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WORLD MARITIME UNIVERSITY

Shanghai, China

**RESEARCH ON MARKET ANALYSIS OF
SPECIAL BREAK-BULK CARGO**

By

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Supervisor: Hu Meifen

A research paper submitted to the World Maritime University in partial fulfillment of
the requirements for the award of the degree of

MASTER OF SCIENCE

INTERNATIONAL TRANSPORT AND LOGISTICS

2015

DRECLARATION

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.

JIANG SHUANGSHUANG



.....

Supervised by

Professor __Hu Meifen__

Shanghai Maritime University

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ABSTRACT

Title of Integrative paper: **Research on Market analysis of special break-bulk cargo**

Degree: **MSc in International Transport and Logistics**

Along with the global economy development and the infrastructure construction, shipping market of special break-bulk is becoming more and more promising and important. And there is still a gap between the special break-bulk fleet of our nation and advanced fleet in the fleet size, service level and management. It's also hard to meet the increasing market demand. Thus systematic analysis on varying pattern, development trend, influencing factors and management measures in international shipping market of special break-bulk is beneficial to improve its competitiveness for shipping enterprise of our country and to prevention management risks with guiding and realistic significance.

The empirical analysis on the supply and demand of market, this paper discusses the situation and characteristics for a shipping market of special break-bulk. Then analyze the demand and supply of special break-bulk cargo shipping market and the influence factors of the market. Finally, based on the analysis of above research, the paper elaborates the policies and solutions for enterprise development, market competition, fleet operation and service management in international shipping market of special break-bulk.

Keyword: Special break-bulk; Shipping market; Demand: Supply

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1. Introduction

1.1 Background of this dissertation

1.1.1 Research background

Along with the global economy development and the world and the infrastructure construction, shipping market of special bulk cargo is becoming more and more promising and important. With the development of social economy, people's demand for goods from all over the world increase more and more. In today's developed maritime transport, the mode of transportation of cargo container has become one of the main transportation modes. At the same time, due to the higher level of manufacturing, the volume of cargo become larger and the quality of cargo began to increase. So it produced a kind of specific transportation, which is the special bulk cargo transportation. As so far, this market didn't occupy large proportion in the overall shipping market. But with the development of modern science and technology, the demand of special bulk cargo must be increasing.

Due to the high degree of specialization and irreplaceable advantages, the shipping market of special bulk cargo became more and more important in the shipping market. With the development of the global infrastructure construction, especially the increasing ocean larger engineering projects and the construction of port infrastructure in development countries, these all provide good chances for the shipping market of special bulk cargo. However, the special bulk cargo vessels carry the special cargo and the supply is scarce, so it is difficult to form the stable volume

of cargo. And it makes the shipping market of special bulk cargo present certain instability.

1.1.2 Research purpose

The main goal of this dissertation is to know and grasp the change rule and the trend of the shipping market of special bulk cargo. It not only can make up for the inadequacy of theoretical research ,but also can provide some ideas for some shipping companies which are already occupied in this market or some new companies which want to enter this market through analyzing the market of global special bulk cargo. To achieve this purpose, this dissertation will focus on the special bulk cargo market as the main research object. Then use the combination of qualitative and quantitative method to analyze the market. Moreover the author will do survey in one company which is mainly occupied in special bulk cargo market then build model to forecast the future market trend. At last, give the author's recommendation for the special bulk cargo market.

1.1.3 Research Methodology

This dissertation will use some economic principles and several mathematical forecasting methods. The principle of supply and demand is applied to analyze special bulk cargo market.

Qualitative and quantitative analysis have been used on both the supply and demand sides of the market in order to make a study on the trend of special bulk cargo market.

1.2 Literature review

1.2.1 Recent research

Recent research of Market analysis of global special bulk or bulky cargo

Although the special bulk market has long history in general vessel market and special vessel was born for long time. As so far, there is little literature about special bulk market in abroad. In abroad, the research on special bulk market mainly started before 1990. In 1930, Dutch economist Tinbergen and Koopmans researched the Shipping market econometric model. In 1934, Tinbergwn studied the influence of shipping supply and demand for freight. In 1977, Norway economist Eriksen studied the relationship about bulk cargo vessel freight and the trade distance. In 1981, Charemza and Gronicki builded model about the disequilibrium bulk cargo market. This model considered the possibility about disequilibrium exists between shipping market and ship market. After 1990s, with the general cargo market frustrated from container ship and bulk cargo ship, the research of general cargo market in abroad was at a standstill. Nevertheless, special bulk cargo market just presented in market analysis report in international famous shipping consultancy just likes Clarkson and Drewery.

In China, before 2000 the research about special bulk market just focused on bulk

cargo market's declining situation and developed special bulk market. In 1997, Chuanyan in *The direction of International general cargo vessel market* considered general cargo ship now had no dominant position in world's merchant fleet, in future multipurpose vessels would become hot market demand. After 2000, along with the expansion of the special bulk market, there are more researches about it. Liao Zaiwen, *The view of international special bulk market*(2006), generally analyzed the special bulk market. Weng Xingyue, *The development tendency of special bulk cargo market*(2010), summed up the development tendency about special bulk market for supply and demand. Huang Peipei, Yu Yang, *The development history and prospect of Semi-submersible ships* (2010), introduced the development, features and prospect of semi-submersible ships.

Qiu Bo, *COSCO special ship transportation development strategy research* (2008), used ships dynamic planning theory to do quantitative research for COSCO special bulk ships.

1.2.2 Existing problems

However, problem and weakness still exist.

- ✧ Firstly, there are little researches on structures of special bulk market and features of supply and demand and the market situation. Moreover, the researches on internal relation between the capacities of supply and demand are much less. But this region belongs to one of hot points in tramp shipping market.
- ✧ Secondly, other tramp shipping market researches all have analysis of freight

rate fluctuation and influence factors. But the researches on special bulk market are short of this analysis. Nerveless, it also lacks the researches on the forecasting of related freight rate.

- ✧ Thirdly, it is an empty research on the related research on the special bulk market with the dry bulk market, tanker market and container market these three shipping market.

