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World Maritime University

Shanghai, China

**Analysis on Situation and Competitive Of the
Shipping Market in China**

By

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China

A research paper submitted to the World Maritime University in partial

Fulfilment of the requirement for the award of the degree of

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ITL

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Abstract

By the time China published *Chinese Antimonopoly Law* and European Union abolished Regulation (EEC) No 4056/86, we really need to assess the competition of the shipping market in China and the whole world comprehensively and systematically. The paper focused on the three segment markets: Container Shipping Market, Dry Bulk Shipping Market and Tanker Shipping Market.

Except comparing the markets through supply and demand relationship and market barriers, the paper also use the absolutely concentration ratio and HHI to classify the three markets as competitive market or oligopoly market. For each market, different competitive behavior happened. At the end of the article we put forward some helpful policies to sustain Chinese competitive market.

【Key words】 : Competitive Market CR HHI Segments Market

Chapter 1: Overview of the International Shipping Market

Economic globalization brings global shipping market development. It also makes the market more competitive than ever. Through history and related laws we can understand the development of the Chinese shipping industry. After analyze the international shipping competition theory of evolution, we have an overview about the competitive market.

1.1 China's History of Reform and Opening Up in Shipping Industry

Before 1978, China's international shipping industry was basically managed and operated by the state. Its development process could be divided into two stages: First, International shipping start-up stage, with international cooperation and leasing outer shipping as the main indicators; the second is international maritime expansion, with building our own transport fleet as main content. (Wang Chuanxu, 1999) During the planned economy period, China's international shipping policy was completely made by government according to the need of economic construction of the country.

After 30 years of reform and opening up, international shipping has become to be an important support of China's economic and social development, especially on foreign trade. China has made a series policy, laws and regulations to encourage and support the development of maritime, which plays an important role in comprehensive transportation system.

Till the end of 2010, China has signed maritime agreement with 65 countries or regions, becoming the A class member of the International Maritime Organization in the world shipping industry and has improved significantly to be the world's major driving force of maritime development.

With the rising of opening level, more than 70% of the container shipping, dry bulk, crude oil transport market share is taken by foreign shipping companies. With an average

annual growth of 12.3%, China's foreign trade is much higher than the world of 3.6% (Ministry of Communications, 2008). The "China factor" has become a dominant force in world shipping demand.

1.2 Major Initiatives to Promote in Shipping Industry

(A) Improve the security system of laws and regulations

Since reform and opening, China has provided a legal guarantee through strengthening international shipping industry laws and regulations, to establish a national unity, fair and orderly international shipping market.

20th Jun, 1990, Ministry of Communications issued *Provisions on the Administration of international liner shipping*, aimed at strengthening the management of the international liner shipping, encourage, and promote the development of international liner, protect the supply, transportation, and planned to meet the national development on foreign economic trade.

5th Dec, 1990, the State Council issued *International Maritime Container Transport regulations*, which was the first issued of the national laws and regulations related to container transport. It has played an important role on strengthening international container transportation industry management, macro-control and regulating container transport market.

1st July, 1993, *National Maritime Law* came into effect, with a total of 15 chapters. Its formulation designed to adjust the relationship between maritime transports, ship, and safeguard the legitimate rights and interests of all the parties, and promote trade in maritime transport and economic development.

In order to regulate international maritime traffic and protect fair competition and the legitimate interests of all the parties, the State Council issued *International Ocean*

Shipping Regulations(Decree 335), which entered into force on 1th Jan, 2002.

20th Jan, 2003, the Ministry of Transportation issued *the International Maritime Regulations Implementing Rules*, which made the management of the international maritime market more transparent and operational.

25th Feb, 2004, in order to regulate the establishment of foreign enterprises in our country , which engaged in international maritime transportation business and international maritime transport-related auxiliary businesses, to protect the legitimate rights and interests of all parties, according to *International Maritime Regulations* and other relevant laws or regulations, the Ministry of Commerce and the Ministry of Communications issued the *Foreign Investment in the international shipping industry regulations* as the supporting regulations of the *International Maritime Regulations*.

(B) Maintain the good order of competition in the shipping market

To strengthen supervision and management of the international shipping market, the Ministry of Communications issued *Announcement of strengthen the supervision on regular ship conference and freight agreements organizations*, some irregularities were severely punished. 9th Jun 2009, the Ministry of Communications released *the Announcement on recording freight rate of international container liner*.

(C) Improve the competitiveness of the international shipping fleet

In order to improve China's international shipping fleets, the State Council approved the Ministry of Communications issued *Announcement on Chinese-funded international shipping ship tax-free register policy*.

Before the end of 2005, ships that had registered offshore, reached a certain age and corresponded to require technical conditions are free on tariff and import VAT.

In 2009, the policy got an extension of 2 years. With the special tax-free policy, the

national shipping fleet expanded further, which is important to protect the national economic security and improve international competitiveness of the shipping fleet. (Bao Minzhong, 2007)

(D)Strengthen exchanges and cooperation

By the end of 2010, China has signed maritime agreement with 65 countries and regions, including the United States and European Union. After *Sino-US Maritime Agreement* entered into force in 2004, the business of US wholly-owned shipping company had further expanded, without geographical or number limits on setting up branches in China. (Liu Zheng, 2005)

Meanwhile, the U.S. promised to give the state-owned shipping company "controlled carrier" exemption, made which to enjoy the same treatment on the price making of all the foreign trade routes.

In 2008, "*China - EU Maritime Agreement*" and the modify Protocol came into force, will promoted the investment on all sectors of China-EU maritime transport services, and improved the cooperation on maritime safety, environmental protection and other important fields between China and EU.

1.3 Literature Review

Competition theory is the most sensitive and the cutting edge of the field in the economic theory. The American economy is basically in leading position. The academic developed these hundred years after Harvard school, the Chicago school and after-Chicago school three stages.

After a very long period of the first antimonopoly law published, Harvard school (E. Mason, 1950) occupies the important position. Harvard University developed the

analysis pattern is "structure, conduct and performance"(SCP Model). This kind of analysis mode stressed the market structure of decisive function. (J. Bain, 1959) Putting the against mergers, against leading enterprise behavior and against vertical merger etc, as the dominant tone of antitrust law. (Scherer, 1970)

The traditional Harvard school economic theory according to the "structure theory", to analyze whether an enterprise holds monopoly market share and enterprise behavior of market structure is leading market concentration to rise.(Martin, 1993)

From the 1970 s, the rise of the Chicago school think that the main consideration of the antitrust is to consider the main market efficiency and performance, rather than the market structure itself. (F. Knight, 1957) that means, a monopoly of the industry also can be effective, as long as the market price is reasonable, and a potential entrance threat exists. Even the monopoly companies also may act according to the principle of competition. Though the competition market is fully effective sufficient, but not necessary

After-Chicago school comprehended the Harvard school and the Chicago school theory, (R. Lucas, 1995) they consider that market share and market concentration can provide a wealth of information about competition situation. Harvard school market concentration and within industry competition and pricing have had a close association argument to get support. Market access is slower cheaper and easier than Chicago school regards. Robbing price activities and other leading actions do really exist. At the same time, After-Chicago school think for many manufacturers must analysis them by specific things with specific ways instead of filling the specific things into a theory framework to evaluation them. Harvard school's analysis is relying too much on simplified theory, lead to the important difference always be ignored. Market's ability to constraints the enterprise is limited. The necessity of mergering and various manufacturers' anti-competitive behavior is small.

