24	9.60
	Collective	41	16.40
	Others	11	4.40
Assets size	Under 1.5 million	33	13.20
	1.50-5 million	56	22.40
	5-10 million	90	36.00
	More than 10 million	71	28.40
The number of employees	Less than 20	0	0.00
	20-50	32	12.80
	50-100	42	16.80
	100-300	56	22.40
	300-500	76	30.40
	More than 500	44	17.60
Working years in logistics industry	Less than 2years	25	10.00
	3－5 years	49	19.60
	5－7years	99	39.60
	More than 8 years	77	30.80
Position	Staff	37	14.80
	Supervisor	63	25.20
	Manager	103	41.20
	Chief official	47	18.80
Age	Under 25	42	16.80
	25－35	115	46.00
	36－50	93	37.20
	Larger than 50	0	0.00

first phase, 15 capability factors are gotten which affect FTCLCs' strategic transformation. But which ones are the most important, and which are comparatively important? For this reason, the 2nd questionnaire was designed, requiring the respondents to give the importance degree to each of these 21 capability factors using likert scale method. The type of Likert Scale analysis method is a seven-point scale, 1 means very unimportant, 7 means very important, 4 means general level of importance. Through the likert scale analysis, the key capability factors of companies' strategic transformation can be achieved.

The questionnaires were delivered to the enterprises in the 5 areas mentioned above again. The survey time was

from late August, 2009 to early September, 2009. The questionnaires were delivered and returned through post office. The number of questionnaires was 363, in which 250 were returned, and the return rate was 68.87%, higher than that in the first phase, 68.32%. Table 4 shows the profile of the samples.

Table 5. Selected results of the importance ranking of these 15 capabilities.

Capability	Frequency	The percentage of frequency to the number of questionnaires	Rank
Integration capability of logistics resources	215	86.00	1
Control capability of supply chain costs	192	76.80	2
Innovation capability of logistics services	143	57.20	3
Strategy implementation capability	86	34.40	4
Supply chain risk management capability	81	32.40	5
Ability of logistics information	74	29.60	6
Marketing capability	63	25.20	7
Large-scale operation capability	59	23.60	8
Human resources management capability	56	22.40	9
Leadership capability	55	22.00	10
Capital operation capability	53	21.20	11
Financial management capability	48	19.20	12
Emergency management capability	38	15.20	13
Standard operation capability	32	12.80	14
Brand management capability	30	12.00	15

Table 6. Descriptive statistics results of the questionnaire.

Capability category	Average	S.D.
Integration capability of logistics resources	6.3123	1.034
Control capability of supply chain costs	5.9987	1.234
Emergency management capability	4.232	1.323
Innovation capability of logistics services	5.5328	1.239
Large-scale operation capability	4.4609	1.278
Ability of logistics information	5.1342	1.432
Standard operation capability	4.2832	1.765
Supply chain risk management capability	4.8912	1.651
Human resources management capability	4.6123	1.234
Brand management capability	4.3223	1.432
Marketing capability	4.6767	1.435
Leadership capability	4.5674	1.767
Financial management capability	4.6767	1.765
Capital operation capability	4.3123	1.631
Strategy implementation capability	5.2134	1.529

Frequency analysis

With the help of the software of SPSS 13.0 to analyze the returned 250 questionnaires, ranking the order of the 15 factors was listed as shown in Table 5.

From the frequency analysis shown, integration capability of logistics resources, control capability of supply chain costs, innovation capability of logistics services, strategy implementation capability and supply chain risk management capability are the five most important capabilities, whose frequencies are all over 80. And more than half of the respondents (more than 125 people) selected

integration capability of logistics resources, control capability of supply chain costs, and innovation capability of logistics services, indicating that the three capabilities were confirmed by most respondents.

