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From Conference to alliance: multiple perspectives

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From Conference to alliance

: multiple perspectives

by

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DECLARATION

I certify that all the material in this dissertation 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 dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature): ....

(Date): **8th July 2020**

Supervised by: ....

Supervisor's affiliation: ....

Acknowledgement

I appreciate Professor Shi for the great advice and guidance.

Wish my best luck to everyone that I have met through this ITL course.

Thanks to my family who have waited and supported me to finish this course.

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Title of Dissertation: From Conference to Alliance: Multiple Perspectives

Degree: Master of Science

Liner shipping industry have experienced different era from traditional conference to current strategic alliance. Seeking the effect on the actual shipping market resulting abolition of traditional conference has been analyzed through different types of perspectives. Furthermore, study of future mode of alliances should be studied.

This paper introduces development of traditional shipping conference to current strategic alliance and explains their fundamental difference through multiple perspectives. Understanding process of development, how the scale economy effected liner shipping market, intensified market competition, and regulation issues.

Through multiple perspectives, major shipping companies are now in a strategic alliances and market share of those alliances is continuously growing and resulting intensify of market competition. However, unlike shipping conference, members between same strategic alliances are still considered as separated companies with independent rules and strategies. This is why the strategic alliance does not violate antitrust rules. As a result, in this era of overcapacity and low freight rate, it is essential for shipping companies to join strategic alliance.

KEYWORDS: Maritime conference, Strategic alliance, Freight rate, Scale economy, Antitrust rules, Overcapacity

1. Introduction

1.1 Research Background

Containerization of cargo, which was originated in 1950s, has been regarded as one of the distinct trends and development of global shipping industry in the last decades (Deloitte, 2015). The most distinct feature of Containerization is its scale economy. Like other transportation model, container shipping benefits from scale of economy, as invention of container, large quantity of goods have been able to be transported at one time per a sail, in terms of lower cost per twenty-foot equivalent unit, TEU. Such development enabled shipping market to maximize its utilization and optimize the service routes in terms of economical way of transport of cargo. Also, faster transit with lower cost in relevant business sectors, such as terminal handling charges, resulted improvement of service reliability (Economics of containerization, Alan E. Branch, 1988 pp.79). For achieving the aforementioned scale economy, the global shipping industry has experienced the largest increase in average container ship size. Additionally, Alliances and cooperation has also been viewed as a critical tool to pursuing the scale economy, that is, a select number of shipping companies have come to dominate the market through takeovers and alliances (Deloitte, 2015).

With respect to the organizational pattern of shipping company cooperation, there are historically two basic types: the shipping conference and strategic alliance. The shipping conference appear in 19^{th} to cope with trade between England and India. Shipping conference is a group of shipping companies involved in providing regular services at certain prices in certain routes. Two or more shipping companies enter into agreement or contracts on freight related conditions with aim of maintaining economic status among the members by minimizing internal competition and enhancing their monopolistic strength externally. In addition, it has an international character and adopted methods such as freight agreement, ship charter agreement, and joint calculation agreement, and such restrictions are naturally in violation of the Monopoly Law for certain countries that prohibit monopolization. That is, the shipping conference, which had controlled freight rates, transporting volume, and other conditions, destroyed confidence in providing high quality services. Therefore, counties shifted their policies to regulate shipping conference to compete in the liner shipping market. Thus, the shipping conference, which once controlled liner shipping market, lost control of the U.S. in 1998 and Europe in 2008, respectively, and freight rates became more autonomous. Since then, the world's shipping companies have been in a more competitive environment, and the later practice further demonstrate that simply banning will eventually intensify competition between the companies. Meanwhile, the routes are becoming wider and the number of ports frequency that shipping companies have to make regular stops is increasing. Shipping lines have become larger to achieve economies of scale, and large scale of capital is needed to hold such big vessels. In particular, from the late 20th century, the scope of shipping company's service expanded due to the competition for mass transportation thorough the bigger size vessels, and combined transportation service.

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Against the aforementioned back ground, the strategic alliance has emerged as a substitute for the shipping conference. A strategic alliance is to form a complementary and continuous cooperative relationship based on the unique competitive advantage of each company has. According to the previous researches, almost every top container shipping companies have joined the strategic alliances. For instance, currently there are mainly 3 strategic alliances exist in liner market, which are 2M, Ocean Alliance, and THE alliance. Alliances have become a major feature of container shipping over the past few years. While cooperation among liner carriers in the past has taken the form of price and capacity adjustment, but while past two decades, this alliance has emerged consist of rival companies of sharing the ships to create operational efficiency and a broad range of services. Previous alliances, decade ago, has been formed between middle and small sized companies to seek economies of scale but nowadays, there are only 3 mega-alliances exist and those affiliated companies are also one of the largest shipping companies in the world(International Transport Forum, 2018).

Through strategic alliances, shipping companies can promote low prices and extensive service coverage with economies of scale. The high fixed cost structure of the maritime transport is one of the main arguments that the shipping companies should cooperate together and shipping alliances are the tools in acquiring larger vessels and sharing those spaces together to maximize utilization.

Recent characteristic of the global shipping market is that each company is competing through alliance. Based on the alliance, getting bigger in size became as a strategic step in terms of to enjoy economy of scale. Given the appearance of strategic alliance, the following concerns merit attention:

1)First，what is the impact of transformation from traditional shipping conference to strategic alliance? 2) Second, could strategic alliance leverage the economic scales to improve the competitiveness? 3) Third, do strategic alliance in violation of the Monopoly Law and be prohibited again? Considering the aforementioned, thus the proper research is need to explore the necessity of strategic alliance and its impact from multiple perspectives.

1.2Literature Review

Main researches are Thai (2014), Jiang (2018), Rau (2017), Wang (2015), Varbanova (2017), Ding (2009). Wang (2015) has described the weakening of shipping conference as the enactment of the U.S Foreign Shipping Reform Act. As a result, the maritime conference was abolished and instead strategic alliance were spreading as new alternatives.

Also, there have been researchers who have studied profit wise approach. Wang (2016) has introduced the profit-sharing model of strategic alliances, Notteboom (2017) has examined how changes in shipping operation result to the global port of calls, especially intercontinental network. Zheng (2017) has proposed cost allocation of container shipping alliance, especially for CKYH. Park (2018) has approached sales & purchase as a fundamental requirement for shipping companies to have sustainable development and competitiveness in shipping market.

Some researchers discussed the main types and forms of maritime conference. Midoro and Pitto (2000) have pointed out that M&A are very important for shipping companies to secure global market dominance. They have also pointed that structure of strategic alliance has fundamentally insufficient to provide acceptable level of stability. This instability is result of structure of companies getting more complex while certain level of competition between alliance members. Karmeric (2010) also made detailed comments on the ship-sharing agreement among shipping companies in the way they formed an alliance. Lee (2017) said that the integration process of liner shipping consisted largely of strategic alliances, vessel-sharing agreements, slot charter, and M&A. Sjostrom (2004) investigated how much the conference model is effective. Slack (2010) examined how container shipping market has developed in terms of formation of conferences and strategic alliances. He pointed that the emergence of alliances have changed the market, such issues are, broaden service routes and building larger vessels.

Doi (2004) have mentioned that shipping conference is a tool to make equilibrium of container shipping market so that it does not become unstable. Aymelek (2014) mentioned that it is known fact that due to global trend of concerning environmental issues and related regulations have driven changes of strategies of shipping companies. Also, in terms of to enjoy scale economy, their strategy become to operate larger vessels to fulfill both scale economy and environmental issues.

Huang (2013) pointed formation of alliance is a tool for the shipping companies to become larger in size and to pursue larger in market share. But still joining strategic alliances could be almost impossible for certain companies with smaller size and market share. However, strategic alliances give member carriers become larger in size and also improve of business reputation as shippers have tendency to choose companies affiliated to alliance. Ultimately, strategic alliances allow shipping companies to reduce cost while increase revenue.

Therefore, by means of the research on trends, prospects and policies related to the shipping alliance, the changes in regulations related to the shipping alliance were studied and the factors related to the market for the liner were analyzed. The main conclusions are that the abolition of maritime conference led the market into fierce competition among liner companies mainly for the collapse of freight market. In terms of economy of scale, few leading companies have higher competitiveness over others with bigger sized fleets with lower cost per carriage of a container. Those who lost their competitiveness have bankrupted or process of M&A has been done and still ongoing which leads enhance of market share for mega carriers.

1.3 The structure of the research

This paper will consist of 6 chapters. In Chapter 1, the research background, the current research situation and research approach have been described; Chapter 2 presents the summary of evolution process of conference and strategic alliances; from chapter 3 to 5, the main research issues have been concerned from multiple perspectives such as market, competitiveness and law.