Chapter 2: Environment of International Shipping Industry

After analyzing the macro environment, industrial policy, opening environment, management policy of the international shipping industry. We have an overview on the environment of international shipping market.

2.1 Macro Environment in International Shipping Industry

The macroeconomic environment of international shipping mainly refers to the external environment. International shipping industry is closely related to the world economy and international trade development. International trade affects the capacity, structure, status and development prospects of the shipping market. (Song Binliang, 2007)

Development of economic globalization is the primary factor affecting the international shipping industry. When the world economic grows rapidly, international trade increases, generating strong demand for shipping, made it development and prosperous; on the other hand, when the international trade shrinking, shipping market fall into depression and recession.

Natural resources and geographical environment has a considerable influence on the development of world shipping. Since the uneven distribution of coal, iron ore, oil and other resources, as well as productive forces and industrial development, the distribution of goods and traffic flows also show imbalance.

Science and Technology is also a long-term environment factor on the development of the shipping market. The world economy has experienced three major technological revolutions, corresponding effects produced on international shipping. Especially after World War II, the third revolution in science and technology has greatly accelerated the pace of innovation means of transport, including the ship's large, efficient loading, unloading machinery automation and efficient, transportation of containers and so on.

(Wang Chuanxu, 1999)

2.2 Industrial Policy

Shipping policy reflects the national attitude to the shipping industry; it not only affects the shipping industry in their economic development status and role, but also affects the shipping industry in the international shipping market position and role.

The trend of world economic development and national shipping policy shows the shipping policy is on the direction of integration and liberalization, such as: all kinds of bunting discrimination and the strength of financial subsidies are gradually reduced. At the same time, the shipping protectionism still exists. However, the protection of national shipping policies and measures has become more hidden, from direct protection to indirect protection, and turn the tariff barriers in the legal means to mainly on non-tariff barriers.

1, United States (Yang Jianyong, 2005)

(1) Shipbuilding policy.

a, Interest Rate Policy: The U.S. government often provides low-interest and long-term loans to the ship owners, to promote the construction of new ships.

b, Shipbuilding subsidies: U.S. shipbuilding subsidy policy is mainly CDS, which formulates that the Government of the United States should give some subsidies to shipping companies in the price different of building ships domestic and overseas.

(2) Operating subsidies. The main form of operating subsidies is ODS, namely, the difference operating subsidies. The policy provides porating subsidies to ships with American flag or hires American seaman.

(3) Cargo reservation policy. 50% of the U.S. government supplies, 100% of military supplies and 75% of food aid to developing countries are required to transport by the American ships. According to statistics, 40% cargo is relying on cargo reservation every year.

2, the European Union (Yang Jianyong, 2005)

(1) Focus on low-carbon economy. EU regards climate change as the greatest challenge to the maritime industry, and developed countries took advantage of the opportunity to present the green sea barriers. They increase the technical and management standards by legislation in the name of maintaining maritime security and the prevention of environmental pollution, in order to limit the low-standard ships to enter the international shipping market.

(2) Promoting competition between ports. Although the European Union has a high degree of integration, competition exists between the internal ports and external ports. The EU believes that fair competition is a main factor to improve the competitiveness of the European maritime industry, and only carry out healthy competition, the port can continue to improve services and upgrade infrastructure.

(3) Improve the efficiency of multimodal transport. Most EU member states has coasts, 90% foreign and 40% internal trade relies on ocean shipping. Improve the harbors' efficiency of multimodal transport is significant. Two aspects of policy has been proposed by EU: 1st, developing rail transport and water transport; second is to speed up information technology construction to connect the harbors and interior efficiently.

2.3 Opening Enviroment

According to their shipping status, world's major shipping countries have diffent openness of their shipping industry. North-west European countries such as Greek, the United Kingdom, Norway, and Netherlands have a high degree of openness of its

shipping industry, while others government developed policies and regulations with protectionist. (He Dexu, 2007)

In the long run, the shipping industry should be ultimate become completely opened.

2.4 Management Policy

International shipping supervise policies are based on the legal system. Broadly, these laws include international conventions, bilateral maritime agreements, national laws, administrative regulations and departmental regulations.

Main international conventions include the United Nations "Code of Conduct for Liner Conferences, 1974" and the World Trade Organization Agreement on maritime transport. Bilateral maritime agreements are signed between two countries. (Wang Chuanxu, 1999)

China and other countries have signed bilateral maritime agreements related to the broader, market-based access and bilateral cooperation, but cooperation is much less. Domestic law, such as "*anti-monopoly law*" based on the legal level, "*International Maritime Regulations*" is an administrative regulation, and "*International Maritime Regulations implementing rules*" are departmental regulations.

In accordance with international practice and on the basis of China's national conditions, China has basically formed a relatively systematic regulatory policy on competitive international shipping industry. China formed a legal system with "*anti-monopoly law*" and "*Anti-Unfair Competition Law*" as the basis, "*International Maritime Regulations*" and its implementation rules as the main body and other transportation rules and regulations issued by the Ministry for the additional. (Wang Chuanxu, 1999)

Chapter 3: Structure and Characteristics of the Shipping Market in China

We use the horizontal comparison method to analyze the three segment market's structure and characteristics. Then we calculated each segment market with industrial concentration ratio and HHI. Finally we got that the container shipping market and dry bulk shipping market belongs to completely competitive market and the tanker shipping market belongs to the oligopoly market.

3.1 Structure and Characteristics in International Container Shipping Market

3.1.1 Supply and Demand

International container transportation mainly transports by liner trade with fixed schedule, fixed ship, fixed ports and relatively fixed freight rate.

1、Demand Characteristics

International container transportation demand is closely related to the development of world economy and the change of international trade.

Chart3.1 World Economy, Trade Growth Rate

YEAR	World Economy Growth Rate	International Trade Growth Rate	World Container Capacity growth rate
2004	4.90%	10.90%	14.29%
2005	4.50%	7.50%	10.42%
2006	5.10%	9.00%	11.32%
2007	5.20%	6.60%	10.17%
2008	3.00%	2.70%	5.38%

Source: Internet (settle from many webs)

(1) Imbalance of cargo flow.

From 2001 to 2008, Far East (FE)-North America (NA) Line, the cargo from FE to NA always double than cargo from NA to FE. The phenomenon also happened on Far East-Europe Route and Mediterranean Route. (Ministry of Communications, 2008)

(2) Small elasticity of demand

Shipping transportation is one of most important transportations in the international trade. Changes between freight rates won't change the shipping demand greatly. In container shipping market, the cargoes are industrial produces like garments, textiles, mechanical and electrical products.

They have high acceptance of the freight rate, the sensitive degree of the freight rate is low. For example, each TEU can transport 2000 suits. We assume that the freight rate raises \$50/TEU. After calculation, we got that each suit just raises \$0.025, less than 1% of the cargo value.

(3) Hard to be substitute

“Due to big traffic volume, low cost and low energy consumption, the container transport is hard to be substitute”. (Zhao Shuhua, 2007)

In international liner shipping market, through the former transportation trading service, the shipper often built up a relatively stable long-term business partnership with the liner companies. They have certain loyalty to their partner.

