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INTERNATIONAL TRADE AND CONTAINERIZATION – CERTAIN TRENDS AFTER THE FINANCIAL CRISIS OF 2007-2008

KEY-WORDS: CONTAINERIZATION, MARITIME INDUSTRY, SHIPPING LINES, CONTAINER TERMINAL OPERATORS

INTRODUCTION

The global container shipping market has grown by 1200% since 1980. This result illustrates the relevance and effectiveness of the concept of cargo movement in unified containers, which, as the idea, was developed in the 1950s. World maritime transport needed an invention that would be able to solve the problems encountered at that historical time by ports and shipping companies. The container was a perfect solution, that dramatically reduced the cost of transport, simplified the entire transport process and accelerate globalization of the global economy.

Currently, the technology of container handling has reached an extremely high level. A new technology dedicated to handling metal boxes, has been developed. Bridge and quay cranes, masts, Reach Stackers, professional grabs, are not the only new solutions of containerization. The whole new system of containerized cargo transportation has been invented. The concept assumes the transport of cargo on various means of transport, where the time of moving goods from one place to another is reduced to a minimum level. Global containerized shipping chains have emerged to create transport cheaper and faster.

Due to the global development of containerization, many countries from different parts of the world have also gained a lot of advantages. One of them is the Baltic Sea Region, which, supported by its location, is a natural link integrating the economies of individual countries of the geographical area. Its particular features makes maritime transport a strategic area for common interests in the region. For centuries, shipping has been the main reason for the development of intense trade relations. After 1989, as the neighbouring countries re-established their economic and diplomatic contacts, in the new geopolitical situation, there was a process of renewal of historical ties as well.

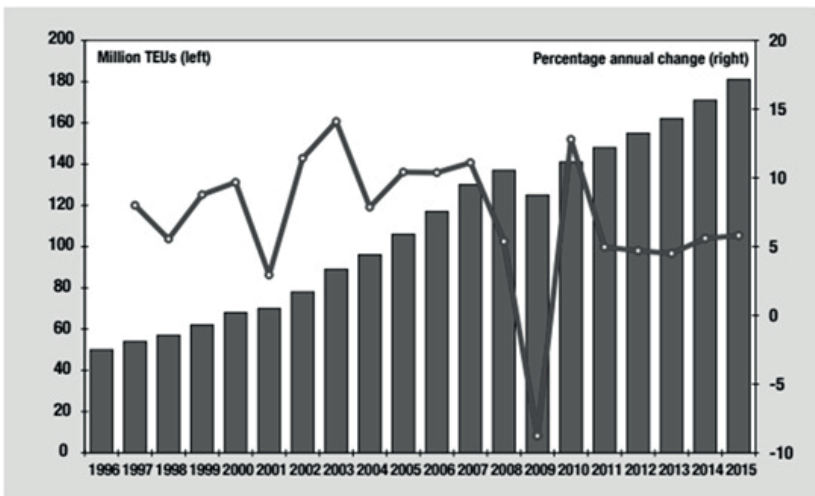
What is more many previous trade routes were reactivated, and the average annual trade between the countries of the region increased only between 1994 and 1996 by about 32%.

The purpose of this paper is to present the changes of international trade and container shipping, some aspects after the financial crisis of 2007–2008. As a research method, the analysis of professional literature in the field of container shipping and study of scientific articles related to the topic described were used.

The importance of containerization in global trade

The dynamic development of world containerization is evidenced by the almost fourfold increase in container transport since 1996. According to the United Nations Conference on Trade and Development (UNCTAD), in 2014, world-class container shipments increased by 5.3% and reached 171 million TEU (unit corresponding to the dimensions of a 20-foot container).

Picture 1 The development of the global container transport market



Source: UNCTAD (2015) Review of Maritime Transport, p. 32

The development of the container market in the vast majority of the surveyed period remained within the range of 5-15% growth. A drastic drop in volume, almost by 10%, can be observed in 2009, which indicates the negative impact

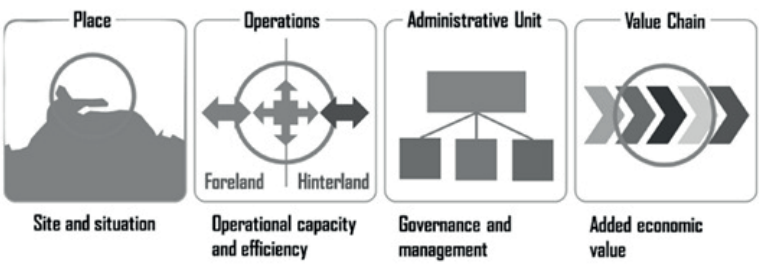
of the global financial crisis on the container shipping maritime market. After this period, a rapid reversal of the trend to 13% growth was noted, followed by maintaining 5% of the growth of transported containers for 5 years.

