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COMPETITION ISSUES IN LINER SHIPPING

-- Paper by Hilde Meersman, Christa Sys, Eddy Van de Voorde and Thierry Vanelslander --

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This paper by Hilde Meersman, Christa Sys, Eddy Van de Voorde and Thierry Vanelslander [University of Antwerp - Belgium] was submitted as background material for Item IV of the 59th meeting of the Working Party No. 2 on Competition and Regulation on 19 June 2015.

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More documents related to this discussion can be found at http://www.oecd.org/daf/competition/competition-issues-in-liner-shipping.htm

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Abstract

The **University of Antwerp** has a long-standing tradition in transportation research, as part of the wider field of Applied Economics. Academic teaching is closely linked to original scientific research by the University's academic staff of top-quality international research. The department '**Transport and regional economics**' (TPR) offers both business economics and general economics. The Department's lines of research are located on the interface of general and business economics. The research activities unfold within the framework of programmes instigated by the university and the authorities (regional, federal and European) as well as specific assignments from the public and private sectors. The topics covered relate to: - Freight transport: mode choice, the organisation, choice and planning of commodity flows, land transport, air transport and airports, transport and logistics; - The port and maritime sector: competition and cooperation in the maritime and port sector, traffic forecasting, port policy, productivity of terminals, strategic planning; - The assessment of infrastructure projects: the development and improvement of project assessment tools, applications to road construction projects, port investments etc.; - Strategic analyses and policy recommendations: analysis of the competitive strength of (sub)sectors, development of market studies relating to competition issues, regulation and deregulation issues; - Interaction between transport and space: location analysis for traffic nodes and distribution centers, spatial (mobility) plans at local, regional and supra-regional level; - Urban economics: regional planning and policy, real estate; - Interaction between mobility and economics: relationship between economic growth and transport demand, demand models and elasticity calculations, research into the effectiveness of measures within the frame of a sustainable mobility policy (company transport planning, road charging, etc.). More info: https://www.uantwerpen.be/tpr.

Title

L'histoire se répète? Current Competition Issues in Container Liner Shipping

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L'HISTOIRE SE RÉPÈTE? CURRENT COMPETITION ISSUES IN CONTAINER LINER SHIPPING

By Hilde Meersman, Christa Sys, Eddy Van De Voorde and Thierry Vanelslander

1. Introduction

1. On 11 February 1994, the University of Antwerp and the International Association of Maritime Economists (IAME) held a conference on 'Competition Policy in Liner Shipping'. The resulting publication (Molenaar & Van de Voorde, 1994) put forward four key topics in liner shipping: pricing; market concentration, including entry and exit; product development and differentiation; and (de)regulations and competition. McConville (1994, p. 122 ff.) draws two important conclusions. First, he states that the shipping industry differs fundamentally from other industries. Second, he recognises that certain subsegments of the shipping industry, including (container) liner shipping, require specific regulation. However, these two conclusions already hint at a possible contradiction, for if (container) liner shipping does *not* differ fundamentally from other industries, then why would it require a different regulatory approach?

2. Sys (2010) studied the aforementioned topics in the context of container liner shipping[1]. The same study have demonstrated the importance of insight into the rational thought processes underlying the competitive behaviour of the market players.

3. In 2015, these are still major points of discussion. Indeed, the singular nature of liner shipping becomes quite apparent if one considers those key topics. Immediately the question arises of the significance of the price variable as the first and most important signal for the behaviour of economic actors and the optimal allocation of resources. In container liner shipping, price and product differentiation are very low. Just a marginal part of the market is sensitive to variables other than price.[2] Is the current level of competition in container liner shipping sufficient, or should competition be encouraged through pricing or other criteria? In the past, the pursuit of stability has often been put forward as an objective of and/or a motivation for the conference system, yet that very system is generally regarded not to be adequately self-regulating. So to what extent do alliances apply self-regulation, and to what extent are political control or the possibility of intervention still required? Regulation is not necessary in every continent based on the same processes, cf. the different reactions in Europe, the US and China to recent

1 During the Antwerp conference, the terms 'shipping industry' and 'liner shipping' had often been used as synonyms, despite the latter having a distinct market structure (Molenaar & Van de Voorde, 1994). Similarly, as noted by Sys (2010), the terms 'liner shipping' and 'container liner shipping' are often used interchangeably. Again, though, while container liner shipping is a major segment of the liner shipping industry as a whole, the two are not synonymous. Although the containerised liner shipping industry dominates the liner segment, the ro-ro and other segments will no doubt continue to play a role. Because of its dimensions, weight, etc. some cargo will never be classified as containerised cargo (e.g. out-of-box-gauge machinery, heavy lift-project cargo). (Sys, 2010)

2 Maersk Line has taken several initiatives (e.g. YouShip.com, Daily Maersk premium service – both of which failed due to a lack of demand) aimed at differentiating the company from other players in the industry. Currently, schedule reliability is a key component in the differentiation strategy of Maersk Line.

