Operational Risk Control of Shipping Enterprises
Based on Baltic Dry Index

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Abstract. In recent years, under the influence of world economic adjustments, local regional wars, and major national trade frictions, the global bulk cargo shipping industry market has been in a slump, and shipping companies are facing a severe test, and the Baltic Dry Index is lacking in strength for a pick-up. Through studying the influencing factors of the Baltic Dry Index, this article draws a relatively viable shipping business strategy from the perspective of the guiding value of the Baltic Dry Index for further guides operation to shipping companies.

Introduction

With the gradual expansion of the scope of economic globalization, the scale of the international shipping market has gradually expanded, making a major contribution to progress and development of the world economy. The shipping industry is one of the important basic industries of global trade and it is irreplaceable [1]. The dry bulk shipping market occupies an important position in the global shipping industry. Therefore, this article starts with the BDI and studies the shipping market to guide operation of shipping companies. At the time of opportunity, shipping companies will be able to obtain higher returns while increasing their capacity investment. Before the advent of operating risks, shipping companies can take preventive measures as soon as possible to slow down their transport capacity investment and reduce losses. At present, the international shipping market is in the midst of the initial stage of development, it is necessary to study the operation of shipping companies through the Baltic Dry Index. This can make a huge contribution to the operation of China's shipping companies and is of important practical significance.

Reference value of the Baltic Dry Index

The Baltic Dry Index is compiled based on the daily freight rates of important international dry bulk cargo routes and is an important indicator reflecting the international bulk shipping market development. Therefore, it is also an important basis for various shipping companies to adjust their operating strategies. The composition of the Baltic Dry Index is shown in Table 1.
Table 1. The composition of the Baltic Dry Index.

| name                        | Tonnes                  | Main transportation goods                                           | Proportion |
|-----------------------------|-------------------------|---------------------------------------------------------------------|------------|
| Baltic Capesize Index (BCI)| More than 80,000 tons   | Coking coal, coal, iron ore, phosphate rock, bauxite and other      | 1/3        |
|                             |                         | industrial raw materials                                            |            |
| Baltic Panama Index (BPI)   | 50,000tons ~80,000tons  | People's livelihood materials and grain and other bulk materials    | 1/3        |
| Baltic Exchange Supramax    | 50,000tons ~80,000tons  | Fertilizer, citrus fruit, wood scrap, cement                        | 1/3        |
| Index (BSI)                 |                         |                                                                     |            |

The Baltic Dry Index can more intuitively reflect the increase of demand for primary commodities, the rapid development of the international dry bulk market, and the rise in the Baltic Dry Index, the Baltic Dry Index is relatively objective in the same time. If short-term funds are used to speculate on the international dry bulk market, the Baltic Dry Index will not be affected and rise. Shipping companies must pay enough attention to the shipping price; the Baltic Dry Index will rise as the bulk price increases; the Baltic Dry Index will increase. The US economy is positively related with Baltic Dry Index. Because the U.S. economy is the most important part of the global economy and it has the largest share. If the U.S. economy develops well, then the Baltic Dry Index is in an upward trend. The operational strategy of dry bulk shipping companies is closely related to the trend of the Baltic Dry Index. At the same time, the Baltic Dry Index is also a thermometer for the global economy. From the trend of the Baltic Dry Index, the basic conditions of international dry bulk freight rates can be analyzed.

Factors Affecting the Baltic Dry Index

From the above analysis of the calculation method and adjustment mechanism of the Baltic Dry Index, we can know that the relevant shipping market of the index is extensive and the regions involved are all over the world. Judging from the basic principles of economics, the relationship between the demand for transport capacity and the supply of ships in the global marine bulk shipping industry is the root cause of the constant changes in the global marine bulk shipping industry. Of course, there are many other factors that affect the development of the global marine bulk shipping industry. In short, the factors that affect the BDI freight index can be summed up in the following points:

(1) Demand for transport: It is mainly determined by the volume of goods shipped by foreign countries in foreign trade. When the world’s foreign trade increases the amount of goods that are transported by sea, the Baltic Dry Index will increase. When the world’s foreign trade’s goods have less traffic at sea, the Baltic Dry Index will fall. In recent years, with the advancement of China’s infrastructure construction, the volume of bulk goods shipped in world trade has continued to increase, and the index has continued to improve.

(2) Capacity supply capacity: The current market's ability to load operational vessels and the new ship market as well as the market for ship recycling are the main indicators for determining the capacity supply. Since this paper is a rough study of the global ocean bulk cargo transportation capacity, it does not consider the factors such as the efficiency of the use of ships in the market, and only uses the above indicators to study the current market capacity supply.

(3) Transportation cost: The transportation cost is composed of the ship's construction cost or rental price, various transportation expenses during the voyage, and other expenses incurred during the loading and unloading process. Therefore, transportation costs are an important indicator for the formulation of freight rates by the global marine bulk shipping industry and have a great influence on the index changes.

(4) Other influencing factors: There are other factors affecting the Baltic Dry Index. For example, the operating cost of the ship, bottleneck in the route, market sentiment, will directly or indirectly affect the development trend of the index. The global financial crisis will also directly lead to huge fluctuations in the index. When the financial crisis in developed countries occurs, the amplitude of the Baltic Dry Index will suddenly increase.
Shipping Index Business Strategy and Options

Shipping Index Business Strategy

The changes in the shipping market are cyclical, with a period of about six years. The cycle of the shipping industry will be affected by the world economy, the same is true for the BDI gains. After the rise reaches a peak, it will fall. If it drops to the bottom, it will rebound. In order to get profit well, we must seize market opportunities and adopt corresponding business strategies. According to changes in the Baltic Dry Index, there are contraction strategies, stable strategies, and expansion strategies that can be adopted.

