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Global Container Shipping Operators' Strategies Under the Extremely Turbulent Market Dynamic Environment: An Analytical Approach

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Abstract:

Purpose: *The purpose of the article is to identify and initially assess the effects of short and medium term strategies applied by global leading maritime container shipping operators during the Covid-19 pandemic crisis. The research questions have been as follows: 1. what enabled the global container carriers adoption of such aggressive pro-fiscal strategies aimed at maximizing their revenues and profits, 2. what have been the consequences of implementing these strategies within the global supply chains?*
Design/Methodology/Approach: *There were applied such methods, as: critical literature review, desk research and data exploration as well the factors analysis (FA). Moreover, there were conducted interviews with shipping operators and forwarders in form typical for the Delphi method.*
Findings: *The research clearly shows that the strategies of global container operators applied during the pandemic crises in the phase of rapidly growing demand for container carriage were strongly oriented on maximal exploring such an exceptional market opportunity. They have enabled the container carriers gaining huge revenues and profits to the detriment of other companies what caused serious deepening of already existed supply chains' disruptions.*
Practical Implications: *The findings and proposed recommendations may support the position of global shippers and forwarders in their complaints to international regulators against the block exemption of container consortia from general competition rules. They should also facilitate other actors of the global supply chains the proper evaluation and reaction on the choice of business models and operational strategies of leading container carriers.*
Originality/Value: *Updated approach to the container shipping market's analysis, enabling: 1. better understanding of the functioning regulatory mechanisms in this shipping sector, 2. identification and elimination the contradictions existed between the public international regulatory system and the market one, 3. creation of a platform for efficient collaboration among actors in the global supply chains, aimed at restoring their full visibility and resilience.*

Keywords: *Global container market, container operators' strategies, freight and charter indices.*
JEL classification: *D43, L21, L43, M21.*
Paper Type: *Research article.*

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1. Introduction

To better recognize and understand the global container shipping companies' strategies applied during the crisis time caused by Covid-19 pandemic, it is necessary to present at first the main features and structure of the global container market they operate on, which constitutes a key link of the global logistics supply chains. There is also a need to present the strength of this market regulatory mechanism's impact on the container operators' short and medium term decision making during the turbulent market's environment, as compared to public international regulatory mechanism, set by IMO, EC and other anti-trust entities.

In this context only, will be possible to evaluate them and then correctly define the effects of introducing these strategies for both container operators, as well as for shippers and other entities committed in the global supply chains' operations (Notteboom and Rodrique, 2021).

The global container shipping market is a typical oligopolistic one. Currently, due to its significant demand fluctuation and relatively rigid supply in short and medium time, it is characterized by a high degree of shipping carriers' consolidation and thereafter, ongoing progressive integration of its main segments (Kim, 2017). It is the result of the already advanced and still promoted by leading container shipping operators' strategies of: 1. capital and operational horizontal and vertical concentration, performed in form of mergers and acquisitions and 2. deepening and strengthening existed forms of shipping operators' cooperation via consolidation, i.e., formation of consortia (large shipping alliances).

In consequence, the global maritime container market is heading towards untypical for transport freight markets type of "super supply" oligopoly, i.e. moving towards quasi-monopolistic market, with characteristic features similar to the model of the so-called competitive monopoly.

In order to fully assess the effects of implementing the pricing strategies of leading container shipping operators in seriously affected by crisis turbulent market environment over the years 2020-2021/22, the currently existing subjective structure of this strongly consolidated market needs to be presented.

Data presented by Alphaliner in July 2022 shows that the 12 largest container shipping operators have at their disposal the fleet with shipping capacity of 87.4% of the total shipping capacity of this market segment (Alphaliner, 2022b). Ten of them agglomerated 84.7% of the world's fleet capacity, and only the first five concentrated 65% of the world container fleet's potential. What is more, the portfolio of new orders in this group of carriers is also the largest one. This means that more than 120 other maritime container carriers, currently possess as little as 12.6% of shipping capacity, while in the years 2012-2013 their share oscillated around 70%.

This proves, that the process of concentration of shipping potential within a relatively narrow group of leaders operating on this market, and subsequently, its further consolidation have been going on at a tremendous pace and is far advanced (AlixPartners, 2021). The already reached level of container shipping market's consolidation was in fact determined only by the medium term leading container carriers' operational strategies.