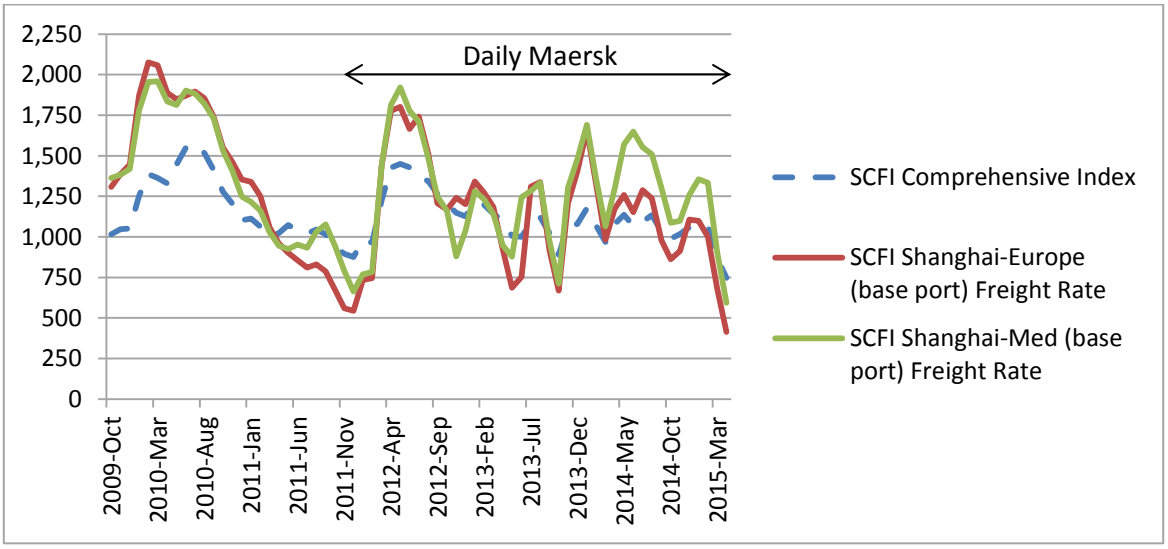
initiatives such as the P3 service network of Maersk Line, Mediterranean Shipping Company (MSC) and CMA CGM, and the 2M vessel-sharing agreement between Maersk Line and MSC).[3]

4. In what follows, we take a closer look at four key issues in container liner shipping: pricing as an indicator; market concentration, including entry and exit; product development and differentiation; and (de)regulation and competition. L'histoire se répète?

2. Pricing as an indicator

5. Figure 1 provides an overview for Oct 2009-Mar 2015 of the Shanghai Containerised Freight Index. More specifically, it plots the comprehensive index and the freight rate indices for two individual shipping routes[4]. Two observations impose themselves: the period concerned was one of very strong volatility and it was marked by a sharp price fall in 2015. In that year, container spot freight rates on the Shanghai-Europe route approximated closely to the very low level of the crisis year 2009. According to Alphaliner (2015), the greater rate volatility was linked with the Daily Maersk service (24 Oct 2011-10 March 2015), which intensified competition among liner carriers. The difference with the comprehensive index, a weighted average of fifteen separate routes, may be attributed to the lower and more stable freight rates on six Asian routes.

Figure 1: Shanghai Containerised Freight Index



6. Price levels will of course continue to be affected by the game of supply and demand. Capacity seems set to increase substantially, as scale increases and falling bunker prices push operating costs down (Figure 2), but demand is not expected to increase equally strongly.