Shown from Table 6, the top 5 capabilities that have the highest averages are: integration capability of logistics

Table 7. KMO and Bartlett test results.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.785
Bartlett's Test of Sphericity	Approx. Chi-Square	160.268
	Df	105
	Sig.	0.000

resources, control capability of supply chain costs, innovation capability of logistics services, strategy implementation capability and ability of logistics information. Their averages are 6.3123, 5.9987, 5.5328, 5.2134and 5.1342. Different from the analysis of the frequency statistics, the average of logistics information capability is higher than that of supply chain risk management capability.

Factor analysis

After counting frequencies for the importance degree of the questionnaire data, the software SPSS 13.0 was used to conduct factor analysis for these 15 capability factors. First the survey data should be decided to be suitable for factor analysis, i.e. Bartlett Test of Sphericity and KMO test should be conducted.

KMO test gives a measure of sampling adequacy, which can be used to examine whether the partial correlation between variables is too small, the closer to 1 the KMO value, the more suitable for factor analysis. When KMO is larger than 0.9, it is extremely suitable; when KMO is between 0.8-0.9, it means very suitable; when KMO is between 0.7-0.8, suitable; when KMO is between 0.6-0.7, not very suitable; when KMO is between 0.5-0.6, reluctant; When KMO is smaller than 0.5, not suitable.

Bartlett Test of Sphericity is used to test whether the correlation matrix is a unit one. If so, then the factor model is inappropriate. A large test value usually means the significance of the test results, meaning the factor analysis can be carried out. Otherwise, it should be considered carefully.

Therefore, Bartlett Test of Sphericity and KMO test to the collected data were conducted, and the results are shown in Table 7.

From Table 7, KMO is 0.785, larger than 0.7, meaning it's suitable for the factor analysis; the Sig. from Bartlett Test of Sphericity was 0, less than significance level α=0.05, which means the correlation matrix is not a unit matrix, so the null hypothesis of Bartlett Test of Sphericity can be rejected, and it's suitable for factor analysis.

Table 8 is a component matrix, by rotating Table 8, Table 9 and 10 can be gotten. As shown in Table 9, the sum of Eigen values of the top 5 factors account for 70.068% of the total variance, meaning that these 5 factors can explain 70.068% of variables, so the result of factor extraction is satisfactory. Table 10 gives the result of the Factor Analysis.

On the basis of the results above, the capability combination which impacts the FTCLCs' strategic transformation was achieved.

Internal operation capability (3 items, including standardized operation capability, large-scale operation capability and integration capability of logistics resources); Strategy management capability (3 items, including leadership capability, human resources management capability and strategy implementation capability); Profit mode capability (4 items, including capital operation capability, marketing capability, financial management capability and innovation capability of logistics services); flexibility operation capability (2 items, including emergency management capability and brand management capability); Operation control capability (3 items, including control capability of supply chain costs, ability of logistics information and supply chain risk management capability). Their alpha reliabilities are 0.7073, 0.7157, 0.7141, 0.7718, and 0.7208, respectively.

Discussion of OSPFC capability combination model

From the empirical analysis above, 5 key capabilities which affect and decide FTCLCs' strategic transformation are determined: Operation capability inside (O), Strategy management capability (S), Profit mod capability (P), Flexibility operation capability (F), and Control capability of operation (C), in short of OSPFC capability combination.

Operation capability inside (Operation, O for short)

Internal operation capability is the business management capability of FTCLCs, which, to satisfy customers' needs and realize their own goals, is an operation capability through standardizing the process, operating large-scale networks and integrating logistics resources so as to accomplish companies' profit targets. With the development of information technology and its use in FTCLCs, the enterprises' internal information sharing has been

realized and the management transparency has been increased, which greatly enhanced the efficiency of internal operation. Increasing the internal operation effectiveness could promote companies' supply chain and logistics service capabilities greatly, cut down operation costs and improve service efficiencies.

Table 8. Component Matrix (a).

