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WORLD MARITIME UNIVERSITY

Shanghai, China

**EVALUATION OF CHINESE MAINLAND
THIRD PARTY SHIP MANAGEMENT
INDUSTRY**

By

SHUANG ZHANG

China

A dissertation submitted to the World Maritime University in partial
fulfillment of the requirements for the award of the Degree of

MASTER OF SCIENCE

In

INTERNATIONAL TRANSPORT AND LOGISTICS

2006

DECLARATION

I certify that all the material in this research paper that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this research paper reflect my own personal views, and are not necessarily endorsed by the University.

.....

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ABSTRACT

Title of Dissertation: **Evaluation of Chinese Mainland Third Party
Ship Management Industry**

Degree: **Master of Science in International Transport and
Logistics**

The last four decades has seen the rise of third party ship management and its grown into an industry in its own right. Apart from basic ship operation and crewing, the variety of services offered has been extended to include chartering, sale and purchase, insurance, new building supervision and claims handling to name but a few. Foreign ship management industry has matured with a number of world-famous ship management companies offering comprehensive, high quality services to shipowners. However, Chinese mainland ship management industry has remained in its infancy compared with their foreign counterparts.

Under this context, this dissertation carries out a comprehensive evaluation on the current nature and development situation of Chinese mainland ship management industry. It has not only analyzed domestic market environment and development situation of mainland ship management companies but also use the method of comparative study to find out the strength and weaknesses of mainland ship management companies compared with Hong Kong- based ones. Besides, it also sets up a benchmarking model for performance evaluation of third party ship management company at a micro level. Finally, the author gives some preliminary suggestions on the future development directions of Chinese mainland ship management companies based on previous analysis and the successful experiences of foreign ship management companies. Hopefully, this dissertation can help mainland third party ship management companies to better know themselves and the development trend of the industry so as to formulate the right strategies for future growth and developments.

KEYWORDS: Third party ship management, Evaluation, Benchmarking

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LIST OF ABBREVIATIONS

AHP	Analytical Hierarchy Process
CSISC	China Shipping International Ship Management Company
DOC	Document of Compliance
HK	Hong Kong
IMO	International Maritime Organization
ISM	International Safety Management
ISMA	International Ship Managers' Association
LSM	Lloyd's Ship Manager
MARPOL	International Convention for the Prevention of Pollution from Ships
NRA	Normalization of Row Average
SOLAS	International Convention for the Safety of Life at Sea
SMS	Safety Management System
STCW	Standards of Training, Certification and Watchkeeping
ISPS	International Ship and Port Security
UK	United Kingdom
US	United States

1 INTRODUCTION

1.1 Background

With the increasing internationalization of the shipping industry, third party ship management companies have emerged and grown into an industry in its own right. “It has made a critical contribution to a fundamental restructuring of the shipping business by facilitating and promoting the division of labor as well as, and most importantly, between a variety of firms in different aspects of shipping (Kyriaki,2004, pp.31-45)”. For this reason, it has characteristically been described as the fourth wave of maritime transport (Sletmo G.K,1989, pp.293-303).

“Apart from basic ship operation and crewing, the variety of services offered has been extended to include chartering, sale and purchase, insurance, newbuilding supervision and claims handling to name but a few (Photis M.P&Richard G,1997, pp.233-244)”. Foreign ship management industry has matured with a number of world-famous ship management companies offering comprehensive, high quality services to shipowners. They are mostly based in some major international ship management centers such as Cyprus, Singapore and Hong Kong etc. However, Chinese mainland ship management industry has remained in its infancy with only a few professional ship management companies such as COSCON Ship Management Company, Shanghai CHIPOL Ship Management Company and so on. They are evolved from shipping companies and the majority of those ships under management

are from their mother companies.

Third party ship management is the development trend of shipping industry with increasing international division of labor. Its development caters to the overall development trend of Chinese economy. With the deepening of China's reform and opening-up, foreign ship management companies will gradually enter Chinese market. So there is an urgent need for Chinese mainland ship management companies to adopt new competitive strategies in order to survive and develop in the increasing competitive marketplace.

The aim of this dissertation is to give a comprehensive analysis of the current situation and development trends of Chinese mainland ship management industry and try to give some suggestions on future development directions for Chinese mainland ship management companies.

1.2 Literature Review

1.2.1 Current Research abroad

Since foreign ship management industry has developed for about four decades, there has been a lot of research in this field. In 1986, Sletmo illustrated the role of ship management in the transformation of shipping industry. He regarded ship management as shipping's fourth wave. In references [22], Photis discussed the importance of relationship marketing in a professional ship management context. He believed that ship management companies should establish long term client relationships by relationship marketing in order to achieve differentiation and competitiveness. In reference [23], Photis identified four types of relationships present in ship management and discuss the possibility of utilizing intangible relational resources to achieve competitive advantages. In his book 《Professional

Ship Management Marketing and Strategy》, Photis outlined some of the key concepts and strategies that ship managers can adopt in pursuing good customer relationships. In reference [21], Photis and Kevin empirically identified the dimensions for ship manager selection and performance evaluation and their relative importance and discuss marketing strategies for ship managers. Kyriaki Mitroussi regarded ship management as a case of separation of ownership and management and empirically examined shipowners' stance on third party ship management. Reference [29] and [36] illustrated the importance of Information Technology in professional ship management context. Reference [9] illustrated the importance of safety and quality assurance in ship management. As we can see, the concept and development of professional ship management have been made clearly after years of research by foreign scholars. Recent study have been mainly concentrating on marketing strategies and customer relationship management of professional ship management services since this is the field many ship management companies overview when they do business.

1.2.2 Current Research domestic

Chinese mainland ship management industry did not start its development until 1990s when some domestic labor companies start to send Chinese seafarers abroad. Academic studies in this field are not very mature and there are some papers talking about domestic understanding on the concept and business scope of third party ship management companies. There are also a few papers giving some advices on development strategies for Chinese ship management companies but since those suggestions are not based on in-deep studies on the current nature of domestic ship management industry, they can't give us a good insight on the condition and development perspective of domestic ship management industry. Reference [15] analyzed current condition of domestic shipping market and discuss the method of

establishing ship management company using management department of state-owned enterprise as an embryo and use China Shipping Group as an example. Reference [35] illustrated the legal status and business scope of professional ship management companies and their difference with other shipping subjects. It also discussed market strategies and system design for ship management company. As we can see, current domestic studies are mainly focusing on research of marketing strategies, legal status and responsibility of Chinese ship management companies.

1.2.3 Shortages in current research

There are some shortages in existing studies:

- (1) Currently, foreign research is mainly concentrating on marketing strategies and customer relationship management of ship management companies and no foreign research papers talked about Chinese mainland ship management industry. Domestic research in this aspect are very few in numbers and most papers concentrated on study of legal status and responsibility of ship management companies.
- (2) There is a lack of analysis on the market environment for the development of ship management industry in Chinese mainland.
- (3) No research papers did comparative studies on Chinese mainland ship management industry.

1.3 Purpose and structure of this paper

The purpose of this paper is as follows:

- (1) Analyze the current market environment and development situation of Chinese mainland third party ship management industry.
- (2) Analyze mainland ship management companies by comparing with world-famous ones in HK and give some suggestions on future development of

Chinese mainland ship management companies.

- (3) Set up a benchmarking model for comprehensive evaluation of ship management company.

The structure of this dissertation is like follows: After an introduction in chapter one, the second part of this paper gives a general introduction to the concept and development of third party ship management industry and analyzes the driving force behind its rapid growth and its future development direction. The third part concentrates on reviewing the current development situation and market environment of Chinese mainland ship management industry. The fourth chapter uses the method of comparative study to analyze major mainland ship management companies with world-famous ones in Hong Kong and tries to find the strength and weakness of mainland ship management companies. The fifth Chapter sets up a benchmarking model for comprehensive evaluation of ship management company. Finally, this paper will be concerned with some suggestions on the future development of Chinese mainland ship management companies by drawing on the successful experience of foreign ship management companies.

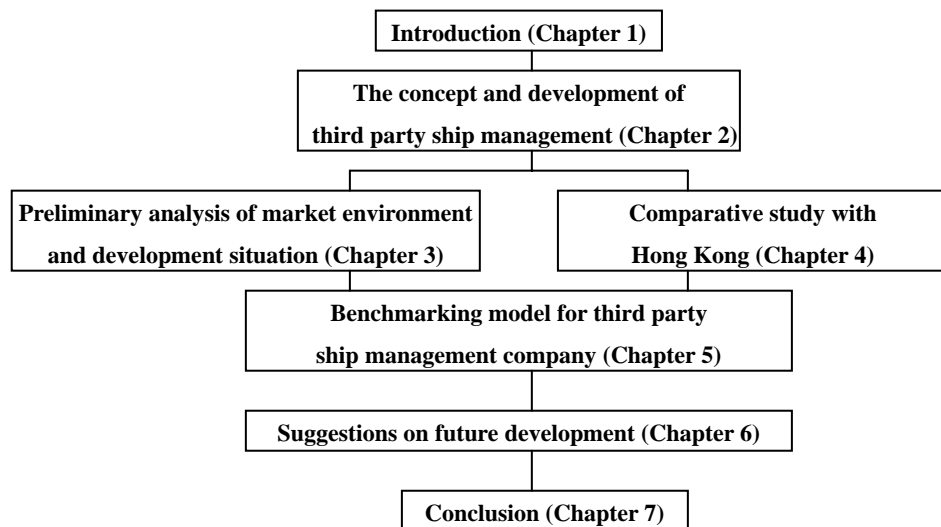


Figure 1.1- Structure of this dissertation

2 THE CONCEPT AND DEVELOPMENT OF THIRD PARTY SHIP MANAGEMENT

2.1 The concept and business scope of third party ship management

There are many papers talking about the concept and business scope of third party ship management. Although they were expressed in different words, the core understanding is roughly the same.

2.1.1 The concept of third party ship management

Ship management business can be classified into three groups by the managing role: managed by shipowner, named as "first party ship management"; managed by charterer, called "second party ship management"; the last one is "professional ship management (third party ship management)", which is managed by the independent professional manager. Kyriaki defined them as professional, independent organizations which for a negotiated fee and with no shareholding ties with their clients undertake responsibility for the management of vessels in which they have no financial stake.

Third party ship management was brought into the spotlight by Sletmo. He expressed the idea that shipping is undergoing a fundamental restructuring and reorganizing with a division of labor taking place not only between countries but also between a

variety of firms in different aspects of shipping (Sletmo,1989, pp.293-303). So, broadly speaking, third party ship management is the contracted and professional supply of all on-board services, together with their shore supervision, which would normally enhance a vessel from a bareboat into a time charter description, by a management company usually separated from the vessel's ownership. After more than four decades of development, services provided by professional ship management companies have enlarged to a much wider scope.

2.1.2 Business scope of third party ship management

Ship management companies firstly appear in Europe in 1950s when the services provided were only confined to crewing and supplying. But now professional ship managers can provide a much wider service scope to their clients include new building planning, consultation and supervision, sale and purchase and even financial services etc. Services offered by ship management companies can be mainly classified into three categories, technical management, crew management and commercial management.

2.1.2.1 Technical ship management

For the purpose of ensuring ship safety, protecting the environment and keeping ships in good condition for commercial operation, technical ship management includes the following items:

(1) Repair and maintenance

Maintenance of the vessel to the agreed standard includes repairs, dry docking and provision of spare parts. Ship management companies also set up a planned maintenance system for shipowners which include the following functions,

maintenance work planning and spare parts handling, documents handling, event handling in line with company and statutory requirements and reporting.