2. Special bulk cargo shipping market

2.1 The definition of special break-bulk cargo

2.1.1 The structure of special break-bulk cargo

In international shipping market of special break-bulk, special break-bulk items is generally defined as the overweight, over length, over width cargo, as well as other difficult using traditional and common way of handling and transport of goods. Or, special break-bulk items is the cargo which cannot use traditional shipping due to weight or volume limit, or restrict the port, berth or other loading conditions. Therefore the special break-bulk cargo mainly means awkward and lengthy cargo.

Awkward and lengthy cargo refers to the volume of single cargo is larger, longer and more weighting than certain limits. In china, harbor provides each of cargo weight over three tons is heavy piece, each of cargo long over nine meter is long piece. However, the international standard provides each weight over 40 tons is overweight piece; long over 12meter is over length piece; the height or width over 3meter is over height or over width piece. Some countries and ports consider the lifting capacity as the standard of differentiating the awkward and lengthy cargo. Currently, in international shipping market awkward and lengthy cargo have several million tons of weight and irregular huge bulky. Specifically, special break-bulk cargo in accordance with the weight and volume can be divided into the following categories:

(1) Uncontainable traditional machinery, equipment, steels, timber and others, including the large-scale machine tools, chemicals capacity, steel tube, structural

steel, log and other cargo. This kind of special break-bulk cargo is the most basic class.

(2) Road vehicles and railway rolling engine, including locomotives, trucks, cars and other railway vehicles and large flat cars, trucks and other civil engineering truck. The features of this kind of cargo are small stowage factor of one-piece and large weight.

(3) Vessels, including hull, hull structure, superstructure and hull barges, boats, yachts, fishing boats. Its characteristics are bulky, irregular in shape.

(4) Engineering equipment and components, including the chemical and oil refining equipment, windmill, heat exchangers, nuclear reaction heap and other energy equipment, construction equipment and engineering vehicles, military equipment, port and marine facilities.

(5) Large marine engineering equipment components (OFFSHORE equipment), including offshore drilling platforms, offshore oil production facilities, offshore wind power equipment. This kind of cargo has huge irregular size, and generally one thousand tons or more weight.

(6) Other floating and non-floating awkward and lengthy cargo

2.1.2 The characteristics of the special break-bulk cargo

Special break-bulk cargo shipping market was evolved from traditional break-bulk cargo shipping market, but the kind of the cargo is different from the traditional break-bulk cargo, both in terms of unit weight, volume, value and technological content, which do not have comparisons. Traditional break-bulk cargo has smaller tonnage, such as steels and steel products, small machinery, transport tools and so on. The special break-bulk cargo is generally more than 100 tons. In addition to the characteristics of the cargo, there are following features in transit:

(1) Special break-bulk cargo, as the essential part of countries or regional infrastructure production investment, plays the irreplaceable role in international import and export trade. For example, the world's longest dam Sudan Mai Lowe dam construction required 45 tons of various infrastructure facilities; cement, steel, vehicles and other cargo are transported by sea from China to Sudan. It will be seriously affected many countries' infrastructure without special break-bulk cargo transportation.

(2) Special break-bulk cargo generally belong to industrial special finished products and production equipment, it has high value, high technical content, irregular shape and complex characteristics, such as offshore drilling platforms, its length, width and height are over hundred meters, weight over super tons and worth up to several hundred million dollars..

(3) Special break-bulk cargo have high requirements on the freight technology in transport handling of the whole process. On the one hand, require special handling break-bulk cargo depending on the nature, size and weight to choose different handling machinery and handling technology, in addition to traditional hoisting crane unloading mode, float-float unloading, loading and unloading Ro-Ro, etc. often make tons or more and even 10,000 tons, worth billions of dollars. Thus these require the transportation process must be safe and reliable.

(4) It needs the high technical requirement for freight. On the one hand, different nature, size and weight of cargo should choose different loading and unloading facilities. On the other hand, due to the huge size, volume, weight and complex packing technique, plus the height of center of gravity of large cargo, it will affect the ship's stability and strength. So it needs high technical requirement for freight. It shall develop a detailed plan in advance, but also with advanced dynamic positioning systems and other technologies to ensure the safety during transport.

(5) It needs higher requirements on integral to the whole process of transportation services. Transport the cargo not only by sea, but also by land to send to the final destination after disembarked. So the special break-bulk cargo transport logistics industry can study from the land logistics service, develop the certain business and integrate the sea and land transportation. It will not only provide convenience for customers, but also for special break-bulk cargo service providers' expanding the business.

2.2 The type and characteristic of the special bulk cargo vessel

The shipping market of special break-bulk cargo corresponds to the global ocean general cargo ship. Different research institutions have different categories about break-bulk ship. Clarkson according to the ship types and the mode of operation classify the ships as multi-purpose vessel, regular break-bulk cargo vessel and irregular break-bulk cargo vessel. And other type of vessel is refrigerator ship, RO-RO ship and semi-submerged ship. ISL in accordance with the ship construction and usage classifies the ship as single deck break-bulk cargo ship ,deck break-bulk cargo ship , refrigerator ship , special vessel and RO-RO vessel. However, Clarkson's sorting technique is more generic, and it is benefit for researching the special break-bulk cargo shipping market. So this essay will use Clarkson's classification method, mainly including general cargo vessel, multi-purpose vessels, semi-submersible vessels and car carriers.

(1) General cargo vessel means the vessel carry break-bulk cargo for variety of packaging, barrels, boxes and bundles. This type of ship usually load less than 15,000 dwt , mostly is double-deck with 5-50 tons boom.

(2) Multi-purpose vessel can carry general cargo, bulk cargo, containers, heavy lift and roll loading, and the load capacity is generally between 15000-30000 dwt, full draft about 10 meter, navigational speed is around 13 knot -16 knot. Multi-purpose vessel can be flexibility to adapt to changes in the world trade and maritime situation

and engage in a variety of routes and different classes of cargo shipping tasks.

Multipurpose ship generally has the following characteristics:

A. Using a large hatch, the hatch is wider than general cargo vessel and generally divided into two boats around the mouth, around the hatch width of more than 10m, with a larger carrying capacity and packing tank capacity.

B. To load a variety of cargo and adapt to no pressure cargo and the second deck floor can be removable.

C. In order to accommodate the heavy cargo loading, the strength of bottom boat deck is generally higher, and the deck is equipped with one or more cranes or derrick

D. In order to carry bulky cargo, it usually uses the combination of the length of the cabin set. As three cargo use a long two short configuration, large cabin length of 70-80 meters, it can make better use of ship capacity.