2、 Supply Characteristics

By the end of 2009, there are 4677 global container ships all over the world with 12.85 million TEU. The average age of container is 10.8 years, far less than the world merchant fleet 16.3 years. (ISL, 2009)

Chart 3.2 World Container Fleet Country(Top 10)

	Country	Number	Capacity (m TEU)	Ship Age
1	Germany	1742	5882	7.6
2	Japan	324	1487	6.8
3	Denmark	226	1401	8.5
4	China	310	935	13.4
5	Greece	195	836	16.3
6	Taiwan	185	716	9.4
7	France	82	442	6.2
8	Singapore	156	457	9.0
9	South Korea	127	438	10.9
10	The United States	80	397	8.4

Source: ISL, 2009

(1) Obvious Economies of Scale

In container transportation cost, most of the costs are fixed costs. The more fixed cost the better scale economic benefit. Therefore, the trend of container ships growing large and large these years.

By the end of 2008, each of the world container ship's average carrying capacity rise from the 1180 TEU in 1987 to 2620 TEU. (ISL, 2009) On the operating costs, there are management cost and voyage costs. With the expansion of the scale of fleet, through the unified purchase, ship owners can reduce the unit of the ship operating cost and thus produce scale economic benefit.

(2) Better Economy of Scope

In such mode, as the transportation between ports uses the common facilities and ships, they saved the transportation costs. Also, every increase of a regional port in the route is equivalent to the operator provide more cargoes in the transportation; which produce the better economy of scope.

(3) Big Sunk Cost

Container maritime transport mostly completed by liner shipping, it required the company to establish the agency on every port of call on the route, in order to maintain liner shipping. The agency will deal with shipping agency business on this port and relevant customer service. If the ship company quit a route, it is difficult to take back all these investments, which causes the sunk cost. (Xu Jianhua, 2005)

(4) Long Shipbuilding Cycle

The shipbuilding cycle always more than one year, it always happened that the shipping capacity unable to keep pace with the changing of supply and demand.

3.1.2 Market Barriers

1、Minimum Efficient Scale, (MEC)

Minimum efficient scale (MES) or efficient scale of production is a term used in industrial organization to denote the smallest output that a plant (or firm) can produce such that its long run average costs are minimized. (Wikipedia, 2010)

(1)Global Market

Chart 3.3 Total Capacity & MES/Total Capacity

Year	Total Capacity(m TEU)	MES/Total Capacity(%)
2004	9.05	3.9
2005	9.92	4.2
2006	11.30	5.0
2007	12.65	5.5
2008	14.14	5.4

Source: Shanghai Shipping Exchange, 2004~2008

According to "accounts for 50% of the industry output of the biggest business average output/output index calculation." In 2008, the global container shipping MEC occupied

5.4% of the total capacity, and the proportion is year after year to increase by degrees trend. It shows that, in recent years the global container shipping market increases the entering barriers.

(2) Shanghai Port Market

Chart 3.4 Total Capacity & MES/Total Capacity in Shanghai Port

Year	Total Capacity(m TEU)	MES/Total Capacity(%)
2006	10.48	4.5
2007	11.01	5.0
2008	11.92	5.0

Source: Shanghai Shipping Exchange, 2006~2008

From Shanghai port we can see that the international container shipping enterprise MEC in Shanghai Port is higher than average level. From the annual development and change, container shipping MEC trend also grows clearly. (Xu Jianhua, 2005)

2、Transport Capacity Surplus

Chart3.5 The global container market main east-west routes transport capacity surplus degree

Year	Capacity Supply (mTEU)	Capacity Demand (mTEU)	Supply/Demand	Year	Capacity Supply (mTEU)	Capacity Demand (mTEU)	Supply/Demand
Routes transport capacity surplus degree				Routes transport capacity surplus positive degree			
2004	44.97	33.05	136%	2004	24.66	22.06	112%
2005	50.98	36.66	139%	2005	28.02	24.72	113%
2006	58.00	40.35	144%	2006	31.80	27.73	115%
2007	62.01	43.60	142%	2007	34.30	30.08	114%
2008	66.16	42.78	155%	2008	36.71	28.88	127%

Source: Drewry , 2004-2008

3、Expenses of the Sales Proportion

Shipping industry belongs to the fund intensive industry. It need to have strong financial for new entrants with their own vessels in this industry. Necessary capital amount barriers means when enterprise enter the market it need capital amount to achieve the minimum production and sales.

In order to alleviate enterprise financing pressure, more and more liner companies using the ships leasing way to expand its own scale, it can also reduce liner shipping enterprise's fixed capital investment. In the top 10 global liner companies, most companies leasing capacity take up 40% of total capacity.

3.1.3 Industrial Concentration

1、Basic Theory

Industrial concentration” refers to a structural characteristic of the business sector. It is the degree to which production in an industry—or in the economy as a whole—is dominated by a few large firms. Once assumed to be a symptom of “market failure,” concentration is, for the most part, seen nowadays as an indicator of superior economic performance.(Econlib, 2011)

(1) *Absolute Concentration Ratio* (Yang Gongpu, 2002)

Absolute concentration index is the most basic concentration measure; usually use CR_m . It means the top m places of the scale of the enterprises share the sum of market. Computation formula is:

$$CR_m = \sum_{i=1}^m S_i \quad (\text{Formula 3-1})$$

$CR_m \in [0, 1]$, i means enterprise, S_i shows the company's total ranking of the whole market.

Industry concentration types are shown below:

Chart3.6 Byrne's industrial concentration type

TYPE	CR4	CR8
High Oligopolistic	75%以上	
Highly concentrated oligopolistic	65%-75%	85%以上
(up) concentrated oligopolistic	50%-65%	75%-85%
(down) concentrated oligopolistic	35%-50%	45%-75%
Low concentrated oligopolistic	30%-35%	40%-45%
competitive	30%以下	40%以下

Source: Yang Gongpu, 2002

Absolute concentration can better reflect concentration status in industry, and relatively simple measure and calculate. But, the absolute concentration of industries just reflects the largest in the top of the enterprise market concentration, difficult to grasp the scale distribution of the enterprise in the whole industry.

(2) *Herfindahl-Hirshman (HHI)* (Yang Gongpu, 2002)

In order to overcome the shortcomings of the absolute concentration, HHI brought out a more comprehensive index, it is equal to the quadratic sum of each enterprise market share in the industry. The formula is:

$$HHI = \sum_{i=1}^n S_i^2 \times 10000$$

Bigger number shows the high level of industry concentration.

Chart3.7 the market structure for benchmark HHI classification

Market Structure	oligopoly				competitive	
	High I	High II	Low I	Low II	Competitive I	Competitive II
HHI	≥3000	(3000,1800)	(1800, 1400)	(1400, 1000)	(1000, 500]	<500

Due to reflect the industry HHI all enterprise market share, so it can better measure the concentration levels of industry, but more difficult to calculation, HHI needs to know that

all the enterprises' market share, and CRm method only needs to know that the several top enterprise market share.

2、Concentration Analyse

(1) Share of the Market

In general speaking, big container liner companies market share increased every year, but our country enterprise occupy the global market share has been reduced year by year. In 2006, 2007, 2008, China container liner shipping enterprise of the global container shipping capacity market share is 7.33%, 6.79% and 6.76%, less than Europe, Japan and other shipping developed countries. (Ministry of Communications, 2009)

(2) Absolute Concentration

The global transport capacity development situation shows: 1999-2004, 20% < CR8 < 40%, since 2006, CR8 began to more than 40%, concentration is increasing year by year, the market is transform from competitive market to low oligopolistic market.