(2) Provisions management

The victualling of ships is a minor specialism, but crucial to good crew morale and tight budgeting. The skill is to know where to buy what and how to contract for suppliers in main port areas. It is important to have supplies of food appropriate to the crew's nationality.

(3) Stores acquisition and bunkering

Third party ship managers can take advantages of their large fleets to get discounts from their suppliers for stores needed on board ships. Many ship management companies also help their customers arrange bunkering services in local ports.

(4) Periodical examination of conditions of work on board ships

Ship management companies arrange professionals to go on board to examine technical conditions of the ship's hull and machinery and conditions of compliance of crews with safety regulations etc.

(5) Cost budgeting and control

Ship management company should periodically review various cost items and analyze them in order to manage costs more efficiently. Some companies also provide accounting services for their customers such as provision of running budgets for the vessel and full running cost accounts including budget comparisons with comments, balance sheet and profit and loss statement.

(6) Provision of insurance for vessels

Ship management company must arrange insurance include Hull & Machinery, war and P&I in accordance with shipowner's requirements.

(7) IT services

Some ship management companies provide IT solutions for their customers such as ASP Ship Management Group who provides Star Fleet Management System package for their customers. Some management companies also sell their ship management information system which they developed in-house as an off-the-shelf software package.

2.1.2.2 Crew management

Being access to low cost labor is one of the major reasons that shipowners want to use third party ship management services. Ship management company provide shipowners with competent officers and crew, certified as required and also with qualifications as considered necessary for the vessel and the trade; arranging their joining and repatriation as well as all related functions, as required, including union relations, medical examinations, etc.

2.1.2.3 Commercial management

Commercial management usually include handling of all operational matters for spot market or time-chartered vessels such as pre-fixture voyage estimates, post fixtures, voyage instructions, monitoring vessel's performance, handling of charter party disputes and cargo claims, bunkering, appointment of agents, freights and hire.

2.1.2.4 Other management services

Besides those services mentioned above, many large professional ship management companies also provide other new services such as new building planning and consultation, financial services and port and terminal management.

2.2 History review of third party ship management industry

The origins of the professional ship management companies in their present form can be traced back in the period after the Second World War, when initially such companies came from development of the activities of the old family-owned ship management companies.

Third party ship management industry have developed for more than four decades since 1960s when oil majors took advantage of the availability of tax-breaks on ship investment and made capital investments on ship purchase, delegating management to third parties. “After the oil crisis in 1973 when the OPEC counties increased the price of oil massively, third party ship management market really took off (Willingale,1992, p.35)”. The steep increase in the cost of bunkers, the sharp decline in cargoes offering and a large number of ships on order, all of which were gradually delivered, resulted in low freight rates and devalued sale and purchase prices and made the operation of ships not only unprofitable but hardly affordable for traditional owners. “Subsequently, their creditors foreclosed on their mortgages, banks and financial institutions ended up with large fleets in their possession and, as they lacked both the technical experience and probably the interest, turned to ship management companies (Kyriaki,2003, pp.31-45)”. Since those owners didn’t have a long-term plan for ship operation, they gave little attention to ships’ technical conditions. Owners’ short-term orientation forced managers to lower down their standards to satisfy low budget their customers set. This was intensified by the saturation of ship management market with an over supply of managers. In face of

severe competition, many ship management companies lowered their management budget to attract customers. As a result, there was a surge of sub-standard ships and accidents, such as 1984's "The Marion", 1986's "The Maria", and 1989's "ERT STEFANIE" etc. Ship management companies were criticized by the public and the industry went into lower water in late 1980s.

In order to revitalize the industry, ship managers started to consider the problem of market entry standards and service quality. Therefore quality assurance system (QA) and ISMA became the new driving force for third party ship management industry.

In April 1991, ISMA (International Ship Managers' Association) was established by LL, DNV, GL and world-famous ship management companies Barber, Columbia, Denholm, Hanseatic and Wallem. ISMA is a professional association providing industry experience and information for ship managers around the world. Its establishment indicates the development of third party ship management industry has entered a new era. ISMA code has not only conformed to the standards of ISO9002 and IMO680 but also includes more extensive and detailed standards than the two. The industry revitalized and the number of ship management companies operating globally increased quickly.

Table 2.1-Numbers of ship management companies

Year	Number
1990	226
1992	412
1994	504
1996	507
1998	515
2000	614

Source: Guan Shuli&Wang Jiangjiang. (2003). Marketing Strategy of ship management company.

World Shipping.26(2).49-51.

In late 1990s, ISM code offered another new development opportunity for third party ship management companies. ISM code creates an entry barrier for ship management market which protects the healthy development of the industry. Shipowners outsource ship management to professional companies who can establish safety management system for their customers in a more economical way. In addition, the development of information technology makes ship management become more professional and modernized. For third party ship management companies, investments in IT software development is more economical since they can benefit more from reduced management costs and increased efficiency due to economy of scale than small shipowners. This offers new development opportunity to third party managers since they can take advantage of their IT advantages to attract customers.

Table 2.2-Development course of third party ship management industry

Period of development	Time	Trend of demand	Supply condition	Market condition
Emergence period	1945-1956	Increase rapidly	Shortage	Good
Initial development period	1956-1973	Increase rapidly	Increase rapidly	Competition
Continuous development period	1973-1988	Decrease	Over supply	Gloomy
New development period	1988-2004	Increase gradually	Increase gradually	Competition

Source: Liu Qingshui (2004). Third Party Ship Management. *Management of Waterway Transportaion*.2004,04.

2.3 Reasons for rapid growth of third party ship management industry

The emergence and development of every new thing has its driving forces behind it. In 1980s, the annual growth rate of ship management industry was 9% which was so much higher than that of the shipping industry. So what are those driving forces which contribute to this rapid development of ship management industry around the

world?

2.3.1 Internationalism and cross-cultural manning

With the globalization of shipping, many cost items of shipping companies can be reduced by taking advantages of more efficient factor market abroad. For shipowners in Europe or North American, reducing manning cost by utilizing foreign crews is the most efficient way to reduce their bottom line cost. With the emergence of flags of convenience, many shipowners start to employ crews abroad such as Filipinos. This offers an opportunity to ship management companies that have a large deposit of foreign crews or have established cooperative relationship with local manning agencies and can provide owners with low cost, qualified crews. This also led to the emergence of manning-only management companies. In order to facilitate operation abroad, some owners outsource all management functions to professional management companies which, in turn, prove to be an even more cost-effective way of ship operation.

2.3.2 Increased legislation

With the coming into force of ISM code and ISPS code and the increasing environmental awareness of the international community, the management of ships especially oil tankers become increasingly complicated. For small shipowners who do not have the resources to cope with the requirements of international legislation, the only choice left is to go for professional ship management companies.

2.3.3 The changing actors of shipping market

In 1980s, due to the bad shipping market, many shipowners went bankrupt. Their ships went to their creditors who were usually banks, pension funds or other financial institutions. Those people were forced to become shipowners and they didn't have

the expertise or the interest to operate their vessels. They were in the business of making money through the commercial trading of their ships, buying and selling ships as assets or a combination of the two. Ship management therefore simply represented a cost factor to be minimized. The only choice for them was to put ships under professional ship management companies. Besides, for those traditional family-owned shipping companies, the new generation may have no interest in their family business. As a result, many such owners turned to third parties due to family conflicts.

2.3.4 Economies of scale

The larger the fleet, the lower the operating costs for each ship. Outsourcing management functions to third parties can reduce ship operating costs due to economies of scale. Smaller owners may not be able to achieve the same economies of scale in ship operation as dedicated ship management companies that can attain lower production costs through scale economies and the enhanced bargaining power which they wield by virtue of the large size of their managed fleets (Photis, 2002, pp.45-64). Ship management companies can take advantage of their buying power to get discounts from suppliers of bunkers, spare parts and stores. They can also distribute overhead cost to more vessels so that management costs for each ship can be reduced. The increasing pressure to cut down costs drives many owners to turn to third party managers.

2.4 Development situation of third party ship management industry

2.4.1 Development of third party ship management industry

The ship management industry has been growing very fast during recent years due to the increasing specialization of the shipping industry. In 2001, there were more than 500 ship management companies operating in more than 52 countries in the world.

Currently, a good 25% of the world tonnage is estimated to be under management of third party managers, whereas the largest manager accounts for only a 12% share which indicates that ship management market is rather fragmented at present. Currently, Hong Kong, Cyprus, Monaco and UK's Glasgow are regarded as the world ship management centers attracting many world famous ship managers.

Hong Kong has remained its position as the world ship management center since 1970s. Apart from local ship management companies, many foreign famous ship management companies have also established branch offices or subsidiaries there. Concurrently, more and more new ships choose Hong Kong as their place of registration.

According to the statistics of Cyprus Shipping Committee, Cyprus-based ship management companies manage 1317 ships of a total tonnage of 21.7 million total tonnage.

United Kingdom has three ship management centers i.e. London, Island and Ireland's Glasgow, among them Island attracts ship managers by its advantageous taxation policy.

Table 2.3-Top 20 ship managers in March 31, 2003

2003	Company	Gross tonnage	Number of ships
1	Zodiac Maritime Agencies	4,181,099	105
2	V. Ships(UK) Ltd	3,217,893	63
3	NSB	2,585,814	71
4	Cosco Bulk Carrier Co	2,496,721	84

5	Teekay Shipping (Canada)	2,275,987	39
6	Ceres Hellenic Shipping Enterprises	2,240,111	51
7	Anglo-Eastern Ship Management	2,112,890	55
8	Wallem Shipmanagement Inc	2,010,484	21
9	Shell International Trading&Shipping	1,951,177	19
10	Petrobras Transporte SA	1,775,928	55
11	Wallenius Wihelmsen Lines AS	1,769,875	37
12	Mideast Ship Management Ltd	1,765,553	22
13	V. Ships Norway AS	1,654,785	28
14	Hoegh Fleet Services	1,640,999	37
15	Cosco Container Lines	1,631,740	72
16	Tankers International	1,587,738	10
17	Thome Ship Management Private Ltd	1,583,303	27
18	World-Wide Shipping Agency (Singapore)	1,508,492	14
19	Wallem Shipmanagement Ltd	1,492,557	31
20	Barber Ship Management AS	1,483,138	39
Criteria for inclusion: Companies who control, manage, operate or are agents for the number of ships listed			

Source: Ship Management. (2003,May). *Lloyd's Ship Manager*,49.

Currently, foreign existing ship management companies have already had a decent operational scale. Larger ones, such as V. ships, Columbia, Wallem, Barber etc., have already accumulated great experiences in third party ship management and have a good reputation and track records. Take V. Ships as an example, it currently has more than 20 branch offices around the world and manage more than 700 ships of more than 10 types. Number two Columbia was established in 1978 and its head office is located in world famous ship management center Cyprus. Its current market share is

6%.

2.4.2 Foreign major ship management companies

2.4.2.1 V. Ships

V. ships is the world largest ship management company. Currently, it manages about 900 ships among them about 400 ships are under full management contract. It employs about 25,000 seafarers and is a giant ship manager. Among those ships under management, the majority of them are bulk vessels and crude oil tankers which take up about 50% of the total. Its annual purchase of stores and spare parts is up to 250 million dollars. In procurement management, it uses not only the original “Marcas” system, but also develop its own system “Shipsure” which costs 7 million dollars to develop and can control vessels’ management system, moving, procurements of materials and conditions of crew members as a whole.