Shrinkage strategy: When the Baltic Dry Index falls below 700 points, the international dry bulk market has a low supply of goods, excess shipping capacity, and lower freight rates, and the shipping industry is in a downward trend. The economic efficiency of shipping companies become declined. The shipping development situation is severe and the market competition is fierce. In order to solve the problem of excess shipping capacity, it is first necessary to reduce the number of fleets and the number of ships tonnage. For the dismantling of old ships, the number of orders for new ships is reduced, and new ships that have been booked can delay the delivery date. When the shipping market rebounded the international dry bulk market will heat up, and the demand for goods will increase. Since the shipping capacity cannot meet the demand for goods, the freight rate will also increase, so the handling of shipping capacity cannot be blindly reduced.

Stability strategy: When the Baltic Dry Index is relatively stable at about 900 points, the supply is stable, the freight rate is stable, and the shipping capacity meets the market demand for goods, so maintaining the existing fleet number and ship tonnage is the best way to make money. It is good time to choose shipbuilding, reduce shipbuilding costs and risks; work with large fuel suppliers to lock down oil prices to reduce fuel costs; reduce operating costs and management costs through the use of advanced science and technology, communications technology, and management concepts. Strive to improve the quality and level of service, and strive to establish a large, advanced, high-quality brand image different from other shipping companies.

Expansion strategy: When the Baltic Dry Index is in a rising stage between 900-1200 points, the market is in a frenzy. At this time, the supply of goods exceeds the shipping capacity, and the freight rate rises. In order to meet market equilibrium, the fleet size will be increased and the number of ships will be increased. Shipping companies can merge and acquire small-scale companies, integrate existing fleets, use existing capital costs, find new service locations around the globe, and expand their business networks to occupy an advantageous position in the market. For example, in 1993, Maersk acquired some other service agencies such as Baolong Steamship Company. In 1999, the A.P. Muller Group acquired South African Container Liner and Hailu Services Co., Ltd. to integrate the container business [2]. The shipping market is picking up. In order to obtain greater profits, various shipping companies begin to book new ships. However, due to the delivery of new ships for more than one year, the new ships have a lag period after they are put into operation. During this period of time, the international freight rate of the shipping market is in the rising stage. When a large number of new ships are put into operation, the shipping capacity will increase. At this time, the shipping capacity is far greater than the supply of goods. The freight rate will drop and the shipping company profits will decrease.
Choice of Operational Strategy

In the analysis of Figure 1 above, although the Baltic Dry Index fluctuates over the whole year of 2012, the volatility is not very obvious. Relatively speaking, the average BDI has small fluctuations around 900 points. From this relatively stable Baltic Dry Index, it can be seen that the international dry bulk market is in a relatively stable state, and the source of supply meets the demand for shipping capacity. The stable freight rate is suitable for a stable shipping strategy. Adopting a stable strategy can maintain the current number of fleets and the number of ships tonnage is the best way to make money. Choose the right timing of shipbuilding, reduce shipbuilding costs and risks; work with large fuel suppliers to lock down oil prices to reduce fuel costs; reduce operating costs and management costs through the use of advanced science and technology, communications technology, and management concepts. Strive to improve the quality and level of service, and strive to establish a large, advanced, high-quality brand image different from other shipping companies.

From the end of 2012 to mid-2013, the average Baltic Dry Index has steadily increased from 900 to 1200. This relatively rising Baltic Dry Index indicates that the international dry bulk shipping market is over-supply, and the capacity is far from meeting the market demand. The freight rate is subject to the rising prices, a shipping expansion strategy should be adopted for better profitability. Adopting an expansion strategy can expand the fleet size and increase the number of ships. Shipping companies can merge and acquire small-scale companies, integrate existing fleets, use existing capital costs, seek new service locations globally, and expand their operational network to take advantage of the market’s early advantages.

From the middle of 2013 to the end of 2015, the average Baltic Dry Index exceeded 1200 points, rapidly rising to 2337 points and quickly dropping to the lowest point of 290 points. This situation is due to the fact that various shipping companies have started to book new vessels for improving economic efficiency. However, due to the delivery of new vessels for a period of more than one year; the new vessels have been put into operation for a lag period after being scheduled, during this time the international shipping market, the freight rate is in the rising stage. When a large number of new vessels are put into operation, the shipping capacity will increase. At this time, the shipping capacity is far greater than the supply of goods, and the freight rate will fall. This relative downward trend indicates that the international dry bulk market has insufficient supply and shipping. With excess capacity, a shipping contraction strategy should be adopted for shipping companies to reduce risks. To adopt a contraction-based strategy, it is necessary to reduce the number of fleets and the number of ship tonnages, dismantle old ships, and reduce the number of orders for new ships. New vessels that have been scheduled can delay the delivery date.

Conclusion

Although the operational risks of shipping companies are largely from the external environment, they are not impossible to control \(^3\). After the study of this paper, it can be concluded that the
analysis of the dry bulk market is based on the increase in the Baltic Dry Index. The Baltic Dry Index is related to the capacity, freight, and supply of goods. Then, according to market conditions, a business strategy is adopted to reduce the risk of business operations and increase profits. Provide reference data for corporate investment, so that shipping companies can make and forecast the shipping market as early as possible and take corresponding measures to actively respond to the current economic depression and stand still in the industry.

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