2. Container Shipping Consortia Development Versus Container Shipping Market's Public International Regulatory Mechanism

Container shipping alliances that were created since the year 1994, have been created by two or more operators undertaking cooperation within the operational sphere. It enables them to use their common resources more effectively, as well as fully integrate the system servicing the shipping network in all relations (Goulielmos, 2017; Grzelakowski, 2014).

The aim of such a strategy is to reduce the investment risk in new tonnage, which is relatively high in this segment of the global freight market, as well as the exploitation risk, i.e., the low degree of utilizing operating ship's capacity especially during the periodically occurring crisis situations (a rapidly shrinking effective demand). Another aim is to achieve possibly maximum effects of economies of scale. Such effects may be achieved within this kind of cooperation between container shipping companies by way of decreasing the costs of tonnage exploitation including, first and foremost, the costs of day-to-day operational activities (Karakitsos an Varnavides, 2014).

At the same time, the parties to such agreements, as opposed to shipowners operating within liner conferences, which have the character of typical shipping cartels[2], declare their willingness and readiness to ensure a number of advantages for the remaining participants of the global logistic supply chain, whose integral component they are, in particular shippers, freight forwarders and operators of port terminals.

These external effects of shipping alliances should be visible in the form of improving, in terms of logistics, the network of shipping connections. Such improvement could be achieved by way of extending this network, increasing the frequency of calling the ports and the level of service reliability, improving the quality standard of services on offer, as well as ensuring a relatively stable, foreseeable price system (mainly spot rates) and reducing logistic expenses in the global supply chain.

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[1]*Liner conferences, due to the employment of unlawful practices, limiting market competition (dominating position, price fixing, etc.) were forbidden to access the ports of the EU member states in the year 2008 (EEC, 2008).*

Such "benefit declarations" made by the participants of created alliances (the effects both for us and for you, the final consumers) had the following aims:

1. calm the fears of shippers and forwarders and other parties within the global supply chains, concerning the progressively increasing wave of shipping companies' consolidation, which potentially means further supply side concentration and the increase in market power of the shipping operators;
2. create a friendly image of the new formula of the global maritime container shipping market organization, acceptable for anti-trust authorities in leading maritime countries, such as: EU (EC), the USA (FMC), Singapore, South Korea and China.

Without the approval of above indicated competition protection bodies, it would be impossible to create shipping consortia in the form they have been functioning nowadays (EEC, 2008; Braakman, 2015). Formal acceptance of alliances and admitting them to joint servicing of global container terminals, especially in the situation where the share of each individual consortium is already relatively high on the market, requires a special exemption of such a close form of cooperation among the container carriers within a defined period of time from a commonly binding regulation on ensuring the obligatory standard of market competitiveness.

In EU, the regulation concerning group exclusion of shipping consortia from the obligation to conform with general principles concerning competition, enables the liner shipping operators with their total market share not exceeding 30% to conclude cooperation agreements in order to render joint liner shipping services (alliances).[3] However, such agreements cannot include price fixing or market division, and therefore no joint sales, marketing, evaluation or co-ownership of assets, either. This, in fact, distinguishes this form of shipowners' cooperation from other potentially possible forms of partnership (Grzelakowski, 2018; ISN, 2022; Lam and Hales, 2018).

Nevertheless, it does not exclude the possibility of undertaking, by members of the consortia, other forms of developing the company value and gaining market advantages, such as, for example, mergers, acquisitions or joint venture cooperation, which lead to further concentration - vertical, horizontal and functional of the shipping market. However, such actions, which often occur with high intensity in the container shipping market (years 2016-2019), require each time additional approval granted by an anti-trust authority (Braakman, 2015; McKinsey & Company, 2022).

Cooperation of partners within alliances is usually based on forms typical for the shipping segment, such as Slot Charter Agreements (SCA) and Vessel Sharing

[3]*In the Regulation 906/2009 this requirement was worded as follows: "...carriers with a combined market share of below 30% are allowed to enter into cooperation agreements to provide joint liner shipping services (EC, 2009).*

Agreements (VSA). It may also cover, which has recently been a particularly common occurrence, asset sharing and cooperation within created digital platforms (platform collaboration), which link shipowners with other participants in the global supply chains, such as Container xChange or TradLens (UNCTAD, 2021).