2.4.2.2 Barber Ship management Co.

Barber manages more than 234 ships among which there are 29 bulk vessels, 9 multi-purpose ships, 6 containers vessels, 37 car carriers, 72 tankers, 15 LPG. It manages more than 6400 seafarers and has manning agency in more than 13 countries. Barber engaged in great capital investments in Information Technology. Its software department has separated from Barber company and established Barber Maritime Consultancy which has become the leading software suppliers in maritime industry.

2.4.2.3 Anglo-Eastern Group

It was established in 1974 and specialized in international ship management. After its consolidation with Denholm, the famous English ship management company, the

number of ships under management has increased quickly. It currently manages 140 ships of which 45 bulk carriers, 40 container vessels, 20 LNG, 25 tankers and 10 others. It has enlarged its ship management network around the world. Its head office is in Hong Kong and has branch offices in many nations in the world. Based on its wide spread ship management network, it can manage its ships 24 hours a day on real time basis.

2.4.3 Development trends

2.4.3.1 Specialization

Currently, foreign ship management companies focus their attention on develop professional services on specialized areas such as procurement, accounting, financial risk management and IT system formulation. Many ship management companies have developed their own ship management information system. Such integrated computer information system enables quick reaction to various accidents thus increasing competitive advantages of ship management companies. The increasing use of IT in modern ship management make the industry becoming more and more specialized.

2.4.3.2 Independence

Most ship management companies develop from shipping companies and most of the ships under management were from mother companies. With the maturity of ship management industry, outside businesses surge quickly and many ship management companies break away from their mother companies to become a real independent third party ship management companies.

2.4.3.3 Consolidation

Ship management has been characterized by strong competition that resulted in structural changes in the industry, with the bigger companies merging or acquiring smaller ones in an effort to remain competitive. The acquisitions of the Celtic Marine in 1998 and Acomarit in 2001 by V. Ships are clear indications of the fiercely competitive market environment. Ship management business is greatly governed by economies of scale, since the larger the fleet under management, the lower the management costs for each one. Besides, the direct and indirect costs of compliance are increasingly higher day by day, and owners need the support of an organization that has sufficient resources to meet those requirements for risk management, safety and quality, contingencies and day-to-day needs. This will make life progressively more difficult for smaller fleets. As a result, mergers and acquisitions become popular words in this industry. Many large ship management companies have undertaken mergers and acquisitions in recent years in order to increase their operational scale and market share such as V. Ships , Celtic Marine , Acomarit , Anglo-Eastern , Denholm , Columbia and so on. V. Ships, the world largest ship management company had undertaken 5 acquisitions during 1996 to 2001. Especially in 2001, V-ship's consolidation with the third largest ship management company Acomarit made its market share increase from 7% to 12%.

However, issues are also raised of the difficulties of bringing together two managed fleets under a unified management and integrating what may be very different management systems. This transition period can also cause problems to their relationship with clients. Despite those, it is inevitable that there will be further consolidation happen in this industry.

2.5 Future Development Opportunities

From the above analysis, it seems that for the past decade the increasing complex

nature of international shipping, together with the technical and commercial disciplines required to survive in it, have kept the third party ship management sector going. Cost cutting is no longer the sole motive of ship owners for arranging offshore management to replace or support some or most traditional head office functions, and multiplication and competition among registers is such that appropriate choice needs much more information and evaluation of several different parameters. On top of that, the introduction of information technology in shipping with highly sophisticated computerized maintenance or management systems, fuel efficiency measures and the complex interchange of information among dispersed offices; the increased modal integration with the shipping venture constituting a part of a logistics system; and particularly the mounting pressure from expanding safety and environmental legislation and the focus on enhanced quality and safety standards offer new opportunities for the ship management industry (Gunton, 1997, p.67).

Third party ship managers seem to have realized that they can not depend on external factors and conditions to secure their place in the market. “Market growth for third party ship management is heavily dependent on the services it can provide and the subsequent benefits and advantages it can prove to bring with regard to the clients’ profitability and competitiveness (Mitroussi, 2003, p.45)”. As a response to the above came the growth in certain specialized functions of ship management, such as the development of special computerized accounting, stores and maintenance and other systems, the offer of associated services next to the traditional ship management functions like consultancy, travel services and local marketing representations and the distinct tendency towards management of specialized vessels ranging from gas carriers and chemical tankers to cruise ships, under water research vessels and prison ships (Grey, 1997, p.34).

3 PRELIMINARY ANALYSIS OF THE MARKET ENVIRONMENT AND DEVELOPMENT SITUATION OF CHINESE MAINLAND THIRD PARTY SHIP MANAGEMENT INDUSTRY

3.1 Introduction

In this chapter, the author will give a preliminary analysis on the market environment and development situation and prospect of Chinese mainland ship management companies. In order to evaluate this industry, firstly, we need to know the nature of the market environment in which it achieves its growth such as whether current domestic shipping market structure is favorable to ship management industry's development. We also need to know its current development condition, existing problems and future growth opportunities. Such insights facilitate further study on the inherent nature of this industry.

3.2 Preliminary analysis of market environment for Chinese mainland ship management industry

3.2.1 External environment

3.2.1.1 Industrial regulations and policies

In order to ensure safe sailing and protection of marine environment, third party ship management companies must conform to a number of international laws, regulations,

guidelines and memorandums made by IMO and other industrial associations, such as SOLAS, MARPOL, STCW, ISM Code, ISPS Code and PARIS MOU etc. The above mentioned regulations especially the ISM Code have great influence on third party ship management industry and act as the major constraints and standards for the industry. China also has relevant regulations which have influence on third party ship management industry. “ International maritime regulation of People’s Republic of China ” , which came into force on January 1, 2002, is a administrative regulation regulating the whole shipping industry and its associated industries which contribute to the establishment of a fair, regulated shipping market environment which is consistent with international shipping market. In 2003, its details of enforcement came into force. Both regulations set out the standards on the prerequisite of operation, procedures and service scope of third party ship management business.

3.2.1.2 International shipping market

Nowadays, international shipping market fluctuate fiercely bringing high operational risks to actors in the market. Concurrently, increasingly division of labor combined with rapid development of logistics industry lead to progressively higher requirements for transportation services. As a result, more and more shipping companies endeavor to restructure themselves into international logistics service provider. They need to concentrate on their major businesses and outsource others in order to reduce costs and improve efficiency. Ships’ technical management, crew management and insurance and claims handling etc. have all been regarded as subsidiary businesses which should be done by outside managers. This brings great development opportunities for third party ship managers.

3.2.1.3 International seafarers’ labor market

Currently, there are 1.23 million seafarers in the world and 404,000 of them are senior officers. Although from 1995 to 2000, the annual growth rate of global fleet is 1% and crew needed on board become less due to increasing automation, the need for senior officers is more than supplies at the moment. So the shipping industry still faces a shortage of seafarers' labor resources. The gap between supply and demand for senior officers is considered to be 46000 in 2010. The supplying party of seafarers shifts from developed countries to developing countries such as China, Philippine and India. By virtue of her great deposit of seafarers and increasingly complete seafarers' training and educational system, Chinese seafarers attract great attention from shipowners and managers around the world. Domestic ship management companies should take advantages of this opportunity to better train and manage Chinese crews to open new business opportunities.

Table 3.1-International distribution of seafarers' labor resources

Countries or region	Distribution of global seafarers' labor resources %	Distribution of international seafarers' labor market %
Asia	50	65
Eastern Europe	27	26
Developed countries	16	5
Middle East	5	2
Others	2	2

Source: Gu Jianwen (2005). Resources and market of seafarers. World shipping, 28(1), 35–36.

3.2.1.4 Information technology for third party ship management companies

In recent years, there is increasing application of information technology in maritime

industry. Many modern communication and steering appliances are not only used in shore-based management and company management but also used for on board supervision. Third party ship management need frequent communication with clients, suppliers, ships, port authorities; therefore the application of state-of-the-art information technology is sure to be able to create a competitive advantage for ship managers. Take Barber Maritime Consultancy as an example, the BASS comprehensive ship management systems developed by Barber increase the company' fleet management efficiency greatly. BASS consist of 7 sub-systems respectively "Operation, documentation, information management", "Crewing management", "Supply management", "Management accounting", "Maintenance management", "Procurement management", "Accident and safety management". Currently, there are more than 10 ship management companies in the world using this system.

3.2.2 Internal environment

3.2.2.1 Current domestic buyers' market environment for third party ship management services

Currently, Chinese mainland ship management companies are relatively of a small operational scale and market competition is not so active. The reason for its slow growth is a shortage of demand for third party ship management services from domestic buyers. State-owned shipping companies would not leave their ships to third party managers while local shipping companies don't see such need since they have already find their place in domestic market under flexible technical entry barriers. Other family-owned shipping companies would not outsource under the influence of traditional ideology and operational methodology. So although there is potential market opportunity for third party ship management business, in the short run, major market needs are generated by shipowners abroad.

3.2.2.2 Domestic shipping market structure for future business opportunities of third party ship management business

With the process of reform and opening up, Chinese economy has been growing very fast for the last decade. Chinese foreign trade has been growing even faster which pose great demand on international shipping. Many private and state-owned shipping companies start their operation and develop very fast especially in coastal cities. The original structure of domestic shipping market was partially destroyed and a new pattern is formed. Currently, domestic shipping industry is mainly composed of three kinds of enterprises competing with each other.

The first category is stated-owned shipping companies which include some large-scale shipping companies such as COSCO, China shipping etc. They undertake a big majority of coastal and ocean transportation and has a relatively monopolistic position in Chinese market. Those shipping companies have large, multi-type fleets managed by a team of professional shipping personnel under modern management organizational structure. Due to governmental support, they have great financial ability and risk resistance capability. However, in recent years, many foreign shipping companies enter Chinese market which greatly challenges their market position. The second category is those shipping companies sponsored by local governments. They are smaller compared with state-owned ones but have a greater operational flexibility. Therefore many of them survive and develop very fast during recent years. The third category is private shipping companies which usually have one or two ships in operation and owned by private funds or being a subsidiary of trading companies. Such enterprises have many disadvantages compared with the former two. They lack professional employees and have very limited financing capability and risk resistance capability.

Those three different types of shipping companies have different influence on the development of third party ship management industry. The first category, state-owned shipping companies have all the resources needed to establish their own ship management companies and have the potential of becoming the supplying party of ship management services. With the organizational structure restructuring of those companies, ship management companies can gradually break off from their mother company and start to operate independently. The second and the third category can start to consider of using third party ship management companies to manage their ships in order to reduce costs and raise the level of management quality. With the development of Chinese mainland ship management industry and the increasing use of Chinese seafarers on foreign ships, more and more foreign shipowners may consider of using Chinese mainland ship managers to manage their fleet.

According to those analyses above, we can see that there is a great potential market development opportunity for Chinese mainland ship management companies. Ship management companies are quite different from shipping companies. Ship management is a technological service industry and need little capital investments. What it need are professional people, technology, experiences and technical know-how. So it caters to the development trend of Chinese economy and would have a great future.

3.2.2.3 Human resource for third party ship management business

Third party ship management business is but a people business. It needs senior personnel who have good command of shipping operation, technical management, finance, insurance and maritime law together with seagoing experiences. Currently, there is a shortage of senior management personnel for third party ship management

business in mainland China. Therefore, third party ship management companies should also pay great attention to the development of human resources especially senior management personnel for third party ship management business.

