

A Short Discussion on Current Challenges Faced by Container Shipping Companies and the Solutions

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Abstract—As a rapid developing means of international trade, container shipment has become mature in only several decades, and it now has been facing many challenges. The author has investigated these challenges from financial aspects, empty containers and overcapacity based on the news and literature review. A discussion on the reasons of challenges has been made from the aspect of the social environment and the companies themselves. Companies are suggested to carry out practical solutions and consider solutions comprehensively. The emphases on the prediction of the influence of social changes and weather changes have been made.

Keywords—Container shipment, international trade, current challenge, potential solutions

I. INTRODUCTION

Container shipment has developed rapidly since its first appearance in the 1960s, and now it has been considered as the principal means of international freight transportation [1]. The container port throughput has been increased from 88 million twenty-foot equivalent unit (TEU) in 1990 to almost 535 million in 2008 worldwide, however, followed by the reduced volume in 2009 and the lower increasing rate later [2]. At present, a few giant companies such as Cosco, Maersk and APM, have taken up more than 70% market share. A small number of companies occupy most of the market has become the apparent characteristics of the industry. Meanwhile, the international shipping industry has faced several challenges such as financial problems, empty containers and over-capacity containers.

In order to discuss the challenges, this paper, hence, targets at exploring the key threats facing by container shipping companies and how the threat can be deal with in the actual business by shipping companies. Challenges can be considered as pessimistic financial situation, the issue of the empty container and overcapacity. Several solutions such as rescheduling the shipping routes, consolidation among companies, mutual investment to the ports, relocating empty containers, have been discussed in this paper.

II. THE DISCUSSION OF MAIN CHALLENGES AND POSSIBLE SOLUTIONS

A. Pessimistic financial situation

Massive debt and financial losses accounted for low freight rate and low international trade growth, are considered as the

challenges that faced by most shipping companies. Unpleasant debt situation can cause a high risk of cash flow and even financial collapse. Back in 2016, Hanjin in Korea, owning the debt twice bigger than the assets, has been the first bankrupted container shipping company within the last three decades [5]. Although there exist some other operational problems hiding behind the collapse of a giant, the bad debt issue occurred among global container shipping companies cannot be overlooked. Taking Cosco in China as an example, it is not only famous the big company size but the massive debt.

Except for debt, another crucial financial issue within the industry is a huge loss. Maserk and Switzerland Medieterian as the top two giants have even obtained loss on the balance sheet in 2016 and 2017 This kind of loss can be explained by much more shipping capacity than the needs and intense competition. Besides, the worrisome trend of international trade has increased the loss. A term ‘slow trade’ [3] has been used by Financial Times to describe the growth of international trade which is much lower the growth of the world economy. This phenomenon of trade can be found from the port in/output: the index of Shanghai Port reduces from 1500 in 2007 to only 1000 after seven years. Developing manufacture industries in the developing countries can partially account for less import of production from other industrialized countries than the past. Besides, unexpected financial crisis and the growing protectionism play an essential role in the global trade. For instance, the decision of Trump to leave TPP has harmfully influenced the trade volume among the Asia-Pacific region. The, with the recent China-USA trade war, many businesses via freight shipping such as soybeans have forced to be stopped. Some container ships carrying grains from the US have been shipping on the sea for already several months. This kind of uncertainty has prohibited the im-exporting business between the US and China to some extent. Therefore, the expected volume of TEU can be changed seriously. In addition, the political changes have led to increased cost influenced by inflation, and therefore, the profit margin has to be reserved by every effort.

Although there are some financial challenges, there still exist some practical solutions which can be applied by companies in reality. Companies can ask governments for loans or other financial support in order to improve their financial situations. For example, the other Korean shipping giant has gained support from a bank with Korean government background to pay off the debt and hence, the supported bank has converted to the shareholder of the company[3]. Similarly,

Cosco with colossal debt has been continuously given financial support from China Bank as well as the Chinese government [4]. Such a significant number of fund support can help companies complete the acquisition or merger or at least get rid of the collapse. However, this kind of solution might not be suitable for shipping giants in Europe because there is no strong indivisible relationship between such private companies and governments.