	Component				
	1	2	3	4	5
Integration capability of logistics resources	0.458	0.526	-0.064	0.178	-0.156
Control capability of supply chain costs	0.366	-0.284	0.272	0.673	0.032
Emergency management capability	0.457	0.169	-0.359	0.046	-0.647
Innovation capability of logistics services	0.557	0.160	0.416	-0.145	-0.016
Large-scale operation capability	0.275	0.724	0.277	0.178	0.370
Ability of logistics information	0.492	0.303	-0.372	-0.531	0.067
Standard operation capability	0.475	0.666	0.073	0.054	0.171
Supply chain risk management capability	0.348	-0.616	0.002	0.336	-0.266
Human resources management capability	0.498	-0.171	-0.354	0.317	0.439
Brand management capability	0.682	0.303	0.323	-0.063	-0.405
Marketing capability	0.392	-0.387	0.585	-0.128	-0.013
Leadership capability	0.619	-0.400	-0.445	-0.185	0.148
Financial management capability	0.555	-0.547	-0.018	-0.229	0.061
Capital operation capability	0.374	-0.383	0.429	-0.386	0.186
Strategy implementation capability	0.664	-0.042	-0.323	0.184	0.162

Table 9. Total variance explained.

Component	Initial Eigen values			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	3.666	24.442	24.442	3.666	24.442	24.442	2.559	17.061	17.061
2	2.728	18.186	42.629	2.728	18.186	42.629	2.445	16.301	33.362
3	1.659	11.062	53.691	1.659	11.062	53.691	2.218	14.790	48.151
4	1.328	8.853	62.543	1.328	8.853	62.543	1.752	11.680	59.832
5	1.129	7.524	70.068	1.129	7.524	70.068	1.535	10.236	70.068
6	0.877	5.844	75.911						
7	0.760	5.069	80.981						
8	0.651	4.337	85.317						
9	0.628	4.190	89.507						
10	0.447	2.981	92.488						
11	0.378	2.517	95.005						
12	0.238	1.587	96.592						
13	0.197	1.316	97.908						
14	0.167	1.115	99.023						
15	0.147	0.977	100.000						

Extraction Method: Principal Component Analysis.

Strategy management capability (Strategy, S for short)

On the basis of strategic research, strategy management capability is centered on the optimal distribution of the core resources to realize the control ability of strategy formulation, strategy implementation and strategy reforming process. Specifically, it mainly comprises of leadership

Table 10. Rotated Component Matrix (a).

Item	Component				
	1	2	3	4	5
	Internal operation capability	**Strategy management capability**	**Profit model capability**	**Flexibility operation capability**	**Operation control capability**
Standard operation capability	0.799	0.132	0.018	0.191	-0.118
Large-scale operation capability	0.913	-0.037	-0.016	-0.096	0.002
Integration capability of logistics resources	0.558	0.120	-0.093	0.459	0.019
Leadership capability	-0.187	0.810	0.243	0.169	-0.136
Human resources management capability	0.166	0.780	-0.055	-0.101	0.217
Strategy implementation capability	0.222	0.701	0.051	0.227	0.111
Capital operation capability	-0.056	0.137	0.780	-0.146	-0.048
Marketing capability	-0.028	0.000	0.774	0.002	0.251
Financial management capability	-0.250	0.524	0.563	0.100	0.020
Innovation capability of logistics services	0.421	0.037	0.551	0.219	0.015
Emergency management capability	0.005	0.185	-0.111	0.860	-0.033
Brand management capability	0.443	-0.025	0.452	0.652	0.057
Control capability of supply chain costs	0.127	0.230	0.165	0.039	0.803
Ability of logistics information	0.250	0.414	0.123	0.298	0.649
Supply chain risk management capability	-0.381	0.321	0.241	0.267	0.553
Alpha	0.7073	0.7157	0.7141	0.7718	0.7208

Extraction Method: Principal Component Analysis.
a: Rotation converged in 7 iterations

capability, human resources management capability and strategy implementation capability. Leadership capability determines the target direction, human resources management capability is the execution subject of the target, while strategy implementation capability is the operation ability based on human resources and management. Strategy management capability can foresee the varying direction during the industry dynamic adjustment period (such as the global financial crisis), and complete the transition of enterprise core competence in a timely manner through strategic changes. Corporate strategy is the primary issue of survival and development. By understanding the future developing environment of FTCLCs, strategy management can figure out the development objectives and direction of supply chain services, effectively distribute and utilize resources, plan and control the development processes in order to satisfy needs of market competition, improve enterprise competitiveness and create competitive advantage for enterprise development.