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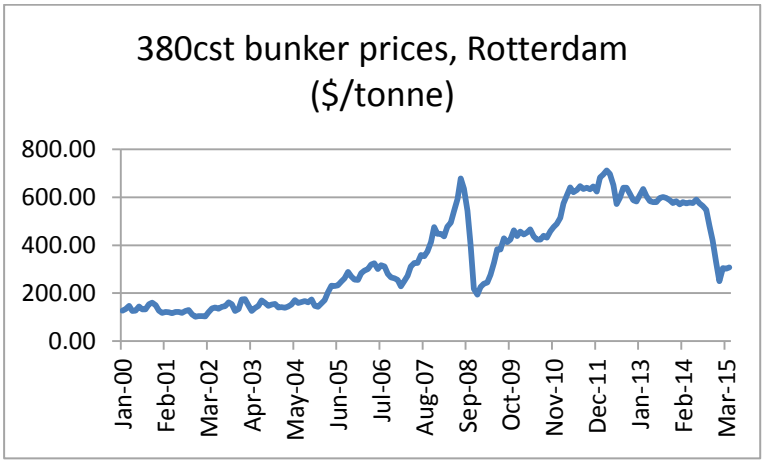
3 On 19 May 2015, Mitsui O.S.K. Lines announced that, as of July 2015, it would be entering into a new vessel-sharing agreement with Maersk Line and MSC on the route between Asia and the East Coast of South America.

4 The Shanghai containerised freight index of individual routes is the average all-in price which considers the spot ocean freights of the Shanghai export container transport market and the related seaborne surcharges. In the Shanghai- Mediterranean route, the ports of destination are Barcelona/Valencia/Genoa/Naples, while the Shanghai-Europe route considers the ports of Hamburg, Antwerp, Felixstowe and Le Havre.

7. Capacity will also increase on the Far East-Europe route as new, larger vessels (18,000+ TEU) are deployed, and despite tighter demand on this particular trade route (Sys, et al., 2008) in consequence of slower Chinese exports coupled with a weakening euro relative to the US dollar, as a result of which Far Eastern goods and products traded in US dollars become more expensive for European buyers. These changes in the market will inevitably lead to a further decline in prices on this route, which may in turn induce arbitrariness in the setting of freight rates and surcharges (particularly bunkering adjustment factors).

Figure 2: Evolution of the Rotterdam bunker price

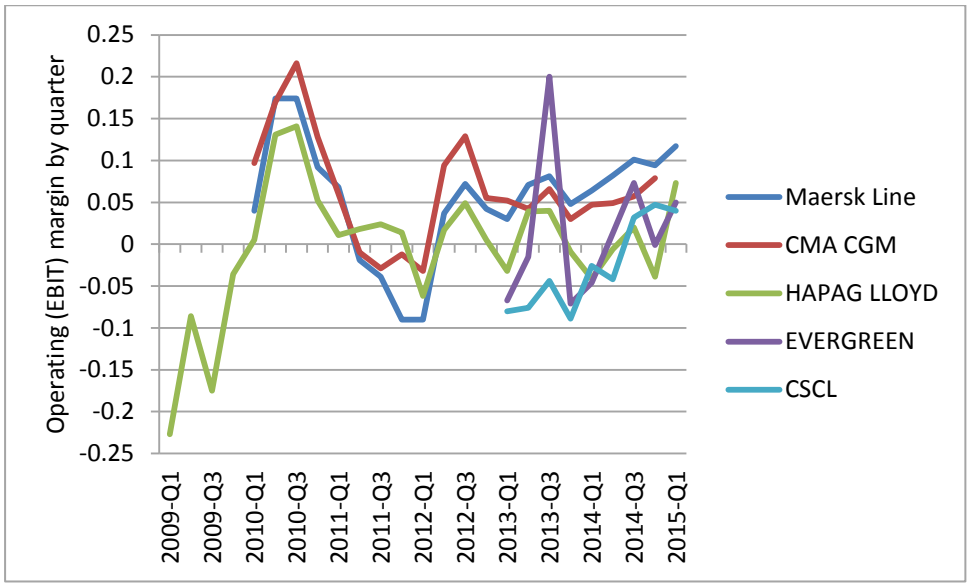


Source: own composition based on Shipping Intelligence Network, 2015

8. At the same time, carriers are adapting their strategies, e.g. the transfer of a large contingent of empty containers to Europe to accommodate European exporters, whose products have become more competitive on the international markets.

9. Lower bunker costs created some breathing space for carriers, this did not translate into improved results in the first quarter of 2015, as is apparent from the overview of margins given in figure 3.