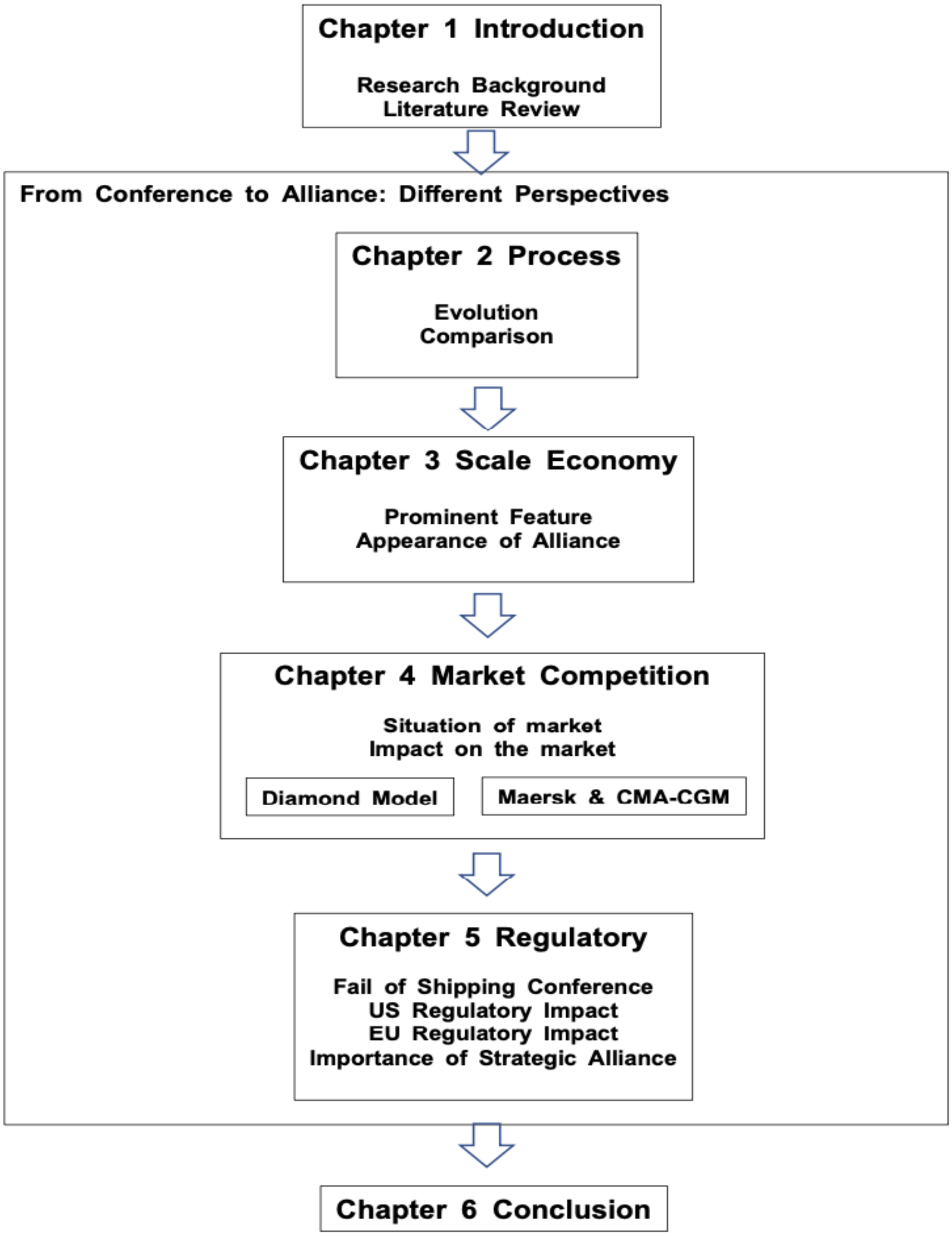


Fig 1Dissertation Structure

2. From Conference to Alliance: Process

2.1 Evolution

UK-Calcutta conference established in year 1875 was usually described asthe first shipping conference in the modern sense. Table 1 presents the development history of shipping conferences.

Table 2-1: Evolution of shipping conferences

Year	Major Development
1875	Calcutta Conference was formed uniting 7 shipping companies
1887	Far East Freight Conference (FEFC) was formed
1916	US Shipping Conference was formed
1974	375 shipping conferences were developed to unite 4,363 shipping companies
1992	Asian Shipowners Forum, ASF: Australia, China, HK China, India, Japan, Korea, Taipei China, and Federation of ASEAN Shipowners Association
1995	Collapse of major Europe-Asia shipping lines coalitions
1998	Majority of shipping companies retreated from shipping conferences

(Source: compiled by the author)

Historically, there were two main types of shipping conferences, namely open and closed conferences. The prominent difference between the two conferences is that the former welcomed any shipping company that wanted to be part of, while the latter could only allow entrants when the pledge to comply with certain conditions such as freight rates was fulfilled. Most of shipping conferences that have existed until recently can be seen as closed rather than open. Shipping conference has maintained its presence in the liner market with the advantages of freight rates and stability in supply of capacity. In the latter half of the 20th century, due to the expansion of ships and the development of multimodal transportation, shipping conferences began to be weakened with collapse of faith in the conference. Eventually, shipping conference began to breakdown in 1998 resulting from the revision of the U.S. Foreign Shipping Reform Act. In 2008 when the European Union announced the abolition of the shipping conference, it was completely abolished from the liner market. Through this process of change, the strategic alliance has emerged as a substitute for the shipping conference. A strategic alliance is to form a complementary and continuous cooperative relationship based on the unique competitive advantage each company has. In other words, since major liner companies are unable to establish a global logistics service network on their own in a short period of time, so they form a group of shipping companies to work with others to quickly react to the globalization of service and efficiently operate their fleet. Table 2 shows transformation process of strategic alliances.

Table 2-2Development of strategic alliances

1996	2009	2012	2015	2020
Global Alliance	The New World	G6	G6	2M
APL	APL/NOL	APL/NOL	APL/NOL	MAERSK LINE
MOL	MOL	MOL	MOL	MSC
OOCL	Hyundai Merchant Marine	Hyundai Merchant Marine	Hyundai Merchant Marine	
NEDLLOYD		Hapag-Lloyd	Hapag-Lloyd	
MISC		NYK	NYK	
		OOCL	OOCL	
Gland Alliance	Gland Alliance	MSC+CMA	2M	Ocean Alliance
Hapag-Lloyd	Hapag-Lloyd	MSC	MAERSK LINE	CMA-CGM
NOL	NYK	CMA-CGM	MSC	COSCO
NYK	OOCL			EVERGREEN
P&OCL				OOCL
M-S Alliance	MAERSK LINE	MAERSK LINE	O3	The Alliance
MAERSK	SEA-LAND (Acquired)	MAERSK	CMA-CGM	Hapag-Lloyd
SEA-LAND	P&O(Acquired)		CSCL	Yang Ming
			UASC	ONE
				HMM
	CKYH	CKYH	CKYH	
	Hanjin	Hanjin	Hanjin	
	K-LINE	K-LINE	K-LINE	
	Yang Ming	Yang Ming	Yang Ming	
	COSCO	COSCO	COSCO	
		EVERGREEN	EVERGREEN	

(Source: compiled by the author)

Basing on Table 1 and 2, the evolution process of strategic alliance could be further divided into five phases in terms of its composition.

First phase, the global alliances emerged around 1995 and1996. The Global Alliance started in March 1995uniting APL, MOL, Nedlloyd, and MISC. In the following year Hapag-Lloyd, NOL, and NYK formed the Grand Alliance and OOCL joined the alliance afterwards.

Second phase, the 1stglobal alliances reorganization took place between 1997 and 2000. In this period major liners have proceeded M&A with cooperation or competitors therefore it was inevitable for alliances restructure. Global M&A was made in January 1997, P&OCL and Nedlloyd have merged into P&O Nedlloyd, after that Hanjintook over 70% share of DSR-Senator, and NOL took over APL. CMA acquired share of CGM and secured management control, and Hapag-Lloyd sold their ownership to Preussag to lay the foundation for financial management. In July 1999, the mother company of Maersk A.P. Moller group acquired Sea-Land's container transport sector to forge into a mega carrier "Maersk-Sealand". Evergreen acquired Lloyd Triestino in year 1998 and by the following year merged their son company Uniglory Marine.

Third phase, the 2nd reorganization took place between 2001 and 2010. Hanjin joined CKY alliance in year 2002 and became CKYH which consisted of COSCO, K-Line, Yang Ming and Hanjin, totaling 337 fleets with 850 thousand TEUs. In year 2005, Maersk-Sealand launched Maersk Line by acquiring P&O Nedlloyd. Hereby, the world maritime alliances were reorganized into 3 major alliances, namely the New World Alliance, Grand Alliance and CKYH, and 2 mega carriers, Maersk Line and Evergreen. Remaining other carriers such as CMA CGM, CSCL, MSC and Zim maintained solitary position.

Forth phase, the 3rd reorganization took place between 2011 and 2014. The New World Alliance and Grand Alliance united into G6. In year 2014Evergreen joined CKYH to become CKYH+E. Maersk, and MSC were formed into 2M alliance and on the other hand, CMA CGM, CSCL and UASC were formed into Ocean 3 alliance.

Fifth phase, the 4th reorganization took place between 2015 and 2020. There was continuous maritime shipping depression after the 3rd reorganization of alliances, shipping alliances were dramatically restructured to overcome the situation. 2M Alliance were forged into 2M+2H with Hyundai Merchant Marine and Hamburg Süd. China COSCO Shipping and Evergreen OOCL entered Ocean3 alliance and the name was changed to the Ocean Alliance. On the other hand, CKYHE was transformed into THE Alliance, consisting of Hapag-Lloyd, K-Line, MOL NYK and Yang Ming.

2.2 Comparison between Shipping Conference and Strategic Alliance

Though the motivations of forming Shipping Conference and Strategic Alliance are similar, there still exist major differences on several aspects. The following presents such comparison.

(1) Definition

By definition, shipping conference refer to ship operators' organizations serving similar markets. They form cartels and provide regular shipping service as planned to regulate competition among each other and protect their markets from external attacks; while strategic alliance is a cooperative agreement engaging a group of ocean-going carriers. Through the global cooperation of their members, strategic alliances were formed to cover various trading routes.

In particular, the biggest difference between the shipping conference and the strategic alliance is that the shipping conference is formed through the control of the volume of ships, while the strategic alliance mainly aimed at sharing the shipping volume through joint operation without such control or conciliation.