Profit mode capability (Profit, P for short)

Profit mode capability is to make profits by some market way or mode, which contains capital operation capability, marketing capability, financial management capability and innovation capability of logistics services. With the fierce competition in the market, the profits are gradually earning by companies and groups which have unique profit modes. Innovation of logistics services, capital operation and comprehensive marketing are becoming the critical of FTCLCs to gain the best profit mode. Profit mode capability can bring not only average profits, periodic changing profits or short-term profits, but sustainable and high profits that can bring tremendous value, so it should be emphasized by FTCLCs.

Flexibility operation capability (Flexibility, F for short)

Flexible operation system has become an important means that FTCLCs' respond quickly to customer demands and obtain a competitive advantage. As a way to deal with uncertainty, emergency management capability and brand management capability are two important aspects. On the one hand, through emergency management of the uncertain environment encountered in business, companies can enhance their stable capabilities to obtain profits; on the other hand, brand

management means to treat the brand as a separate resource and capital. With this principle, through flexible operation, companies assemble other resources and capitals can be connected, activated and combined in order to achieve the greatest economic and social benefits. Therefore, emphasizing emergency management capability and brand management capability can not only ensure existing profits, but also increase more profitable channels.

Operation control capability (Control, C for short)

Operation control capability is the ability which monitors every link in operation process to ensure that enterprises can be operated with preplanning. It includes cost control, performance control, risk control and information control. And for FTCLCs, it can be displayed in cost control capability of supply chain, risk management capability and logistics information capability. Cost control capability is not only the operation cost control of FTCLCs, but also of supply chain customers; risk management capability is the operation risk management of their own as well as the that of related service business of supply chain clients; information capability is an important method to achieve cost control and risk control, and it's a main source of all operation information of companies, a necessary support system of stable operation. FTCLCs must pay more attention to enhance operation control capability, which will have a profound impact on companies' long-term development and short-term competitive advantages.

How to make use of OSPFC capability combination model

OSPFC capability combination model for FTCLCs provides a useful reference to the strategic transformation to supply chain service, but how to use OSPFC model? In general, foreign trade-based logistics companies can take the following implementation steps in the strategy decision:

Analyzing current development environment for enterprise

Before FTCLCs strategically transform to supply chain service, the development environment should be analyzed, including the external environment and internal environment. The external environment is divided into macro-environment and micro-environment. Macro-environment typically includes four types of factors, namely political, economic, social, technological, referred to as PEST, while micro-environment means market demand, industry competition, and resources as well as directly related policies, laws, codes and so on.

Internal environment involves material environment and cultural environment. The purpose of analyzing internal environment is to grasp enterprise current status, to find out key factors affecting production and operation, to identify business advantages and weaknesses in order to search external development opportunities and determine business strategy.

FTCLCs may use SWOT matrix analysis method to analyze internal and external environment, to identify business development advantages, weaknesses, opportunities and threats, thus finding out corresponding countermeasures.

Determining enterprise direction of strategic transformation to supply chain service

In the process of strategic transformation to supply chain service, foreign-based enterprises should resolve the following five questions: First, since the ultimate direction of enterprise development is supply chain service, the basic connotation of supply chain service should be fully understood; second, main channels of profit in supply chain service must be known. In general, profit channels mainly include two aspects: value-added service and integration operations in the upstream and downstream of supply chain; third, main operation modes of supply chain service should be understood. Which service fields can be entered with priority? Which services are optional in investment? Fourth, when providing supply chain service, what kind of organizational structure is required to support supply chain service? Fifth, what are the available paths for enterprises strategically transforming to the supply chain service? Which path is the easiest one to realize?