3.3 Preliminary analysis of development situation of Chinese mainland ship management industry

3.3.1 Development condition of Chinese mainland third party ship management industry

Chinese mainland third party ship management industry develops very slowly compared with foreign countries. Due to its special geographical position and advantageous environment, there have been many ship management companies operating in Hong Kong and several of them are internationally famous ones. However, mainland ship management industry has been slow in its development compared with Hong Kong. In 2001, Shanghai CHIPOL ship management company was established in Shanghai which was the first real sense third party ship management company in mainland China. As a matter of fact, before that there were some shipping companies' management departments manage ships of other companies by utilizing their spare resources to make profit. However, those ships were smaller ones operating in inland waterway and the number was very small. After 2001, many mainland ship management companies started to emerge such as NASCO ship management company, Tianjin Ji Tong Ship Management Company etc. And now, Mainland third party ship management industry has achieved a reasonable scale.

3.3.1.1 Market composition of Chinese mainland ship management industry

Currently, there are mainly two types of ship management companies in mainland China. One is state-owned ship management companies which developed from their mother shipping companies. Such companies are mainly involved in managing ships of their mother companies. Those ships under management are mainly of similar types and their cost budgeting and control are not very efficient and professional.

Another is private ship management companies which are mostly small size companies. Those ships under management are small tonnage ones and their service quality is very low. Under intense competition and the request for economies of scale, those smaller ones would be absorbed by large professional ship management companies sooner or later.

With the tightening of the regulatory environment of the shipping industry especially those requirements under ISM code and ISPS code, more and more small to medium sized shipping companies will outsource their management functions to third-parties. This opens a new business opportunities for Chinese mainland ship management companies.

3.3.1.2 Major Players

(1) China Shipping International Ship Management Company

CSISC is a comprehensive ship management company under China Shipping Group. It has more than 20000 crews and has advanced experience in ship management, wide spread global service network and state-of-the-art information network management tools. Its business scope includes sale & purchase, ship leasing and asset management, on-board and ashore management, maintenance and repair and recruitments and training of seafarers and so on.

CSISC has the ability to set up a complete ISM system and has DOC for various ship types. In order to control ship management costs in a reasonable scope, CSISC adopts strict financial management and procurement policy for the sake of shipowners. Based on the condition of each ship under management, CSISC would make budget beforehand so that owners can plan their cash flow more efficiently. They also assist their clients to make voyage plans in order to make more profit for their customers. Besides, they also take care of all the documents to insure they are all valid. Through their technical management, they make all the ships under management comply with the requirements of flag state and port authorities.

(2) COSCON Ship Management Company

Currently, it has 4500 crews who can work on container ship, general cargo ship, multi-purpose ship, ro-ro ship, passenger ship, chemical tankers and oil tankers. Among them, 20 persons has master's certificate of Norway. COSCON ship Management Company has a global ship provision network and can provide wide scope services which include providing stores and bunkers, newbuilding supervision and design consultation etc. It focuses on development of Chinese seafarers' market and has established information network for labor resources.

(3) Shanghai CHIPOL Ship Management Company

As China's first ship management company established in 2001, Shanghai CHIPOL ship Management Company is backed up by professional ship management personnel from CHIPOL and great experience of 50 years of ship management. It focus on the needs of their customers and provide all round services for both on-board and ashore supervision and administration.

3.3.2 Development trends of mainland ship management industry

There are three obvious development trends of mainland ship management industry. One is the increasing consolidation among small and medium-sized ship management companies. One is cooperation with overseas ship management companies. One is that many shipping companies establish their own third party ship management companies.

3.3.2.1 Merger and acquisitions

Consolidation is inevitable in ship management industry which is very much governed by economies of scale and has a relatively small profit margin. Management fees for ship management companies has been little changed for the last decade and remain, on average, 4% to 5% of vessel's operating costs. So managers are all struggled to cut down costs in order to earn more profits. And the most effective way of reducing costs is to become bigger since the number of people you need to manage 10 ships is not so much more than that you need to manage 4. As a result, consolidation through merger and acquisition become the popular phenomenon in this industry everywhere in the world.

With the tightening of international and domestic regulatory requirements, especially the requirements of ISM code and ISPS code, ship management services become increasingly professional. With the increasing intensive competition, those small ship management companies will, sooner or later, be acquired by large ship management companies especially those competitive state-owned ship management companies.

3.3.2.2 Cooperation with foreign ship management companies

Some domestic shipping companies have started to cooperate with foreign ship

management companies such as COSCON and E.R.Schiffahrt. Besides, V.ships, the world largest ship management company opened a new consulting office in Shanghai in 2001. V.ships wants to expand its business to Asia by taking advantages its brand office in Singapore and Hong Kong. This would greatly drive the development of mainland ship management industry. In March this year, V.ships, in cooperation with China Shipping Container Transportation Company, established China International Ship Management Co which currently manages four 9600 TEU container ships in Shanghai. V. Ships' participation in mainland ship management arena would greatly drive the development of mainland ship management industry.

3.3.2.3 Surge of third party ship management companies from shipping companies

Many large domestic shipping companies establish their own ship management companies. Those companies started from ship management departments of their mother companies and start to manage ships for outside shipowners. With the management structure restructuring of domestic shipping companies, those ship management companies start to operate independent of their mother company and compete in the global ship management marketplace. Especially after China's access into WTO, foreign ship management companies will start to enter Chinese market and compete with domestic companies.

3.3.3 Major problems and opportunities for future growth

3.3.3.1 Major problems

Many small shipowners turn to third party ship management companies for attaining Document of Compliance and Safety Management Certificates for their vessels since

they don't have the expertise and the resources to set up safety management system on their own. However, many domestic management companies only take care of system documentation, inspection for DOC and crew recruitments and training. Ships' safety and daily operation has no actual connection with ship management companies which causes safety, quality and environmental problems. Besides, some shipowners don't give full or corresponding power to their third party managers who have no resources to make SMS operate effectively. Besides, some seafarers have no training on knowledge on SMS. As a result, many ship management companies make fake documents and records on safety management activities on board afterwards making SMS a paper work only for coping with external inspection. In addition, due to their dependence on their mother shipping companies, many Mainland ship management companies lack a customer-focused business strategy and the percentage of outside businesses only take up a small proportion of the whole managed fleet. This would greatly affect their competitiveness in global market competition. All those need to be resolved which depend on the improvement of domestic legal and regulatory system on ship management and the upgrading of domestic ship management companies.

3.3.3.1 Opportunities for future growth

(1) Favorable domestic shipping market environment

As one of the world largest shipping country, China has a fleet of 2078 with a total tonnage of more than 44 million accounts for 5.3% of the world's total by the end of July 2003. The majority of shipowners are state-owned enterprise but private owners have been increasing very fast during recent years. In 2000, there are 290 international shipping companies registered in China and many of them are one-ship companies. There are more than 5000 shipping companies in coastal trade and 15 of them have a fleet of more than 100,000 tonnages. However, apart from COSCO and

China Shipping, most shipping companies are relatively small and can not take the advantage of economies of scale which leads to a disadvantageous position in the competition with foreign shipping companies. This leaves great development opportunity for professional ship management companies.

Table 3.2-Top 10 World Merchant Fleets by Country of Owner in July 2003
Self-Propelled Oceangoing Vessels 1,000 Gross Tons and Greater (Tonnage in thousands)

Country	Tanker		Dry Bulk		Full Container		Other		Total	
	No.	Dwt	No.	Dwt	No.	Dwt	No.	Dwt	No.	Dwt
Greece	780	61,995	1,329	74,967	150	5,089	650	6,687	2,909	148,738
Japan	768	37,137	855	51,726	215	7,221	837	7,801	2,675	103,886
Norway	479	33,361	179	11,078	18	534	473	6,430	1,149	51,403
USA	471	33,271	114	6,010	83	2,850	376	4,722	990	46,853
China	316	7,501	595	24,868	218	4,718	949	7,828	2,078	44,915
German	196	7,338	157	6,710	830	22,575	887	6,207	2,070	42,880
Hong Kong (China)	137	16,042	225	16,612	36	1,287	117	1,732	515	35,673
South Korea	223	8,242	180	13,157	96	2,290	261	1,541	760	25,230
Tai Wan (China)	42	3,232	174	11,413	191	6,720	109	850	516	22,215
UK	159	7,648	77	6,819	124	5,295	246	2,145	606	21,907

Source: Lloyd's Register Fairplay

(2) Chinese seafarers' labor market

According to the statistics of Chinese Maritime Committee, China has more than 1,200,000 seafarers with an annual growth of about 4,000 which is a great labor resources compared with other shipping countries. This brings great factor market advantages to Chinese mainland ship management companies. Due to geographical closeness, Hong Kong based ship management companies were the first ones who

use Chinese seafarers. Wallem ship management company started to use Chinese seafarers in 1997 and proved to be very successful. Since then many other ship management companies in HK started to use Chinese seafarers. The world ship management industry shifts their eyes on Chinese seafarers' labor market. Currently, there are about 40,000 Chinese seafarers working on foreign ships, so there are great potential for future growth. According to a report of ISF and BIMCO, there is a 4% shortage of officers on board now and it is estimated that there will be a gap of 46,000 between demand and supply for senior officers in 2010. This opens great opportunity for Chinese crews. Mainland ship management companies can take advantages of their connection with domestic seafarers' labor market to open up new business opportunities by providing manning services for foreign shipowners.

(3) Support from the government

Chinese government has given great attention to this newly grown industry and start to adopt policies to support its development so as to contribute to the development of Chinese shipping industry.

“Regulations on Domestic Ship Management Industry” came into force in October 1, 2001 which defines the concept, business scope, operational behavior and punishment measures for third party ship management industry. This would contribute to the standardization of domestic ship management companies and its healthy development.

3.4 Some conclusions

Seen from the condition of external business environment, we came to the following conclusions. As far as the international shipping market is concerned, the increasing division of labor combined with rapid development of logistics industry brings great

business opportunities for third party ship managers. In terms of seafarers' labor market, there is a shortage of competent seafarers especially senior officers. Besides, the supplying party of seafarers shifts from developed countries to developing countries such as China, Philippine and India. Domestic ship management companies should take advantages of China's great deposit of seafarers and increasingly complete seafarers' training and educational system to better train and manage Chinese crews to open new business opportunities. In terms of Informationization, there is increasing use of IT in ship management which make third party ship management become increasingly modernized and professionalized.

In terms of internal business environment, there is a shortage of demand for third party ship management services from domestic buyers since state-owned shipping companies would not leave their ships to third party managers while local shipping companies don't see such need under flexible technical entry barriers. Other family-owned shipping companies will not outsource under the influence of traditional ideology and operational methodology. So although there is potential market for third party ship management business, in the short run, major market needs are generated by shipowners abroad.

After in deep analysis of domestic shipping market structure, we can see that state-owned shipping companies have all the resources needed to establish their own ship management companies and have the potential of becoming the supplying party of ship management services. Local and private-owned shipping companies can start to consider of using third party ship management companies to manage their ships in order to reduce costs and raise management quality. So although, in the short run, there is not enough demand from domestic buyers for third party ship management services, there is a great potential market development opportunity for Chinese

mainland ship management companies.

