

Vlado Frančić, B.Sc.
Faculty of Maritime Studies
Studentska 2, Rijeka
Croatia

Review articles
UDK: 338.47: 656.61
629.541.41
629.544
656.615.001.76

THE GLOBAL TRENDS AND OUTLOOKS OF LINER SHIPPING

This paper aims at analyzing the world liner shipping trends and outlooks at the beginning of the new century. The liner shipping sector expands today as a consequence of the numerous, fast development of containerized industry worldwide. Thus, the majority of the transported cargo in liner shipping includes containerized cargo and the liner shipping fleet is mostly represented by fully containerized ships. Furthermore, liner shipping companies continuously increase their container fleet, mainly with large container ships. It is also evident that these companies have a strong tendency of a mutual association to provide stronger operations at the market. Finally, ports are faced with a need of developing due to the expansion of the container shipping industry and especially due to the introduction of very large container ships in the liner fleet.

Key words: liner shipping, container ships, companies concentration activities, ports development.

1. INTRODUCTION

The liner shipping industry is one of the most interesting sectors of shipping business. Reasons for that should be sought in an extremely fast growth of containerized trade volumes and container movements in general. Container shipping is directly connected to liner shipping and has resulted in the expansion of liner industries worldwide. To analyze liner shipping means to look into all segments of the industry. These are associated with the trends in the world economy, current market structure and trades, as well as with the development of ships and ports.

Significant development of liner shipping occurred in the last ten years. This paper intends to present a current situation, trends and future tendency in the evolution of liner shipping, in the ports evolution and liner shipping company strategies. Liner shipping companies mostly perform their operation at the global scene. Thus, anticipation of strategic moves of the companies and future trends in liner shipping and port operations inside the continuous changing in the world market is very ungrateful to foresee. Monitoring these trends, as well as analyzing current development, should closely explain prediction and further moves in the liner shipping.

2. GENERAL OVERVIEW

Liner shipping refers to maritime transport services that are provided on a regularly scheduled basis to pre-determined ports. Ships involved in these trades can be:

- General cargo carriers,
- Specialized cargo carriers (e.g. car carriers or refrigerated goods carriers), and
- Partially or fully dedicated container carrier.

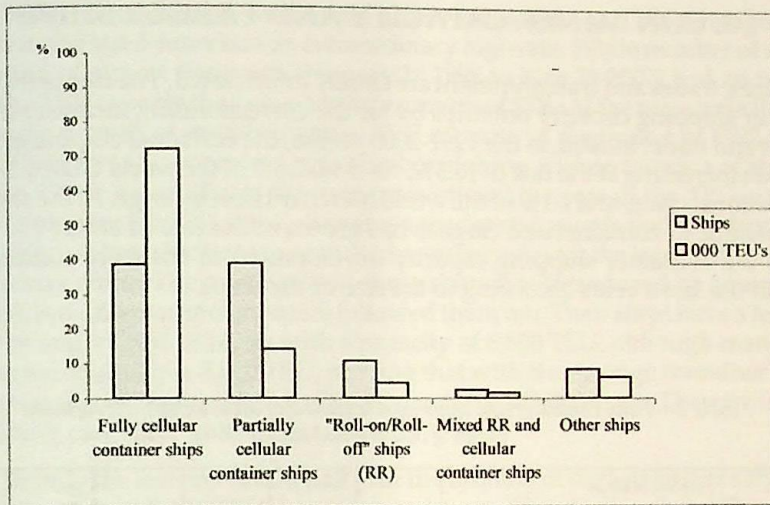
Whatever type of ships is used in liner shipping, they can transport various types of general cargo, as well as a small quantity of bulk and liquid cargo.

Two important points can be emphasized to characterize liner shipping sector today:

- Fully containerized ships represent an important part of the liner shipping fleet and carry a large majority of containerized cargo (Figure 1),
- The top 20 liner operators account for 72% of the world container capacity (measured in the industry standard 20 feet container unit or TEU) and the five largest operators account for 34% of the fully containerized fleet capacity (Table 1).

Table 1 – Top 20 Liner operators (fully cellular fleet in TEU) – July 1st, 2002

COMPANY	TOTAL CAPACITY IN TEU
World fleet	5 738 954
Maersk Sealand	677 765
PONL	386 916
MSC	360 451
APL	260 551
Coscon	233 120
EMC	223 877
Hanjin	209 411
K Line	176 363
CMA CGM	169 873
NYK	165 282
OOCL	159 179
MOL	154 092
CSC	141 667
Hapag Lloyd	134 009
Zim	127 827
HMM	123 618
Yangming	120 729
Senator	104 895
Lloyd Triestino	84 747



Source: www.ci-online.co.uk

Figure 1 - World Liner Shipping Fleet: 2001

It is obvious that liner shipping is predominantly moving containers. Talking about liner shipping means talking about the characteristics of the container shipping industry.