Making use of OSPFC capability combination model to determine details of enterprise strategy orientation and present key capability development

Considering the OSPFC model, when strategic direction is predefined, foreign trade-based logistics companies should refine these five strategic capabilities separately, and put forward key development points for each strategic capability combining with the practical business and industry conditions. For example, in the context of the financial crisis, for operation control capability (Control, C for short), China customs enterprises should enhance risk control capability for advance payment in import and export business and avoid the risks arising from their own mistakes; freight forwarding enterprises should develop processing trade agents with caution and reduce risks of exchange losses. Shipping companies should reduce the risk of ship investment, lower volatility of, avoid making inappropriate investment decision when shipping cycle vibration, exchange rate and the interest rate are improper, and enhance long-term operational efficiency of

the ship.

Presenting key work of enterprise considering key capability development

Centering on the key capability development, foreign

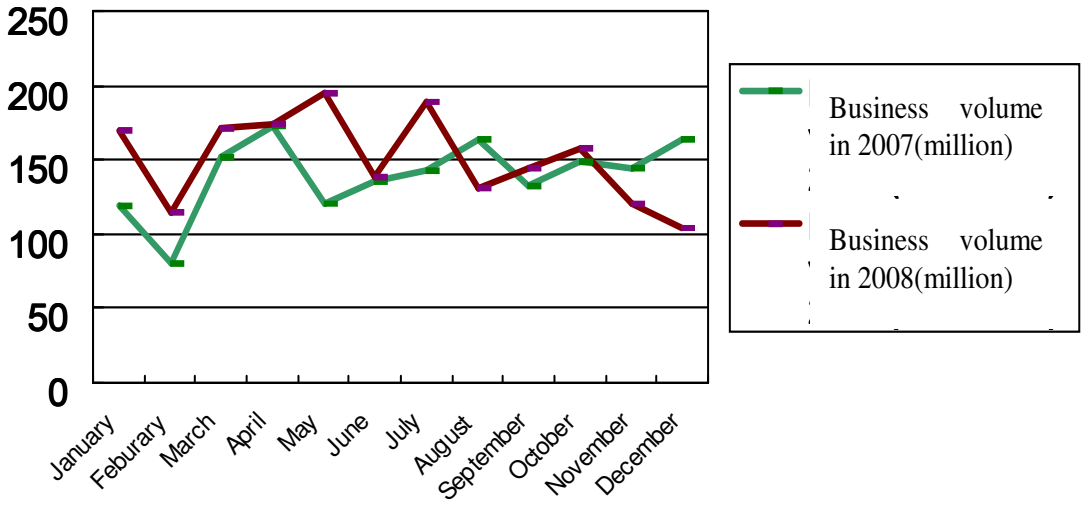

Figure 2. Comparison of business volume in 2007 and 2008 from Shanghai Xinhai custom brokerage company.

trade-based logistics companies should integrate their existing internal and external resources, and present the working concentration, including key business development areas, customer development strategies, information construction, and regional network construction of business, standardization, risk management, human resource development, and several other aspects. These specific focuses should have clear development objectives and implementation measures to guarantee the realization of strategic transformation to supply chain service.

Application of OSPFC capability combinations: An Empirical Example from Shanghai Xinhai Custom Brokerage Company in China

OSPFC capability combination model proposed in this paper has been applied in some of Chinese foreign trade enterprises. A successful case is that Shanghai Xinhai custom brokerage company transforms to the strategy of supply chain service, whose experience is worth learning for other enterprises.

Profile of Shanghai Xinhai custom brokerage company

Shanghai Xinhai custom brokerage company is one of the largest and the most influential professional customs brokerage companies in Shanghai, and it is a typical foreign trade-based logistics company. The company is mainly responsible for the declaration, and inspection of import and export goods as an agency, and provides with some related services, such as transportation and warehousing. The company's mission is to provide the most professional and most personalized customs clearance service. Xinhai was ranked No.1 in import and export business volume, and comprehensive import and export business volume among Shanghai Ports in April 2008. The company is currently an executive director of China customs brokers association and Shanghai customs brokers association.