E. Multi-purpose vessels will be focused on carrying which cargo, but even the type of vessel is mainly to carry major pieces of cargo or bulky cargo, the structure of the vessel will be designed to carry the container as much as possible. It is because there is more stable and adequate supply of containers. The standard multi-purpose vessels cover plate can be stowed four to five containers. Multi-purpose vessels, in accordance with its container and transport, major pieces of cargo and RO-RO cargo it can be divided into the following four categories:

- a. Multi-purpose dry cargo ship, which can carry both container and bulk cargo
- b. Multi-purpose vessel, which can transport both container and heavy cargo, but the carrying capacity of its unit shipment is below 200 tons

c. Multi-purpose vessel, which can transport container, heavy cargo and rolling cargo

d. Heavy-lift vessel, which mainly transports heavy cargo and over length cargo, the carrying capacity of its unit shipment is 200 tons to 2000tons. Heavy-lift vessel has two or three decks and the main deck is wide, the hatch is large .It is outstanding ability and deck carrying capacity boom, and has special stability system without the aid of a floating crane. It cans self-lifting bulky cargo for shipment and major pieces of equipment projects, such as reactors, cooling towers, large fan and so on.

(3) Semi-submersible Vessel refers to the special vessel by adjusting the ballast water of ships loading deck dive submarine out of the water in order to be carriers of specific goods (such as barges, yachts, ships, drilling platforms) float into the floating loading deck, in order to achieve special ship cargo handling and transport. Semi-submersible vessels belong to high-tech and high value-added vessels and mainly transport rig, small ships, cranes, structure buildings, as well as the laying of offshore pipelines and cables, etc., It is play the important role in the fields of ocean resources development and oceanographic engineering.

(4) Pure Car Carrier is specially designed special vessel to load cars, trucks or dedicated RO-RO cargo, generally has 10-18 decks carrying a maximum of more than 8,000 vehicles. It has the unique design about the deck and network format cabin compartment and high cargo utilization, simple handling technology, high

handling speed, and safety and suitability of the goods. However, it is difficult to manage and operate because of the complexity and particularity of the ship construction.

2.3 Overview of the main routes and ports

2.3.1 The main routes and ports

Traditionally, the global special break-bulk cargo mainly export to Europe and North America, and the Far East, South America are major importers. In recent years, with the development of China's equipment manufacturing industry, a significant increase in China's mechanical equipment exports to Southeast Asia, Africa, Europe and South America, at the same time the infrastructure of Africa, Southeast Asia are booming developing. These have changed the main shipping routes and ports of special break-bulk cargo shipping.

The current main routes of special break-bulk cargo shipping market:

- (1) Europe - Far East Line, Europe - Africa Line;
- (2) North America - Far East Line, North - South line;
- (3) Far East - the United States Wan Line, the Far East - Mediterranean line, the Far East - Africa Line, Far - East - Red Sea, the Persian Gulf line, the Far East - Bangladesh, India line, the Far East - South East Asia Line

Because most of the special break-bulk cargo transportation logistics property belong to the tramp shipping and the nature of special break-bulk cargo transportation, special break-bulk cargo transportation is very popular in the handling ports of

shipping lines, here are some of the important ports:

- 1) Far East areas: Tianjin, Dalian, Qingdao, Yantai, Shanghai, Osaka, Kobe, Yokohama, Pusan;
- 2) Europe area: Antwerp, Rotterdam, and Hamburg;
- 3) Southeast Asia: Jakarta, Calcutta, Singapore;
- 4) Americas: New Orleans;
- 5) Africa: Tema (Ghana), Lagos (Nigeria), Douala (Cameroon), Luanda (Angola), Durban (South Africa), Richards Bay (South Africa).

2.3.2 The characters of main routes and ports

Firstly, it is priority to through transportation. Due to the irregular nature of the market, the ship will not anchored many ports like container ship, but mainly anchored loading port and discharging port. It's namely the through transportation of one port load and one port discharge without transit.

Secondly, developed economies or heavy industry in handling port .The loading port of special break-bulk cargo shipping is usually the port in developed economic or heavy industry city or area and the discharging port is generally in the developing country or undeveloped area. The city these ports in usually has the advanced economy and heavy industry, or the port itself has advanced capacity which is benefit to the cargo transportation to the final destination.

Thirdly, the port should satisfy certain conditions. For heavy lift ship transportation, the loading and discharging port should equip heavy doors or heavy floating cranes to ensure the normal handling for heavy cargo. For semi-submersible vessel transportation, the depth and weather condition of the port both should be considered. Overall the loading and unloading ports should satisfy the carrying amount of strength and the conditions and channel depth wharf operation area.

3. The analysis of shipping market of special break-bulk cargo

The special break-bulk cargo shipping market is unlike the fully competitive property of dry bulk shipping market and different from oligopoly property of the liner market, only a few shipping companies compete involved in this field due to the high-tech and particularity of special break-bulk cargo shipping market .So it belongs to monopoly competitive market, individual markets such as the semi-submersible vessel market even oligopoly market.

3.1 The analysis of the demand of special break-bulk cargo shipping market

The demand of special break-bulk cargo market is caused by global demand for infrastructure construction of railways, highways, as well as energy, steel and other basic industries. However the global infrastructure and basic industrial construction and world macroeconomic development has a strong correlation and a certain lag. Therefore, the size and scale of special break-bulk cargo market has a certain limitations, and their growth and development is primarily affected by global economic trends.

Table 3.1 World Seaborne Trade (million tonnes)

Year	Iron ore	Coal	Grain	Small bulk cargo except steels	Steel	Dry bulk	Container	General cargo	Total dry cargo
2003	447	516	262	568	184	2061	628	901	3589
2004	450	550	260	574	193	2110	647	891	3648
2005	479	573	269	581	198	2185	718	939	3842
2006	515	617	265	612	205	2304	805	922	4031
2007	584	660	273	651	223	2490	918	897	4305
2008	653	684	273	673	227	2617	1020	871	4507
2009	713	724	290	727	227	2791	1134	829	4755
2010	774	765	302	734	253	2945	1264	764	4973
2011	833	787	322	708	271	3039	1319	803	5160
2012	902	790	317	588	268	2950	1201	749	4900
2013	987	900	343	705	261	3296	1347	732	5375
2014	1060	954	355	732	281	3491	1477	798	5766

Resource from baidu

Since the major pieces are not as a separate class of goods in international trade

statistics and traffic statistics, which caused some difficulties research on demand of special break-bulk cargo shipping market. According to the existing class of goods statistical methods, special break-bulk cargo trade consists mainly of steel trade in the global maritime trade and non-appropriate box grocery trade. As shown in Table 3.1, 2003 - 2014, different from the global container shipping and bulk shipping volume increased every year by the rapid growth, global non-grocery suitable container shipping volume in 2003 - 2014 has obviously volatility changing and even the whole show a downward trend in 2014, a decrease of 18.7 percent compared to 2003, only 798 million tons.