Container terminal operators

For seaports, closely related to ship service, navigational availability was one of the strategic factors in the location of port infrastructure. Before the industrial revolution, the ships, due to their load capacity, were the most effective means of transporting goods. One of the challenges of that period was the problem of a multi-week stopover in the port. The solution was the expansion and enlargement of the number of quays in sea harbours.

Today, by sea transport, handled largely by ports, huge loads are moving, much larger than in other modes of transport. In order to fully adapt to the transport market environment, ports had to adapt their infrastructure to reloading operations on both ships and other means of transport, such as trucks or rail.[01] The figure below presents four dimensions defining the role and functioning of ports:

Picture 2 Four dimensions of the port's operation



Source: The Geography of Transport Systems: Port Dimensions [01.05.2018] <https://transport-geography.org/?page_id=3244 >.

- location - very important characteristics of the port, which affects the time of delivery of the cargo to the final customer,
- operations - the port has some operational features that determine the speed of movement of the cargo from one means of transport to another,
- administrative unit - the port is a well-defined administrative unit,

01 The Geography of Transport Systems: Port Terminals [01.05.2018] <http://people.hofstra.edu/geotrans/eng/ch4en/conc4en/ch4c3en.html>.

- supply chain - the port, as a strategic link in the supply chain, creates added value for the entire transport process.

Global port operators play an important role in the dynamic development of container terminals, as they provide not only new operational solutions, but also strategic planning of infrastructure investments. Both short-term issues related to performance and quality of services, as well as plans in the long-term horizon, related to the further expansion of the market, they are intensively analyzed by container terminal operators.[02]

Despite the fact that the volume of port capacity is weakening compared to the level before the economic crisis, the industry of container terminal operators is very active. Several global terminal operators sold part of their shares to improve the quality of operations. Terminal operators who are closely related to shipping lines, e.g. APM Terminals or Mitsui O.S.K. Lines are forced to sell their terminals, while DP World - a traditional operator and US port companies are trying to strengthen their position by focusing on investments. The Filipino ICTSI operator was also forced to sell some of its assets.[03]

Shipping Lines

Shipping is an extremely globalized industry both in terms of operational and ownership. About 67% of the world fleet (in tonnage) is under the so-called cheap flag, which gives less regulation, lower registry and operating costs. In the shipping industry, dominated by large entities, mergers, acquisitions and strategic alliances, the potential savings that can be generated at sea are getting smaller, and the pressure to find cheaper logistics solutions on land is growing.[04]

In addition to costs and revenues, demand is the main driving force for carriers who seek to integrate their services with cargo flow chains. Business entities that traditionally were only interested in transporting goods from one point to another, are now looking for logistics companies in the field of just-in-time practices, supply chain integration and management of the logistics information flow system. Shipping lines are increasingly analyzing possible configurations of the use of their fleet in order to meet their clients' logistical requirements, such as price, transit time, schedule reliability, line frequency

02 Rodrigue J. P. (2010) *Maritime Transportation: Drivers for the shipping and port industries*, International Transport Forum, p. 8.

03 UNCTAD (2014) *Review of Maritime Transport*, p.67.

04 Rodrigue J. P. (2010) *Maritime Transportation: Drivers for the shipping and port industries*, International Transport Forum, p. 7.

and proximity to outlets.[05]

The shipping industry offers two main types of services:

- Charter services - in this form the company rents a ship in order to transport cargo from one port to another. This type of service is mainly used for bulk cargoes, such as oil, iron ore, grains, coal. This service requires a specialized cargo ship, which becomes a cargo unit (usually the entire contents of the ship is traded).
- Regular line services - includes scheduled services, under which the sea transport means calls to ports on the entire route. To ensure the reliability of the schedule, frequency and a specific standard of service, many ships are assigned to one route. A significant part of the regular line market is container transport.