In terms of development situation of Chinese mainland ship management industry, the author came up with the following conclusions. Firstly, there are mainly two types of ship management companies in mainland China. One is state-owned ship management companies which developed from their mother shipping companies. Such companies are mainly involved in managing ships of their mother companies. Those ships under management are mainly of similar types and their cost budgeting and control are not very efficient and professional. Another is private ship management companies which are mostly small size companies. Those ships under management are small tonnage ones and their service quality is very low. Under intense competition and the request for economies of scale, those smaller ones would be absorbed by large professional ship management companies sooner or later. In addition, we see three obvious development trends of Chinese mainland ship management industry. One is the increasing consolidation among small and medium-sized ship management companies. One is cooperation with overseas ship management companies. One is that many shipping companies establish their own third party ship management companies. At last, the favorable domestic shipping market environment as well as the great deposit of seafarers' labor resources combined with great support from Chinese government would act as the greatest driving forces for this industry to prosper and grow in the future.

After former analysis, we have already had a clear picture of the current market environment and development situation of mainland ship management industry. So in the next chapter, the author will use the method of comparative study to find out the strength and weaknesses of mainland ship management companies compared with their HK-based counterparts.

4 COMPARATIVE STUDY OF MAJOR CHINESE MAINLAND SHIP MANAGEMENT COMPANIES WITH WORLD-FAMOUS ONES IN HONG KONG

Based on their superb business environment and favorable policy of taxation, Hong Kong, Cyprus, Monaco and Singapore have emerged and grown into the world's ship management centers attracting many ship management companies coming and registering there. In this dissertation, the author chooses HK as the subject of comparison since mainland China and HK are not only geographically close to each other but also have many other things in common. Based on above analysis, we focus our attention on major domestic ship management companies as our subject of study since they are those who have the greatest potential of developing into large, internationally famous third party ship management companies and who can represent the main development trend of mainland ship management industry. The majority of major mainland ship management companies have been located in Shanghai due to the latter's favorable business environment. Besides, Shanghai municipal government has set the objective of developing Shanghai into an international ship management, brokering, insurance and finance center. So in this chapter, this dissertation would compare Shanghai-based ship management companies with their counterparts in HK in order to dig into the inherent nature and

development potential of mainland ship management industry. Hong Kong's successful story of ship management is deemed to be able to give us great insights into how Chinese mainland ship management companies can grow and develop in the increasingly competitive global ship management marketplace.

4.1 Comparison of industrial environment

Strategically located at the southern doorstep of China, Hong Kong services as the gateway to mainland China the world's most populous country with one of the fastest growing economies. Geographically speaking, Hong Kong has a more important strategic position than Shanghai in international shipping. However, since HK has a relatively limited resource of land, the cost of real estate in HK is higher than that of Shanghai. Hong Kong adopts free port policy which Shanghai can not match. As a free port, HK has few restrictions on trade with no tariff or other non-tariff barriers which attract many businesses to come. It has few restrictions on ship registry which attract many shipowners registering there. Being close to their customers is a favorable advantage for ship management companies and that is the reason why many ship managers choose HK as their place of operation.

In terms of financial market, Hong Kong holds more than 100 world famous banks and other financial institutions and has a more complete financial market system. However, due to few restrictions and interruptions from governmental institutions in the operation of financial market, some banks may involve in illegal transactions destroying the fair competitive market operation. In addition, Hong Kong's financial market has more exposure to external interruptions such as financial crisis. In comparison, Shanghai has a more stable financial market environment due to government's strict administration. However, this also leads to a less free operational condition for commercial banks. This combined with the less commercialization of

state-owned banks and their incomplete asset management structure leads to a less active financial market environment. This would create a barrier to those ship managers who want to provide financial services to shipowners in new-building construction or second-hand purchase. Besides, Shanghai financial market lacks effective credit environment and information network which connect with international financial market. However, once RMB can be exchanged freely, Shanghai' financial market will have a great driven force to progress.

In terms of shipping industry, Hong Kong is one of the most important international trade and shipping center and has a very solid foundation in shipping and port related industry. HK's container throughput has remained in the top two position of the world in recent years. It has the following advantages of developing shipping and port related industry. Firstly, it has efficient economic environment associated with good sea, road and air transportation facility. Secondly, HK has the world's leading commercial, trade and logistics industry. Besides, HK's advanced finance, IT, tourist industries build a solid foundation for the development of shipping and logistics industry. Furthermore, it is geographically close to Chinese mainland, India and Philippines which are all big seafarers' labor market. It also has convenient, modern communication system and a big international airport. Meantime, it holds many world-famous P&I clubs' offices.

Government support has been regarded as the most important driving force for shipping and port related industry. Hong Kong municipal government's marine department has been described as "highly efficient and cooperative". An absence of red tape leads to clear, transparent and cost-effective day-to-day operations of vessels. This combined with modern infrastructure for transport, and smart usage of information leads to lower process time for any shipping operation. "What is vital is

that the government ensures the maintenance of the highest quality and safety standards (Lloyd’s Ship Manager, 2004, pp.23-24)’’.

Due to its advantageous business environment, it has remained its position as the world’s ship management center since 1970s. Apart from the surging of many local ship management companies, many foreign famous ship management companies have established branch offices or agency in HK.

In comparison, Shanghai also has a favorable environment for shipping. Shanghai is the world largest port in terms of total cargo turnover and the third largest container port of the world. In the past decade, many logistics parks have been established in free trade zone or around port areas. Apart from many large state-owned shipping companies, Shanghai also holds many branch offices of foreign shipping companies. It also has a relatively complete service network of shipping related industries such as ship repair, shipping agency, brokering, Sale& Purchase etc. Besides, mainland ship building industry has achieved great success in recent years. Cheap construction costs are continuing to lure shipowners who can, quite frankly, get better deals from the Chinese major players than those available in Europe or the US. Mainland ship managers can take advantages of this opportunity to involve in new-building construction supervision services for shipowners both domestic and abroad.

Table 4.1-International market share and ranking of Chinese shipbuilding industry from 1995 to 2004

Year		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Output	Ranking	5	4	3	3	3	3	3	3	3	3
	Market share %	4.20	4.30	5.80	5.80	5.70	5.20	5.80	6.60	10.40	15

Source: Ye Jia. (2005). Analysis of international competitiveness of Chinese international shipping industry. *Comprehensive Transportation*. 11.

Last but not least, Shanghai municipal government has set the objective of establishing Shanghai into an international shipping, finance and trade center. It is also considering of adopting free port policy in the near future. Shanghai shipowners' association has been established last year for industrial self-regulation purposes. Although its operation and functions are not as complete and effective as HK one, it is sure to be able to contribute to the development of ship management industry with continuous endeavor. So although in the short run, Shanghai's industrial environment and shipping market structure are not as favorable as HK in developing ship management industry, it will catch up in the near future.

Table 4.2-Comparison of Hong Kong and Shanghai in geographical location and economic environment

		Shanghai	Hong Kong
Geographical location	Economic geographical location	Economically developed top city in Yangtze river delta and economic center of China	International metropolis and economic center in pearl river delta
	Natural geographical location	Eastern of Yangtze river delta facing Pacific ocean	Southern China of pearl river delta facing southern China sea
Economic environment	International transport	One of the major ports in Asia pacific region, located in west coast of international major lane	Hub port of international major lane
	Finance, shipping and trade	Major container port and economic, finance, shipping and trade center of China	International finance, trade and shipping center and the world 's largest container port
	Information and air communication	Important airport and information center in Asia pacific region	Important airport in Asia pacific region, the world most important information center

4.2 Comparison of scale of operation and business scope

HK has remained its position as the world ship management centers since 1970s. Its third party ship management industry has matured with a number of world famous ship management companies such as Wallem Ship Management (WSM), Anglo-Eastern Ship Management etc. They are well established in the market and they offer a whole set of services from shore-based supervision to on board technical management. In comparison, most of Chinese mainland ship management companies are small in its scale of operation. Those larger ones such as Shanghai CHIPOL Ship Management Company, China shipping International Ship Management Company are evolved from original shipping companies. Their operations are not wholly independent from their mother companies. Besides, their service focus is still crew management and they generally can not provide whole package financial services to shipowners.

Ship management services can be divided into three categories namely, technical management, crew management and commercial management. HK-based well-established ship management companies can provide a whole set of ship management services to their customers while a large majority of mainland ones generally only cover the former two functions leaving commercial operation to shipowners who want to have continuous contacts with the market. This is caused by differences in shipping market structure and owners' traditional ideology. Besides, mainland ship management companies also lack the ability to provide commercial services to their customers. They generally have no close contact with banks or other financial institutions. In addition, they also lack the experiences in offering financial packages to their customers in new building construction or purchase of second-hand vessels.

HK-based large ship management companies generally have a variety of ship types under their technical management while mainland ship management companies have a relatively lower level of complexity in their managed fleet. In order to compete in the global market, Professional ship management companies should have the ability to manage different kinds of ship and their DOC should cover a large scope of ship types. This is where mainland ship management companies lag behind their counterparts in Hong Kong.

4.3 Comparison of operational strategies

Since HK-based ship management companies have been mature in its scale of operation and variety of services offered, their current development strategy has been focusing on customer relationship management. Traditionally, ship management company tend to overview marketing aspects of ship management services but focusing their attention on improving service quality and reducing ship operational costs. However, with the surging of third party ship management companies world-wide, the global ship management market has become increasingly competitive. Only offering the basic services is not enough. Quality services are a must but not a competitive advantage. Shipowners require managers offer personalized services suited for their needs. The focus of competition is on added value such as global presence or timeliness.

Ship management business requires a higher level of personal touch in order to keep existing customers and attract new ones. Therefore, many HK-based world famous ship management companies launched customer relationship management campaign in recent years and put their customers' needs at a preferred position. Besides, by taking advantages of HK's favorable financial market environment, they also provide their customers whole package financial services for new-building construction by

establishing cooperative relationships with commercial banks or other financial institutions. Some ship management companies also design their own ship management information system software and also sell them as an off-the-shelf software package.

In comparison, mainland ship management companies' major strategic focus is improving service quality which is mainly related to seafarers' training and establishment of SMS for shipowners. Their main business is still management of ships of their mother companies and they only use their spare capacity to take on outside business. They are evolved from management department of original shipping company and their focus is still remained on reducing costs and improving service quality. They lag behind their counterparts in terms of IT systems of ship management and lack in-house capability to develop ship management software. Their priority does not fall on outside customers due to their dependence on their mother companies.

The current condition of domestic shipping market structure can not generate great businesses for mainland third party managers. State-owned shipping companies do not see outsourcing ship management functions to third-parties as the option for them while private shipping companies still insist on the ideology of "small but complete" and do not want to take the risk of outsourcing ship management to third parties. Although this situation will change with the increasing opening-up of domestic shipping market and the on-going restructuring in state-owned shipping enterprises, in the short run, the situation will remain non-optimistic for domestic managers. Therefore, the only way out for mainland ship managers is to go for the international marketplace. However, if that is going to work, mainland ship management companies need a shift in their strategic focus. They can take advantages of their

great experiences in ship management practice which have accumulated for many years and their excellent management personnel combined with good access to Chinese seafarers' labor resources to open up new business opportunities in the global marketplace.

4.4 Comparison of Level of Informationization

Ship management is the foundation of shipping industry, and Informationization is the only way for shipping companies to keep trace with international level and realize modernization. The ISM code requires the establishment of a strict safety management supervision system and a set of complete safety management procedure so as to exert effective control over the whole management process. This requires a higher level of standardization, regulated and computerized management procedure which can only be realized by computer information system. Informationization of ship management can also reduce ship management costs and improve efficiency. Informationized management of stores and spare parts can not only ensure optimal deposit of inventory but also give good support to ships' repair and maintenance requirements. Besides, it also reduces the number of accidents and cargo damage thus raising ship management company's reputation. Consequently, the costs for insurance can also be reduced greatly. Informationization is the irreversible development trend of the whole ship management industry.