One reason for this is due to the booming development about global container fleet and container terminals over the past decade. On the other hand ,non-appropriate boxes of groceries and other items can not be used in a major proportion of container transport increasing, non-container cargo shipping volume is not suitable for further downside.

Steel transportation in minor dry bulk shipping is generally special break-bulk cargo shipping and heavy cargo transportation. As shown in Table, 2003--2011 year global steel shipping capacity steady growth, annual growth rate of 4.96%; 2012 and 2013, global steel shipping volume declined for two consecutive years in 2012, down 1.1% compared to 2011. While in 2012 the non-suitable container cargo shipping volume decreased by 6.7 percent, 8.9 percent decline in container shipping, dry bulk shipping volume fell 2.9%. Therefore, the demand of special break-bulk cargo transportation were affected by global economic conditions, but the demand was more stable than

container shipping demand, while demand for dry bulk transport was the most stable.

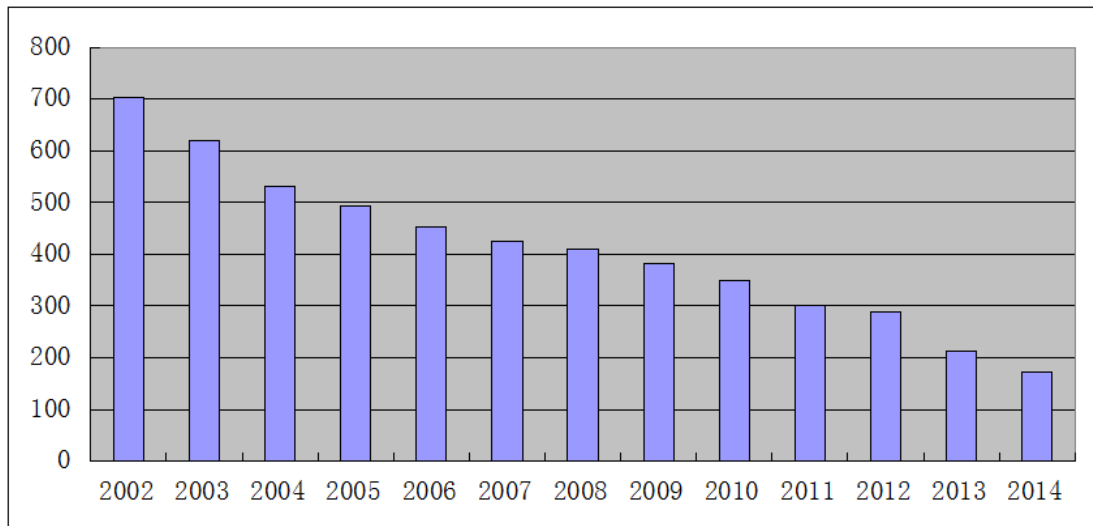
3.2 The analysis of the supply of special break-bulk cargo shipping market

With the growing demand of special break-bulk cargo shipping, including ocean general cargo ships, multi-purpose vessels, semi-submersible vessels and car carriers, global specialty fleet continues to develop. Shipping market increasingly focus on special cargo, which has extending logistics characteristics and integrated project transport services.

In the 21st century, the gradual end of the container shipping since the 1970s for a wide range of alternative transport groceris, ocean cargo fleet is gradually decreasing trend ended, then entering a stable period after a recession. In the world of traditional cargo liner fleet shrinking, and size and capacity of versatile fleet, cargo tramp fleet and automotive fleet keep growing.

(1) The global general cargo liner fleet constantly shrinks fast. As shown in the figure 3.2.1, the number of cargo liner fleet from 702 in 2002 down to 173 by the end of 2014 dwt and 10.3 million tons in 2003 down to 2.32 million tons by the end of 2013 dwt. The average growth rate get -11.6% and reduce fast.

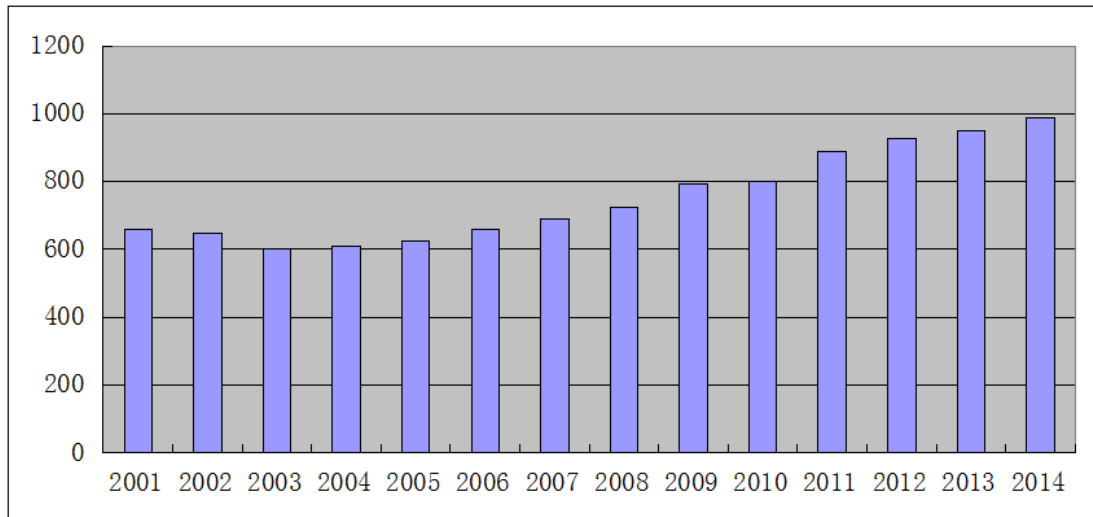
Figure3.2.1 General cargo liner fleet



Resource from baidu

(2) The global general cargo tramp fleet develops from recession into rapid growth. As shown in the figure 3.2.2, the number of tramp fleet in 2001 is 658 down to lowest 611 in 2003. Then the scale of tramp fleet capacity gradually increased, reaching 889 in 2013, 7.82 million dwt. From 2005 to 2013 - an average annual growth rate of fleet tonnage was 4.4% with faster growth.