Chart 3.8 Global Container Market capacity concentration index (%)

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CR4	21	22	22	24	25	25	26	32	33	33	32
CR8	31	33	33	37	38	38	40	45	47	46	45
CR20	48	53	54	59	61	63	64	67	70	69	67

Data Source: Shanghai Shipping Exchange, 1999~2009

Chart 3.9 Shanghai port container market concentration index (%)

CRn	2006	2007	2008	2009
CR4	25	27	27	29
CR8	40	43	43	47
CR20	74	78	77	80

Data Source: Shanghai Shipping Exchange, 2006~2009

Chart 3.10 2009 Shanghai Port container main route concentration index (%)

Line	North America		Europe		Japan	
	CR4	CR8	CR4	CR8	CR4	CR8
2006	32	55	41	65	54	85
2007	30	52	42	65	60	82
2008	32	56	40	62	58	79
2009	36	58	45	68	61	77

Data Source: Shanghai Shipping Exchange, 2006~2009

The Shanghai port container shipping market concentration index can reflect the market structure characteristics and competition situation in our country. In 2006-2009, CR8 is more than 40%.

Theoretically, our foreign trade container liner shipping market overall belongs to competitive market with increased concentration year by year. Through the segment transportation market, in recent year, Japanese line, North America line and European line have concentration on the high side. Market structure has the structure characteristic of monopoly.

(3) *HHI*

HHI is increasing these years. Show that container market belongs to competition II, different from the absolute concentration.

Chart3.11 International Container Transportation market HHI index

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
HHI	187	217	222	257	270	280	306	410	414	410

Data Source: Shanghai Shipping Exchange, 1999~2009

From the analysis of HHI, index are all less than 500, general in II type, which belongs to the competition is a completely competitive market structure.

But in segment routes, North America line and European lines are both exceed 500, belongs to the competition I type, which belongs to the monopoly market structure. Japan line is more than 1000 since 2007 belong to low concentration oligopolistic, duopoly market structure.

Chart 3.12 Shanghai port container liner market HHI index

Year	2006	2007	2008	2009
HHI	386	377	376	412

Data Source: Shanghai Shipping Exchange, 2006~2009

Chart 3.13 Shanghai port container main liner HHI index

HHI	North American	European	Japan
2006	547	672	991
2007	526	668	1056
2008	584	628	1062
2009	626	772	1147

Data Source: Shanghai Shipping Exchange, 2006~2009

The result of absolute concentration and HHI index calculation results analysis is: on the whole China's trade container transportation market belongs to complete market structure, but in segment route market, some lines (such as Japan line) due to the improvement of concentration in recent years, the market structure has monopolistic competition and characteristics of oligopoly structure.

3.2 Structure and Characteristics in International Dry Bulk Shipping Market

3.2.1 Supply and Demand

Dry bulk cargo general transports by tramp with no fixed routes, uncertainly port of call, unsure shipping schedule and different rates. According to the arranged time, place and carrying goods in charter party to decide routes and rates.

1、Demand Characteristic

(1) Supply of goods place.

The main cargo in dry bulk transport market including iron ore, coal, and grain, sugar, chemical fertilizers, cement and bulk cargoes. Dry bulk cargo's supply of goods place and consumer place are compared concentrate.

The most cargoes are resource materials which produced from areas full of mineral resources and consumed in developed industry regions. It formed a few large volume and

relatively fixed line.

(2) Small elasticity of demand

International dry bulk cargoes transport the resource products. Normally the price is low, the ability to accept the freight is weak, and reflect on freight rate are more sensitive.

But because of its service object limited within the range of specific, blocks of dry bulk shipping is hard to be substitute. Due to limitation room of demands increased or decreased. The demand elasticity is low.

(3) Do not have network effects and transfer cost

One of the characters in dry bulk cargo transport is to meet specific customer's demand irregularly. It usually use the direct point-point transport, network effect is not obvious.

2、 Supply Characteristics

By the end of 2008, global dry bulk cargo capacity is about 430 million DWT. Dry bulk cargo ships mainly concentrated in Japan, Greece, China, South Korea, Germany and other countries and regions. (ISL, 2009)

Chart 3.14 World Dry Bulk Fleet Country(Top 10)

	Country	Number	Capacity (m TEU)	Ship Age
1	Japan	1246	94. 98	7. 6
2	Greece	1314	83. 26	16. 1
3	China	916	48. 02	20. 0
4	South Korea	286	20. 59	18. 0
5	Germany	316	19. 66	12. 6
6	Hong Kong	272	17. 32	12. 5
7	Taiwan	220	15. 09	14. 1
8	The United States	159	8. 80	15. 8
9	Norway	154	8. 52	16. 3
10	British	114	7. 12	13. 4

Source: ISL, 2009

(1) High economies of scale

International dry bulk cargo transport of the supply of scale economy mainly reflects in ship carrying capacity and economic aspects of scale economy fleet. The trend of large ships is more and more obvious (such as in 2008, the capesize and VLOC account for 35% of global capacity, and in 2003 the number is 30%). (Clarkson, 2011)

In addition, with the expansion of the owner fleet, the owners can control the cost, business management form certain scale effect of the fleet. But as the dry bulk cargo transport is commonly nonstop, unfixed route, no regular ship chartering transportation, there's no density economy effect.

(2) Limited economy of scope

Dry bulk cargoes' direct transport decided their limited its supply scope economy. Capesize transports single cargoes mainly for iron ore with small scope economy; Panamax and handy-size carries coal, grain, minor bulk cargo, etc. Its scope economy is slightly higher.

(3) Low sunk cost

The fixed assets of dry bulk cargo industry is the vessel, when the owner want to quit the market, he can sell the vessel in the second-hand market. Because of the lower price, the vessel always can be sold. The sunk cost in dry bulk market is office cost, the ship registration and registration, insurance, crew training, safety inspection and so on which cannot recovery, but these costs are relatively small.

3.2.2 Market Barriers

1、Market Access Condition

Dry bulk cargo transport market access conditions without any restrictions on basic, the only condition is correspond to our country's *international maritime transportation regulations* and related laws. International dry bulk cargo transport market has many owners and the shipping operator.

2、MEC

According to Clarkson in recent five years, the top 50 dry bulk fleet occupied 40%-45% of accumulative total capacity. Although it's less than a half, but it also can use "the top 50" replace "accounting for industry produces 50% of the average output " roughly to estimated minimum effective enterprise scale. (Clarsons, 2010)

From the table below we can find that from 2004 to 2008, the dry bulk cargo transport market share of global scale MEC is less than 1%, the proportion of the total capacity obviously less than container shipping.

Chart 3.14 MES to total capacity proportion

Year	Total Capacity (m DWT)	MES/Total Capacity (%)
2004	325	<0.90
2005	331	<0.96
2006	354	<0.89
2007	400	<0.84
2008	421	<0.88

Source: Shanghai Shipping Exchange, 2006~2008

Chart 3.15 MES to total capacity proportion of Ship Type

TYPE	Total Capacity (m DWT)	MES/Total Capacity (%)
CAPE SIZE	169	2.3%
PANAMAX	121	<0.9%
SUPRAMAX	92	<0.9%
HANDYMAX	76	<0.8%

Source: Shanghai Shipping Exchange, 2006~2008

The last five years, our country engaged in international dry bulk cargo transport fleet of scale of the global total capacity proportion is about 15%.