Figure 3: Operating (EBIT) margin by quarter



Source: own composition based on various editions of Alphaliner Weekly Newsletter

10. Liner shipping barely succeeded in concluding 2013 profitably, realising an average margin of just 0.1%.[5] The majority of the twenty largest shipping companies actually posted losses, including the Chilean firm CSAV, which reported a margin of -7.4%. 2014 saw a slight improvement, with an average margin of 2.7 %, though some circumspection is called for here, as the results of the Chinese shipping companies were boosted rather artificially by the launch of a new scrapping subsidy by China.

11. The expectation is that true profitability will return in 2015 as costs are reduced by the deployment of record-size vessels and as bunker prices continue to decline. However, it would also seem likely that fleet capacity will increase much more rapidly in the coming period than global demand for container shipping will[6]. Again, though, there is a caveat to be considered: the larger new vessels require longer cargo-handling times in port, so that the effective capacity increase will be slightly less substantial than would first appear. Possibly there may also be consequences in terms of carriers' service reliability.

12. These price and market evolutions are bound to affect the behaviour of shipping companies. The most important route, between Asia and Europe, is increasingly becoming a no-go area for the smallest liner shipping companies. Faced with excessively high debt, ZIM decided in 2014 to scrap its liner service on that route and to focus instead on smaller, yet more profitable, niche routes. Other small shipping companies soon followed suit and now provide more short-sea services, including several intra-Asian services. This evolution may result in an erosion of liner shipping services on major deep-sea routes. If the current trends in freights and rates persists, vessels getting fully loaded will depend on the scrapping of some departures, implying a lower frequency of service for shippers and hence a lower overall quality of service.

5 Four of the top-20 liner carriers do not publish data, namely MSC, Hamburg Süd, PIL and UASC.

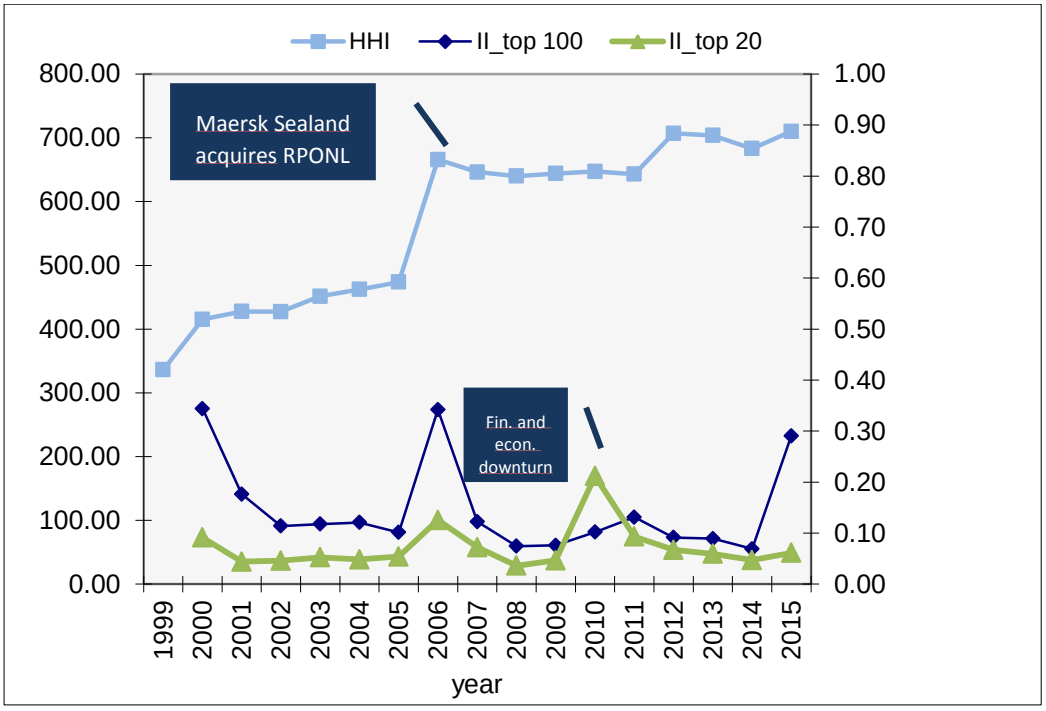
6 According to Drewry's Container Forecaster, in the first months of 2015, liner carriers ordered 51 ultra-large container vessels with a capacity of at least 18,000 TEU, mainly for 2017 delivery. June 2015, Maersk Line signed a new building contract for 11 (optional + 6) container vessels with a capacity of 19,630 TEU (twenty-foot equivalent) each.