Like many other industries, the global container shipping industry has been undergoing a period of development and huge expansion in the past decade. Global traffic in containerized cargoes has expanded rapidly during the 1990's, rising from an estimated 83 million TEU in 1990 to 198 million TEU in 2000. This equates to an average growth of about 9% per year and is closely associated with the industrialization of the Far East economies (growing traffic rate of 10.8%). That destination thus accounted 50% of total world container traffic. The phenomenal growth of containerized trade volumes and container movements in general has the consequence in the rapid change in the liner shipping industry. Although trends of greater changes started in the early nineties, today container shipping shows some new movement. This new movement has an influence on liner and port operators.

The current changing industry has three significant trends:

- Trend toward larger ship sizes,
- Merging and acquisition activities between liner companies,
- Evolution of "hub-and-spoke" port structure.

All these trends have the purpose of increasing profitability, quality and efficiency of service to find the ideal way of operating.

3. CONTAINER CAPACITY AND LARGER SHIPS

Ship sizes, trades and transshipment are closely interrelated. The rate of increasing the liner shipping capacity outstrips by far the corresponding increases in world output and trade. Indeed, in the 1991-2000 period, the container shipping capacity has been increasing at the rate of 10.5%, vis-a-vis 2.5% of the world GDP, 6.5% of the international trade, and 2.1% of the world merchant fleet by large. At the same time global traffic in containerized cargoes has grown at the rate of about 9%. Table 2 shows the container shipping capacity development of the fully containerized ships in the last 6 years according to the size of the ships.

Table 2 – Fully containerized ships by size class and division of TEU capacity
 (ships of 300 GT and over)

YEAR (January 1 st)	(1) No. of ships (2) % share of world fleet (3) 1000 TEU (4) TEU share of total	<999	1000- 1999	2000- 2999	3000- 3999	4000- 4999	>5000	TOTAL
1998	(1)	800	712	328	177	121	32	2170
	(2)	36.9	32.8	15.1	8.2	5.6	1.5	
	(3)	407	1006	820	613	529	181	3556
	(4)	11.4	28.3	23.0	17.2	14.9	5.1	
1999	(1)	840	762	381	190	138	52	2363
	(2)	35.5	32.2	16.1	8.0	5.8	2.2	
	(3)	436	1072	943	666	601	300	4017
	(4)	10.10	26.7	23.5	16.6	15.0	7.5	
2000	(1)	842	773	383	226	146	67	2437
	(2)	34.6	31.7	15.7	9.3	6.0	2.7	
	(3)	435	1085	945	781	640	385	4273
	(4)	10.2	25.4	22.1	18.3	15.0	9.0	
2001	(1)	860	803	406	231	165	99	2564
	(2)	33.5	31.3	15.8	9.0	6.4	3.9	
	(3)	445	1133	1001	798	727	570	4674
	(4)	9.5	24.2	21.4	17.1	15.6	12.2	
2002 (May 1 st) *	(1)	927	851	439	268	173	192	2850
	(2)	32.5	29.9	15.4	9.4	6.1	6.7	
	(3)	491	1201	1080	919	760	1128	5579
	(4)	8.8	21.5	19.4	16.5	13.6	20.2	
Average yearly growth 1998-2001 (%)	No. of ships	2.5	4.1	7.6	9.5	11.0	46.4	5.7
	1000 TEU	3.1	4.1	7.0	9.4	11.2	47.4	9.6
Average yearly growth 1998-May 1 st 2002 (%)	No. of ships	3.5	4.2	7.1	10.3	8.7	53.8	6.5
	1000 TEU	4.5	4.2	6.7	10.0	8.8	55.4	11.1

Fully containerized world fleet grows every year and the average yearly growth in the last 5 years had an extraordinary high rate. While number of ships in the period of almost five years (January 1st 1998 to May 1st 2002) had an index of 131.3, the TEU capacity had an extremely growth of 57%. At the same time the average yearly growth of container ships' TEU capacity in the period of 1992-May 1st 2002 was about 11%, opposite to the number of ships, with an increase of about 8% per year. These data indicate the over proportional increase of the TEU capacities related to the number of ships, showing a tendency towards building larger container ships. A large increase in capacity has occurred with the introduction of Post II¹ Panamax ships. The major part of these ships was introduced by Maersk Line (S-class), but other large companies followed them too. Their ships have a length of 346.98 m and a draft of 14.5m with a capacity of 6,600 TEU, although many think that the real capacity is 8,000 TEU, proving that with the average container weight of 13 tones these ships reach their DWT capacity of 105,000 tones. They are the largest existing container units in the world.