Container shipping consortia have gone through a long period of development, as well as structural transformations and reconstructions since the mid of 1990s. They have deepened the progressive integration of the greatest container shipping operators and simultaneously strengthened the market's consolidation. Finally, in the year 2017, there emerged a group of only three strong alliances, namely 2M, Ocean Alliance and THE Alliance.

Ten world's largest containerized shipping lines fully cooperate with each other within these consortia (Statista,2022; Alphaliner, 2022a and b). The existing container shipping consortia and their structure, together with respective market's share are presented in Figure 1.

Figure 1. *Global shipping alliances, their structure and shares in global maritime container shipping market.*

Source: *Statista, 2022; UNCTAD, 2021; Placek, 2022a.*

The three consortia currently in existence jointly control 84.60% of the world container shipping market. This means that as little as 15.40% of the market are serviced by the remaining container shipping operators (Baraniuk, 2022). The level of already achieved market consolidation can be reflected in the fact that, in the year 2000, 10 largest container shipping companies serviced 51% of the global maritime shipping market.

Furthermore, in the years 2000-2021, due to the wave of numerous bankruptcies and acquisitions which occurred in this sector, approximately 60 of 100 largest maritime

container carriers disappeared from the market. Among them was the Korean container shipping operator, which went bankrupt in the year 2016.

The market's supply side structure, formed in such a way and approved by regulatory authorities granting access to the global maritime container shipping market, coupled with relatively dispersed demand supply structure, has resulted in a global oligopoly, with unprecedentedly strong impact on the remaining links in the global supply chain. Such oligopolistic type of market created by leading container operators is, in fact, characterized by considerably freedom within the existed there model of adopting freight rates strategies (Grzelakowski, 2022; UNCTAD, 2021b). Its widely accepted autonomy in that respect, as well as the scale of possibilities with regard to price fixing with shippers and forwarders were particularly visible during the 2020-2021 crisis.

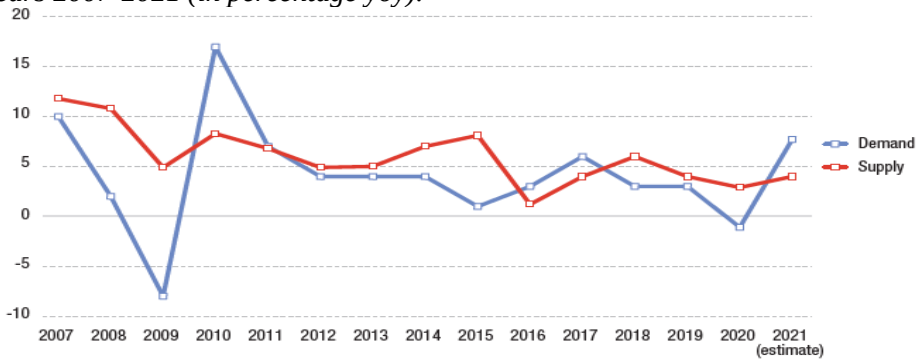
3. Dynamics of Maritime Container Shipping Market and the Operators' Pricing Strategy during 2020-2021/22 Crisis – Methodological Issues

The maritime container shipping market is subject of strong fluctuations, i.e., it is very dynamic. It concerns mostly the demand side, which as a derivative of demand changes on the global commodity market, is subject to considerable fluctuations in short-, medium- and long-term. This means that the demand side of the global maritime container shipping market is subject to the influence of trade cycles occurring on the global commodity market (Grzelakowski, 2018).

The supply side of this market, strongly consolidated, with the features of an aggressive oligopoly, taking advantage of the protection given by market regulatory authorities, is not a subject of such a high level of dynamics. It id due to the highly capital-intensive nature of container transport and the dominant share of fixed costs in the structure of tonnage exploitation expenses. It is subject to the influence of the investment cycle, defined, on the one hand, by decisions taken by shipowners with regard to their tonnage development and modernization, purchase of used tonnage on secondary markets, its scrapping or chartering new tonnage.

On the other hand, it is determined by the cycle of construction of new tonnage in the leading shipyards. As a result, the dynamics of changes in potential supply on the container shipping market, established by shipowners themselves, is rather low, i.e. incomparably lower than on the demand side. Consequently, container shipping's market generates the permanent state of imbalance or, in statistical categories, so-called unstable equilibrium, which is a permanent feature of such market (Grzelakowski, 2018; Source Today, 2021a). Figure 2 shows the dynamics of change in demand and supply on the global maritime container shipping market over a long period of time (2007-2021), as well as the relations existing between these two basic market elements in these years.