(2) Time of Formation

Shipping conferences were formed in the 19th century out of trades between Britain and its colony of India. And the first generation of strategic alliances was formed in 1995, though formal large-scale of alliances were only formed after 2008.Essentially, strategic alliances are the substitute of shipping conference for continually exploring the scale economy after the abolition of the shipping conference.

(3) Mode of Operation

The operation mode of shipping conferences can be described as follows:

1) Deferred rebate system: it means that the carrier or the conference shipper rebates part of the rate in exchange for the shipper to deliver all or most of its goods to the carrier or the conference within the specified time;
2) Dual rate contract: the shipper continues to use the lower rate granted by the conference within a certain period of time;
3) Three decker rate system: the contract shipper who refuses to load non-conference cargo but conference member’s cargo, will get an additional discount of 2.5% of the contract rate;
4) Freight rebate system: those shippers who fulfill the commitment of loading members’ cargo will get a discount of 2.5% from the total contract freight every four months;
5) Guarantee contract system: shippers are obligated to provide a fixed rate, but the conference promises that there will be no increase rate on the condition of limited shipping space and a rise in market rate.

For shipping alliances, internally, ships are dispatched and shipping space is allocated as a whole, while externally the alliance announces a uniformed set of shipping schedule and port sequence. This mode of capacity allocation is more direct and powerful than the traditional mode of capacity quota implemented within a conference. In addition, members of an alliance cooperate through the way of capacity sharing, and the relationship between them comes closer and more stable.

The aforementioned said revealed that the operation of shipping conference is tightly conciliation through the control of the volume of ships, while the strategic alliance mainly aimed at sharing the shipping volume through joint operation agreement.

(4)Relationship between Members

Shipping conference members try to eliminate competition as much as possible. However, members are not always frank with each other, and they sometimes allow shippers to pay less than the conference rates and classification fees. In order to prevent this kind of behavior, the conference employs external "police" personnel to conduct spot check on members' integrity, so as to mitigate issues of weight underestimation or insufficient classification of goods.

The strategic alliance enables the large shipping companies to fully utilize the resources with cooperation among the members, while the relatively small shipping companies can enjoy the wider range of service routes which they cannot provide by themselves. Operators establish cooperative relationship with each other and compete to optimize their profits. This kind of dynamic is called "competition and cooperation game".

(5) Relationship with the Shipper

Fundamentally the shipping conference is a "debate conference", which imposes restrictions on the shipping companies participating in the conference. However, from the shipper's point of view, it is only a "pricing decision-making organization", which put the shipper at a disadvantage in the shipping contract. The contract between the shipper and the conference varies with type of conference and its monopoly strength. While for shipping alliances, although excess capacity in the liner sector has reduced freight rates, this reduction has been partially offset by additional surcharges for shippers. In addition, by limiting modes of transport, alliances have hindered the risk diversification strategy of shippers and freight forwarders. Due to the frequent restructuring of strategic alliances, potential cost saving advantages are often not fully utilized. Within the port, the purchasing power of the alliance members may cause destructive competition between terminal operators and other port service providers such as tugboat companies. This may reduce the rebate on investment of the port industry, leading to the decrease in smaller container ports and the even withdrawal of independent terminal operators and tugboat companies. In addition, by limiting modes of transport, alliances have hindered the risk diversification strategy of shippers and freight forwarders.

3.From Conference to Alliances: Scale Economy

3.1 Prominent feature of Scale Economy

(1) The increased size of container vessels

According to statistics, though ships of 7,500-9,999TEU takes the largest proportion in the global container fleet, they only account for 19% of the total capacity of the fleet; ships of over 7,500TEU account for 51% of the total capacity of the entire container fleet. In addition, container ships of 12,500-14,999TEU accounts for about 14%.

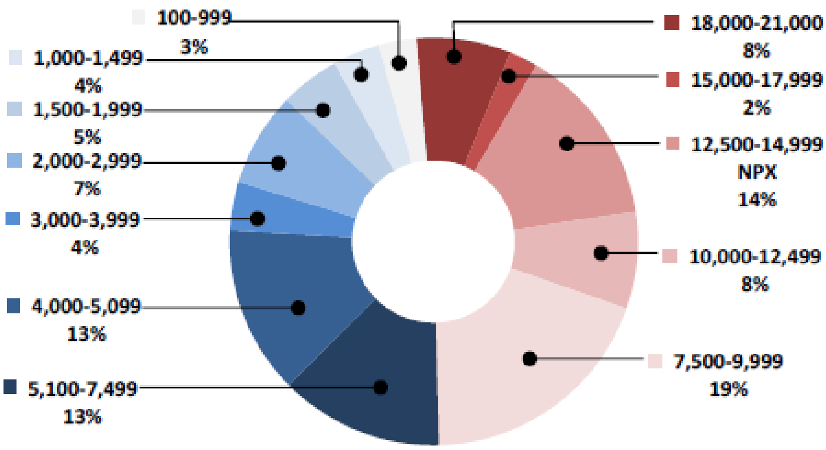


Fig.3-1 Fleet breakdown by TEU Size Range

(Source：Alphaliner, Alphaliner Monthly Monitor, July 2018)

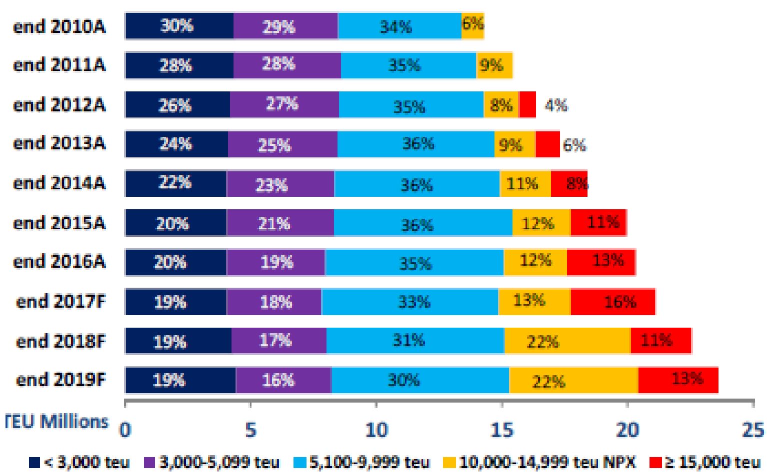


Fig.3-2 Capacity breakdown by TEU Size Range

(Source：Alphaliner, Alphaliner Monthly Monitor, July 2

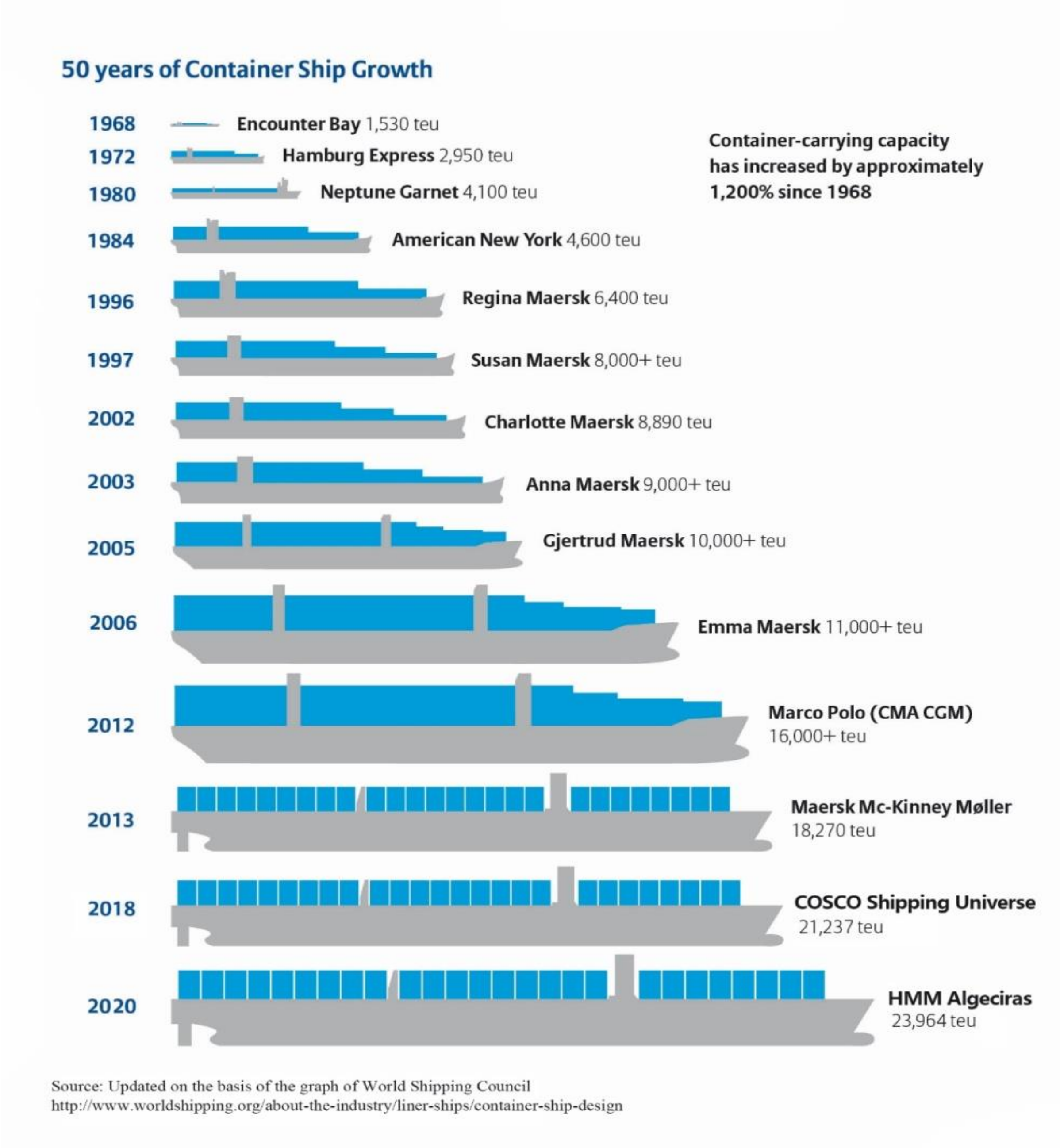


Fig.3-3 50 years of container ship growth

The driving force for the increased size of the container vessels aforementioned is the realization of scale economy which is rooted from the increased size of vessels. Table 3-1 clearly demonstrates this assertion.