In only the last one-and-a-half year the number of post-panamax ships, with a capacity of over 5,000 TEU, has increased more than double, from 99 to 203 [9] ships. Those ships have reached more than 20% of the total fleet capacity, opposite to only 5.1% in 1998. During the 2000 new entries had an extremely high average capacity of 3,100 TEU, with even 32 ships above 5,000 TEU in size. Namely, the whole order book of container ships with a capacity of over 6,000 TEU on January 1st, 2001 was almost twice larger than the existing total fleet of the same size.

The maximum size of container ship has increased almost three times in the last 20 years, from 3,000 TEU in 1980 up to 8,000 TEU today. The average size of the ship has consequently increased from 990 TEU in 1980 to 1,590 TEU in 1997 and up to the end of 2002, it is expected to be over 2,000 TEU².

The building of larger container ships, with the capacity of over 5000 TEU, in the last five years had an influence on the age of fully containerized ships. Those ships contain major TEU capacities of the total fleet and are very young. The world fully containerized fleet has an average age of 10.6 years³, and almost 50% of the fleet is younger than 5 years. Post-panamax ships, in use from the beginning of the 2001, represent one third of the total number. It should be also noted that in the last one-and-a-half year there were increased additions in the fleet with ships of a capacity ranging up to 2,000 TEU. This can suggest that there will always be a need for "feederships". Finally, in the fully containerized ship fleet there is a great disproportion between the number of ships and the TEU capacity of new entries and scrapped ships. During the 1999-2001 period 118 ships with a capacity of 144,000 TEU (maximum size of the ship was 3,000 TEU) were broken up, while in the same period the number of new ships was 539 with a capacity of 1,178,000 TEU. There is no evidence of an increasing scrapping so far, as it is in ordering new-buildings.

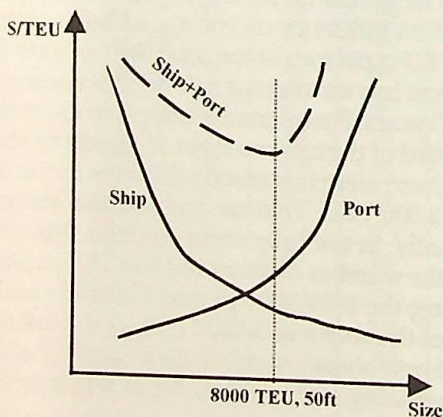
¹ According dr.Asaf Ashar in [6] post-panamax ships (ships with the width of more than 13 rows of container across) should be divided by the number of rows across. Post I would be defined, as a ship with 14-15 rows across, Post II is 16-18 containers wide and Post III will be 19-22 containers wide.

² Calculated as including in the increase of the fleet only ships on order in 2002

³ Data for January 1st 2001

Future trends in container ships' size show further expansion in the continuous introduction of post-panamax ships. Order books for the next few years indicate an even higher increase in sizes and numbers of large fully containerized ships. There are 64 ships with a capacity of more than 5,000 TEU, out of which 41 are ships with more than 6,000 TEU. At the same time the number of ships in order books up to 3,000 TEU has reached the number of 181. The development of building post-panamax ships larger than 6,000 TEU started six years ago and today container ships have reached 8,000 TEU (e.g. Sovereign Maersk - S class). Some analysts have no vision of building larger ships due to the technological and natural limiting factors in the port (port depth, time spent in ports, the outreach of the cranes, quantity of containers). Others extensively consider the possibility of building ships up to 12,000 TEU or even up to 18,000 TEU. Although there are numerous plans for building such a ship, plans are still in a "drawer". Calculates result in the cost savings of US\$ 20/TEU due to the increase in the ship's size by 50%, from 8,000 TEU to 12,000 TEU or from 12,000 TEU to 18,000 TEU on the longest east/west trade route between Asia and Europe. On the other hand, reconstruction of the port infrastructure and superstructure for accommodating such ships need great investments. The increasing depth of the approaching port channel from the present 13.7m to 22m⁴ (draft of the 18,000 TEU ship) could cost even US\$ 200/TEU. Graph 1 shows the relation between ship's and port expenses nowadays [6].