Figure 2. *Dynamics of maritime container shipping market and the scale of fluctuations of demand and supply in global maritime container shipping market in the years 2007-2021 (in percentage yoy).*



Source: *UNCTAD, 2021c; UNCTAD, 2021b.*

Detailed analysis of the existing market tendencies clearly indicates that:

1. The economic-financial crisis in the year 2009 resulted in much bigger decrease in demand for container shipping (-7.6%) than the 2020 crisis (-1.8%), and was much more painful for shipping operators in economic terms (loss of liquidity, bankruptcies, mergers and acquisitions.
2. The effect of the dynamics of fleet shipping capacity, visible from mid-2017[4] and stronger than that of the demand for shipments, was that, at the time of its evident revival in the year 2020, container shipping companies, focused on implementing their survival strategy during the period of great uncertainty accompanying the crisis caused by the Covid-19 pandemic, did not take any anticipatory investment measures aimed at faster restoration of market balance and elimination of potential disturbances both in that market and in other markets of the global transport and logistics sector (Citi, 2021; Interos, 2021).

In the year 2020, strong orientation of global container shipping operators on realization of their particular, short-term market strategies, mainly financial ones, shifted their long term responsibility from the area of creating a balanced market structure and caring for generating added value for the remaining participants in global supply chains, along with maintaining their necessary resilience to further disturbances, as well as retaining their required transparency and effectiveness, to the area of their short term micro-economic financial benefits. They can be obtained easily thanks to their market power and strong position on global logistics market. This strategy was implemented ruthlessly, for more than 18 months, with the use of rice instruments, i.e., via skyrocketing surge of both spot and contract freight rates.

[4]*In 2016 and 2017, global ocean carrier capacity increased by 4.5% and 5.6% respectively. However, demand up-ticked only by 1% to 3% in those years. The panic to build bigger and bigger ships resulted in depressed rates (Placek, 2022a; DHL, 2021).*

The effectiveness of the implementation of this strategy from October 2020 to April 2022 is reflected in all commonly used freight and charter indices from that period, i.e. the Shanghai Containerized Freight Index – SCFI, the Drewry's World Container Index – WCI, the China Containerized Freight Index – CCFI and the Freightos Baltic Index – FBI or NewConTex. Drewry's global aggregate (or composite) index, creates an opportunity to assess the dynamics of the maritime container shipping market with the use of a defined amplitude of freight rate fluctuations over a longer period of time (Figure 3).

The index composed in such a way, defining the tendency in changes of freight rates from the end of the year 2011, strongly exposes the scale of increase in accumulated freight rates from the third quarter of 2020 to the first quarter of 2022. Being a Sonar type index, i.e., the so-called active index, it allows for establishing, in a simple way, the rate level on a certain day.

Figure 3. *Drewry global aggregate container shipping index type Sonar (second half of 2011 to first quarter of 2022.*

Source: *Drewry, 2022.*

The detailed analysis of the container charter rates based on the NewConTex index defining level of 24-hour charter rates from July 2011 to July 2021, indicates that they were shaping at a relatively stable, low level for the period of 9 years (until July 2020). Their rapid growth occurred in the second half of the year 2020 and over 13 months those rates increased 7.6 times (The NewConTex, 2021). Therefore, it has to be taken into consideration that such strong dynamics of charter rates growth, resulting from shortage of container shipping capacity, corelated with the unexpectedly high increase in demand for container shipments, had to exercise considerable influence on the growth of freight rates in maritime container transport sector (Placek, 2022b).

4. Research Results and Discussion

The unexpected increase in freight rates in the maritime container shipping as a result of implemented by leading container carriers' operational strategies has caused numerous negative repercussions on a global scale. The decision, taken in