In such a competitive economic environment as the shipping industry, shipping companies are required to establish and maintain profitable routes. There are three main factors shaping the network of sea connections:

Frequency - is associated with greater timeliness of services. Seaports have to cope with more frequent ship calls. A weekly connection is considered to be the minimum level of service, but the pressure of customers on increasing the frequency of calls is increasing.

Fleet and ship sizes - there is no doubt that large units offer significant benefits over long distances. Shipping lines strive to launch ships of increasing capacity while moving smaller vessels onto feeder connections.

Number of port calls - routes with lower port calls may have a lower transit time, in addition they require lower number of vessels. When analyzing the number of port calls, intermediate ports should also be included to anticipate possible delays in the delivery of cargoes far away from ports on the given connection. Inaccurate routes development may result in delays and potential loss of customers. Proper selection of ports facilitates access to a wide commercial base.

There is no doubt that shipping lines, by developing strategic plans and creating new connections aimed at maximizing revenues, contribute to increasing the integration of all regions of the global shipping network.

SIGNIFICANT CHANGES IN THE GLOBAL CONTAINER HANDLING MARKET AFTER THE FINANCIAL CRISIS

The situation on the global container transport market clearly shows the race of shipowners competing with each other for the largest container ships.

05 The Geography of Transport Systems: Maritime transportation [01.05.2018] <http://people.hofstra.edu/geotrans/eng/ch3en/conc3en/ch3c4en.html >

Shipping lines are well aware that the economics of scale is a strategic factor that significantly reduces operating costs of the business. The average capacity of newly built units put into operation in 2014 exceeds 7,000 TEU for the first time, reaching 7.211 TEU. This means an increase in the average size of ships transferred in the year by 11.2% from the level of 6.486 TEU in 2013. The average capacity of container ships expected to be transferred by shipyards in 2015 is to amount to 7,846 TEU. By the end of 2016, the average volume of container vessels transferred in the last five years will increaseas much as almost 50% from the average of 2010, which was 5,333 TEU.[06]

The largest shipping line, both in terms of the number of units operated and their capacity, is the Danish shipowner Maersk Line. The company was the first to break the capacitive standards determining the size of the largest container ships, ordering units capable of accommodating 2,000 TEU more than before the largest container ship in the world (CMA CGM Marco Polo). Triple-E units with a capacity of 18,260 TEU were ordered in 20 units at the Korean DSME shipyard.[07]

This moment proved to be a breakthrough in the entire container transport market. The market experienced a sharp increase in orders for new class ULCV vessels (Ultra Large Container Vessel). In November 2014, the Chinese ship-owner China Shipping Container Lines commissioned the CSCL Globe unit with a capacity of 19,100 TEU. In January 2015, the Swiss MSC shipowner broke this record by employing the MSC Oscar unit with a capacity of 19,224 TEU. The race continues, the Japanese ship-owner Mitsui O.S.K. Lines (MOL) and Chinese Orient Overseas International Ltd (OOCL) have placed an order for 6 container carriers piercing the 20,000 TEU barrier.[08]

These tendencies strongly indicate an increase in the importance of ports fulfilling the so-called the reloading hub. These are ports which, as part of the concept of „hub and spoke", ensure efficient container handling and so-called transhipment, or transfer of containers from large, oceanic units to smaller feeder vessels. The increase in the number of operating container ships reaching

06 Rydzyński P. Rynek Infrastruktury: *Wyścig o coraz większe kontenerowce* [01.05.2018] <http://www.rynekinfrastruktury.pl/wiadomosci/wyscig-na-coraz-wieksze-kontenerowce-47027.html>

07 .....

08 Knowler G. *OOCL follows G6 partner MOL with 20,000-TEU ship order* [01.05.2018] <http://www.joc.com/maritime-news/oocl-follows-g6-partner-mol-20000-teu-ship-order_20150401.html>

400 meters length means an increase in the role of deep-water container terminals, which are the only ones capable of handling such large units. These ports are in the group of strategic links in the global logistics chain and play a significant role in global trade.[09]

The recent economic crisis has proved to shipping companies how important actions are to reduce operational costs. One from the concept is called slow steaming system, which gives noticeable benefits in the form of fuel savings and unit employment planning. There are different variants of using this method. In the basic range, it is the ship's operation at about 60% of the engine load, up to more drastic reductions at 20% of engine load (so-called extra slow steaming).