Current tendencies in the container shipping industry emphasize an imbalance between container capacity supplies and demands. As has already been mentioned, in the last decade, containerized trade has grown at a rate just below 9%. At the same time, container capacity has increased at a rate of more than 11% (1992-2001), and from the year 1998 at a rate of 11.1%. The current disconnection between supplies and demands has been caused not only because of the recent rapid increase in the fleet, but also due to economic problems worldwide,



Grapf 1 - Shipping System Cost

⁴ Example is for New York, but many other major world container ports will also have huge dredging costs

especially with the recession in the American economy following the tragedy event of 11th September. Building and continuously ordering large container ships as well as other ships of a different size, will most likely go on. There are enough economic reasons for that. Prices of new-buildings are continuously decreasing. In 1998, 6,500 TEU ship had a price of US\$ 70 million, in spite of only US\$ 63 million in 2002, while a 2,000 TEU ship had price of US\$ 32 million opposite to US\$ 26 million in 2002. Another important economic reason is cost saving when operating with a larger ship. Although larger ships rapidly increase the fleet capacity, they have also an influence on the container industry capacity demands. Large ships generate extra cargo for smaller ships through transshipment activities inside "hub-and-spoke" port system.

From the first post-panamax over 6,000 TEU all the largest new-buildings were almost in the same range, up to 8,000 TEU. It still seems that the first order for larger ships, although under permanent consideration by the companies and researchers, will wait some appropriate time in the future. It will mostly depend on the tendencies in the unstable world economy and quantity of the containerized cargo, as well as in the market demands. According to the World Container Census 2002 (published by the Containerization International), the world container fleet is projected to slow to an average yearly growth rate of 6% over the next four years, based on facts of the future slowing market demands.

4. CONCENTRATION IN LINER SHIPPING

Like many other industries, the global container shipping industry has to adapt to the trend of globalization in economy. This trend has reflected in both merger and acquisition activities, as well as in the formation of global strategic alliances.

Concentration of companies started with their merging, take-over and shareholding agreements in the early 1990's. Some of the greatest activities were the acquisitions of Sea-Land by Maersk, that of APL by NOL, the merger between P&O and Nedlloyd, the purchase of CGM by CMA the acquisition of Lykes and Ivaran Lines by CP Ships, the purchase of Blue Star by P&O Nedlloyd and the majority shareholding of Hanjin in DSR Senator Lines. Companies joining together resulted in their stronger and better influence on the market. They are financial stronger, they can get easier accustomed to changing market trends and they can be dominant operator at determined lines. Although concentration resulted in fewer companies, which might suggest that competition diminished, yet, mergers and acquisitions show competitive pressures. Large operators can now compete for cargo on new lines and can expand into new markets on individual routes. They can also enter on new east-west trade and enter into "feeder" services, mainly controlled by smaller traditional regional companies so far.

Consolidation in container shipping in the last few years was extensive. Today, the Top Twenty companies involved in merging and acquisition control 54% of the TEU capacity opposite to 38.8% in 1990 or 52.9% in 1998. It is expected that these large companies, which operate on major east-west lines with large ships, would continue to develop their huge fleet of post-panamax ships, so that the percentage of their TEU capacity, contrary to the rest⁵, would certainly increase. The Top Twenty companies had more than 70% of the total order of container ships on July 1st, 2002.

Even though large companies became larger, no company has over 10% of the total fleet⁶ capacity in TEU so far. Thus, we can predict a further integration of

companies. Some industry observations expect more consolidation in the future, resulting in a total number of ten or eleven major carriers, "plus in each area a number of niche operators" [6].

The first step in the concentration of the liner shipping sector was the merging and acquisition activities. Establishing cooperative agreements on a global basis among a group of companies forming alliances was the following step. Each member retained its own identity and agreements did not create mergers. Alliances became operational from the middle of the '90's. During previous years they developed very fast. Today, almost all Top Twenty Companies are involved in some of the five alliances (Table 3 shows their recent evolution).

The main purpose and intent of the participants in such strategic or global alliances was the achievement of the desired scale of the economy. According to [3], two main motives for companies to form alliances and to merge as well is the desire to increase the income and to reduce costs.