Since its foundation in 1996, the company has kept developing in business volume. With the company's management improving and business expansion, it has gradually set up the service network points in 14 districts and counties in Shanghai, forming a network structure "Where there's Customs, there is Xinhai ". Due to the global financial crisis, since the beginning in August 2008, its business volume started to decline. From November 2008, many customers cancelled their orders, so business declined obviously, as shown in Figure 2. In addition, with the reduction in customer orders, original customs brokerage business has suffered from more intense market competition, forcing the company to develop new supply chain logistics operations and to transform from the single customs service to supply chain services while holding existing business advantage.

Basic thought for strategic transformation to supply chain service

In January 2009, Xinhai invited a national famous consulting company to design its strategic transformation to supply chain service. After detailed analysis and diagnosis, the consulting company put forward the basic thought for strategic transformation to supply chain service. The goal should be located as serving global import and export supply chain with import and export logistics platform on the basis of depending on advanced

logistics information technology and focusing on scientific supply chain solution plan by resource integration, service innovation, cost control and risk management these four strategies. Xinhai established its subsidiary Shanghai Xinhai Supply Chain Company in January 2009 and presented the strategic planning of supply chain development in March 2009.

According to OSPFC capability combination model for foreign trade-based logistics enterprises strategic transformation, Shanghai Xinhai custom brokerage company put forward proper developing strategies for transformation to supply chain service. In detail, the following five aspects should be improved:

Improving internal operation ability: first, Xinhai, by making use of its Keyue information management platform, develops information system design of comprehensive logistics business and supply chain service, establishes supply chain service management platform and realizes the information sharing of enterprises and clients with high efficiency; second, in node development, improvements on standardizing operations and integrating logistics resources are necessary. Xinhai should expand business network in Jiangsu and Zhejiang Provinces, and cooperate with logistics enterprises in other regions actively to improve its business development ability. In daily operation, Xinhai needs to strengthen standardized management to realize information, standardization, timeliness, day clearance and integration.

Consolidating strategy management ability: In the process of transformation to supply chain service strategy, Xinhai keeps consolidating its management ability on strategy establishment, implementation and improvement. First, information development talents should be introduced and cultivated, and other talents who have comprehensive logistics management ability and marketing ability should be actively developed. Second, the high-level leaders should focus on the developing trend of comprehensive logistics business and supply chain service business. Third, by standardizing the management regulation, the strategy execution should be strengthened to make sure that the staff shares the same strategic goal.

Emphasizing company's profit mode capability: during the course of developing supply chain service, Xinhai specially pays more attention to improve profit mode ability by continuous innovation. In business development, it will center on current import and export customs business, and mainly cultivate comprehensive logistics business and global supply chain service business, try to cooperate with suppliers appointed by Shanghai Expo 2010. In customer development, it should keep strengthening customs business customers, developing comprehensive logistics customers, especially manufacturers who are upstream or downstream of global import and export supply chain. In marketing, Xinhai should stand on import and export customs business, develop transportation resources integration and warehouse resources integration, and improve design and operation ability on national logistics network.

Improving flexibility operation capability: Xinhai has been operating in Shanghai for many years and has built up its brand effect. In order to further enhance company flexibility, diversified businesses should be implemented to break up the previous situation depending on single business to maintain the enterprise, and comprehensive logistics service and global supply chain service should be developed, the upstream and downstream production enterprises should be extended, and finally Jiangsu and Zhejiang Provinces as well as other parts of the country should be expanded for more profit source. In addition, the company will according to customer demand on logistics services establish national distribution network, and create its full-service capability.