3、Industrial Production Capacity Surplus Degree

From the table below, the market surplus degree from 2004 to 2006 is anesis, market supply and demand gradually towards to balance state; but since 2007, capacity increases widely, on the other side, annual demand growth dropped, which form the excess production capacity.

Chart 3.16 2004-2008, the global dry bulk cargo transport capacity surplus degree

YEAR	Demand Capacity Scale (MTons)	Supply Capacity (MTons)	Supply/Demand
2004	276	325	118%
2005	286	331	116%
2006	313	354	113%
2007	365	400	110%
2008	366	421	115%
2009	342	454	133%

Source: Derwy, 2009 Q2

4、Enterprise Access- Exit Degree

According to Clarkson, there are 1315 global international dry bulk cargo transport enterprise in 2009 and 1458 companies in 2010. Which means the net accession rate was 10%. In our country, it's easier for enterprise entering or exiting market. According to voyage charter deal record and time charter deal record, in 2008, dry bulk cargo transport enterprise number is about 355; in 2009 the number is 432. The net accession rate was 18%. (Clarkson, 2011)

3.2.3 Industrial Concentration

1、Market Share

From 2006-2008 China's dry bulk capacity occupied the world total capacity is 15%, 16% and 13%. The fleet in China's international trade dry bulk shipping, in addition to our country's ship owners, foreign owner also occupies considerable proportion. At the same time, our country fleet was also involved in a third country dry bulk carrier transportation business. (Ministry of Communications,2008)

Chart 3.17 China dry bulk market**share (owner market)**

OWNER	2009 年		2008 年	
	Position	Share	Position	Share
COSCO	1	6.3%	1	6.1%
Marmaras Nav.	2	1.8%	—	—
Cardiff Marine	3	1.5%	17	0.7%
Excel Maritime	4	1.4%	28	0.6%
TOTAL	—	11.0%	—	7.5%

Chart 3.17 China dry bulk market**share (Charter Market)**

CHARTER	2009 年		2008 年	
	Position	Share	Position	Share
BHP	1	14.9%	1	14.6%
RIO	2	10.3%	4	5.2%
NOBLE	3	5.5%	3	7.1%
VALE	4	4.8%	29	0.7%
TOTAL	—	35.5%	—	27.3%

Source: Shanghai Shipping Exchange, 2008~2009

From the international trade dry bulk transport market, many owners participating in the competition, the market share changed quickly.

2、Absolute Concentration

Analysis from global dry bulk transport market, 1998-2009, CR8 CR4, CR20 are basically maintain stable, CR8 and CR4 are much less than 20%. Analysis from the capacity structure, international dry bulk transport market belongs to complete competitive market structure.

Chart3.18 dry bulk market concentration index (global market, %)

CRn	2004	2005	2006	2007	2008	2009
CR4	9	10	13	14	14	13
CR8	13	14	18	19	19	18
CR20	22	23	29	28	29	25

Source: Shanghai Shipping Exchange, 2006~2008

In our country, 2007-2009, CR8 CR4, CR20 are basically maintained stable, CR8 and CR4 are much less than 20%. The market belongs to complete market structure. In addition, for the last three years, our country main dry bulk transport enterprise of international carrier share steadily rising, especially COSCO process of market share to rent the largest carrier. (Zhao Shuhua, 2007)

**Chart 3.19 China dry bulk cargo market
shipowners concentration index (%)**

YEAR	2007	2008	2009
CR4	9	12	11
CR8	15	17	16
CR20	28	28	28

**Chart 3.19 China dry bulk cargo market
shipowners concentration index (%)**

YEAR	2007	2008	2009
CR4	27	30	36
CR8	37	38	47
CR20	55	51	62

Source: Shanghai Shipping Exchange, 2007~2009

3、HHI

According to the top 50 owner of capacity share data, HHI is 67, far less than 500. According to the index as the benchmark of HHI market structure classification standard, and in theory analysis, the global market structure belongs to competitive II ---- completely competitive market structure.

Similarly, in our country, 2007-2009, HHI below 90, belongs to complete market structure. But charter market is steadily rising. In 2009, HHI reached 646, more than 500. The goods market monopoly power is stronger, already has the monopoly market structure.

Therefore, the calculation results from concentration analysis: our country dry bulk transport market belongs to complete market structure. The cargoes market has some monopoly power, already has the structure of monopoly market.

3.3 Structure and Characteristics in International Tanker Shipping Market

3.3.1 Supply and Demand

In 2008, global oil trade volume is about 2.003 billion tons of crude oil by sea. With the rapid development of China's economy, our oil supply and demand gap is more and more big. The import dependence is very high. In 1993, our country begins to become oil importer. In 2009, we total import crude oil 204 million tons, dependence on imported more than 50%.

1、 Demand Characteristic

(1) Imbalance cargo flow obviously.

Influenced by oil resources place concentrated, a lot of oil transferred from the oil exporting countries to the United States, Japan, Western Europe and China and other countries.

(2) Small elasticity of demand

Tanker transport demand derived from oil trade demand. Overall, the tanker transport demand change almost from the influence of demand elasticity, freight rate changed less than international container and dry bulk cargo transport market.

(3) Do not have network effects and transfer cost

2、 Supply Characteristic

By the end of 2008, global oil tankers carrying capacity is about 430 million DWT, mainly concentrated in Greece, Japan, Norway, China, Germany, the United States and other countries. (ISL, 2009)

Chart 3.14 World Tanker Fleet Country(Top 10)

	Country	Number	Capacity (m TEU)	Ship Age
1	Greece	1040	7947	12.0
2	Japan	1044	5526	7.9
3	Norway	486	2432	11.8
4	China	539	2355	14.5
5	Germany	423	2247	8.0
6	The United States	295	1967	15.4
7	British	228	1704	9.2
8	Singapore	399	1682	14.4
9	Saudi Arabia	95	1431	12.7
10	Hong Kong	161	1198	7.1

Source: ISL, 2009

(1) High economies of scale

International tanker transport of the supply of scale economy mainly reflects in ship carrying capacity and economic aspects of scale economy fleet. The trend of large ships is more and more obvious. By the end of 2008, the total VLCC combined 503 ships with 150 million DWT, take over 43.9% of the world fleet tonnage; More than 120000 DWT tanker capacities occupied 82% of the world oil tankers carrying capacity.

(2) Limited economy of scope

(3) Sunk cost

Sunk costs include: office equipment, ship the ship registration and registration, insurance and launch crew training, safety training and safety inspection.

3.3.2Market Barriers

1、 High Market Access Condition

2、 MEC

The last five years, our country engaged in international oil tanker transport enterprise have not reached the minimum effective scale. Our country focus on develop the small tonnage vessels. So we engaged in international tanker transport enterprise need for more capacity share, improve the scale degree.

3、 Excess Capacity

From 2004 to 2006, oil tanker transport demand and supply basic maintain balance. 2007-2011, there is a large excess capacity. On the one hand, the larger shipping enterprise for crowding out market share, expanding new production capacity. On the other hand oil transport related to country economic lifeline, countries need certain scale

fleet to ensure national energy transport security.