Table 3 - Alliance evolution in liner shipping: 1995-2001

Alliance	1995	2001	Capacity in 000 TEU (2001)
Global Alliance (New World Alliance)	APL Mitsui-OSK OOCL Nedlloyd	APL (NOL) Mitsui-OSK Hyundai	361 TEU (88 Ships)
Grand Alliance	Happag Lloyd NOL NYK P&O	Happag Lloyd MISC NYK OOCL P&O Nedlloyd	492 TEU (113 Ships)
Maersk-Sealand	Maersk Sealand	Maersk-Sealand Safmarine	638 TEU (255 Ships)
Tricon/Hanjin (United Alliance)	Cho-Yang DSR-Senator Hanjin	Senator Hanjin UAS	306 TEU (80 Ships)
Cosco/K-line/Yangming	-	Cosco K-line Yangming	301 TEU (87 ships)

Beside financial objectives, which are the strongest motive for the companies to participate in alliances, alliances also offer liner shipping companies an opportunity to achieve:

- Strategic objectives - entry in new markets, market domination, wider geographical scope, increase in purchasing power, possibility of additional cargo volumes aggregate.
- Marketing objectives - satisfy customer requirements with increasing service frequencies, their flexibility and reliability, and with possibility

⁵ Total number of liner shipping companies is about 500.

⁶ On July 1st, 2002 the largest company was Maersk-Sealand, with 9.0% of the total fleet capacity in TEU.

of creating variety of routes and destinations (companies have possibility of cargo transportation worldwide).

- Operational objectives - improving asset utilization through sharing of ships, terminals, containers with planning and coordination on a global scale.

Despite many advantages in the formation of strategic alliances some recent trends indicated instability of alliances. The reason for that might be in the new merging between companies that belong to different alliances. For example, the old Global Alliance has ceased to exist (Table 3), and some of its members have formed the New World Alliances. In addition, as members of alliances, companies are still maintaining their independent corporate identities with the need to achieve individual organizational objectives. This individual behavior can lead to lack of cooperation and teamwork among the members, necessary for the proper function of alliances. Consequently, these actions have impacted to the level of mutual trust inside the alliance and hence internal conflicts could play a significant role in alliance instability.

Although, the growth of alliances is continuing and a further evolution in the foreseeable future is probably expected, in the long-term period, the process of concentration will probably imply more outright mergers. More mergers of shipping companies could supersede alliances themselves.

Regardless what concentration activities, merging, acquisition or forming alliance, was applied, liner shipping companies provided global access to the market, greater asset utilization and improving cost control. Through concentration activities, the liner shipping market has acquired a truly global dimension.

5. PORT DEVELOPMENT

The evolution in the container ports organization is very common with the development of the container shipping industry. The quantity of containerized cargo has expanded rapidly during the last ten years and containerized cargo accounts for approximately 54% of the worldwide trade in general cargo in 2000, from 37% in 1990 [4]. This considerable growth has an effect in increasing the container traffic and a direct implication to the development of container ports. On the other hand, trends of building large ships implicate more container transshipment.

The present organizational system of container ports is known as "hub-and-spoke" port structure. It contains of few large "hub" or transshipment ports and numerous "feeder" lines to other smaller ports. The major international container traffic routes are laid down in the east-west direction and the largest "hub" ports are situated in the core of these routes in North America, Europe and Far East. Post-Panamax ships built in the last five years take a significant place in the evolution of such a system. Those large ships are sailing on major international east-west routes, calling "hub" ports, and they generate extra traffic by adding feeder routes inside local cargo areas. The use of larger ships and more transshipment directly leads to more port container movements and fewer ships miles.

The evolution of container ports is strongly connected with the market demands. Today, the main three trades routes (Asia-North America, Asia-Europe and Europe-North-America) generate more than 70% of all containerized cargo movements. The last decade shows an extremely huge expansion of containerized cargo

in the Asian region, and, consequently, an extreme development of some Asian ports. Today, the top five container ports are the Asian-Far East ports⁷. In comparison to 1990's, when among the top 20 container ports eight were the Asian ports, at the end of the year 2001, there were ten. The container traffic within some of these ports has increased in this period more than three times (e.g. Hong Kong from 5,100 TEU to 1,790 TEU, Singapore from 5,224 TEU to 15,520 TEU). At the same time the largest European and North American container ports have not even doubled the traffic, Rotterdam from 3,666 TEU to 5,944 TEU, and Los Angeles from 2587 TEU to 5183 TEU⁸. Additionally, in the last few years there is an evident concentration and fast progress of "hub" ports inside the Mediterranean (Algeciras, Gioia Tauro, Marxslock), but also in the Caribbean (San Jose) and area of South-East Asia (Singapore, Colombo). This trend is especially dominant in the Mediterranean with its largest hub port Gioia Tauro. Gioia Tauro, in only 5 years of growth, has reached 2,5 million TEU of handled container in 2001, of which the majority belongs to transshipment activities.