From an economic point of view, the aim of the concept is not only to reduce fuel consumption, but to determine the optimal speed of the ship, which will allow the maritime carrier to maximize the financial result or reduce losses in given market conditions. It should be remembered that high prices of fuels for bunkering ships are not as important as the low rate of freight rates in comparison to profits. This practice also allows you to rationalize the network of connections and reduce idle capacity.

The shipping line that was the precursor in the research on the concept of slow steaming system was Maersk Line. The shipowner carried out tests in this respect on a group of 110 vessels in various relations before the economic crisis. Today, it can be seen that the effect of research is to develop by Maersk Line ships class Triple-E, which consume 50% less fuel than other units of this type. The Danish carrier said that only in 2010, thanks to the slow steaming system, fuel consumption was reduced by about 7.6% compared to 2007.10

An important phenomenon in the shipping industry has been the formation of strategic alliances between market participants. The alias is defined as the intentional relationship of enterprises operating in the same target market. Most often the alliance takes on a long-term and relatively permanent nature. The participants of the agreement are guided by the principle of balance of mutual benefits.

As part of the alliance, organizational and market knowledge is transferred, resources are put at the disposal of partners, which on the one hand allows savings and, on the other hand, synergy.[11]

09 Bernacki D. (2014) *Interesariusze portu zaangażowani w obsługę kontenerowego łańcucha dostaw.* Czasopismo Logistyka, p. 454.

10 Klopott M. (2014) *Praktyka slow steaming i jej implikacje dla stron umów czarterowych*, Czasopismo Logistyka, p. 12789.

11 Grzybowski M. (2014) *Alianse strategiczne w transporcie morskim. Kontekst Regionu Morza Bałtyckiego.* Czasopismo Logistyka, p. 74.

New alliances in the container market appeared shortly after the Chinese competition authority ‚P3 Network', which was to be formed between the three largest players on the market: Maersk Line, MSC and CMA CGM. The collapse of the agreement prompted the Danish shipowner and the Swiss MSC to negotiate the alliance „2M", which began operations in January 2015. French CMA CGM shipowner decided to cooperate with the Chinese shipping line CSCL and the UASC from the Middle East in order to strengthen its market position. The creation of the „Ocean Three" alliance of these three carriers at the beginning of 2015 became the fruit of the negotiations. Thus, the new alliances joined the already existing CKYHE alliance, bringing together such shipowners as COSCON, K Line, Yang Ming, Hanjin, Evergreen and the G6 alliance consisting of the Hapag-Lloyd, NYK, OOCL, APL, MOL and HMM shipping lines. It is important to realize that in each partnership participants do not cease to compete with each other. It is worth mentioning the Israeli gunner ZIM, which recently withdrew from connections on the Asia-Europe route. An interesting merger on the shipping market was the merger of the Chilean CSAV ship owner with German Hapag--Lloyd. Considering the size of the market serviced by shipping alliances, the „2M" alliance controls 35% of the week's capacity on the Far East - Europe route, while the CKYHE system keeps the lion's share of the route Far East - North America with 34% share.[12]

There is no doubt that entities, mainly in the form of shipping lines and container terminal operators, create a very complex and dynamic business environment. They are characterized by an unusual difficulty in entering new market players, speed of change and capital intensity. All these factors make this sector of the global economy more complex than average, but at the same time extremely interesting.

Conclusions

Thanks to the invention which was a container, the reloading process was accelerated and better organized. The cost of the operation was reduced from 5.86 dollars to 16 cents per ton. The appearance of the container concept has generated a number of far-reaching implications. Wide changes took place both in the organization and in the area of the operation of carriers. Transport techniques and technologies have also developed dynamically.

Currently, scientists agree that globalization could not develop so dynamically if it were not for containerization. This means that the relocation of production activities by corporations to developing countries was possible largely

12 BRS Group (2015) *Shipping and Shipbulding Markets*, Annual Review, p. 92.

due to container transport. Its development contributed not only to a drastic reduction in transport costs, but also to accelerate the entire process of cargo displacement. Containers are transported not only on ships. Almost all means of transport have been adapted to this method of moving loads.

The global scale of economic activity requires an efficient and efficient transport system, which is why the main means of transport serving intercontinental movement of goods is sea transport. Today's container transport represents around 16% of the total volume of world maritime trade. Similarly, the volume of cargo carried in containers is estimated at 1.5 billion tons.

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