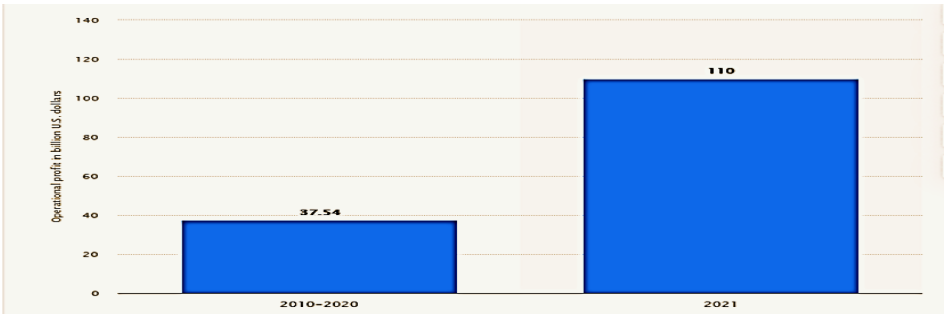
response to rapidly surging demand for container transport since September 2020, appeared during the time of serious disruptions in the global supply chains, considerably increasing the already existed disruptions (Baker Mc Kenzle, 2020; Ti-Insight, 2022; Logan, 2021; Leggen, 2021).

The consequences of applying such a strategy were different for each of the participants in the global supply chains, and distributed among their links differently in time (AlixPartners, 2021). They were different for container shipping operators, different for shippers, forwarders and other maritime logistics sector companies, as well for managers of container terminals and final consumers of goods.

As far as the container shipping companies is concerned, they took ruthlessly advantage of their market position in order to achieve extraordinary operating profits and increase their market shares, aiming at further, permanent strengthening of that market position, at the cost of shippers, as well as of the freight forwarding and other logistics sector' operators (Source Today, 2021a). The applied traditional price mechanism turned out to be an effective tool to realize this operational strategy, which allowed, for the period of almost 20 months, for unusually high increase in both spot and contract freight rates (UNCTAD, 2021a; WTO, 2021; Alphaliner, 2022a).

The increase in freight rates, intensified by application of a number of additional charges and surcharges, not only those connected directly with the necessity of covering costs arising from the existing market perturbations (port congestion, temporary lack of containers and limited access to the empty ones, etc.), but also those introduced with the aim of achieving extra profits (e.g., premium fee and others), resulted in the increase in EBIDTA/EBITD, unprecedented in the history of shipping. Statista presented, in March 2022, an interesting juxtaposition which shows the scale of financial results, in billions of USD, achieved by container shipping operators, in the form of estimated net operating profits in the period of 2010-2020, and in 2021.

Figure 4. *Net operating profits of container shipping operators in the years 2010-2020 and in 2021.*



Source: *Statista, 2022.*

The data presented in Figure 4 show that the operating profit achieved by the global maritime container sector in the year 2021 was almost three (2.93) times bigger than that generated by the sector over the past 11 years (Placek, 2022b; Statista, 2021).

The biggest shipping lines, which also exploit chartered tonnage, sometimes as a considerable share of their shipping capacity, achieved on average, during that 18-month period of unprecedented prosperity, operating profit in the amount of 861 USD/TEU. Their financial results were transferred into capital markets. Cash flows of container shipping companies, growing at an unprecedented pace, resulted in extremely attractive additional benefits for shareholders, as well as additional benefits for stock exchange investors. Return rates from shipping investments have reached astronomical levels since mid-2020 (Alphaliner, 2020; Silva *et al.*, 2019; UNCTAD, 2021c).

Asian container shipping operators were leaders in this respect. Yang Ming, thanks to the derived financial results, achieved increase in share value by 1583% as early as in mid-December 2021. The value of Evergreen Marine's, Wan Hai's and HMM's shares increased by 987%, 976% and 621%, respectively. The increase in share value was decidedly more moderate in the case of European operators.

During the above-mentioned period, Hapag-Lloyd's shares rose by 192% and Maersk's by 123%. Such effects were achieved, to a great extent, thanks to the improvement of there capital structure. The data of the 12 leading container shipping operators show that, from the end of December 2020 to the end of September 2021, their accumulated debt was reduced by USD 3.5 billion - to the level of USD 73.2 billion (Alphaliner, 2022a).

A characteristic feature of that period – and a certain market paradox – was the fact that the increase in freight rates occurred in the circumstances of gradually decreasing quality of shipping services. That was reflected, inter alia, in periodic exclusion of certain relations (loops) from the service (blank-sailings), a high degree of unpunctuality, as well as irregularity of service with respect to the determined shipping timetable. It meant that there had been a dramatic decrease in the reliability of functioning of the existing maritime container freight system and, simultaneously, in the confidence placed in this system by freight forwarders and shippers. The "sanction" for the above was the astronomical increase in operating profits gained by ocean container shipping companies (Houssaye de la and Torrent, 2022; ISN, 2022).