4.4.1 Level of Informationization of HK-based ship management companies

IT has wide spread utilization in ship management in HK. Hong Kong-based famous ship management companies such as Wallem, Anglo-Eastern all have self-developed ship management information system software which make all information related to ship management being kept in one computer information system thus information

can be shared concurrently between ship and shore so that the whole process is monitored on real time basis which greatly enhanced efficiency of ship management. Other relative small companies have also bought their management system software as an off-the-shelf software package and modified it according to their companies' needs.

Those systems though different from each other have similar functions like follows:

(1) Planned Maintenance system

Application software cover all spare parts needed and can easily check the detail condition of various maintenance and repair, technical requirements, maintenance staff, spares needed and corresponding technical information of various tools etc. The system can also generate automatically various reports of maintenance and repair which facilitate analysis of accidents and management of certificates and survey.

(2) Procurement and inventory management

The system can easily check the condition of various inventories and automatically update information of inventory. It can complete the whole process of procurement from selection of suppliers to order processing and receipt of ship at last. This reduced procurement time in a great scale and realized Informationization control of procurement management.

(3) Sharing of information on real time between ship-to-shore

Ship management information system can transmit information by the means of fax, telegraph and email etc. to ensure sharing of information between ship and shore-based supervision on a real time basis. Sharing of information can increase the level of control on management procedure and can provide information on the

condition of ships' moving, ships' technical indexes, condition of repair and maintenance and arrangement of survey and certificate renewal etc.

4.4.2 Level of Informationization of Chinese mainland ship management companies

Although a number of large scale ship management companies have tried to develop ship management information system software, those who can realize its use in practical ship management business are few in numbers. A big majority of works remained to be done by management staff include planning, recording, reporting, and application, review and approval for procurement of stores and spare parts. This greatly influences the upgrading of ship management level and increase ship management costs spending. It also affects ships' safety, operational level, life and upgrading of occupational skills of ship management personnel.

Shanghai Maritime University, in cooperation with COSCON, developed a new ship management information system software called STMS (Safety Technique Management System) which consists of 12 subsystems. It includes functions like ships' machinery management, management of ocean affairs, communication management, safety management and cost control etc. Its ideology of management is "Safety of ships is the core thinking with equipment management as the foundation in order to realize the objective of cost control". This is the first ship management systems software in mainland China. However since the development of this software was affected by the existing management structure of state-owned shipping company, it is inferior in application compared with foreign ship management software leaving great space for future improvement.

Due to the differences in management structure, ideology and working procedure

between Chinese mainland ship management companies and those abroad, mainland companies generally can not use those software package developed by their foreign counterparts or can not use them without major modification. This creates a barrier for mainland third party ship management companies to raise their level of management and Informationization thus affects their competitiveness in international ship management marketplace.

4.5 Some conclusions

After comparison of industrial environment, operational scale, service range, development strategies and level of Informationization of major Chinese mainland ship management companies with Hong Kong based ones, this paper comes up with the following conclusions:

- (1) Mainland ship management companies have had increasingly favorable development environment for their growth although, in the short run, domestic shipping market environment can't generate enough business opportunity to justify rapid growth of third party ship management market.
- (2) Mainland third party ship management companies are relatively small in its scale of operation and have a relatively low complexity in service scope. They still have a high level of dependence on their mother companies and lack complexity in their fleet management portfolio.
- (3) Mainland ship management companies generally lack customer-oriented marketing strategy and effective customer relationship management which lead to absence of solid relationship with outside customers. Besides, they lack the ability to develop in-house ship management system software and a personalized solution to shipowners' needs.
- (4) Few mainland ship management companies have self-developed ship

management system software and a large majority of daily operation is done by management personnel. Besides, Due to the differences in management structure, ideology and working procedures, mainland companies generally can not use those software package developed by their foreign counterparts or can not use them without major modification. This creates a barrier for mainland third party ship management companies to raise their level of management and Informationization thus affecting their competitiveness in international ship management marketplace.

Chapter three and four give a macro analysis on the whole stance and development situation of Chinese mainland ship management industry which dig into the inherent nature of this newly grown and ever promising industry. In the next chapter, the author will set up a benchmarking model for comprehensive evaluation of third party ship management company on a micro basis. Mainland ship managers need to know not only the on-going condition of the whole industry but also how their companies are doing.

5 BENCHMARKING MODEL FOR THIRD PARTY SHIP MANAGEMENT COMPANY USING AHP

Ship management is a complex system which should be evaluated using a multi-criteria evaluation method such as analytical hierarchy process (AHP). In order to achieve a continuous self-improvement, ship managers need to know their companies' development stance. They need to know their strength and weaknesses in order to improve their performance and gain shipowners' recognition. In this dissertation, the author tries to establish a benchmarking model for comprehensive evaluation of ship management company for comparison within different companies in third party ship management industry. Ship management companies can either use this model in-house for self-evaluation or use it for comparison with their competitors in order to formulate appropriate development strategies for future growth and development.

5.1 Introduction to AHP

The Analytic Hierarchy Process (AHP) was initially presented by Saaty in 1980 for use in solving multiple criteria decision problems. Using a systematic hierarchy structure, complex estimation criteria can be represented clearly and definitely. Ratio scales are utilized to make reciprocal comparisons for each element and each layer. After completing the reciprocal matrix, one can obtain comparative weights for each

element. Tsundyu used AHP to set up an evaluation model for shipping companies. In his paper, Tsundyu generalized the main steps of AHP as follows:

Consider the criteria $C_1; \dots; C_i; \dots; C_j; \dots; C_n$ some one level in the hierarchy. One wishes to find their weights of importance, $w_1; \dots; w_i \dots; w_j \dots; w_n$ on some elements in the next level. Allow a_{ij} , $i, j = 1, 2, \dots, n$ to be the importance strength of C_i when compared with C_j . The matrix of these numbers a_{ij} is denoted A ,

$$\text{or } \begin{bmatrix} a_{11} & a_{12} & \dots & \dots & a_{1j} & \dots & \dots & a_{1n} \\ \cdot & \cdot & \dots & \dots & \cdot & \dots & \dots & \cdot \\ a_{i1} & a_{i2} & \dots & \dots & a_{ij} & \dots & \dots & a_{in} \\ \cdot & \cdot & \dots & \dots & \cdot & \dots & \dots & \cdot \\ a_{n1} & a_{n2} & \dots & \dots & a_{nj} & \dots & \dots & a_{nn} \end{bmatrix} \text{ where } a_{ji} = 1/a_{ij}, \text{ that is, } A \text{ is reciprocal.}$$

If one's judgment is perfect in all comparisons, then $a_{ik}=a_{ij} \cdot a_{jk}$ for all $i; j; k$ and one calls the matrix A consistent. Thus, when matrix A is multiplied by the vector formed by each weighting $w = (w_1, w_2 \dots w_n)^T$, one gets:

$$A_w = \begin{bmatrix} w_1/w_1 & w_1/w_2 & \dots & \dots & w_1/w_j & \dots & \dots & w_1/w_n \\ w_2/w_1 & w_2/w_2 & \dots & \dots & w_2/w_j & \dots & \dots & w_2/w_n \\ \cdot & \cdot & \dots & \dots & \cdot & \dots & \dots & \cdot \\ \cdot & \cdot & \dots & \dots & \cdot & \dots & \dots & \cdot \\ w_i/w_1 & w_i/w_2 & \dots & \dots & w_i/w_j & \dots & \dots & w_i/w_n \\ \cdot & \cdot & \dots & \dots & \cdot & \dots & \dots & \cdot \\ \cdot & \cdot & \dots & \dots & \cdot & \dots & \dots & \cdot \\ w_n/w_1 & w_n/w_2 & \dots & \dots & w_n/w_j & \dots & \dots & w_n/w_n \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ \cdot \\ \cdot \\ w_j \\ \cdot \\ \cdot \\ w_n \end{bmatrix} = n^* \begin{bmatrix} w_1 \\ w_2 \\ \cdot \\ \cdot \\ w_j \\ \cdot \\ \cdot \\ w_n \end{bmatrix} = nw$$

Because a_{ij} is the subjective rating given by the decision-maker, there must be a distance between it and the actual values $w_i=w_j$. Thus, $A_w = nw$ can not be calculated directly. Therefore, Saaty suggested using the maximum eigenvalue, λ_{max} , of the solution of matrix A to replace n , then $A_w = \lambda_{max}w$. By this method,

one can obtain the characteristic vector, referred to as the priority vector. Obtaining an exact priority vector is complex, so this paper uses the Normalization of Row Average (NRA) method to replace the more complex operation. This method sums up each row element and standardizes it by summing all elements of the matrix. The equation is:

$$W_i = \frac{\sum_{j=1}^n a_{ij}}{\sum_{i=1}^n \sum_{j=1}^n a_{ij}}, \quad i=1,2,3,\dots,n. \quad \text{Finally, we check for consistency,}$$

$$\lambda_{\max} = \sum_{i=1}^n \frac{(AW)_i}{nW_i}, \quad \lambda_{\max} - n \quad CI = \frac{\lambda_{\max} - n}{n - 1} \quad CR = \frac{CI}{RI},$$

CI is the consistency index while RI is the random index. If $CR < 0.1$, W_i is the weight for C_i . So we can get the final weight for each criterion (Tsundyu,2001, pp.376-377).

Therefore, by using AHP, we can get quantitative weights for multiple criteria by using subjective rating scores.

5.2 Benchmarking model for third party ship management companies

In this chapter, this dissertation would set up a benchmarking model for performance evaluation of third party ship management companies. Analysis of former chapters is based on a macro level which digs into the inherent nature of mainland ship management industry as a whole. However, a micro analysis is necessary for individual company to assess their own performance in order to adopt the right strategy for future development. Ship managers need to apply a more systematic and organized approach to measure their performance in management activities at both a corporate and strategic level.

5.2.1 Setting up criteria system

In order to compare performance of different ship management companies, we should firstly have a set of evaluation standards. Evaluation standards should be based on a set of criteria which can be quantified to make it more objective and reliable.

The author's research indicates that shipowners' selection of a particular ship management company is largely based on an assessment of value. This, in turn, is made up of two levels. The first is a measure of technical and operational quality and image. The second level is made up of financial variables (Photis,2001, pp.45-64). A survey made by LSM in 2004 about "what owners really want" from third party ship managers indicated that a manager's brand name, and a reputation for quality at low cost, seem to be governing factors when it comes to securing contracts. And what make a good reputation and brand is ship managers' commitment to safety, security and quality vessel maintenance. A clean sheet when it comes to vessel detentions is enough to sway owners' decision even if it result in additional expenses (Lloyd's Ship Manager,2004, p.12). Table 5.1 is the major part of the survey questionnaire.

Table 5.1-Results of LSM Management Survey

Which of these factors do you rank as being the most important or determinant when it comes to selecting a technical/third party/crew manager? Please indicate your top three considerations.	
Reputation/Brand name of manager	22%
Cost	18%
Previous personal or business experience/partnership with members of management company personnel	16%

Compliance with extra-regulatory initiatives (e.g. class society environmental schemes, involvement in R&D projects, etc.)	13.5%
Safety/security record (e.g. -vessel detention rate)	11%
Cultural factors (e.g. manager based in same country, speaks native tongue, etc.)	7%
Company's revenue and turnover	4.5%
Specialization in niche markets	4%
Physical size of the company/fleet	4%

Source: LSM Survey. (2004, July/August).Lloyd's Ship Manager.