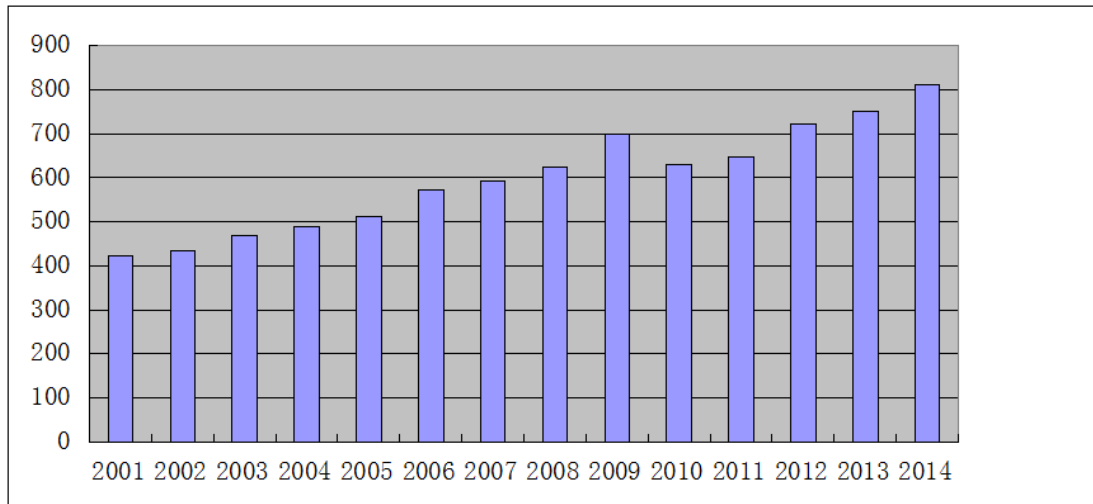
Figure 3.2.2 General cargo tramp fleet



Resource from baidu

(3) The development of global multi-purpose vessel fleet was rising steadily. As shown in the figure 3.2.3, the world's multi-purpose vessel fleet appeared lower than the negative growth overall to maintain the growth trend in 2001 and 2009. But from 2001 to 2013, the average annual growth rate is 1.9% over the same period the total tonnage of cargo tramp fleet average annual growth rate (1.7%), and in 2009 to 2011 the average annual growth rate reached 2.6%, showing a trend of accelerated growth.

Figure 3.2.3 Multi-purpose vessel fleet



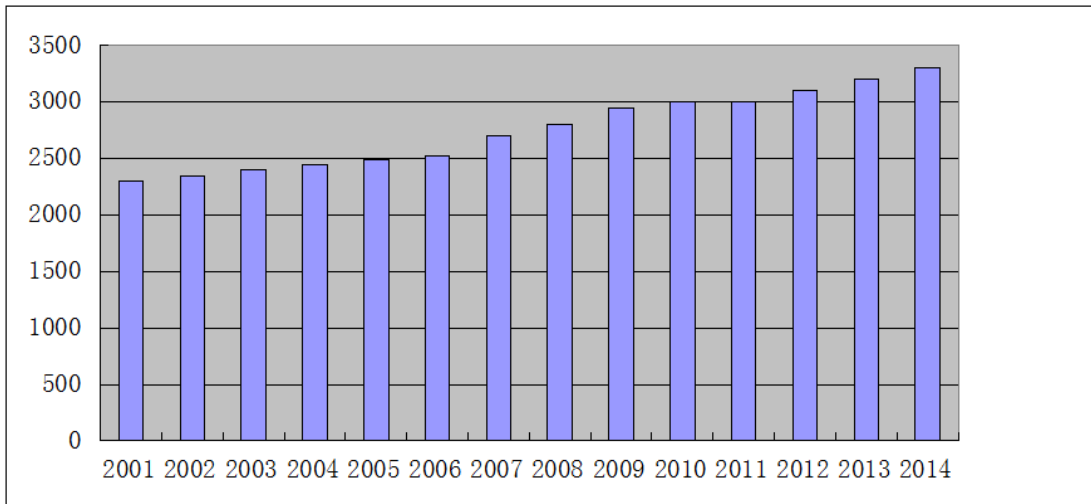
Resource from baidu

(4) The global car carriers increased rapidly. As shown in the figure 3.2.4, the global car carrier fleet grew every year, only the impact of the global financial crisis in 2009, negative growth, decrease of 4.4% compared to 2008 dwt. And the average annual growth rate of the gross tonnage of the fleet in 2013 was 5.6%.

On the scale of the global fleet analysis, the four fleet includes tankers, dry bulk carriers, container ships and special vessels, the number of special vessels accounted for 26.5% of total four fleet, the deadweights accounted for 6.7% of the total fleet of four. Since both two numbers declined to 2013 the number of special fleet of ships and ship fleet total deadweight tonnage accounted for four 19.7% and 3.7%, respectively. Therefore in tankers, dry bulk carriers, container ships and special vessels, special fleet gain some advantages in terms of numbers of ships, but this advantage is decreasing. In terms of total dwt fleet, special ships account small

proportion, which is mainly related to the special characteristics of ship hull tonnage.