3. Market concentration

13. One commonly applied method for analysing the industry is the measurement of its degree of concentration. Figure 7 first shows the evolution of the Herfindahl-Hirschman Index (HHI) on the basis of data from the AXS-Alphaliner top 100 (www.alphaliner.com). The HHI is calculated by summing the squared market share of each liner operator in the market. (Sys, 2010b)

14. Market share instability is a measure of the shift in the relative position of firms within an industry and is considered an important indicator of the intensity of competition. A formal measure of the degree of market share instability is the "instability index" put forward by Hymer and Pashigan (1962). This index is the sum of the absolute value of the change between two points in time in the market share of each firm (Sys, 2010). Its value may range from zero to one. If the index is close to zero, this indicates that market share is relatively stable; if it is close to one, market share is relatively unstable (Gutiérrez de Rozas, 2007).

Figure 4: Market concentration and market share instability



Source: own compilation based on AXS-Alphaliner (various editions)

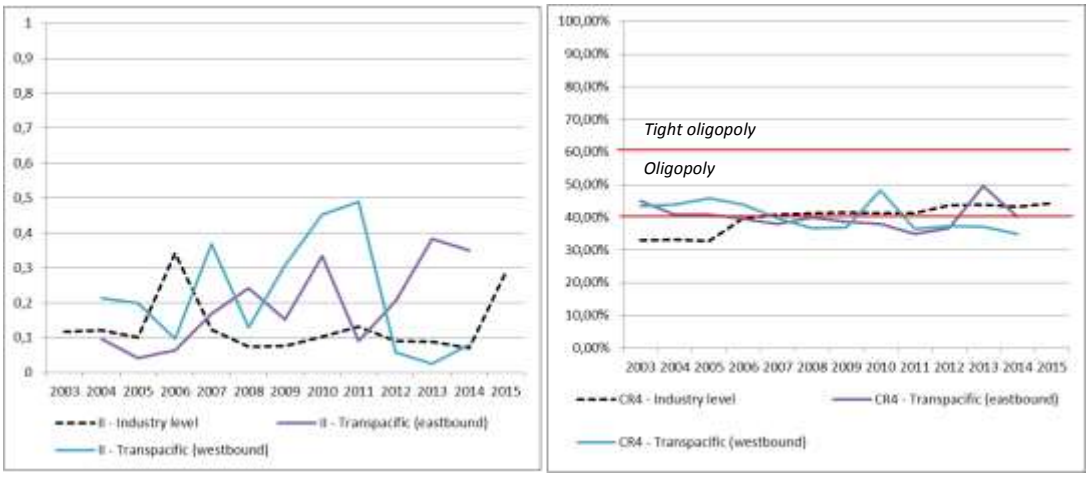
15. Over the years, the HHI has clearly increased, indicating growing concentration in the container shipping industry. Given the 1,000 – 1,800 limits[7], it must still be regarded to be unconcentrated though. Furthermore, the impact of the consolidation waves on the degree of concentration is observable by a higher HHI (2000: Maersk Line + Sealand; 2006: Maersk Sealand acquired RPONL; 2015: Hapag Lloyd + CSAV and Hamburg Süd + CCNI).

[7] As a benchmark, a market with an HHI below 1000 is considered to be unconcentrated and unlikely to be subject to any adverse competitive effects. A value between 1000 and 1800 generally indicates moderate concentration. Any value over 1800 indicates a highly concentrated market (Shepherd, 1999; Sys, 2010).

16. Although, theoretically, increasing concentration should result in decreased competition, in practice, fierce competition between leading carriers may persist. In other words, the HII ignores shifts in market shares (Sys, 2010). Market share instability allows one to measure the shift in the relative position of firms within an industry and is considered an important indicator of the intensity of competition. The value of the instability index (II) is closer to zero than one, an indication that container liner shipping is characterised by a relatively stable level of competition. A larger deviation between the instability index based on the top-100 container liner operators (II_top 100) and that based on the top-20 carriers (II_top 20) is indicative of greater competitive pressure in the 21-100 segment of the industry. The peak of instability corresponds with consolidation waves on the one hand and with attempts to recover from the financial and economic crisis on the other. Clearly, recent developments have intensified the degree of competition in the 21-100 segment. The Chinese domestic carriers in particular have been impacted by increased cooperation, a slowdown in domestic consumption growth, the so-called "tonnage cascade". Following the example of Cosco and China Shipping on domestic routes, many are working towards collaboration with other container shipping companies.