Table 3-1：Single container cost of different types of container ships

Type of Container Ship	TEU	Single container cost（US dollars per TEU）
Panamax	4,250	427
Panamax	5,100	440
Post-panamax I	5,700	408
Post-panamax II	6,600	424
Extra post-panamax I	8,400	376
Extra post-panamax II	9,600	373
Extra post-panamax III	9,449	390
Extra post-panamax IV	10,000	371
New Panamax	14,000	355

（Source：Song Yuan, Research on ship types and scale economy of large container ships, Containerization,2006）

In the light of the freight rate and operating cost of new container ships, the increasing upsizing of ships has suggested prominent scale economy. See the figures below for details:

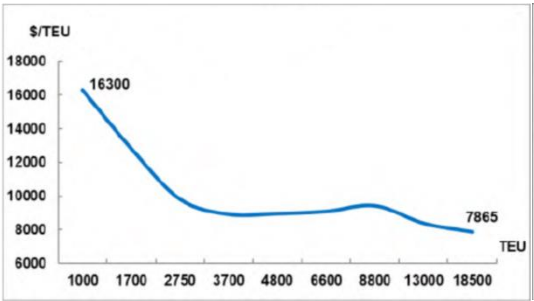


Fig. 3-4 Cost of new container ships by TEU

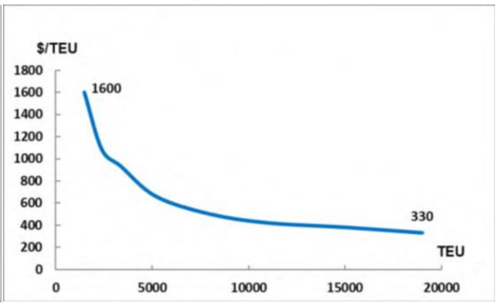


Fig. 3-5 Cost of annual operation per TEU

（Source: Yang Qiuping et al., Study on the Limits of Large Size Ships, Chongqing Jiaotong University Journal, 2020）

According to Drewry statistics, in the second half of 2019, major liner companies in the world progressively ordered large-scale container ships. The number of orders has seen a sharp increase, forming prominent scale economy.

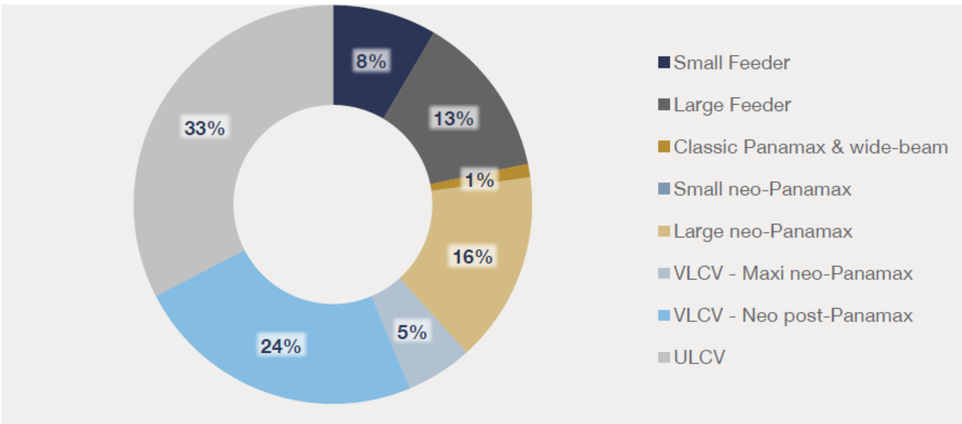


Fig. 3-6 Breakdown of container ship orders in 2019

(2) Appearance of new container transportation mode

With the upsizing of container ships, to improve efficiency and reduce costs becomes a key issue for container shipping organizations. One prominent phenomenon is the appearance of Hub-feeder Container Transportation mode. According to the schedule published by Drewry, the majority of trade routes are designed to be connected between hub ports, branch ports and feeder ports.

Trade Route : Asia-Middle East		As on: 01 Oct 2016												
Carrier / service	Service Type	Days		No. of Ships			Capacity (teu)		Estimated Wayport deduction		Estimated wayport adjusted (if any)		Estimated (wayport + High cube + Dwt) adjusted	
		Frequency	Round Voyage	Active	Missed	Total	Average Capacity	Annual Operalonal Capacity	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
2M (Maersk, MSC)											1,012,135	209,342	910,921	188,408
Market Share											13.60%	3.90%	13.60%	3.90%
2M - AE12/TP2/Phoenix/Jaguar	PDM	MYTPP, VNVUT, CNCWN, CNNGB, CNSHA, JPYOK, ***USLGB, USOAK,*** KRPUS, CNSHA, CNNGB, CNCWN, SGSIN, ***EGSCT, ILHFA, SIKOP, ITTRS, HRRJK, ITGIT, EGSCT,*** SAKAP, OMSLL, MYTPP												
		7	105	15		15	9,051	471,919	70%	100%	141,576	0	127,418	0
2M - AE11/Jade	ETE	CNTAO, KRPUS, CNNGB, CNSHA, CNXMN, CNNSA, CNCWN, CNYTN, SGSIN, ***MTMAR, ESBCN, ESVLC, ITSPE, ITGIT, EGSCT,*** SAKAP, AEJEA, SGSIN, CNCWN, CNXMN, CNTAO												
		7	77	11		11	13,833	721,253	70%	100%	216,376	0	194,738	0
2M - AE15/Tiger	ETE	KRPUS, CNTAO, CNSHA, CNNGB, CNXMN, CNCWN, SGSIN, SAKAP, ***TRIZT, TRAMB, TRTEK, GRPIR,*** SAKAP, AEJEA, SGSIN, CNCWN, KRPUS												
		6	70	11		11	14,137	810,813	70%	85%	243,244	121,622	218,920	109,460
2M - TP11/TP8/America/New Orient	PDM	SGSIN, CNSHA, CNTAO, KRPUS, ***CAPRR, USLGB,*** CNSHA, CNXMN, TWKHH, CNCWN, VNVUT, CNYTN, SGSIN, OMSLL, ***USNYC, USORF, USCST, USSAV, USMIA,*** SGSIN												
		7	126	18		18	8,412	438,602	100%	80%	0	87,720	0	78,948
2M - TP12/Empire	ETE	CNCWN, CNYTN, HKHKG, CNNGB, CNSHA, KRPUS, ***USNYC, USORF, USBAL, USNYC,*** OMSLL, ***LKCMB,*** SGSIN, CNCWN												
		7	77	11		11	8,868	462,378	85%	100%	69,357	0	62,421	0
2M - AE1/Shogun	ETE	CNNGB, CNSHA, HKHKG, CNYTN, MYTPP, ***LKCMB, GBFXT, NLRTM, DEHAM, DEBRV, GBFXT, BEANR, FRLEH, MAPTM,*** OMSLL, AEJEA, IRBND, CNYTN, CNNGB												
		7	77	11		11	15,795	823,551	70%	100%	247,065	0	222,359	0
2M - AE20/Dragon	ETE	CNDLC, CNXGG, KRPUS, CNNGB, CNSHA, CNCWN, CNYTN, SGSIN, ***EGSCT, LBBEY, ITGIT, ITSPE, ITGOA, FRFOS, ESBCN, ESVLC, MTMAR,*** OMSLL, SGSIN, CNSHA, CNDLC												
		7	77	10	1	11	12,085	630,112	85%	100%	94,517	0	85,065	0

Fig. 3-7 Layout of Trade Route

Herewith a Chinese case to further elaborate the aforementioned transportation mode. From 2005 to 2015, the container volume in Shanghai, Shenzhen, Guangzhou, Tianjin, Qingdao, Ningbo, Dalian and other hub ports increased significantly and obtained an advantage. In the meanwhile, the container transportation in small and medium-sized ports had gradually matured, forming a stable feeding relationship with the main hub ports. Multiple open ports system and transportation pattern along the coastal areas were developed, releasing the cargo supply potential of small and medium-sized ports. A multi portal edge challenge mechanism was formed, and the development of a few regional hub ports was slowed down. The turn-over capacity by the secondary ports for hub ports was greatly enhanced, which relatively decentralized the distribution of container ports. But such small and medium-sized ports are often geographically close to hub ports and they co-exist with each other. (Source: Guo Jianke, et al. The Ranking, Size Distribution, and Networking of Chinese mainland Container Port System Since 1985, Geographical Research, 2019)

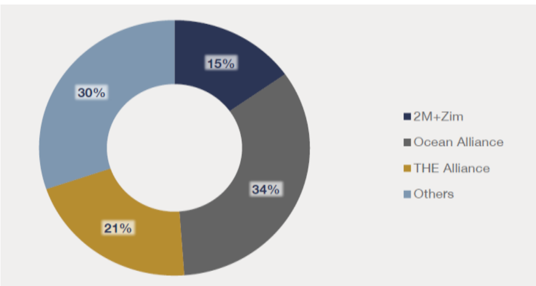
Based on the distribution of shipping lines from 2005 to 2015, it can be found that the regional hub ports, mainly Qingdao Port, Dalian Port, Xiamen Port and Tianjin Port, played an important role in coordination and turn-over between local ports. Yantai Port, Suzhou Port and other ports had formed their branch ports, namely feeder port. The connection between hub port and feeder port had been enhanced.