The condition of significant imbalance and fluctuations in the ocean container shipping market, which may be described as market instability, had the greatest impact on freight forwarders. Maritime carriers invaded, sometimes in a very aggressive manner, the existing area of the freight forwarders' competences and tasks. It was expressed in the form of refusing to accept the cargo (containers) for freight or demanding additional payments in the situation where freight forwarders did not require any other services from them.

Maritime carriers not only preferred such solutions, but they also imposed them on freight forwarders, thus forcing the latter to conclude linked transaction and use various forms of cross-selling. There were also situations where container operators used, for trading purposes, sensitive shipping data, covered by a confidentiality clause, in order to build direct relations with shippers and eliminate intermediaries (Houssaye de la and Torrent, 2022).

Those were activities aimed at strengthening or increasing market domination of container shipping companies in certain relations and excluding, wherever it was or could potentially be advantageous for shipowners, freight forwarders as providers of comprehensive services offered to shippers in the door to door formula.

Excluding freight forwarders, particularly those focused on servicing small and medium-sized enterprises involved in maritime export and import, or limiting the scope of services rendered by them, is a disadvantageous solution for shippers. It would mean being forced to purchase such services from carriers in a package, on conditions and principles defined solely by them.

Container shipping companies, receiving such disturbing signals from the freight and logistics market sectors, as well as from shippers, who were worried about the tendency to exclude freight forwarders, visible more and more clearly from the end of the year 2020, modified their tactics, enriching them by new, still more aggressive actions.

In the situation of what may be called excess financial liquidity, they undertook rather intensive actions aimed at overtaking providers of freight forwarding and logistics services which lay in the area of their interests (JLL, 2020; Source Today, 2021b; Winkelhaus and Grosse, 2020) .

This direction of activity, which at present has the character of medium-term strategy of building market position and the value of operating company, is leading to integration, decidedly stronger than before and realized on the capital basis, of the group of leaders in the container shipping market, together with the entire structure of the global supply chain. Such a form of integration or, in fact, vertical concentration, opens the way for further integration of shipping/logistics companies and markets.

This means that container shipping companies, in the name of appropriately understood, individual profits, aim at changing the model of the global supply chains management, seeing it as an opportunity for further development, as well as reduction of investment and exploitation risks. However, in such a model the role of freight forwarders, particularly those focused on servicing small and medium-sized enterprises exporting and importing commodities by sea, would be marginalized.

5. Conclusions

Implemented in the course of the ongoing serious global crisis strategies of global leading container operators, seen as an extremely efficient tool for generating huge revenues and operational profits which in the end enabled them undertaking activities aimed at deepening further vertical integration of the global supply chains, are in fact heading towards the deep structural reconstruction of the existing model of global supply chains. They need to be closely monitored and supervised by antitrust authorities. Such pro-fiscal strategies have been not only a proof of lack of any solidarity towards partners, i.e., the remaining participants of global supply chains, but also indicated violation of Article 101(3) of the TFEU, which lies at the basis of the Consortia Block Exemption Regulation.

However, none of the container shipping operators – members of the global shipping alliances, bore any consequences with regard to the destructive effects of the applied strategies. The consequences were borne, both in financial and image terms, by other entities involved in the processes carried out within the global supply chains, in particular shippers, freight forwarders, container terminal operators and other companies in the area of maritime logistics.

Therefore, the regulatory-antitrust authorities need currently not only apply a formula for evaluating the extent and scope of market shares of the individual container shipping companies and the shipping consortia in this segment of market, but also additionally in the forwarding and the whole logistics sector markets. The latter are nowadays strongly integrated with the remaining shipping and cargo markets within the global value chain.

Failure or omission to undertake actions aimed in this direction may denote certain approval given by the community of shippers and freight forwarders for the forced and steadily accelerated change of existing, competitive model of functioning of global logistics industry market towards a highly concentrated model, with strong characteristics of a duopoly (maritime carriers – shippers).

Management of such a change also requires, irrespective of creating shippers-freight forwarders cooperation platforms, undertaking intensive, multi-level discussions and cooperation among the four groups of stakeholders, i. e. regulatory authorities (EC, US FMC, Korean FTC, SAMR), regional associations of shipowners (ECSA), freight forwarders associations (FIATA, CLECAT) and shippers associations (ISsC).