17. In the policy context, regulators should focus on trade levels, since the effects are more clearly discernible at disaggregated level than at aggregated industry level.

Figure 5: Instability index and 4-firm concentration ratio



Source: own compilation based on Dynamar

18. Figure 5 reports the instability index and the four-firm concentration ratio at trade level. A distinction is made between eastbound and westbound legs. For reasons of comparison, the four-firm concentration ratio and the instability index (II) at industry level are added (dashed line). As expected, the degree of concentration and the intensity of competition appear to differ from trade lane to trade lane and from leg to leg.

19. Next, the calculation of the degree of concentration reflects the degree of oligopoly. A trade lane with a CR4 below 25 % is not an oligopoly. A CR4 between 25 % and 60 % is considered a 'loose' oligopoly, while a CR4 of over 60 % is a 'tight' oligopoly. The term 'tight oligopoly' is understood to signify an oligopoly whose market characteristics facilitate the materialisation of supernormal profits for a substantial period and where significant barriers to entry exist (Shepherd, 1999, Sys, 2010 and 2010b, Sys et al., 2011).

4. Product development and differentiation

20. The container liner shipping companies operate vessels transporting containers of various standardised dimensions/sizes, regardless of the contents. Theoretically, the container, a form of protective packaging around the goods, makes the transport product homogeneous. This homogeneity can only be broken through diversification based on service-related elements, for example, through variables such as the number of sailings per week, the design of the loops and the order of port calls, handling productivity, the number of days 'dwell time', and transit time and reliability (Martin 2002, Sys, 2010).

21. Shipping companies are constantly looking for ways to distinguish their own product from those offered by competitors, be within a single alliance or in the market more broadly. Maersk Line is the leader here. More often than not, differentiation takes place at cost level, typically by the deployment of ever-larger vessels. The associated benefits of scale result in a lower cost per unit transported, which may be passed on partially or entirely to the customer in the form of lower freight rates.

22. Another possibility is for a company to diversify its product range. A typical example of such a strategy is Maersk Line's Daily Maersk Premium Service.[8]

23. As long as individual shipping companies continue to make efforts to set themselves apart from their competitors, there is less of a risk of them approaching each other to form cartels or to reach other competition-impeding agreements.

5. (De-)Regulation and competition

24. The (container) liner shipping industry has a long history of regulation, often closely associated with the now abolished conference system. The question arises whether the more recent evolution towards alliances is likewise affecting the market in ways that merit or necessitate regulation.

25. The most recent cooperation agreement is 2M, a vessel-sharing agreement between the two largest carriers, Maersk Line and MSC. Other examples are the G6 (APL, Hundai Merchant Marine, Mitsui, Nippon, Hapag Lloyd, OOCL), Ocean Three (currently made up of CMA CGM, China Shipping Container Lines Co. and United Arab Shipping Company) and the CKYHE-alliance (Cosco, K Line, Yang Ming, Hanjin Shipping and Evergreen as a newcomer).

26. Alliances tend to induce a degree of market stability. However, price evolutions indicate that this has certainly not been the case on the Asia-to-Europe and the Trans-Pacific routes. On the Trans-Atlantic route freight rates remained stable at first, but the struggle for market share has since brought uncertainty and hence greater instability.

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[8] Launched in September 2011, this differentiated product guaranteed delivery times in return for higher freight rates and promised to pay compensation if the container could, for one reason or another, not be picked up within the guaranteed timeframe. The objective was to position the carrier beyond the reach of its competitors in terms of scale and reliability[8]. To attain this goal, the company deployed a fleet of 72 operating vessels covering three ports in Europe (Felixstowe, Rotterdam and Bremerhaven) and calling at four ports in Asia (Shanghai, Ningbo, Yantian, Tanjung Pelepas)[8]. This innovative product achieved 95% on-time delivery of cargo. However, the product was abandoned as of 10 March 2015, due to a lack of demand (i.e. insufficient willingness to pay on the part of shippers). The decision to cancel the scheme coincided with the 2M Vessel-Sharing Agreement between Maersk Line and MSC, under which the two carriers share a network and hence a degree of punctuality.