3.2Appearance of alliance in requirement of scale economy

Facing the ever-developing trend pertaining to increased vessel size and changing hub-feeder transport mode, it would be difficult for a single shipping company to handle. Thus, conferences and strategic alliances is a proper model to satisfy such market demand.

As the shipping industry is characterized by capital intensive and low return on investment, the existence of shipping conferences is beneficial to both owners of cargo and shipowners. With forging shipping giants, strategic alliances invest in large-scale and high-speed ships on the main routes, and actively opens up branch lines through the hub port, to achieve high shipping frequency, shorten turnover time, and more competitive range of ports of calls. Members of alliances mainly use their own terminals, so that the process of loading and discharging, transit and multimodal transport operations are guaranteed in terms of promptness, this factors leads alliance members to improve the service quality, putting alliances in a more advantageous condition.

According to Drewry statistics, from 2018 to 2019, changes existed in the market share of the Pacific Line, Asia-Europe Line and Asia-Mediterranean Line. In particular, there was significant variations in the market share of Asia-Europe line. It can be found that all liner alliances are active in solicitation and grabbing market share, resulting in intense market competition.



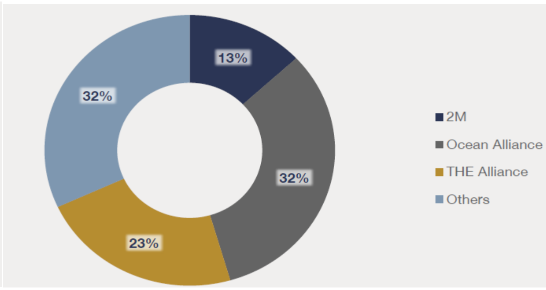
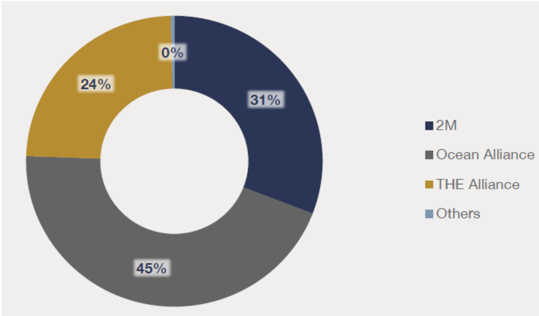


Fig. 3-8: Market share of the Pacific Line in 2019Fig. 3-9: Market share of the Pacific Line in 2018

(Source: Drewry Maritime Research)



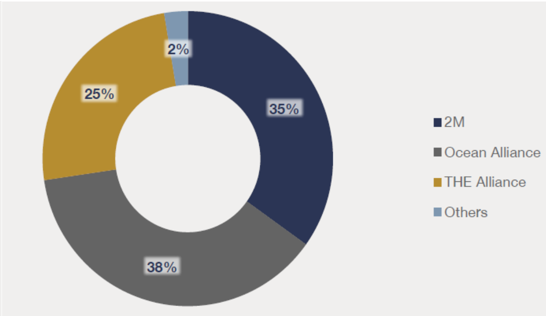
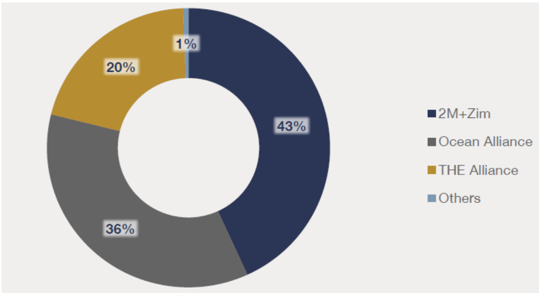


Fig. 3-10: Market share of the Asia-Europe Line in 2019 Fig. 3-11: Market share of the Asia-Europe Line in 2018

(Source: Drewry Maritime Research)



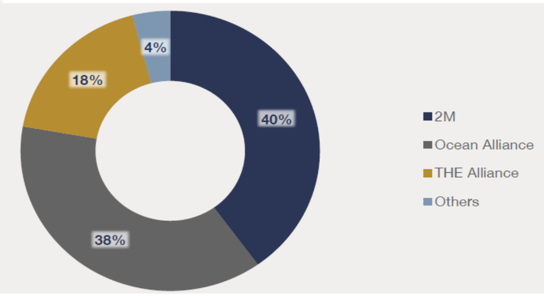
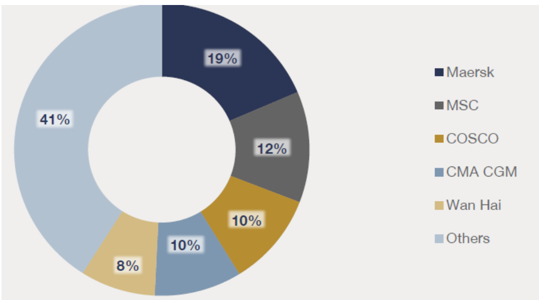


Fig 3-12: Market share of the Asia-Mediterranean Line in 2019 Fig 3-13: Market share of the Asia-Mediterranean Line in 2018

(Source: Drewry Maritime Research)

According to Drewry Report, from 2018 to 2019, there were also noticeable variations of market share among major liner companies.



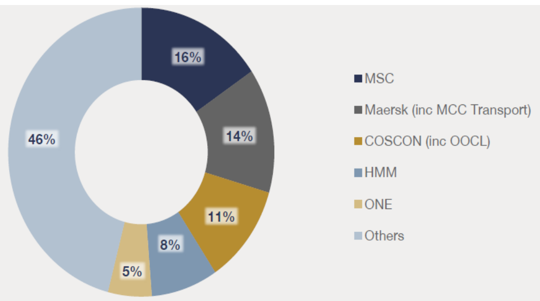
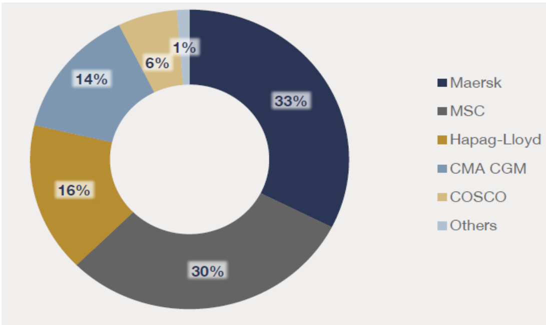


Fig 3-14: Market share of the Asia-South Asia Line in 2019 Fig 3-15: Market share of the Asia-South Asia Line in 2018

(Source: Drewry Maritime Research)



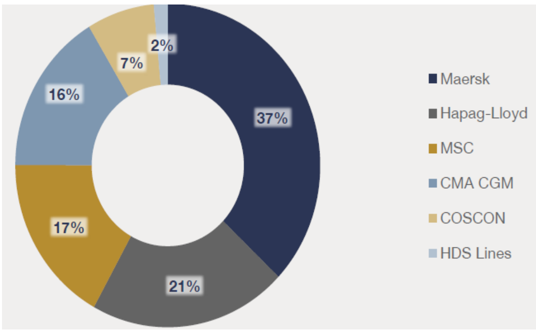


Fig 3-16: Market share of the Europe-Middle East Line in 2019 Fig 3-17: Market share of the Europe-Middle East Line in 2018

(Source: Drewry Maritime Research)

4. From Conference to Alliances: Market Competition

4.1 The situation of market competition

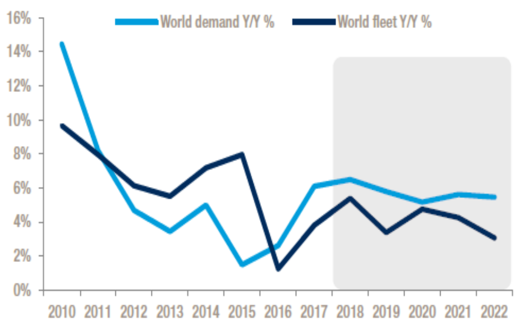
Since 2008, with the impact from world financial crisis, the global economy and trade have kept in a downturn. See the Table 4-1 for global GDP growth rate and trade growth rate during 2010 to 2018.

Table 4-1：Global GDP growth rate and trade growth rate in 2010-2018

Year	Global GDP growth rate	Global trade growth rate
2010	5.43%	14%
2011	4.22%	5.5%
2012	3.46%	2.5%
2013	3.28%	3%
2014	3.41%	2.5%
2015	3.4%	2.8%
2016	3.2%	1.7%
2017	3.7%	3.6%
2018（estimates）	3.9%	3.2%

（Source：IMF, World Economic Outlook ,July2018; WTO, World Trade Statistical Review 2018, May 2018）

Impacted by the economic downturn, the global container shipping capacity is beginning to show surplus.



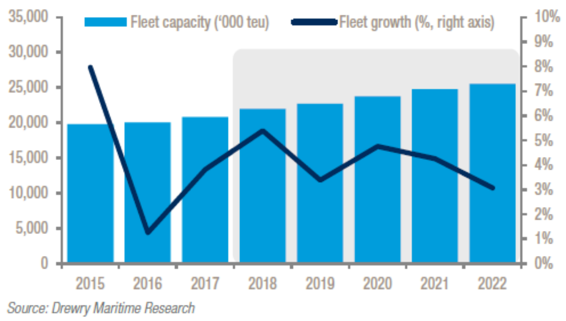


Fig.4-1 Supply and demand trend of global container MarketFig.4-2 Curve of shipping capacity of global container Market

（Source：Drewry, Container Forecaster Q4, December 2017）

Affected by the fierce market competition, the international container freight rate index has been kept at a low level.