In this respect, the initiative cannot be left to the maritime container shipping sector which, on the wave of digitization accelerating in the time of crisis as well as construction of green supply chains based on the standards of the circular economy and shipping decarbonization strategy, has become very active in building global integration alliances within the maritime logistics sector, such as TradeLens, Container xChange and many others.

References:

AlixPartners. 2021. Container shipping outlook. Carriers have a chance to break the cycle. Will they take it? https://www.alixpartners.com/insights-impact/insights/2021-container-shipping-report.

Alphaliner. 2020. Alphaliner Marine Money 2020_02_27 JANT.pptx https://www.marinemoney.com/system/files/media/2020-03/930%20.

Alphaliner. 2022a. https://www/tradewindnews.com/tag/alphaliner.

Alphaliner. 2022b. TOP 100 (7th July 2022). https://alphaliner.axsmarine.com/PublicTop100/.

Baker Mc Kenzle. 2020. Beyond Covid-19. Supply Chain Resilience Holds Key to Recovery. Oxford Economics.

Baraniuk, C. 2022. Why only giant ships can't solve the shipping crises. BBC Business News. http:www.bbc.com/mes/business.

Berger, B. 2020. Latest update of our corona economic impact series, 2-10. https://www.rolandberger.com/en/Point-of-View/Point-of-View-Details_65664.html.

Braakman, A.J. 2015. EU law and global shipping alliances. Some reflections. Lloyd's List. http://www.lloydslist.com/I/sector/container/article.

CEVA Logistics. 2020. Ocean freight – state of the market. September, Ceva Logistics Bulletin.

Citi. 2021. Disruption, digitalization, resilience, The future of Asia – Pacific supply chains, 2021 Citi Bank NA. http:// www.citibank/na consulting/strategy/digital-supply-chain.html.

DHL. 2021. Ocean freight market update. DHL Global Forwarding Publication, June.

Drewry. 2022. Drewry World Container Index, Drewry Supply Chain Advisors. https://www.drewry.co.uk/supply-chain-advisors/supply-chain-expertise/world-container-index-assessed-by-drewry.

EC. 2009. Commission Regulation on the application of Article 81(3) of the Treaty to certain categories of agreements, decisions and concerted practices between liner shipping companies (consortia), 906/2009. https://eur-lex.europa.eu/legal-content.

EEC. 2008. Guidelines concerning application of Art. 81 of the EEC Treaty for the sector of maritime transport services, of the 28th September 2008 (2008/C-245/02).

Gay du, P., Morgan, G. 2013. New Spirits of Capitalism? Crises Justification, and Dynamics. Oxford University Press, Oxford.

Goulielmos, A.M. 2017. Strategies in "Shipping Business Management". Modern Economy, Vol. 8, No. 10, 1211-1229. http://www.scirp.org/journal/me. DOI: 10.4236/me.2017.810083.

Grzelakowski, A.S. 2018. Global container shipping operators' strategies and their impact on logistics supply chain. Journal of Positive Management, 9(3), 31-42. http://dx.doi.org/ 10.12775/JPM.2018.147.

Grzelakowski, A.S. 2014. Container Shipping Operators as Integrators of Global Logistics Supply Chains. Logistics and Transport, 21(1), 42-51.

Grzelakowski, A.S. 2022. The Covid 19 pandemic - challenges for maritime transport and global logistics supply chains. TransNav - The International Journal on Marine Navigation and Safety of Sea Transportation, 16(1), 71-77.

Habert, T., Braun, S. 2020, Supply Chain 2020, Special Report. MIT Management, Sloan School, Cambridge, MA.