Chart3.15 2004年-2008 Tannker Market Excess Capacity

YEAR	Demand Capacity Scale (m Ton)	Supply Capacity Scale (m Ton)	Demand/Supply
2004	268	290	108%
2005	261	280	107%
2006	273	296	108%
2007	283	317	112%
2008	287	341	119%

Source: Derwy, 2009 Q2

4、Enterprise Access, Exit Degree

According to the Clarksons statistics data show that the second half of 2009 global international oil tanker transport enterprise about for 1420 home, the second half of 2010 global international oil tanker transport enterprise about for 1470 home, small change. According to statistics, 2008 record clinch a deal, 2009 in our country foreign trade transportation QiYeShu basic maintain the oil tanker in 130 home, net into the rate is very small. (Clarksons, 2009)

5、Capital Spending Accounts for Sales Income Proportion

3.16 Capital spending accounts for sales income proportion

YEAR	2003	2004	2005	2006	2007	2008
Average	115%	113%	109%	146%	171%	134%

Source: Shanghai Shipping Exchange, 2006~2008

3.3.3 Industrial Concentration

1、Market Share

China's international tanker in the global market share of capacity is low, in 2006, 2007, 2008 years were 2.9%, 3.6% and 3.0%.

3.17 China tanker shipowners market

OWNER	share			
	2009 年		2008 年	
	Position	Share	Position	Share
COSCO	1	9.0%	1	7.6%
CSC Nanjing	2	6.3%	9	1.7%
China Shpg. Assoc. M/time	3	6.1%	2	4.7%
TOTAL		24.6%	64	14.3%

3.18 China tanker Charters market

Charter	share			
	2009 年		2008 年	
	Position	Share	Position	Share
UNIPEC	1	37.52%	1	37.17%
GLASFORD	2	13.14%	3	7.74%
BLUELIGHT	3	11.62%	10	1.51%
ZHUHAI	4	5.33%	5	5.85%
ZHENRONG				
TOTAL		67.6%		47.6%

Source: Shanghai Shipping Exchange, 2006~2008

Market share from owner market in China, the top shipping companies market share is not high, cosco takes the most market share both in 2008 and 2009, but the share are both below 10% of world, and the market share changed relatively fast.

Market share from charter market in China, the top company's market share is very big, 2009 ranked first UNIPEC market share as much as 37%, and the change of share stable.

2、Absolutely Concentration

From a global international tanker transport market capacity analysis to see, 1998- 2008, CR8, CR20 CR4 are basic remain stable. CR4 is less than 20%, CR8 is slightly higher than the 20%. Theoretically, overall global oil tanker transport market belong to complete market structure.

3.19 Global tanker market concentration index (Global Market, %)

	1998	2001	2004	2005	2006	2007	2008
CR4	9	14	14	14	13	12	12
CR8	16	22	21	22	21	20	20
CR20	32	37	36	37	36	35	37

Source: Shanghai Shipping Exchange, 2008

3.20 China tanker market concentration index (Owner Market,%)

	2007	2008	2009
CR4	20	19	25
CR8	31	28	35
CR20	50	45	51

Source: Shanghai Shipping Exchange, 2007~2009

3.21 China tanker market concentration index (Charter Market,%)

	2007	2008	2009
CR4	62	64	68
CR8	81	82	79
CR20	96	95	94

Source: Shanghai Shipping Exchange, 2007~2009

3、HHI

According to Clarkson of the global tanker transportation capacity, HHI is 81, far less than 500, according to the index as the benchmark of HHI market structure, market structure classification standard belongs to II competition model. (Clarkson, 2010)

2007-2009, our country tanker transport market HHI were lower than 250, far less than 500, belong to complete market structure. But the goods market is steadily rising, in 2009, HHI is 1806, belong to low oligopolistic I type changed to high oligopolistic II type.

Therefore, China tanker transport market belongs to complete market structure, but the goods market. The market structure is strong monopoly from the start of monopoly to completely monopoly.

Chapter 4: Competitive Activities in Shipping Market

After analyze the segment market, we will analyze the competitive activities. In addition to liner conferences of the container shipping market, we put the competitive behavior into non-price competition and price competition. Through the analysis, we learned more about the competitive activities in each of the segment market.

4.1 Liner Conference and Discussion Agreements

1、Liner Conference Operating Mechanisms

Liner shipping conferences have historically been granted some form of exemption or immunity from the competition rules in many jurisdictions. In the European Union, the Council of Ministers agreed rules, in 1986, which exempt price-fixing, capacity-regulation, under certain strict conditions, and other agreements or consultations between liner shipping companies from the competition rules. (OECD, 2001)

The justification for the Liner Conference Block Exemption Regulation 4056/86 was the assumption that the rate-setting and other activities of liner conferences lead to stable freight rates, which in turn assured shippers of reliable scheduled maritime transport services. However, this immunity has since been subject to review in several parts of the world, including at the OECD.

2、the Transpacific Stabilization Agreement (“TSA”)

The eastbound transpacific trade covered by TSA is the largest oceangoing liner trade in the world, and is also fiercely competitive. Currently, the overall market share of the TSA carriers is slightly over 80 %.(OECD, 2004)

4.1 liner Conference/Discussion agreements organization involving Chinese ports capacity share

LINE	Liner Conference and Discussion Agreements share
Far east-Europe	In the 1970 s, occupy the Europe to the far east trade college 85% of capacity in 1990, this share down to 57%, since 1990 and back up to about 60%.
Transpacific Line	2001 years of the Pacific stable agreement. More than 80% of capacity routes

Source: OECD

4.2 liner Conference/Discussion agreements Market Share in Shanghai Port

	2006	2007	2008	2009
Shanghai-Europe (FEFC)	56.69%	56.94%	56.91%	—
Shanghai-North America (TSA)	86.77%	85.61%	90.75%	90.88%

Source: OECD

3、Liner Conference/Discussion Agreements Price Behavior and the Function of Market

Both liner conference agreements' and freight agreements' main activities are around adjusting the freight rate as the core.

After analyses the adjusted time and content, we find the activities mainly happened in the trade of the peak season, by liner guild or agreements through directly raising sea freight and surcharging to adjust the line fares.

4.3 2008-2010 Main Line of China port Container Freight Rate Adjustment

Date	Organization	Adjustment Content
2008-4-1	FEFC	\$9 / teu low sulfur fuel surcharge; Gross (goods and tare) reach or exceed 18 tons of container of the \$200 loaded vans available on surcharge; \$9 / teu of the Suez Canal traffic surcharge.
2008-6-1	FEFC	Collection of \$158 / teu Mediterranean season surcharge.
2008-6-1	IADA	IADA range from all shipment ground (including China) to IADA range, the collection of all destinations fuel surcharge is adjusted for \$125/20 feet box.

2008-7-1	IADA	Excluding Japan IADA from within the scope of the all shipment ground to IADA within the scope of the destination, the collection of all devaluation raised the surcharge \$20/20 feet box.
2008-9-22	IADA	IADA range from Japan to set sail or all the goods in the Japan since October 1, 2008 adjustment of the weak yen surcharge \$20 / adjust rate 20 feet box.
2009-12-15	IADA	From central China, northern China to southeast Asia, South Korea, Taiwan fuel surcharge of RMB 600 yuan / 20 feet box.

注：SSE，FEFC，IADA，2008，2009

Because of the guidance is not binding, the key role to influence the freight rate raising is not conferences' power, but the supply and demand relations.