Figure 3.2.4 pure car carriers



Resource from baidu

3.3 The analysis of the influence of special break-bulk market

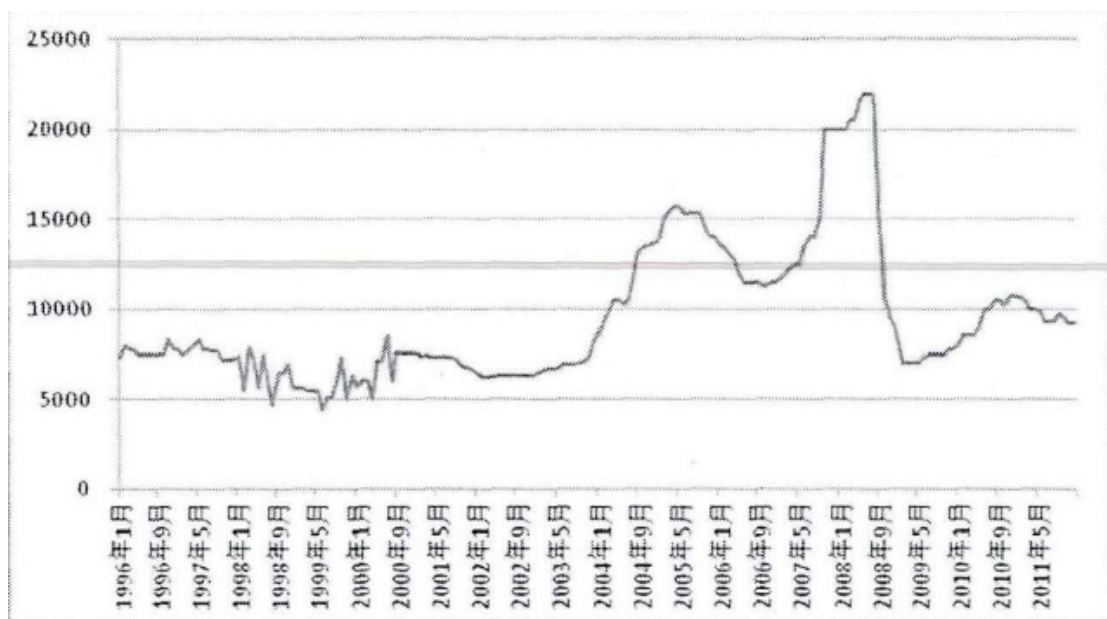
From a macro perspective, the changes in special break-bulk cargo mainly effected by freight rate, the market supply and demand, market related cost and the impact of other related market, as well as special break-bulk cargo shipping market will affect changes in these factors in turn.

3.3.1 The overall level of market freight rate

Special break-bulk cargo shipping market mainly operate by charter, its main mode of operation is liner shipping, voyage charter, time charter and COA. The freight forms of liner shipping voyage charter and COA is freight rates, the form of voyage charter's is rental rates. Because of the diversity and complexity of the cargo types of

special break-bulk cargo transport, shipping market statistics and studies rental rates primarily as a special member tariff indicators in bulk shipping market, while Clarkson shipping consultancy published monthly load 17000 tons of multi-purpose vessels rental rates index is the most common and the most authoritative, which from January 1996 release date. As shown, special break-bulk cargo market: 1996-2004 keep long-term stable, while in 2004 to 2008 after two consecutive market reached peak levels steadily dropped back to history in 2009, its rents are relatively stable.

Figure 3.3.1: 17000 dwt 1yr TC(□ / day)



Clarkson 17000 dwt 1yr TC(□ / day)

In addition, in special vessel transport market the rent levels are relatively stable, less cyclical. This is due to the special break-bulk cargo are often means of production and industrial infrastructure, affected by lower short-term fluctuations in the

economy, and with a certain lag. At the same time, special ships investment, technical complexity, capacity grow slowly.

3.3.2 Demand and supply

Special break-bulk cargo shipping freight mainly influenced by market supply and demand factors, tariffs rise with increasing demand, with supply capacity increases. While tariffs in turn affect the market supply and demand conditions, freight rates increased supply increases, a drop in demand, decreased supply tariffs increased demand reduction. But due to the special general cargo shipping market caused demand characteristics' main factors to their needs is the world's economic and political situation.

3.3.3 The control of the cost

Special break-bulk cargo shipping market is the same as other shipping market; its operating costs are mainly influenced by changes in fuel costs'. And the management of the ship operating costs is relatively stable. Under general supply and demand balance in the market or for less than the demand. If the special break-bulk cargo shipping cost increase, the freight will increase then the cost falls down the freight decline.

3.3.4 The analysis of related market-bulk cargo market and general cargo market

Special break-bulk cargo newbuilding market, second-hand ship market and scrapping market are of relevance market with break-bulk shipping market. Booming special break-bulk cargo charter transport market will facilitate secondary market transactions and increasing second-hand ship prices, decline scrapping prices. Due to the further increase capacity after demand for newbuilding market and newbuilding market will follow along with prosperity and demolition market decline, and vice versa. Meanwhile, newbuilding market is the source of special break-bulk cargo shipping market supply capacity of the newbuilding capacity and shipbuilding prices will in turn affect the shipping market supply and cost elements. Second-hand ship market can also influence the market cost elements.

4.The analysis of management strategies for enterprises

The enterprises of special break-bulk cargo transportation must improve marketing management and canvassing capabilities, strengthen the management level and strictly control, reduce the cost, enhance the quality of transportation service and other all-out efforts by innovating the management model. Then the enterprises can gain the competitive advantages to grown stronger in the increasingly fierce international shipping market. This part will take the COSCO shipping as example to propose management countermeasures to benefit current stage of development of special break-bulk cargo shipping enterprises.

4.1The enterprises' development strategies and management strategies

4.1.1 Develop joint and entrusted management.

Take the voyage charter first and timer charter supplementary, develop joint and entrusted management.According to the particularity of the special break-bulk cargo shipping market, it is difficult to avoid risk and improve efficiency by the long-term contracting cargo or shipping alliance. So the shipping companies should take the voyage charter first and timer charter supplementary, develop joint and entrusted management. Firstly, the shipping company should take operating voyage charter independently as the major mode of operation and flexibly choose different goods and navigation area to earn more profits. At the same time, through the different

voyage charter the company can disperse the risk of volatility of spot market and cover the shortage of cargo canvassing capacity. Moreover, the shipping company should be careful to choose the right owner or freight forwarding company associates and take full advantage of tax advantages enjoyed by the joint venture parties and network advantages to achieve low-cost expansion.

Since the market structure of semi-submersible vessel changes, strengthen cooperation within the industry; joint venture and integration should become a trend. In this case, China COSCO Shipping first builds semi-submersible vessels partnership Pool to become the world's semi-submersible vessel system integrator, strengthening the global semi-submersible vessel market integration and control. At present, the 30,000 tons of semi-submersible vessel "Huahailong" from Guangzhou Salvage has joined the COSCO semi-submersible vessel Pool.