27. Lower rates would appear to indicate that, on these major routes, no capacity or price agreements are made between the different alliances: they continue to vie for market share, and as long as this remains the case, there is guaranteed to be a degree of competition. Hence what is required is adequate monitoring of market evolutions, but no new regulatory initiatives would seem necessary for the time being.

28. On the other hand, problems may present themselves in other links in the maritime chain as a result of the emergence of ever-larger alliances and shipping companies deploying mega-size vessels. Ports and terminal operators may be directly affected by such developments. First and foremost, they are likely to be confronted with a far greater variability in volumes to be handled, as a single ULCS can obviously hold a lot more containers than smaller ships can. This requires not only more storage space for containers, but also more plug-ins for container cooling. It also necessitates additional investment in handling capacity, even though this capacity may, on average, be used less intensively, as well as in IT systems. The deployment of mega-size vessels even impacts on ports not servicing such vessels, as shippers may be inclined to relocate their activities to ports that do.

29. In the future, port authorities may be pushed towards forms of cooperation that enable them to operate at a scale that meets the requirements of shipping companies and alliances operating ultra-large vessels. Such an evolution would mirror the concentration movement previously observed among Terminal Operating Companies (TOCs). One can easily imagine how this might lead to situations requiring new or additional regulatory initiative. The move towards mergers and acquisitions in third-party logistics would be a logical consequence. Hence, more competition is to be expected. Monitoring of negotiating power had best be conducted from a maritime supply chain perspective.

6. Conclusion

30. The container liner shipping market used to be characterised by a variety of forms of cooperation, resulting in a need for a considerable degree of regulation, including during periods of significant structural change. However, this all changed with the banning of conferences.

31. The present market, despite the existence of cooperation agreements, is typically a competitive environment where supply grows stronger than demand, resulting in declining freight rates. Strikingly, though, these lower rates are driving smaller operators out of the major routes and into niche markets.

32. This evolution holds certain dangers for the future. If smaller players are pushed out altogether, and only larger players remain, the market as a whole may left bleaker. Moreover, the shipping companies that remain may increasingly fall back on whatever cooperation agreement they are a signatory to. Under a scenario where supply and/or frequency of service is reduced, be it as part of an agreement among alliances or otherwise, this may lead in the longer term to (tighter) oligopolistic behaviour and higher freight rates. Moreover, such an evolution would most likely also impact on players elsewhere in the maritime logistics chain, including TOCs, port authorities and 3PLs.

33. In the short run, the container liner shipping industry has no need for regulation. It is sufficient to monitor the market and the significant variables, as presented in this paper: freight rates and surcharges, level of market concentration, and degree of product development and differentiation.

REFERENCES

Alphaliner (various editions) Alphaliner Weekly Newsletter.

Gutiérrez de Rozas, L. (2007). Testing for competition in the Spanish banking industry: the Panzar-Rosse approach revisited. Documentos de Trabajo n° 0726, Spain: Bancode Espana.

McConville (1994). Competition policy in liner shipping – Synopsis of the general discussion. In Molenaar & Van de Voorde (Eds) Competition Policy in Liner Shipping: Proceedings of a Conference organized by the International Association of Maritime Economists (IAME) and the University of Antwerp (UFSIA). University of Antwerp, 1994.

Molenaar, H.J. & Van de Voorde, E. (1994). Competition Policy in Liner Shipping: Proceedings of a Conference organized by the International Association of Maritime Economists (IAME) and the University of Antwerp (UFSIA). University of Antwerp, 1994.

Sys, C., Blauwens, G., Omey, E., Van de Voorde, E., Witlox, F. (2008). In search of the link between ship size and operations, Transportation planning and technology 31, p. 435-463.

Sys, C. (2010). Inside the box: assessing the competitive conditions, the concentration and the market structure of the container liner shipping industry 244 p.(Dissertation / UA, Faculty of Applied Economics) Online available on https://biblio.ugent.be/publication/4399458.

Sys, C. (2010b). Is the container liner shipping industry an oligopoly? Transport policy,p. 259-270.

Sys, C., Meersman, H., Van de Voorde, E. (2011). A non-structural test for competition in the container liner shipping industry, Maritime policy and management, p. 219-234.