Liner conferences, discussion agreements organization in stable market also show some positive effects:

- (1) Providing adequate and effective capacity to ensure stable transportation services;
- (2) Exchanging market information
- (3) Making airline fares relative stability and avoid vicious competition.

4.2 Other Price Competition Behavior

4.2.1 Price Competition in Container Market

But in recent years, with the collapse of the liner conferences in the far east, common pricing measures of discussion agreements become a mere formality. Europe line growing competition. Price competition behaviors gradually become mainstream.

- (1) Japanese line "negative freight rate"
- (2) Terminal Handling Charges (THC)

4.2.2 Price Competition in Dry bulk Market

International dry bulk cargo transport market can be divided into spot charter market and long time chartering markets. Spot charter market freight decided by supply and demand relationships of market decision. Spot market rent rate and fluctuated.

International dry bulk cargo transport market's structure determines its freight rate of main basis for the operation cost and market supply and demand relation. The spot market completely belongs to market pricing mechanism.

4.2.3 Price Competition in Tanker market

Like the dry bulk market, with international oil tanker transport market is mainly take cost generated pricing and needs-oriented pricing combination of pricing strategy. Long-term charter market's demand is stable, elasticity is small.

4.4 The Non-Price Competition Behavior

1, Technology Innovation Competition

The revolution of science and technology accelerated the reform and innovation of the ship speed ship types. The information technology improves the quality of the container liner shipping container liner shipping market, making the capacity of the market growing.

First of all, the progress of science and technology make the ship large-scale to become a reality, shipping technology cruising speed increase for transport of goods is more efficient to provide the possibility. Ship form large-scale led to the shipping cost reduction, to make the list box operating cost down.

2, the Quality of Service

In order to stabilize supply, expand the market share, and improve the management efficiency, each big liner companies pay more and more attention to the quality of services. Product differentiation is increase.

3, Ship-Cargo Alliance

Owners and the charters as the supply and the demand of the market, through the capital operation form a joint venture shipping company, is advantageous to strive for stable supply of goods for shipowners, strengthen the shipowners' market competitive advantage, and for the owner to control costs.

In addition, the owners, and large cargo transport package signed long-term contract (COA) to form a stable supply of goods, improve the market competition strength.

4, Cargo Interests Monopoly

Bulk cargo such as steel, mining and other industries of multinational companies continue to promote industry mergers and transnational affiliated to monopolize the cargo resource.

(Wang Jie Wang Qi, 2000)

Chapter 5: Conclusion

5.1 Conclusion of Competition in Shipping Industry

Horizontal compared and summarized the different segment market, different market structure and different competition behavior. And puts forward how to better support and develop existing competition market in China.

5.1.1 Container Market

International container transport market has a competitive market structure in general. However, with the improvement of market access barriers in the sub-regional shipping market, there are some restrictions on competition.

1. Container transport has little elasticity of demand, with certain network effects and switching costs, the demand characteristics exist the possibilities to limit and effect competition on market. However, the supply capacity has obvious economies of scale and scope, large sunk costs, and possibility to promote the market dominance. Meanwhile, two-way container transport demand and supply imbalance and public character of liner services supply affects the efficiency of resource allocation, making the market mechanism cannot fully play its role, so the transport market exists impactive factors on competition.

2. Due to the particularity of the container transport, container liner from the early start developed with behavior like Liner Conference, transport agreement organizations, which made and negotiated price together. Liner Conference plays an important role in stabilizing the supply of shipping market. With the development of container liner shipping market, members of the Liner Conference consensus gradually transformed from mandatory into guiding, without mandatory binds. The relationship between supply and demand rather than power of conferences became the key to determine price.

Operation agreements does not involve the joint of transport price, could highly improve use efficiency of resources, achieving economies of scale. At present, the international container transport is dominated by price competition, cost-oriented pricing and competition-oriented pricing has become to be the mainstream.

3. In recent years, international container transport industry concentration has increased. From 2006 to 2009, international container transport CR4 and CR8, shake around 33% and 46%, manifested a competition pattern as low concentration and oligopoly. Container transport Industry HHI is 410, belonging to a perfectly competitive market structure. However, from the sub-regional perspective, some of China's foreign trade container shipping route HHI increased year by year, more than 1000, with an oligopoly structure feature. It also reflects the personality of transportation services segment, diversified and some local advantages of shipping companies. For example, China-Japan route concentration in recent years has improved, its market structure already has an oligopoly structure.

4. According to the analysis of relevance among concentration ratio, price, shipping business profit margin and other related indicators of foreign trade container, the performance, price and concentration ratio has little relevance in China's foreign container transport market. Therefore, in the container transport market, the concentration level has limited impact on market performance, achieving "conspiracy hypothesis" by increasing the market concentration is incredible.

5. China's high degree of liner market opening, according to requirements of "International Maritime Regulations", container transport has no limits on the number of permits. However, the containers transport market access barriers are high; enterprises seldom enter or exit from this market. The labor productivity of foreign trade container transportation enterprises has increased in recent years, and efficiency advantages is good for enterprises to obtain higher profits and win more market share.

5.1.2 Dry Bulk Market

International dry bulk cargo transport market overall belongs to a complete competition market structure.

1. International dry bulk cargo transport market demand has little elasticity, basically has no network externalities and transfer cost; there is significant scale effect and larger ship trend, but economy of scope and sunk cost is small. Dry bulk cargo transport is direct, unfixed route global transportation, with mobility, flexibility and other characteristics. The market mechanism can be brought into full play, with a fully competitive characteristic.

2. Foreign trade dry bulk cargo market in our country has a low admittance, which makes it's easier to enter or exit the market. Compared with container and tanker transport market, dry bulk cargo transport market necessary capital quantity is low. At present, more than 430 enterprises have entered into China's foreign trade dry bulk cargo market.

3. International dry bulk cargo transportation has a low concentration. In the last ten years, international dry bulk cargo transportation CR4, CR8 steady below 14% and 20%. At the same time, dry bulk cargo transportation HHI is about 67, far less than 1000. Overall, performance like a completely competitive market structure. But, in China's foreign trade dry bulk cargo transport market, rent party market presents a monopoly market structure, and the monopoly power is increasing. From 2006 to 2009, China's trade dry bulk cargo rent party market CR4 and CR8 is greater than 30% and 40% respectively, it belongs to duopoly market structure; with HHI above 500, as a monopoly competition market structure.

4, Due to charter are at a powerful position, international dry bulk cargo transport enterprises sign the contract with the customers as a POOL, and they deployed ships unified. Using the POOL way does not try to limit the market competition; the capacity

of the POOL is less than 2% of the total capacity. With a certain conditions, it can achieve returns to scale. Multinational owner of cargo through control the supply, chartering, speculating influence the market fares.

5, In our country, the market rates are not related to the concentrate.

5.1.3 Tanker Market

Like the dry bulk transport market, the international tanker transport market belongs to the complete competition market structure.

1, International tanker transport market basic do not have network externalities, its demand elasticity and transfer cost are small; the scale of the supply capacity has high effect; ship becomes larger trend obviously; the sunk cost is small. Tanker transport is nonstop with no fixed route. But by the resource distribution effect, tanker transport demand has a much imbalance cargo flow. Supply and demand characteristic caused the market compete the price primarily.