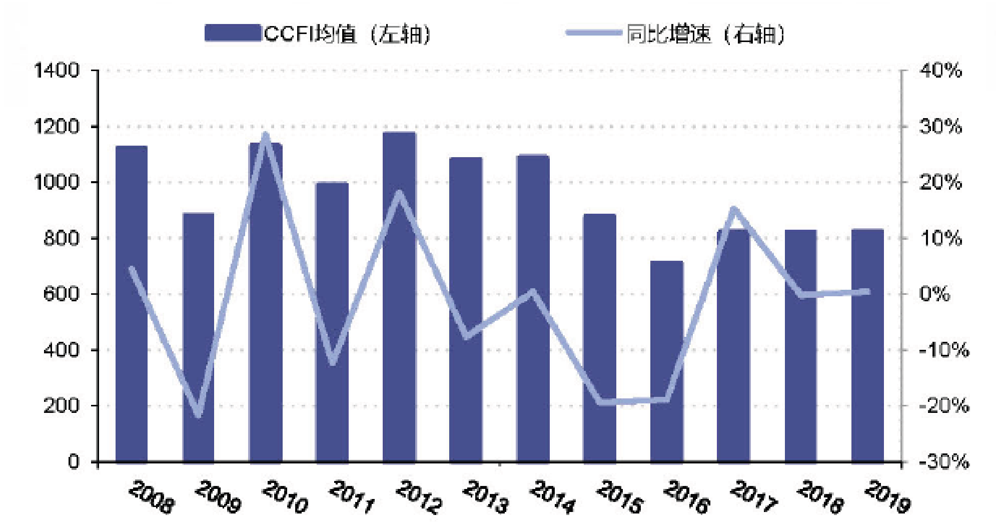


Fig.4-3 CCFI indexes from 2008 to 2018

（Source: Shanghai International Shipping Research Institute）

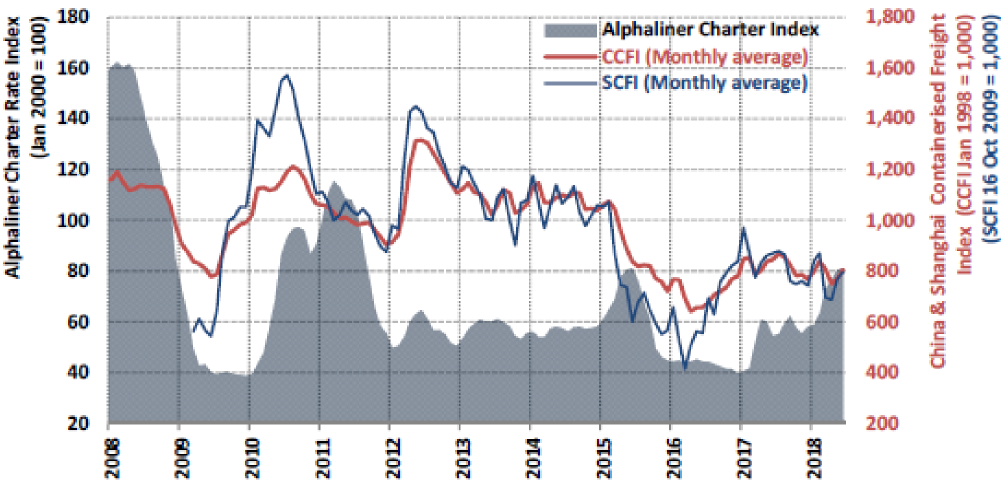


Fig.4-4 Global container freight indexes from 2008 to 2018

(Source：Alphaliner, Alphaliner Monthly Monitor, July 2018)

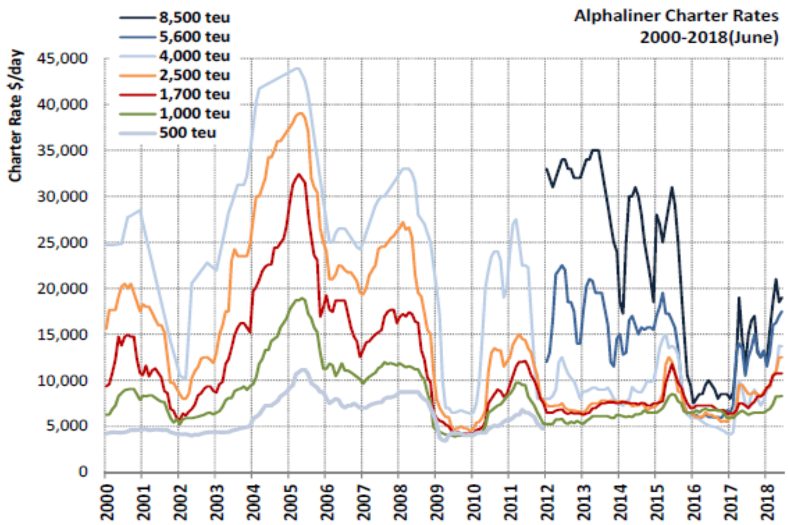


Fig.4-5 Charter rates of container ships

(Source: Alphaliner, Alphaliner Monthly Monitor, July 2018)

In order to alleviate the high press of the market competition, shipping companies should adopt various tools to strengthen their competiveness. For instance, with the opening of Suez Canal and the introduction of steam ships, both of them are more efficient than sailboats, resulting in the excess tonnage of ships. In order to ensure a large amount of profits from the market, shipown ers competed, causing freight to fall below the cost. This is the basic context in which the shipping conference was first shaped. The formation of strategic alliance came about after the 2008 economic crisis when shipping companies realized that under the negative economic conditions, they could not operate alone with limited numbers of vessel and equipment.

4.2 The impact on the competiveness

In this section, Porter's model is utilized to analyze the impact of strategic alliance on the competitiveness of shipping companies. Porter's (1990) Diamond Model, first proposed in 1990, used four broad attributes, namely factor conditions; demand conditions; related and supporting industries; and firm strategy, structure, and rivalry; along with two additional variables of chance and government. Based on

Porter's model, the impact on competitiveness of shipping companies, brought by the trend from conferences to strategic alliances, can be further elaborated as follows.

From the perspective of factor condition, the shipping conference can reduce the price competition of shipping companies in the conference. Through freight agreement, cargo pooling agreement, intermodal agreement, and allocation of profits, the available resources of shipping companies are improved. The strategic alliance is mainly operated through the box sharing way, balancing the capacity between the shipping companies within the alliance. It could effectively reduce the operating cost of shipping companies while maintaining service frequency and quality. Since 2008, such alliances as combined with slow steaming strategies have worked well in cost control.

From the perspective of demand factor, the competitiveness brought by the shipping conferences mainly reflected in obtaining more market share and higher pricing to obtain profits through the monopoly position of specific routes, instead of better attracting new customers to increase demand. For strategic alliance, it can not only bring lower operating costs to shipping companies, but also provide customers with diversified and quality services by sharing of slots within the alliance. Since it could retain reasonable market competition, on the demand side more customers choose shipping companies of alliances due to improved services.

From the perspective of the supporting industry, the shipping conference stipulates the frequency of calls to specific ports along the route, which can reduce port congestion to a certain extent. However, due to the relatively complicated membership of the shipping conference, the joint bargaining effect of port loading and unloading fees cannot be achieved well, so there is no significant reduction in cost. Meanwhile, strategic alliance is a good resource sharing platform. Since most container shipping companies, such as Maersk and COSCO, have operating control over more ports in the world, they can share port resources well to obtain better support services. As the liner market tends to be oligopolistic, for third-party supporting enterprises, such as port loading and unloading and container ordering, liner companies can get more competitive rate through negotiation advantages.

From the perspective of firm strategy, structure, and rivalry condition, the shipping conference's main objective is to further squeeze out non-conference shipping companies from the market by setting floor freight rates, standardizing services, thereby gaining a monopoly advantage. Shipping conference can place comparative advantages to shipowner on higher profits. Strategic alliances can help shipping companies reduce their ship investment and lower operation costs. Through the way of resource sharing, the strategic alliance can provide more efficient and comprehensive service, and get higher profit through the strategic decision of competing game.

From the perspective of chance, demand for freight before 2008 is greater than supply, so the shipping company as a carrier has greater negotiation advantages. Based on a higher market share, shipping companies can master certain pricing power. The container transportation market gradually tends to oligopoly, which makes the number of corresponding trade routes partners significantly reduced. As a result, the shipping alliances formed by a few shipping companies can gain an advantageous market share and sustainable development in the low-price market. Furthermore, the performances of Maersk &CMA-CGM have been selected to support the aforementioned.

Considering the big contribution of conference and alliances on the competiveness of shipping companies, shipping companies are seeking to expand to strengthen their cost competitiveness and complement their business portfolio. Top shipping companies are seeking to scale up by securing M&A and larger vessels, which has become a trigger to change the 4 alliances into 3 alliances system. The market share of the top five shipping companies rose from 45.4 percent in 2012 to 54 percent in 2016 and 63.9 percent in 2017. Moreover, the top seven companies, including Evergreen and Japan's ONE which established an integration in 2017, had a combined market share of 16.15 million TEU and 75.7 percent. In fact, large shipping companies dominate the container shipping market (KMI 2017). Currently, top 9 companies in 3 major alliances have over 80 percent of market share. Table 3 presents strategic alliances and their market share.