Also, in order to deal with debt and operational cost, merger as a joint venture company can be applied by several companies in order to operate a business and afford the debt together. For instance, K-Line, MOL and NYK who are three Japanese companies have decided to merger their freight shipping business together as a joint venture and hold the debt mutually [5]. By doing this, it has not only decreased mutual operational cost but also raised the joint venture as the 6th biggest shipping company worldwide. In addition, some companies have made a different decision which is to sell the business to others because the owners thought they might find a better life in other industry or they felt like it is not suitable to develop business in such an intense environment. Cosco has purchased the biggest shipping company in Hongkong, and the previous owner has decided to leave the market, and one of the reasons can be the influence of intense competition [6].

Additionally, a strategic alliance is another effective strategy to control the loss and gain revenue. Companies work together to control the rate and reduce the cost of ship transferring. 2M Alliance, The Alliance and Ocean Alliance are the leading alliance in the industry. Every member in the alliance has agreed on the same shipping rate for one single shipping line, and this can help companies maintain the freight rate in a stable path and get rid of the influence of overcapacity. Moreover, there is nothing directly that companies can respond to the unpleasant trade growth but they have applied other methods to optimize the efficiency and reduce the cost as discussed in the other part of challenge discussion.

The measure to the debt and loss of container companies are suggested as to look for the financial support, founding joint venture company and form the strategic alliance. This kind of practical measure can significantly reduce the financial risk though this will not be applied to all companies.

B. Empty container

The empty container is an issue covered the empty containers on the imbalanced trading route and the imbalanced empty containers in different ports.

It is not easy to eliminate the imbalance of container transportation between regions such as Europe-Middle East and Europe-East Asia in a short time. This transportation imbalance can also be described as imbalanced trade among different individual markets [7][8]. Usually, there exists much more freight from China to Europe than the freight back. Besides, over half lifetime of containers is in an empty status. For instance, in 2010, about 1.3 million empty containers were held in Hamburg Port [9]. Only if there exists a considerable imbalance of in/out flow of container, the problem of the empty container will still exist. Hence, it can be a significant threat for freight shipping companies to deal with.

The empty container problem can be a severe threat to a shipping company when considering the cost of relocating empty containers, the imbalance of some containers in different ports. Repositioning the empty container in real life is a complicated problem. Time cost and money cost have been engaged within both inland and regional transferring process. This problem can account for other problems such as port congestion and freight delay during the transferring process. All these relevant issues can lead to additional cost. Besides, if a company cannot make a good optimization for an empty container, the cost of locating empty containers can be much more than the revenue gained from containers fulfilled with goods. Cost such as unnecessary transferring of containers and rent to pay for the port can eliminate the revenue of freight transportation.

Additionally, when one port is in a shortage of empty containers, other ports can hold surplus empty containers much more than they need. If the shipping company cannot match the container request in time or the company reject the request to transfer containers, the profit and its reputation can be ruined [7]. Although the empty container can be a threat, it can be utilised to get a better profit from reducing operational costs compared to competitors

The problem can be solved via optimizing shipping routes and relocating containers. By rescheduling the shipping lines and operating the management of containers, the empty container issue can be released. For instance, the current shipping return routes of Europe-East Asia are different. There exist different stopping ports on each route. This difference on the route can increase fulfillment percentage of the container. Additionally, it can be advised, the ship from Asia to Europe can then deliver freight from Europe to the USA, and it will not go back to Asia directly. This changing route can help the ship to fulfill the extra containers, though it might cost extra time on. Additionally, companies can make volume prediction for each port and make the proper shipping plan every week, which will reduce unnecessary usage of empty containers in those ports.

Furthermore, containers can be relocated from 'surplus' port to 'shortage' port by scheduling the shipping speed appropriately as well as the number of ships [7]. More ships can be asked to carry empty containers from 'surplus' port to port with fewer containers, and a balance of empty containers can be made. Moreover, companies try to load full container as many as possible no matter how much they can get, because at least they can get some money back. Ships, for instance, ship the waste back to Asia from Europe for free.

Another way to reduce the cost of the shipping company is to invest in a dedicated port [10] This can optimize the networks and increase productivity. The port can be rebuilt based on the needs of the shipping company and increase the working efficiency. For example, the most productive port globally is owned by APM and located in Japan. APM can optimize the port and the operation process as convenient as it can. On the contrast, at present, companies decide to make co-investigation on a port because they can reduce the operational cost and reduce the amount of investment in the meantime [2]. This might be more suitable for companies who have more financial considerations.