Enhancing operation control ability: in the process of transformation to supply chain service, Xinhai has focused on monitoring of all aspects of business to make sure to reach the expected business objectives. Thus, combining with its characteristics on import and export, Xinhai highlighted strengthening its risk control management. Xinhai is trying to standardize regulations of contract-review, strengthen customer credit evaluation, minimize self-employment, increase agents, shorten the duration of receipt and payment of imports and exports, reduce exchange loss, carefully carry out processing trade agents and eliminate risks rising from own errors, etc. Additionally, in order to reduce fluctuations in business performance, Xinhai stresses ensuring stable performance by standardizing business operations in order to obtain long-term competitive advantage.

Practical effects of strategic transformation to supply chain service in Shanghai Xinhai custom brokerage company

Since the foundation of Shanghai Xinhai Supply Chain Company in January 2009, supply chain service of Shanghai Xinhai custom brokerage company has kept growing even under the influence of global financial crisis. In Figure 3, the enterprise's net profit increased from -0.32 million in January 2009 to 0.38 million in April, achieving profit within three months. In October 2009, the

company even gained net profit of 2.03 million, which directly demonstrated Xinhai Company's strategic transformation to supply chain service was correct, and was testified by the market. Meanwhile, it indirectly proved positive practical value of OSPFC capability combination model of foreign-based logistics business strategic transformation, and other foreign trade enterprises should pay attention to it.

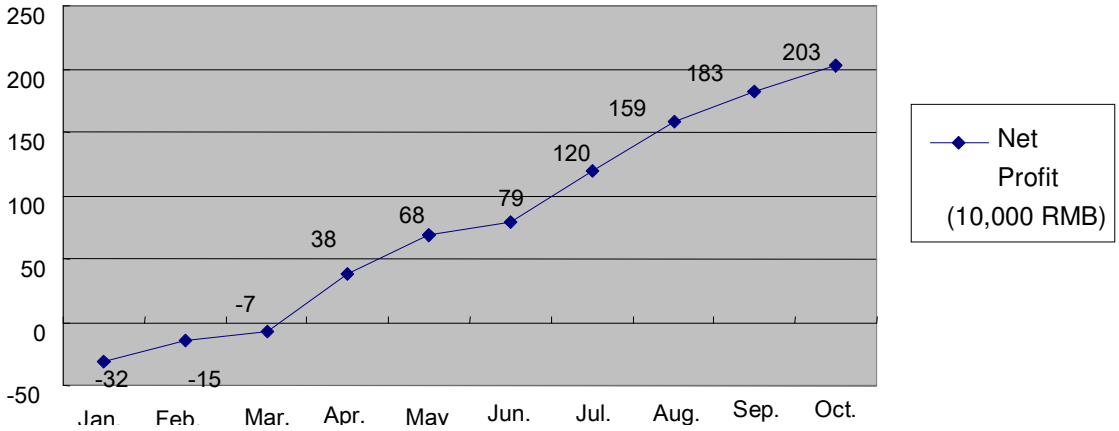

Figure 3. Development of Shanghai Xinhai Supply Chain Company from January to October in 2009.

CONCLUSIONS AND FUTURE WORKS

Under the financial crisis, the variable external environment and increased uncertainty make FTCLCs to re-examine their development strategies, among which transformation to supply chain service is one of the important development trends. Through theoretical analysis and empirical research, this paper obtained the capabilities combination, OSPFC model which affected FTCLCs' strategic transformation with factor analysis. The work would offer a good decision-making reference for FTCLCs to conduct strategic transformation to supply chain service in the future.

There are still some limitations in this research. The samples of the questionnaire are mainly concentrated in Shanghai, Shenzhen, Tianjin, Nanjing and Hangzhou, while samples from other regions are not enough. In order to study the in-depth decision-making problems of FTCLCs' strategic transformation to supply chain service strategic transformation, the investigation to other parts of China should be expanded and the changing trends of development strategies of FTCLCs should be known more comprehensively. Besides, future researches could focus on path design and mode selection of FTCLCs' strategic transformation to supply chain service, to provide more useful reference for FTCLCs.

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