In addition, the special break-bulk cargo shipping company can entrust ship management company escrow when entering new ship management areas or immature ship management, then gradually develop to independent management. COSCO Shipping "Dazhong, Dahua, Dafu, Daqiang" these four heavy lift ships once have authorized to foreign ship owners for long time. Through the cooperative exercise COSCO Shipping build up the crew team and management team and gain the valuable technical resources, network resources and customer resources. Eventually the four heavy lift vessels back to their own management while COSCO's heavy lift fleet whole management level and operational efficiency of the fleet of boats have been improved rapidly.

4.1.2 Building the core competitiveness

Building the core competitiveness by choosing the cost leadership strategy, differentiation strategy or market segment strategy

Special pieces of cargo transportation industry stronger competitive and the complexity of special transportation determines that any special break-bulk shipping enterprises in all market segments is impossible to establish competitive advantage. They can only according to the market and its advantages of targeted focus on resources and energy to build sustainable core competitive ability to survive and develop in the market.

Special break-bulk shipping enterprises in China in the face of competition and industry cycle, according to the market and the development of their own advantages can be targeted to take strategy including cost leadership strategy, differentiation strategy and niche strategy.

First of all, the cost leading strategy require the shipping companies to have enough size and strength continuously reduce cost and total cost advantage, the strategy is suitable for our strength leading ship-owners like COSCO shipping, etc. On the one hand, shipping companies have a wide range of regional and even global service network and strong marketing service ability, have certain control ability to the market and pricing power. On the other hand, the shipping enterprises need to continuously choose the right to buy the boat and period rent investment opportunity

set up relative cost advantage.

Secondly, the differentiation strategy is to require shipping enterprises within the scope of the whole market with unique features, provide differentiated services, occupies a part of the market in a long period of time, and constantly expand the market range. The Chinese polish shipbroker company can draw lessons from this kind of business strategy of our country. Finally, segment market strategy requires shipping enterprise focusing on specific customer groups, a specific market segment market or a particular region. Shipping companies need to identify, capture the market segment, and maintain a competitive barriers through the close relationship with the customer or significant advantage in technology, cost, long-term block potential competitors enter the market segment.

The COSCO shipping by finding the weakness of the semi-submersible vessel business, successfully enter and occupy the market segment of the market segment, due to the size of the market restrictions and COSCO shipping performance, potential competitors are not to enter the market. Type in the owner of the owner can according to our company's specific needs and segment development special fleet.

4.2Market competition

4.2.1 Taking the construction of the network

Taking the construction of the network, as the guideline and the shipping line network as the base are the method used to adapt to the features of the special

break-bulk cargo transportation. Therefore, the special break-bulk cargo shipping company should firstly develop the land marketing network, regardless of the ship-owners size need attaches great importance to the construction of marketing network. On the one hand, they should do the expansion of sales outlets and build a global service network. Shipping companies need to use all the resources inside and outside on a global scale through long-term cooperation with local companies, set up branch offices, set up a joint venture in a variety of ways, such as strengthening the construction of marketing network at home and abroad, so as to enhance the capacity, the company's freight to expand the market share of the main routes, balance go return goods. COSCO shipping make full use of COSCO group all over the world in 2010, container and bulk freight network set up in Rotterdam, Houston and three global sales centers in Singapore, and NMA cooperative joint venture. MA company is the European market influential special cargo transportation business, particularly heavy lift vessel and semi-submersible vessel business) of the intermediary agencies, is also the first big customer COSCO shipping. This is COSCO shipping extension of Europe and the United States special break-bulk shipping high-end market, is an important step in the construction of global service network.

On the other hand, they focus on optimizing the supply of goods and customer structure, improving the quality of freight. Our country large shipping company should pay more attention to the owner of the customer development, relying on local companies at the same time, constantly develop new international market, appropriate to reduce agent sales proportion, constantly improve the owner's sales

proportion, cooperation with the customer in advance the layout on the international market. Special break-bulk target customers should be the global shipping market before the ENR has 225 engineering contractors, which many Chinese companies, but still most of the enterprises in developed countries. Therefore our shipping enterprises should increase the north-western Europe, the Americas, Australia, India and other regional customer development efforts, this special break-bulk shipping enterprises in China should also political unrest in north Africa and the Middle East area and piracy have very positive meaning.

COSCO shipping according to the market changes constantly excavate "high-end customers and profitable customers, and constantly cultivate higher yielding high-end market.

COSCO shipping and other large special transport enterprises in establishing a global marketing network at the same time, should according to the target market orientation and demand, maintenance to optimize the existing route, develop alternative routes, strengthen coordination and cohesion between routes, will isolate routes into global route network, and through the transshipment port realizing a complete coverage of routes. In operating with high quality capacity main ship type in high value-added goods and Gao Yunjia area trunk line transportation, connecting Asia, Europe, Africa and the Americas, through regional transport transshipment port groups at the same time. It helps to optimize the allocation of shipping companies, improve the efficiency of route management, enhance market power, or even for local monopoly. Although special break-bulk small batch, high loading and

unloading requirements and schedule of the high demand for development of liner shipping mode, but the problem is to develop special break-bulk liner shipping goods biggest bottleneck. And global marketing network and build on the global airline network can solve the supply bottleneck, the liner-shipping model to promote. Special break-bulk liner business should develop steady step to consolidate and expand gradually, scale and specialized management benefit.

4.2.2 increase the Enterprise resources integration ability

The Vertical integration and horizontal diversification will constantly increase the Enterprise resources integration ability. The special break-bulk cargo shipping company getting strategic cooperation with the other logistics enterprises will help them enhance the ability of resources integration and effectively get rid of the market risks. This kind of strategy is suitable for the large special break-bulk cargo shipping company. The vertical integration will through acquisitions, joint ventures, investment, joint venture and other forms strengthening and wharf, yard, warehouse, inland river and inland transportation company, barges, floating crane operating units, and other enterprises cooperation and give full play to the internal and external relations, integrate the advantage resources to build strong logistics network and operating system, to provide comprehensive logistics service to customers.