Table 4-2Major 3 strategic alliances and their market share

Alliance	Carrier	TEUs	TTL TEUs
2M	APM Maersk	3,960,239	7,671,101
	MSC	3,710,862	
Ocean Alliance	COSCO	2,905,060	6,843,889
	CMA CGM	2,707,089	
	Evergreen	1,231,740	
THE Alliance	Hapag-Lloyd	1,706,735	4,429,058
	ONE	1,560,259	
	Yang Ming	599,068	
	HMM	562,996	
3 Strategic Alliances in TEUs			18,944,048
Global TEUs			23,807,137
Ratio			80%

（Source： Alphaliner, AlphalinerTop 100, April 2020）

For further elaborate the aforementioned phenomenon, two cases depicted by table 4-3 and 4-4 are selected.

Table 4-3 Maersk Issues

-. 2011-A.P. Moller-Maersk creates ' Seago Line' to cater for intra Europe services
-. 2014-A.P. Moller-Maersk CMA-CGM and MSC formed the P3 alliance
-. 2015-A.P. Moller-Maersk creates ' SeaLand' to cater for intra America services
-. 2015-A.P. Moller-Maersk and CMA-CGM formed the 2M alliance
-. 2017-A.P. Moller-Maersk purchases Hamburg Sud

（Source: compiled by the author）

Table 4-4 CMA-CGM Issues

-. 2014-CMA CGM and MSC formed an alliance -. 2014-CMA CGM SA bought OPDR -. 2014-CMA CGM Maersk and MSC formed the P3 alliance -. 2015-CMA CSCL and UASC formed the O3 alliance -. 2016-CMA CGM SA bought NOL, parent of APL -. 2017-CMA CGM SA bought Mercosul Line and Sofrana -. 2018-CMA CGM, COSCO-OOCL and Evergreen formed the Ocean alliance -. 2019-CMA CGM SA bought Containerships

（Source: compiled by the author）

Furthermore, figure 4-6 and 4-6 demonstrated the following facts. Maersk merged with Sealand to become the second largest shipping company in 1997, and in 2005 it further merged P&OCL. Maersk acquired Hamburg Sud in 2017 to strengthen its competitiveness in the European market and secure an edge on Latin American routes. CMA-CGM also continues to invest to expand its market share and strengthen its competitiveness by acquisition of APL, Sofrana and Mercosul in 2016 and 2017. Both companies have been growing in size in the past two decades. Since shipping services by nature are hard to differentiate, shipping companies thus seek for economies of scale to gain upper hand. As a result, they seek to reduce costs through upsizing of vessels.

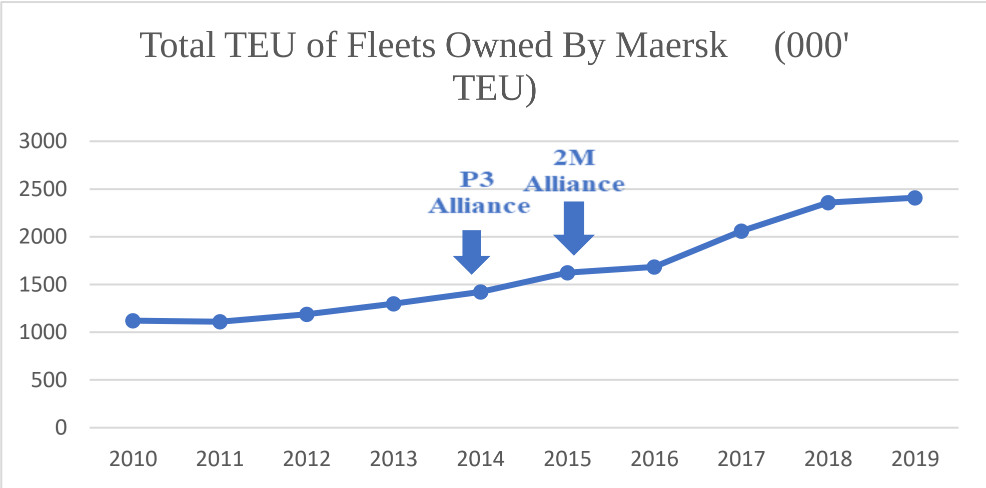


Fig.4-6 Total TEU of Fleets Owned by Maersk

Source: Alphaliner-TOP100-(2010-2013); Drewry Container Forecaster(2014-2019)

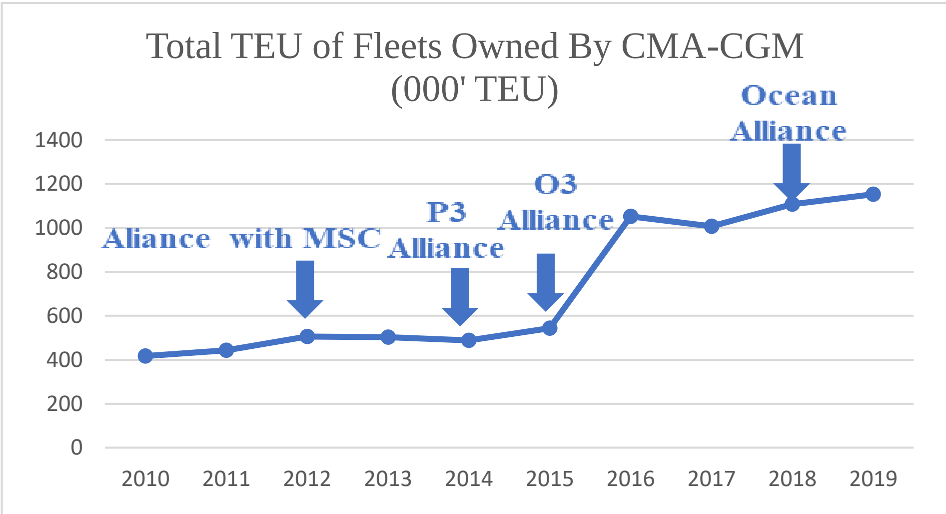


Fig.4-7 Total TEU of Fleets Owned by CMA-CGM

Source :Drewry Container Forecaster(2012、2014、2016、2018、2020)

In summary, through M&A and strategic alliances, shipping companies have been driven into free competition. Larger vessels have enabled shipping companies to reduce unit cost but at the same time overcapacity also reduced freight rate dramatically. Joining alliance also triggered shipping companies to order mega-size vessels striving to provide equivalent service with other alliance members.

These factors have resulted in decline of freight rate, as shown in Figure 4-8 & 4-9, both CCFI and SCFI started to decline from 2010. Even though strategic alliances have made possible for shipping companies to reduce investment in shipbuilding and to invest in other supporting industries, such as terminals, effect of declined freight rate is higher than returns from supporting industries.

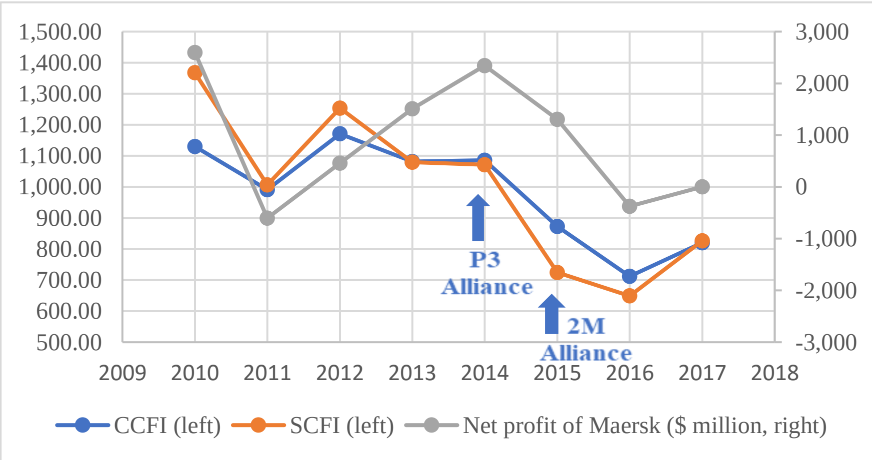


Fig.4-8: CCFI, SCFI, Net Profit of Maersk

Source: Drewry Container Forecaster(2012、2014、2016、2018、2020)

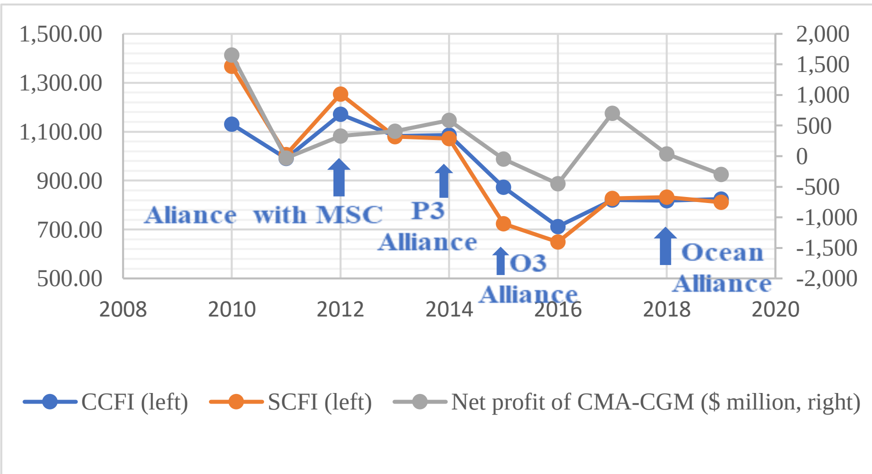


Fig. 4-9: CCFI, SCFI, Net Profit of Maersk & CMA-CGM

Source: Drewry Container Forecaster(2012、2014、2016、2018、2020)

5. From Conference to Alliances: Regulatory

The abolishment of shipping conferences and the rise of strategic/global alliances could be explained to some extent from the regulatory perspectives.