As we can see from the result, 22% of shipowners regard reputation of managers to be the most significant factor when they secure ship management contracts, while 18% gave credit to cost and 16% value managers' experiences. The survey result gave us a good guidance as to those criteria that should be used in benchmarking third party ship managers. However, not all those items in the survey results can be used in this model since some of them are difficult to judge and quantified in practical grading and may lead to the involvement of subjective judgment in final benchmarking results. So, in this model, this paper chooses 11 criteria which represent respectively safety, technical ability, profitability, reputation and operational scale and experiences of ship management company. In terms of safety, we use number of commercial claims, number of PSC detentions and deficiency per inspection to reflect safety management capability of ship managers. Technical management are represented by two criteria i.e. ship's operational level and utilization of equipment for environmental protection. Profitability are reflected by two financial index while operational scale and experiences are indicated by three criteria, respectively, number of vessels managed complexity in fleet management

portfolio and time in business.

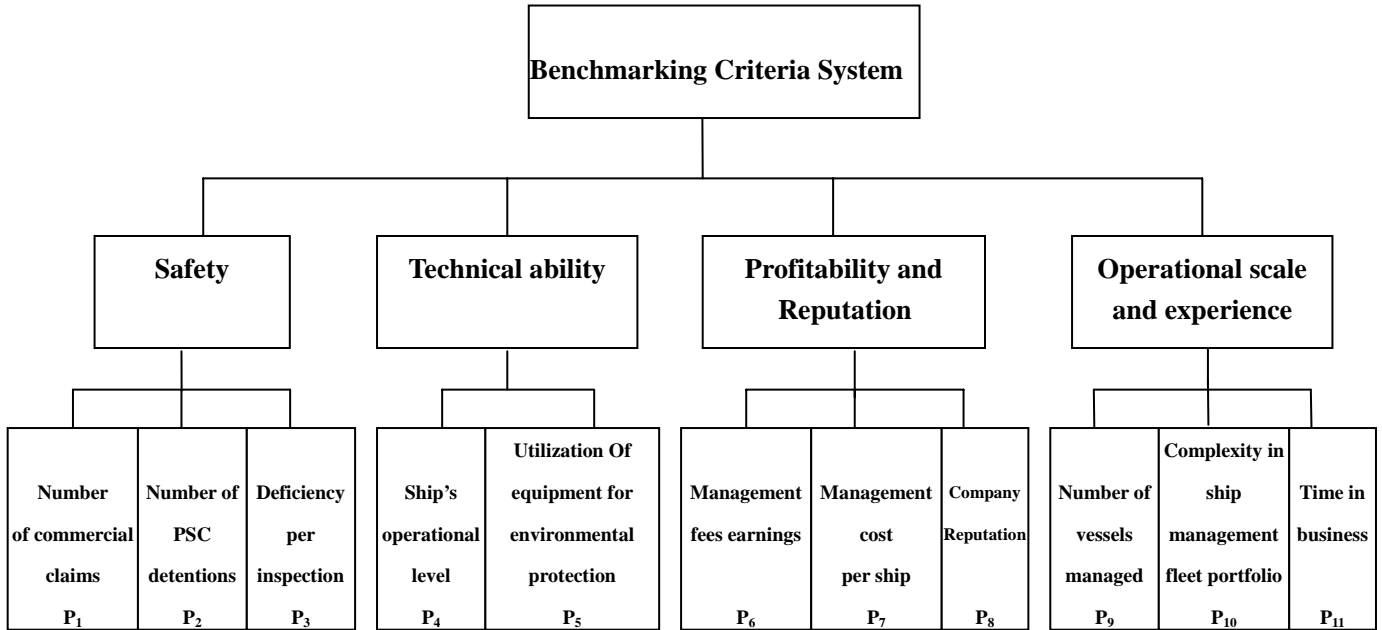


Figure 5.1-Benchmarking Criteria System for Ship Management Company

5.2.2 Fixing weights using AHP

After we have already set up the criteria system, the second step is to fix weight for each criterion in the overall scores for ship management company's comprehensive performance evaluation.

After consulting some professional ship managers and senior officers and making references to the opinions in some academic papers, the author primarily fixes the relative importance of various criteria thus formulating comparison matrix for the first level criteria.

Table 5.2- Comparison matrix for first level

	SA	TA	PR	OSAE
SA	1	1.5	1/2	2
TA	2/3	1	1/3	2
PR	2	3	1	4
OSAE	1/2	1/2	1/4	1

After calculation, we get the weights for first level criteria i.e. safety (SA), technical ability (TA), profitability and reputation (PR) and operational scale and experience (OSAE).

$$W_i=(0.24,0.18,0.48,0.11)^T \text{ CR}=0.00766 <0.1$$

Then, by using the same method, we get the weights for the second level criteria under the first level. After then, we combine the two rankings in order to get the overall ranking for the 11 criteria within this system.

$$W_i=(0.1283, 0.0708, 0.0389, 0.1418, 0.0354, 0.1369, 0.0680, 0.2721, 0.0621, 0.0310, 0.0155)^T$$

5.2.3 Evaluation using AHP

The final step is to compare different ship management companies on each criterion. This can be done by senior personnel within the company for internal evaluation or by external auditor for benchmarking purposes. Evaluation should be based on accurate data from reliable sources and should be done without subjective estimation. After comparison of ship management company's performance on each criterion, we can get the final overall scores for each ship management companies which can indicate who is the high performers and who is the poorer ones. We can also know from the results in which area the company do better or worse than its competitors. So by using this benchmarking model, ship managers can better know their company's strength and weaknesses so as to improve and progress in the future.

5.3 A numerical example

In this section, the author will use a numerical example to illustrate how to use this model for benchmarking third party ship management companies. We use Z_1, Z_2, Z_3 to represent three third party ship management companies. Then we compare

different ship management companies on each criterion.

Table 5.3- Comparison matrix for the first three criteria

P1	Z1	Z2	Z3
Z1	1	2	3
Z2	1/2	1	2
Z3	1/3	1/2	1

P2	Z1	Z2	Z3
Z1	1	1/2	2
Z2	2	1	3
Z3	1/2	1/3	1

P ₃	Z1	Z2	Z3
Z1	1	1/3	2
Z2	3	1	6
Z3	1/2	1/6	1

Then we can get the overall scores for each company after overall ranking of different comparison results.

Table 5.4- Overall Ranking of different ship management companies

	P ₁	P ₂	P ₃	P ₄	P ₅	P ₆	P ₇	P ₈	P ₉	P ₁₀	P ₁₁	overall
	0.1283	0.07076	0.038988897	0.14178	0.03544	0.13603	0.06802	0.27206	0.06206	0.03103	0.01552	Scores
Z1	0.53896	0.29726	0.222222222	0.75455	0.32024	0.1285	0.64795	0.3	0.11111	0.64795	0.31818	0.39229
Z2	0.29726	0.53896	0.666666667	0.15354	0.55714	0.27661	0.22987	0.6	0.22222	0.12218	0.63636	0.38774
Z3	0.16378	0.16378	0.111111111	0.09192	0.12262	0.59489	0.12218	0.1	0.66667	0.22987	0.04545	0.21997

As we can see from the results, Company Z₁ got the highest scores 0.3923 while company Z₃ got the lowest. Apparently, Company Z₁ did very well in criterion P₁ i.e. Number of commercial claims and P₄ Ships' operational level, P₇ Management costs per ship which contribute to its success. However, it has the fewest management fee earnings and the smallest managed fleet. Company Z₃, though a lowest overall ranking, has the lowest record for ship deficiency. It also has a high performance in management fee earnings. Obviously, when you have a small fleet under your

management, you get less management fee earnings and would have a higher average management costs. In addition, your reputation would be affected by the number of PSC detentions and deficiency rate of your fleet. As we can see, managers can get a lot of information from such benchmarking results.

5.4 Some conclusions

So by benchmarking on each criterion, we get the final value for comprehensive evaluation of operational performance of third party ship management company. This value represents the operational and management level of third party ship management company. We can use the result to analyze each company's strength and weaknesses. Managers can know in which aspects they do better or worse than their competitors. For example, some may get a higher overall score but may lag behind others in some aspects such as profitability. Such ship management company may have a good reputation in safety and quality ship management services but may have a hard time in squeezing profit from management fee earnings. The results of those analyses can give some guidance for senior managers in formulating corresponding strategy for future development.

6 SUGGESTIONS ON FUTURE DEVELOPMENT OF CHINESE MAINLAND SHIP MANAGEMENT COMPANIES

After the above analysis, the author outlines some suggestions on future development of mainland ship management companies considering their current development situation and their strength and weaknesses.

Firstly, mainland ship management companies should establish their own brand which should be based on professional technical management services. In order to compete in the increasingly competitive marketplace, mainland ship management companies should gain recognition from shipowners by high quality, professional management services so as to establish their own brand. From shipowners' eye, managers' reputation and goodwill is so much important than price. Brand strategy offers a way to gain such recognition. Professional technical personnel, management staff, management systems, company culture and information management hardware and software are all prerequisites for quality technical services. Mainland ship management companies should improve their comprehensive strength in those aspects in order to establish their own brands.

Secondly, mainland ship management companies should take advantages of their access to Chinese seafarers to open overseas market. Currently, there is a shortage of

senior officers on board especially those who have the capability to work on special vessels such as LNG and LPG. This opens great opportunity for Chinese seafarers and many world-leading ship management companies have started or planned to use Chinese seafarers. Mainland ship management companies can take advantages of their business contacts with domestic manning agency to provide crewing services for foreign shipowners who want to get access to Chinese seafarers. Since ship management remains as a people business, mainland ship management companies must establish an effective crew recruitment, training and management mechanism in order to compete in the global ship management marketplace.

Thirdly, mainland ship management companies should build a customer-oriented business philosophy which should be incorporated as an integral part of their company culture. It is increasingly recognized in ship management that in order to achieve growth, it is not enough to offer the basic service well, engage in traditional cost reduction and seafarers' training and recruitment tactics, and monitor changes through accounting measures. The ambitious ship management firm should be able to engage in practices that yield additional value to the firm. "Such practices can be learned by recognizing where the company is and where it wants to go, analyzing market opportunities and competitive threats, and taking proactive steps to retain customers and create market (Photis,2002, pp.45-64)". Relationship marketing seems to provide an effective way for mainland ship managers to retain and attract customers. The application of this approach also fits in with the traditional nature of client/manager relationships since the maritime business is largely based on acquaintances and personal relationships. Mainland ship managers should try to achieve the right balance in maintaining good client relationships while investing in business opportunities beyond the service only scope.

Fourthly, mainland ship management companies should establish close contacts with a number of shipping banks in order to provide ship financing services for customers. Besides, by employing professional maritime experts who not only have the knowledge in shipping but also have excellent bargaining and negotiating skills, ship management companies can provide a whole package services for shipowners. This package should include negotiations with relevant ship yard, in order to secure a construction cost favorable to clients, as well as introducing the party most suited to chartering the ship. Third party managers who have such capability are sure to have a competitive advantage over their counterparts who don't have. With Shanghai's increasing advanced financial market, ship management companies operating there can take this chance to utilize domestic capital to take up such businesses.