The empty containers issue on imbalanced shipping route and imbalanced need in different port can be solved by optimizing the shipping routes to change the empty container status on the ship and at the port, and investing on a specific port. This can help the shipping company get an optimisation and reducing the pressure on the operational cost as well. Although these solutions are of efficiency, the specific situation shall be discussed in a different situation.

C. Overcapacity ship

When the current shipping capacity exceeds the request of the market, this can be claimed as overcapacity. This situation can be presented as more container vessels have been produced than the market request. Pointed by MarEX [11], there have been 78 mega-ships coming onto the market in 2018 and 2019, and the problem of overcapacity has not been eliminated while becoming more serious [12]. These large vessels are manufactured to reduce unit cost by pilling up freight amount in each ship. However, the production of mega-ships has accounted for the decrease in freight rate [13] which raises the pressure on companies to decrease their cost. Although the freight rate has been growing when considered the rate of Shanghai to Europe and Shanghai to the USA, the whole market has been in a pessimistic status. Interestingly, another reason for too many vessels is the difference between prediction and reality. Companies will set up the order several years ahead of the current time.

The huge TEU container ship is not able to get access to some small ports or narrow inland canals. This dilemma can be considered as a sub-issue of overcapacity since these large ships are built to increase the capacity and reduce cost. This inconvenience on freight transferring of ships can increase the distance and time of freight transfer, which in turn can lead to less competence compared to other transportation modes when the shipping distance is short. Besides, port congestion can be more severe due to the new bigger ships. For some ports, there is limited space for big TEU ship to stop, the ship arriving late has to wait until the previous one leaves the port. Bigger ships can also mean the extra work of un-/load of freight and more complicated intermodal transferring [14]. The mega-ship can carry loads of goods in one turn, and many ports cannot allow its arrival because of the limited ability of port infrastructure.

In order to reduce the pressure of overcapacity on the freight rate, shipping company alliances have worked mutually controlling the freight rate as what mentioned in the section of the empty container. Besides, they have cooperated with the ports to deal with the problem of port congestion in order to reduce the delays and cost. Having said how companies invest in the port in order to improve its efficiency, companies will negotiate with governments as well, if the ownership of the port belongs to the government. For instance, during the massive congestion in Shanghai Port in May 2017, Maersk's spokesperson in Beijing has contacted with relevant government departments on how to cope with this issue [15]. Although there is not a lot to do for congestion caused by weather changing, the companies can still schedule the shipping line in time based on weather prediction.

The overcapacity ships can lead to the overall capacity exceeding the market needs as well as the problem of mega-ships at the port. In order to solve the problem, the alliance should work out to maintain the freight rate and the cooperation of the port should be focused. Solutions of this issue have engaged with solutions with other issues.

III. RECOMMENDATIONS

Though there are some useful solutions to cope with challenges, there still are some other challenges that cannot be solved by direct solutions. International political and economic affairs can come up in an unpredicted way, and the influence can seriously affect the industry regarding its development and change. Brexit, for example, will significantly influence the container volume coming from Europe and the shipping volume between Britain and the European Continent. For freight shipping companies, it is suggested to carry on existing shipping methods and be ready to make changes on freight shipment based on the changing international trend. For example, it is reasonable to analyze the possible influence of each critical political and economic event to the industry and respond with appropriate arrangements. Besides, it is valuable for companies to try some new business aspects, and it might be better to expand the container shipping business to another related area. Just as what Levitt argues in his marketing myopia, it can be considered that the Hollywood's customer market is not only the film industry but the whole entertainment. Hollywood now has explored a robust market of public entertainment. Similarly, the market for container shipping companies can be seen as the whole market related to transportation, but not only the container shipping itself.

IV. CONCLUSION

In this paper, three main challenges with sub-issues have been discussed which are the bleak financial situation, empty shipping container and overcapacity ships. Within each section, corresponded solutions of companies or in the literature has been discussed following the challenges. Among those solutions, to reduce cost and to optimize the networks have been emphasised. Finally, some recommendations on unpredicted elements such as political and economic changes have been given as well. Overall, container shipping companies should make a prediction in advance, and they need to prepare for future development based on social and economic changes. All solutions should be considered comprehensively as the solution to one issue can be engaged with other issues as well.

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