5.1 Why Shipping Conference Failed

Shipping conferences control the competition among member companies by stipulating freight rate, number of trips, tonnages and ports of call; offering shippers certain preferential treatments such as discounts, rebates, delay rebates, and contract preference, in order to control the supply of goods and monopolize routes. That is to say, shipping conferences maintained their status in the liner market with advantages of freight rates and stability of capacity supply. Thus, it was important for shipping companies that generated profits through the operation of container vessels to join a shipping conference.

However, in the last decade, the role of shipping conferences gradually declined. Only 18 percent of existing conference agreements are involved in the main routes, and almost half of these agreements involve the North-South routes and intraregional services. The number of carriers involved in main route conference agreements ranges from only two carriers to more than 10 in a few cases. And the majority of the carriers are small-medium sized companies (United Nations 2016). Eventually, shipping conferences began to collapse in 1998 due to the adoption of the Ocean Shipping Reform Act in the United States, and in 2008 when the European Union announced the abolition of shipping conferences.

(1) US Regulatory Impact

In 1984, shipping conferences were still not subject to the antitrust, as the Shipping Act of 1984 banned the dual rate system permitted by the Shipping Act of 1961. And the Shipping Act of 1984 imposed the individual rate system of independent action, under which conference member carriers did not necessarily have to follow fixed rate of conference.

After the Ocean Shipping Reform Act (OSRA) was adopted in 1998, shipping companies were able to use confidential contracts as competitive tools against other companies. They permit individual members to negotiate independently with confidential service contracts, and prohibits any kind of retaliatory actions against shippers or other carriers. As a result, independent service contracts are now main way to have contract of the maritime transport between shippers and carriers (OECD, 2015). But the effect may vary depending on the bargaining power of shippers.

To align with this, the Antitrust Modernization Commission, which was established in the House of Representatives in 2004, recommended in its final report in April 2007 that the exclusion of the Antitrust Act could not be recognized in principle, and strict restriction should be placed on shipping conferences. In 2010, James Oberstar, a member of the US House of Representatives, proposed a new maritime operation that prohibited negotiations or discussions among shipping companies within the form of coalition. This was the starting point for the weakening of the Transpacific Stabilization Agreement in the US.

(2) EU Regulatory Impact

In 1987, EU Council of Regulation 4056/86 recognized the principle of maritime competition and the exception of the “block exemption” as a rule on the detailed rules for applying sea transport to Article 81 and 82. It prohibits collusion that excludes substantial competition, joint actions in response to technological and economic development or damage to users’ interests, interfere in shipping operations of third countries’ by imposing unfair freight transport on EU member states, and obstructing contracts by limiting the types of cargo reservation or ships. It stipulates that the application for shipping conferences is excluded when it is aimed at international competitiveness or technological development of the shipping industry. In other words, shipping conferences are excluded from this regulation because they are designed to stabilize the market and to provide reliable and reasonable services to shippers, which is impossible without mutual cooperation between shipping companies.

To be specific, there are four conditions for the exemption of shipping conferences. First, the restrictive agreement should contribute to improving the production or distribution of goods or to promoting technical or economic progress. Second, consumers must be compensated for the negative effects resulting from the restriction of competition. Third, the conduct must not impose on the undertakings concerned restrictions which are not indispensable to the attainment of its objectives. Forth, the conference should remain subject to effective competitive constraints.

However, as the environment of the shipping industry began to change significantly, the exemption of price fixing and supply control in the liner shipping market which are the results of increased cooperation between shipping companies in the form of conference, was required to be reviewed. Therefore, in 2003, the European Union reviewed Regulation 4056/86 to check whether the exemption of price fixing and supply control was still a necessary action. They ended up with finding no positive correlations between service qualities and price fixing, on the contrary, abrogating price fixing would improve the service quality. Therefore, in year 2006, to replace Regulation 4056/86, EU adopted Regulation 1419/2006 which came into effect from October 2008.

To conclude, the reason why shipping conferences first appeared is that the shipping industry is a capital-intensive industry and there are certain risks with navigation. The form of shipping conference contributes to the stability of this industry and ensures that shippers can obtain reliable services. However, with the development of the industry, the market monopoly caused by the shipping conferences damaged the social welfare of shippers and reduced the efficiency of the industry. This violated the essential reasons for immunity; thus, shipping conferences could no longer enjoy monopoly immunity.

5.2 Why Strategic Alliance Matters

As mentioned above, the role of conferences declined with only a few conference agreements involving main trade routes. Instead, increasing main routes were being served by other cooperation agreements, mainly strategic alliances. Through this process of change, the strategic alliance has emerged as a substitute for the conference.

It became operational in the 1990s.A strategic alliance is to form a complementary and continuous cooperative relationship based on the unique competitive advantage of each company. In other words, since major liner companies are unable to establish a global logistics service network on their own in a short period of time, they form a group of shipping companies to work with others, then quickly react to the globalization of service and efficiently operate their fleets.

The biggest difference between the shipping conference and the strategic alliance is that the shipping conference is formed through the control of the volume of ships and price fixing; but the strategic alliance mainly aimed at sharing the shipping volume and route resources through joint operation without such control or conciliation. The participating members of an alliance could continue to have their own identities, and their sales, marketing and customer service handled by separate commercial departments, which means they still could compete on freight rate. This means the existence of strategic alliance does not violate the antitrust rules.

As arrangements among member carriers of strategic alliances do not involve freight rate fixing, many administrations confer them exemptions. In June 2014, the European Commission declared there have not been found of any violation of anti-competitive issues in forming P3 alliances, which formed by Maersk, MSC and CMA CGM. However, the Chinese competition authorities rejected the P3 alliance after reviewing the alliance under China's merger control rules. This reveals that the strategic alliance is subject to the regulation and supervision of the authorities on competition law, and the authorities have the power to review and prohibit specific violations. In such cases, member carriers cooperate to improve operation efficiency, and competition authorities ensure sufficient competition in the market so that the cost savings are ultimately be burden of shippers.

In summary, strategic alliances emerged in a changing era of shipping industry. During period of fluctuating freight rates, increasing operational costs and overcapacity. The rise of strategic alliances was a much-needed "huddling for warmth". But more importantly, forming a strategic alliance is not a market monopoly, indicating strategic alliances would not undermine market competition, as shipping conferences did.

In industrial organization theory, there is a concept of "workable competition" which means to seek industrial economies of scale while maintaining competition. The form of strategic alliances is consistent with this concept, as member carriers join together to improve the utilization of fleet capacity and route resources in the premise of no collusions. And that may be why strategic alliances could replace shipping conferences to get a foothold in the shipping market.

6. Conclusion

Shipping industry has been experienced different type of formation from traditional shipping conference to recent strategic alliances. The major impact of formation change is the traditional shipping conference is mainly about control of volumes but strategic alliance is more about sharing the volume with their members. Shipping conference had different mode in operation which were focused on rate, freight and contracts. Meanwhile, strategic alliance focuses on how to share vessel and spaces and eventually set a unique service route for their alliance. Therefore, shipping conference tries to eliminate the inner competition as much as possible but strategic alliance tries to expand the service route with collaboration with its members and to optimize their profit.

In terms of scale economy, unit cost compared to the vessel size varies dramatically, therefore, container vessel operators continuously try to build and operate larger vessels to achieve economies of scale. Developing transportation mode, hub and spoke can also be a reason for building bigger size vessel. With development of hub and spoke model, shipping companies focused on maximizing loading regional cargos to be discharged to the hub ports within their service routes. In order to maximize loading bigger size vessel became mandatory. Due to the fact that maritime shipping industry is high capital intensive, it would be burden for single shipping company could not enjoy the economy of scale by building mega-size vessel. To cope with this problem multiple shipping companies decided to form an alliance. The alliance also guarantees members to provide faster loading, discharging and trans-shipping utilization through use of their own terminals. Therefore, the strategic alliances strengthen the competitiveness of the shipping company in related with the economy scale.

As described, using Porter’s Diamond Model, there were some differences on reacting on certain factors between shipping conference and strategic alliance such as operating cost, service diversification, bargaining power, monopolistic or free market competition. Now, as a result, major shipping companies are now in a strategic alliances and market share of those alliances is continuously growing and resulting intensify of market competition. To achieve upper-hand competitiveness, shipping companies are seeking to upscale by M&A and larger vessels. This has triggered formation of 3 global alliances in 2017 which have over 80% of market share in global capacity.

According to the case of Maersk and CMA-CGM, both global shipping companies have experienced large scale of M&A for past two decades and join of alliances at the same time. This have resulted bigger in capacity and larger in vessel size for both shipping lines. As a consequence, shipping companies enjoyed a lot of reduced unit cost per shipping but unfortunately there have been dramatic decline of freight rate due to overcapacity.

As previous shipping conference has been abolished due to that it triggers monopoly in market and related damages were under shippers account, as a freight, this violated the essential reasons for immunity. Shipping conference aims to control the volume of ships and freight rate, while strategic alliance aims on sharing shipping volume under joint operation. Which has huge difference in whether members are in competition status or not. Members between same strategic alliances are still considered as separated companies with independent rules and strategies. This is why the strategic alliance does not violate antitrust rules.

As a result, in this era of overcapacity and low freight rate, it is essential for shipping companies to join strategic alliance. This can be considered as same as “workable competition” which is seeking to enjoy economy of scale while have competitive position among the members.

In terms of research methodology, this paper conducted by confining it to the research of literature. In order to be more objectively recognized, it is necessary to reflect the current reality more actively through interviews or surveys of shipping companies or those who related to the industries.

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