Fifthly, mainland ship management companies should actively involve themselves in training and recruitment of management personnel suited for their needs since the core competition within third party ship management market is competition for people. Beside, mainland ship management companies should enhance their investment in and development of computer information system management software so as to keep trace with their foreign counterparts. Such computerized management system can not only reduce management costs on a large scale but also can raise management level and company's reputation and image. They can either develop their own system or buy from professional IT consulting company. Concurrently, they should also upgrade operational and occupational skills of their management personnel so as to benefit the full potential from the application of information technology in professional ship management practice.

Sixthly, smaller mainland ship management companies can adopt a niche market strategy specializing in the management of specific type of vessels such as cruise

ship or ro-ro ship. This will enable them to take better use of their limited resources and avoid direct competition with those biggers.

Last but not least, domestic ship management companies should take a more positive approach to business development. They should move forward towards offering innovative solutions as opposed to operating a fleet of ships by following fixed procedures applicable to everybody. Attracting and retaining business requires identification and anticipation of specific customer needs and the development of service solutions to satisfy those needs.

Cooperation with foreign ship management companies by partnership or alliances may offer competitive advantages to mainland ship management companies in global market competition. Domestic ship management companies can not only absorb their foreign counterparts' experiences and management expertise but also enlarge their customer base. Photis has suggested that strategic alliances among ship management companies may be the next major change in the ship management industry. The driven force for it is obvious. Management fees have remained almost unchanged in the past two decades while the costs of ship management have surged a lot with the increasingly tightening regulatory environment. Alliances not only allow ship managers to take advantages of economies of scale but also avoid the hassles of company cultural conflict and the difficulty of integrating different management philosophy involved in merger or acquisitions. This offers a viable solution to mainland managers.

7 CONCLUSION

After in-deep study of the current nature and development prospect of Chinese mainland ship management companies, the author comes up with the following conclusions:

Firstly, mainland ship management industry has remained in its infancy with only a few large scale professional ship management companies which evolved from management departments of original shipping companies. Other small scale ship management companies generally involve in the management of small tonnage vessels and are relatively inferior in service quality and technical capability. With the increasingly intensive competition in global ship management marketplace and the driving force to cut down ship operational costs, there will be further merger and acquisitions within third party ship management industry. Therefore, mainland small ship management companies would face the challenge of being absorbed by their bigger counterparts.

Secondly, in terms of shipping market structure, mainland ship management companies have a relatively favorable market condition for business expansion. They can take advantages of Chinese seafarers' labor resources to open foreign market opportunities by providing crewing services to shipowners. With the opening up of Chinese shipping market, cooperation with foreign ship management companies also

offer an opportunity for mainland management companies to open overseas market opportunities. However, there are many problems existing such as a weak focus on customers' needs and lack of personalized solution to shipowners' problems. Also, for those ship management companies who establish ISM system for shipowners, there is a weak connection between ship management company and daily safety operation on board managed ships which result in low quality and safety track records.

Thirdly, major mainland ship management companies are mostly based in Shanghai which is the most favorable location for third party ship management companies in mainland China in terms of economic, political, financial, shipping and port environment for third party ship management operation. In comparison with HK-based ship management companies, mainland ones are relatively small in terms of service scope and number of ships under management and they still have a high level of dependence on their mother companies. Besides, mainland ship management companies have a lower level complexity in their fleet management portfolio and lack customer-oriented marketing strategy and effective customer relationship management which influences their competitiveness in global market competition. In terms of level of Informationization, few mainland ship management companies have self-developed ship management information system software and a large majority of daily operations are done by management personnel manually. Besides, due to the differences in management structure, ideology and working procedures, mainland companies generally can not use those software package developed by their foreign counterparts or can not use them without major modification. This creates a barrier for mainland third party ship management companies to raise their level of management and Informationization thus affects their competitiveness in international ship management marketplace.

After analysis at a macro level, this dissertation also sets up a benchmarking model for performance evaluation of third party ship management company using AHP. By using this model, ship managers can know their company's strength and weaknesses compared with their competitors thus formulating corresponding strategies to improve themselves.

Finally, the author gives some preliminary suggestions on future development of Chinese mainland ship management companies. Hopefully, this dissertation can help mainland third party ship management companies to better know about the current nature and development trends of this industry so as to formulate the right strategies for future growth and development.

There are some other aspects relating to the development of Chinese mainland ship management companies which are not covered in this dissertation but deserve further research such as organizational structure design of Chinese ship management companies, cost structure of ship management companies and competitive strategies for Chinese mainland ship management companies. Besides, due to the difficulties involved in collecting data about management costs of third party ship management companies, this dissertation does not analyze cost control aspect of third party operation. Future research can concentrate on analysis of management cost composition of third party ship management business and how to improve cost efficiency and profitability of third party ship management companies.

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APPENDIX 2

A NUMERICAL EXAMPLE

P ₁			Z1	Z2	Z3	P ₁			Z1	Z2	Z3	weights	product ratios	\bar{A}_{max}
Z1	1	2	3	5/9	4/7	1/2	Z1	5/9	4/7	1/2	0.539	1.6248	3.0147	3.0092
Z2	1/2	1	2	2/7	2/7	1/3	Z2	2/7	2/7	1/3	0.2973	0.8943	3.0085	
Z3	1/3	1/2	1	1/5	1/7	1/6	Z3	1/5	1/7	1/6	0.1638	0.4921	3.0044	
SUM	1.83	3.50	6.00									CR	0.0075	
P ₂			Z1	Z2	Z3	P ₂			Z1	Z2	Z3	weights	product ratios	\bar{A}_{max}
Z1	1	1/2	2	2/7	2/7	1/3	Z1	2/7	2/7	1/3	0.2973	0.8943	3.0085	3.0092
Z2	2	1	3	4/7	5/9	1/2	Z2	4/7	5/9	1/2	0.539	1.6248	3.0147	
Z3	1/2	1/3	1	1/7	1/5	1/6	Z3	1/7	1/5	1/6	0.1638	0.4921	3.0044	
SUM	3.5	1.8333	6									CR	0.0075	
P ₃			Z1	Z2	Z3	P ₃			Z1	Z2	Z3	weights	product ratios	\bar{A}_{max}
Z1	1	1/3	2	2/9	2/9	2/9	Z1	2/9	2/9	2/9	0.2222	0.6667	3	3
Z2	3	1	6	2/3	2/3	2/3	Z2	2/3	2/3	2/3	0.6667	2	3	
Z3	1/2	1/6	1	1/9	1/9	1/9	Z3	1/9	1/9	1/9	0.1111	0.3333	3	
SUM	4.5	1.5	9									CR	0	
P ₄			Z1	Z2	Z3	P ₄			Z1	Z2	Z3	weights	product ratios	\bar{A}_{max}
Z1	1	6	7	3/4	4/5	2/3	Z1	3/4	4/5	2/3	0.7545	2.3192	3.0736	3.0326
Z2	1/6	1	2	1/8	1/7	1/5	Z2	1/8	1/7	1/5	0.1535	0.4631	3.0164	
Z3	1/7	1/2	1	1/9	0	0	Z3	1/9	0	0	0.0919	0.2765	3.0078	
SUM	1.3085	1.5	10									CR	0.0281	
P ₅			Z1	Z2	Z3	P ₅			Z1	Z2	Z3	weights	product ratios	\bar{A}_{max}
Z1	1	1/2	3	2/7	2/7	3/8	Z1	2/7	2/7	3/8	0.3202	0.9661	3.0186	3.0183
Z2	2	1	4	3/5	4/7	1/2	Z2	3/5	4/7	1/2	0.5571	1.6881	3.0299	
Z3	1/3	1/4	1	0	1/7	1/8	Z3	0	1/7	1/8	0.1226	0.3687	3.0065	
SUM	3.3333	1.75	8									CR	0.0158	
P ₆			Z1	Z2	Z3	P ₆			Z1	Z2	Z3	weights	product ratios	\bar{A}_{max}
Z1	1	1/2	1/5	1/8	1/7	1/8	Z1	1/8	1/7	1/8	0.1285	0.3858	3.0022	3.0065
Z2	2	1	1/2	1/4	2/7	2/7	Z2	1/4	2/7	2/7	0.2765	0.8311	3.0044	
Z3	5	2	1	5/8	4/7	3/5	Z3	5/8	4/7	3/5	0.5949	1.7906	3.01	
SUM	8	3.5	1.7									CR	0.0045	

P_7	Z1	Z2	Z3				P_7	Z1	Z2	Z3		weights	product ratios	λ_{max}
Z1	1	3	5			Z1	2/3	2/3	5/8		0.6479	1.9485	3.0071	3.0037
Z2	1/3	1	2			Z2	2/9	2/9	1/4		0.2299	0.6902	3.0026	
Z3	1/5	1/2	1			Z3	1/8	1/9	1/8		0.1222	0.3667	3.0013	
SUM	1.53	4.50	8.00								CR	0.0032		
P_8	Z1	Z2	Z3			P_8	Z1	Z2	Z3		weights	product ratios	λ_{max}	
Z1	1	1/2	3			Z1	0.3	0.3	0.3		0.3	0.9	3	
Z2	2	1	6			Z2	0.6	0.6	0.6		0.6	1.8	3	
Z3	1/3	1/6	1			Z3	0.1	0.1	0.1		0.1	0.3	3	
SUM	3.3333	1.6667	10								CR	0		
P_9	Z1	Z2	Z3			P_9	Z1	Z2	Z3		weights	product ratios	λ_{max}	
Z1	1	1/2	1/6			Z1	0.1111	0.1111	0.1111		0.1111	0.3333	3	
Z2	2	1	1/3			Z2	0.2222	0.2222	0.2222		0.2222	0.6667	3	
Z3	6	3	1			Z3	0.6667	0.6667	0.6667		0.6667	2	3	
SUM	9	4.5	1.5								CR	0		
P_{10}	Z1	Z2	Z3			P_{10}	Z1	Z2	Z3		weights	product ratios	λ_{max}	
Z1	1	5	3			Z1	2/3	5/8	2/3		0.6479	1.9485	3.0071	3.0037
Z2	1/6	1	1/2			Z2	1/8	1/8	1/9		0.1222	0.3667	3.0013	
Z3	1/3	2	1			Z3	2/9	1/4	2/9		0.2299	0.6902	3.0026	
SUM	1.5333	8	4.5								CR	0.0032		
P_{11}	Z1	Z2	Z3			P_{11}	Z1	Z2	Z3		weights	product ratios	λ_{max}	
Z1	1	1/2	7			Z1	1/3	1/3	1/3		0.3182	0.9545	3	
Z2	2	1	14			Z2	2/3	2/3	2/3		0.6364	1.9091	3	
Z3	1/7	0	1			Z3	0	0	0		0.0455	0.1364	3	
SUM	3.1429	1.5714	22								CR	0		
	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}	F_{11}	overall		
	0.1283	0.0708	0.038988897	0.1418	0.0354	0.136	0.068	0.2721	0.0621	0.031	0.0155	Scores		
Z1	0.539	0.2973	0.22222222	0.7545	0.3202	0.1285	0.6479	0.3	0.1111	0.6479	0.3182	0.3823		
Z2	0.2973	0.539	0.666666667	0.1535	0.5571	0.2766	0.2299	0.6	0.2222	0.1222	0.6364	0.3817		
Z3	0.1638	0.1638	0.111111111	0.0919	0.1226	0.5949	0.1222	0.1	0.6667	0.2299	0.0455	0.22		