Houssaye de la, R., Torrent, J. 2022. Disruptions of the Maritime Logistics Supply Chains. The view of the port on the challenges of the maritime logistics chain. How to remain resilient at disrupted times. Elaborations from webinar titled: Disruptions of the Maritime Logistics Supply Chains. European Logistics Platform.
IEA. 2021. International Shipping – Analysis. International Energy Agency.
Interos. 2021. Interos Annual Global Supply Chain Report. www.interos.ai.
ISN. 2022. Takeaways from a Staggering Year in Container Shipping 2021. International Shipping News, 06(01).
JLL. 2020. Logistics 2030. Navigating s disruptive decade. Warehousing and distribution. Ausburn University Center for Supply Chain Innovation. Year 2, Ausburn.
Karakitsos, E., Varnavides, L. 2014. Maritime economics: A Macroeconomic Approach. Springer Verlag.
Kim, J.H. 2017. Studies on Strategic Alliance in Global Shipping Market. Journal of Distribution Science, 15, 31-39.
Koerber, K. 2020. The state of supply chain complexity in 2020 is going in. http://koerber-supplychain.com/complexity.
Lam, J.S.L., Hales, D.N. 2018. Global Shipping and Ports: The Quest for Sustained Competitiveness. Transportation Journal, 57(3), 233-237. https://doi.org/10.5325/transportationj.57.3.0233.
Leggen, T. 2021. The partial closure of one China's biggest ports. BBC Business news, BBC World Service. www.bbc/world/service.com.
Logan, D. 2021. 376 container vessels queuing off ports around the world, BBC Business news, BBC World Service. www.bbc/world/service.com.
Logistics 4.0, Logistics 4.0 in Reducing Costs. 33rd International Business Information Management. https://Logistics4.0/ReducingCosts/IBIM.
McKinsey & Company. 2022. Freight forwarders' earnings amid carrier-rate volatility. 31 August 2022 Freight forwarders' earnings.
Notteboom, T., Pallis, A., Rodrigue, J.P. 2021. Disruptions and Resilience in Global Container Shipping and Ports: The COVID-19 Pandemic vs the 2008-2009 Financial Crisis. Maritime Economics and Logistics, 23(2), 179-210. https://link.springer.com/article/10.1057%2Fs41278-020-00180.
Placek, M. 2022a. Ocean shipping worldwide - statistics and facts. Statista Research Department. https://www.statista.com/statistics.
Placek, M. 2022b. Container freight rate index worldwide 2019-2021. https://www.statista.com/statistics.
RetailNext. 2021. New Predictions. https://retailnext/net.
S&P Global Platts. 2021. https://www.spglobal.com.
Sea-Intelligence. 2020. Sunday Spotlight 488, November 8. www.sea-intelligence.cpm.
Silva, S., Ferreira, A., Simoes, J., Loureiro, R., Santos, B. 2019. The Cooperative Strategy of Logistics 4.0 in Reducing Costs. 33rd International Business Information Management Association (IBIMA) Conference. Proceedings Paper, 6341-6352.
Source Today. 2021. Port congestion continues to throttle the world's supply chains. http://port.congestion/source-today.
Statista. 2021. Transportation & Logistics. Statista Research department. https://www.statista.com/topics/1367/container-shipping/Summarychapter1.__
Statista. 2022. Transportation & Logistics. Statista Research department. https://www.statista.com/topics/1367/container-shipping/#dossierSummary__chapter1.
Tiedemann, J. 2020. Alphaliner Container Ship Market. Review and Outlook.

Ti-insight. 2022. Global Contract Logistics 2022. Slow-down forecast for Contract Logistics Market. https://www.ti-insight.com/product/global-contract-logistics.

UNCTAD. 2020a. COVID-19: A 10-point action plan to strengthen international trade and transport facilitation in times of pandemic. Policy Brief, No. 79, April.

UNCTAD. 2020b. Review of Maritime Transport 2020. UN Publications, UNCTAD/RMT/2020. New York – Geneva.

UNCTAD. 2021. Review of maritime transport 2021. UNCTAD Secretariat. New York-Geneva.

UNCTAD. 2021. Global Trade Update. May 2021, Geneva, p. 2-3.

UNCTAD. 2021. UNCTAD Secretariat calculations. Geneva.

US shippers and carriers wrestle with a growing truck drivers shortage, May 2021. http://us.shippersandcarriers/source-today//.

WEF. 2021. The Global Risks Report 2021.16th Edition, Geneva, p. 13, 15-17.

Winkelhaus, S., Grosse, E. 2020. Logistics 4.0: a systematic review towards a new logistics system. International Journal of Production Research, 58(1), 8-43.

WTO. 2021.World Trade Statistical Review 2021. WTO, Geneva, p. 12-15, 26. https://www.wto.org/english/res_e/statis_e/wts2021_e/wts21_toc_e.htm.

WTO. 2022. World Trade Stastistical Review. Geneva. https://www.wto.org/english/res_e/statis_e/wts2022_e/wts21_toc_e.htm.