2, Chinese foreign trade tanker transport market has certain market barriers, in general the condition to enter the market is not high. In addition to need to abide relevant international conventions, it has no permissi to limit the number. But in the necessary capital amount, safety, and environmental protection, the requirement is higher than international dry bulk transportation market.

3, concentration degree of the tanker market is relatively low. In the last ten years, CR4 and CR8 is steady at 14% and 22%. At the same time, the tanker transport HHI is about 81, far less than 1000. Overall performance of the competitive market structure for completely. But, in our country, the charter market presents a monopoly market structure, and the monopoly power is increasing. In 2009, CR4 and CR8 is 68% and 79%, belongs to oligopolistic monopoly market structure; HHI is 1800, it is a market structure changed

from oligopolistic monopoly to completed monopoly.

4, Due to charter are at a powerful position, international tanker transport enterprises sign the contract with the customers as a POOL. Using the POOL way does not try to limit the market competition; the capacity of the POOL is less than 10% of the total capacity. With a certain conditions, it can achieve returns to scale.

5, In our country, the market rates are not related to the concentrate. The price decided by the market.

5.1.4 Three Transport Market the Horizontal Comparison

1、Market Structure

Index		Container	Dry Bulk	Tanker
Demand Characteristics		1, demand and the world economy, closely related to trade and development; 2, there don't balance; 3, the demand elasticity is small; 4, with some degree of network effects and proportion of smaller transfer cost.	1, source concentrate; 2, the alternative is bad, the demand elasticity of small; 3, do not have the network effect, basic does not exist transfer cost.	1, China's imported crude oil dependency, more than 50%; 2 there imbalance is obvious; 3, do not have the network effect, basic does not exist transfer cost; 4, small demand elasticity
Supply Characteristics	Supply Characteristics	Ship shipbuilding cycle is long; Business enterprise scale large-scale, specialization; Chinese ships in the fourth	Japan, Greece, main control capacity; Ship large-scale; China develops fast, the third in the world fleet.	Japan, Greece, main control capacity; Ship large-scale; China's development is behind.
	Economies of Scale	significant	significant	significant
	Economies of Scope	Existing regional combination (dry, multimodal transport)	Limited (transportation product single)	Limited (transportation product single)
	Sunk Cost	larger	small	small
Market Barriers	Market Entrance Condition	free	free	A free, environment, safety requirement is high
	MES (2008 年)	MES/global total capacity = 5.4%; MES/Shanghai port total transportation amount = 5.0%	MES/global total capacity < 0.88%	MES/global total capacity = 1.3%
	Excess Capacity Degree (2008)	A higher (154.6%) main things	Moderate(115% in 2008)	Moderate (119% in 2008)

Company Enter in of Quit the Market		Difficult (top 20 very stable)	Easy (2009 into the rate was 45%, the withdrawal from rate 27%)	Easier to rate 28% (2009, quit rate 31%)	
Capital spending accounts for sales income proportion		higher	Lower year by year, 21% in 2008	Higher, slow wave in 2008 and by 134%	
Regulatory or licensing a limited number		Basic no	Basic no	Basic no	
Market Barriers		Relatively high	moderate	Higher than dry bulk market	
Concentration	Global Market 2004-2009	CR4	25%-33%,rise	9%-13%, rise	12%-14%, stable;
		CR8	38%-46%, rise	13%-18%, rise	20%-21%, stable
		HHI	280-410, rise	67 in 2009, lower	2008 年为 81, low
	Chinese Market 2007-2009	CR4	27%-29%,rise	9%-11%, stable; Charter market 27%-36%, rise	20%-25%, rise; Charter market 62%-68%, high
		CR8	43%-47%, rise	15%-18%, rise; Charter market 37%-47%, rise	31%-35%, rise; Charter market 79%-81%, high
		HHI	386-412<500, low	2007 2009 annual average is less than 90, very low Charter market: in 2009 for 646500 < 646 < 1000, very high	2007 2009 annual average of less than 250, low Charter market: in 2009 for 1806180 > 1000, very high

In our country, the dry bulk transport market has the most competitiveness, oil tankers take second place. In general dry bulk and tankers are still belongs to perfect competition market. And container shipping market got higher concentration than dry bulk market and tanker transport market nearly doubled.

2、Competitive Behavior

Container transport market rate is closely related to the supply and demand of market. Competition behavior is combined non-price competition and price competition. Although liner conferences and WTSA involved in freight rate adjustment, they did some positive action in stabilizing the market. Although the alliance and POOL has high market share, its purpose is not to limit the market competition.

Dry bulk transport market rate and **Tanker transport market** rate is decided by market supply and demand situation. It also existed the competitive behavior, such as: technology innovation, the quality of service competition, etc. The price competitive behavior not try to limit the competition, some of them can improve the efficiency of

the enterprise. Big shippers through monopolize the source of cargo involved in speculating to influence the freight rate.

5.2 Problems and the Future Direction of the Shipping Industry in China

5.2.1 Problem

China's foreign trade *container shipping market* problems mainly have:

(1) Except CSCL and COSCON, the average capacity of other shipping company still partial small. In the ocean liner, our country container transportation enterprise occupied smaller proportion.

(2) the performance of container transportation company in China are relatively poor, labor productivity, return on capital and return on sales and the rights and interests of such indicators are generally less than return on dry bulk cargo and oil tankers transportation.

(3) As price competition is intense, especially in China's enterprises to participate in the larger share of the route, competition is irrational. Such as the Sino-Japanese line course negative freight rate phenomenon.

Our country's *dry bulk shipping market* problems mainly have:

(1) The different types of ships do not have a high level of scale, specially the number of Capesize which transport iron ore is small.

(2) The market performance is not stable, lack of risk control mechanism.

(3) The market is totally competitive, our shipping enterprise are so many, but lack of competition advantage.

(4) The cargo interests supply through large monopoly, lease, speculating influence the form such as stock market price movements.

China's foreign trade *tanker shipping market* problems mainly have:

(1) The scale in China and other countries in the world fleet has a large gap, The whole ship fleet is small and lack of VLCC.

(2) the development of our country shipping company tanker fleet in the planning and investment lags behind, management ability is low, difficult to obtain supply.

(3) the cooperation between domestic shipping company and the shipper, between the company and the shipping company is not enough, inadequate market monopoly power is too strong. Owner in price negotiations are at a disadvantage.

(4) tanker transport in China in mechanism and management aspects of the flexible enough.

5.2.2 Future

In view of the international shipping industry in China in the degree of competition in the market segment and exist on a part of the problem, suggest to strengthen policy guidance for shipping market at the same time, moderate to strengthen the supervision of the segments of the market.

(1) Encourage and support our country shipping enterprises. To strengthen the control of market risk management, establish the risk early warning mechanism.

(2) Encourage enterprise diversification, support shipping enterprise develop associated, alliance cooperation between developments, pay attention to safety, environmental protection, energy saving of new ships.

(3) Definitely take the our country international shipping monopoly agreements antitrust immunity system as soon as possible, further improve the international shipping industry especially liner transport antitrust legislation and law enforcement system entity system.

(4) Establishing the international container liner agreement and liner transport the record center competition condition monitoring mechanism. Dynamic This system not only can monitor the liner shipping competition situation, could also facilitate the shipper organizations share information in time, protect the lawful rights and interests.

(5) Strengthen the tramp market regulation and policy guidance. (Zhao Gang, 2005)

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