At the same time, the shipping enterprises shall implement horizontal diversification, expanding shipping business scope. Firstly, the related special break-bulk cargo

shipping enterprises should exchange the shipping space, the freight consultation agreement and mutual assistance, technical cooperation, personnel exchanges and joint management of some routes. Moreover, Special break-bulk shipping enterprises should positively associated with container shipping enterprise, involved in container feeder transportation. Due the limited ports capability and berthing costs, the container ship can't frequent feeder ports of call while multi-purpose ship; cargo ship can be easily linked so as to realize the complementary advantages. Finally, through actively taking part in such as coal, ore, grain, and all sorts of small bulk cargo transportation, the special break-bulk shipping enterprise scan reduce the pressure of enterprise sales, increase the return cargo sources, avoiding special break-bulk parts and parts supply deficiency of market risk.

4.3Fleet development

With the development of the global economy, the demand of special break-bulk cargo shipping keeps constantly increasing. However, because of the Outdated technology and aging of the population problem the current fleet of the special break-bulk cargo shipping cannot satisfy the demand. Thus, according to their own positioning and market development direction, the special break-bulk cargo enterprises has to formulate appropriate fleet expansion or adjust the strategy.

4.3.1 Optimize the structure of ship type vessel and improve the technical level of the ship.

Optimize the structure of ship type vessel and improve the technical level of the ship. On the one hand, the special break-bulk shipping enterprises should develop good market prospects, high technical level of the ship form, speed up the enterprise fleet ship structure adjustment. According to their own development needs and target markets, Special break-bulk shipping enterprises shall seize market opportunities to gradually weed out the traditional general cargo ship which with the small lifting capacity and develop the high rate of return of semi-submersible vessel, heavy lift ship, automobile and flexible type multipurpose ship. Small owners can develop convenient and flexible, suitable goods ability of flexible type multipurpose ship, meet the low-end market routes of Africa and Latin America. The goal of structure adjustment is to build a ship that satisfies the customer at the same time the traditional cargo transportation and dead weight of modern special cargo transportation demand and the lifting ability.

On the other hand, the special break-bulk shipping the fleet development of the enterprise shall meet the personalized needs of customers and target market mainly. Mechanical equipment export enterprises, electric power enterprise, engine, oil companies and other customers, all for special break-bulk transport ships have different requirements, the shipping enterprises according to the needs of different types of customer and industry development trend, realize fleet ships quantity,

structure and scale and match customer demand is very important. COSCO shipping research design and widely built in 2009 27000 DWT multipurpose ship form is for the high-speed locomotive export custom form has made great success in several projects.

4.3.2 Implement low cost expansion

Implement low cost expansion through the combination of production operation and capital operation. Under the fierce special break-bulk cargo market competition, ensuring the fleet size is of the important methods for enterprises to achieve competitive advantage. New ship with advanced technology, optimal goods ability, profit ability strong characteristic, but large fleet expansion capital investment, high repayment pressure, operating costs are relatively high, management risk is big. Thus, special ships should be a reasonable combination of new ships, old ships, the average age is moderate, the fleet at the same time with strong sales ability and lower operating costs, ensure fleet management benefit and sustainable development. On the one hand, through the low shipbuilding and inverse city expansion strategy expanded fleet to increase capacity, in the shipping industry is low when the ship companies face the shipyard negotiation ability, are more likely to receive special shipyard ship such a general and alien ship orders, at the same time, the shipbuilding always has low prices but good service quality. Moreover, according to the recent shipping industry, low shipbuilding strategy and future peak compared the

shipbuilding strategy and have the obvious time advantage. Turned for the better in the future market, through the low scale and technical level of the shipbuilding strategy to establish a good special fleet with the rapid increase of shipping requirements will be able to occupy the market more quickly, so as to boost the company benefit.

On the other hand, under the premise of its own fleet, special break-bulk shipping enterprise should actively use the way such as rent, stage light control part of the market capacity. Specifically, the enterprise has its own fleet size to match and marketing abilities, can guarantee to meet existing customer needs. At the same time, according to the market demand change , they can lease some capacity and make the enterprise scale of overall capacity to adapt to customer demand. All in all, the special break-bulk shipping companies need to transition from has the capacity to control capacity, from simple production and business operation to the organic combination of the production and business operation and capital operation. This strategy can be more flexible to change capacity scale, effectively reduce the operation cost and avoid market risks, at the same time, rent the ship freight revenue and extra profit to improve the efficiency of the enterprise overall.

4.4 Service strategies and management measure

Because of the high requirement of the technical level of transportation service and the transportation and handling of the special general cargo, the consequences of the losing this kind of special break-bulk cargo is more serious. Thus enhancing the freight service is an important aspect of the technology to meet the transport needs of

individual customers. The excellent technical service plays an important role of developing the special cargo market, bidding and maintenance of large customers. To be specific, enhancing the freight technical service means providing the service of shipping and handling technology solutions, the technical skills training of the crew and the guide service of the real-time business, even the logistics solutions design and technical advisory services for other companies.

Since the systematic and complexity of the project of special break-bulk cargo transportation, the shippers prefer to the convenient “door to door” service and the value-added installation services. Thus, special groceries shipping companies engaged in ocean transportation services, should provide customers with a personalized and professional logistics services, has become the logistics system integrator. As the major global enterprises always have the large scale and abundant financial resources, they will be more able to adapt to project logistics and supply logistics services to large-scale projects and the transport time-critical features.

Conclusion

After a series of studies and analysis, this paper gets following conclusions.

(1) The special break-bulk cargo transportation has the irreplaceable feature in the shipping market and it is special technology-intensive transportation field.

(2) There are board prospects for special break-bulk cargo shipping market, but it also exists some uncertain factors. The low-end of special break-bulk cargo shipping is perfectly competitive market, while the high-end market is monopolistic competition even oligopolistic market.

(3) The special break-bulk cargo shipping companies should build the core competitiveness to be stronger in the market. Moreover, the freight rate of special break-bulk cargo shipping was mainly affected by demand factors and supply factor had no significant effect.

(4) At the same time, the fluctuations of shipping market freight rate had not significant effect on second-hand ship market but had significant effect on new building ship market.

(5) Finally, based on the analysis of above research, the paper elaborates the policies and solutions for enterprise development, market competition, fleet operation and service management in international shipping market of special break-bulk. However, due to the special break-bulk cargo shipping market as a new market, there is lack of related data. So the analysis of supply and demand in this paper is not deeply analyzed.

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