Consequently, there is an indication that "Hub" ports in the Mediterranean have a negative influence on the north European largest container ports. It can be seen that problems for the largest north European ports have already begun in Rotterdam with the decreasing TEU traffic for more than 5% in the year 2001. The north-south trade routes with the "feeder" services are also easily taking over more and more containers.

Trends in the port development are closely connected with the global movement in container shipping industry to larger ships. Larger ships and more transshipment will require additional investment in ports, but ports will also be selling more services. The introduction of even larger ships, larger than the actual maximum size of 8,000 TEU, will inevitably provide further, even stronger and greater, expansion of "hub" ports. If any of the projects for ships with a capacity of over 8,000 TEU become real, ports will have to adapt their capacities.

For accommodation of such ships ports will be faced with huge investments in the developments such as:

- Dredging of approaching channel depth,
- Building of new larger breakwaters, piers, and increasing the storage capacity,
- Purchasing of modern handling equipment (possible outreach up to 22 rows of containers).

The largest container shipping companies started with the development of privatized ports⁹ on private land outside the port authorities [6]. The decision for a new port investment will be much easier for such companies. They will be able to coordinate ships' development with the port investments and balance economical advantages and disadvantages of new investments.

⁷ Data for 2001 - source www.ci-online.co.uk; Top 5 at the end of 2001 were Hong Kong, Singapore, Busan, Kaohsiung, Shanghai.

⁸ In 000 TEU.

⁹ This new reality has recently been demonstrated in the USA with Maersk Sealand electing to develop its Norfolk "hub" on private land, outside the Virginia Port Authority.

Envisaging ships with a capacity of 18,000 TEU will probably lead to the change in the technology of container handling. Floating transshipment terminals with two-sided handling will be provided. This type of a terminal system will invert the notion of a port, instead of the ship coming to the port, the port will "come to the ship". Another possibility of enhancing handling productivity could be the formation of larger multi-box units, created of 4 TEU boxes or less. Such a system will reduce the number of cranes required to work on board a ship, although the size of the cranes needs to be increased [6].

The additional tendency of rising the percentage and total volume of containerized cargo will undoubtedly have a significant effect and will contribute to the further stronger container ports development. Thus, development will not be restricted to larger "hub" ports, but also to all other ports situated at the final points of the "hub-and-spoke" system.

6. CONCLUSION

Looking into all relevant elements on the topic of liner shipping, there are many challenges that the shipping industry is facing nowadays and will face in the future. Despite the continuous progress, liner companies are under constant pressure to keep up with the dynamic market and to keep operating in their favor.

The nineties of the last century was the period when many new trends in the liner shipping industry started and today it seems they will carry on. Containerization, in global, has become a more and more dominant segment of liner shipping. The container fleet capacity is growing at an enormous rate. The ship sizes, and especially the proportion of the larger post-panamax ships fleet, contrary to the rest, are constantly growing. The number of carriers is diminishing but their strength at the market, due to concentration activities, are increasing. And finally, ports, faced with the change and expansion of the container industry, have, without doubt, continuously developing their activities.

Summing up all trends and trying to provide outlooks of liner shipping at the beginning of the new millennium, the following movements can be seen:

- Constant increasing of container trades volume,
- More containerized cargo,
- Enormous escalation in the size of ships,
- Overcapacity of the fleet,
- Domination of the east-west cargo trade routes over the north-south ones,
- Concentration of companies,
- Diminishing the number of global players, in spite of the growing market,
- Intensifying competition,
- Ports facing with developing and expanding activities.

Regardless current trends in the liner shipping industry, it points up to a quite steady development, outlooks can indicate varying and relatively unpredictable future events.

REFERENCES

- [1] H.E. Haralambides, S.D. Tsolakis and C. Cheung Tam He - *The Global Outlook of Liner Shipping and Port Networks in the Information Society of the 21st Century*, 16th International Port Logistics Conference, 6.-8. February 2000, Alexandria, Egypt.
- [2] H.E. Haralambides, C. Cheung Tam He and S.D. Tsolakis - *The future of the hub-and-spoke system in liner shipping (The 2nd Scenario: From Land - to Sea-Based Logistics)*, Forum of Shipping and logistics, International Workshop, Genoa June 8.-10, 2000.
- [3] Jan Hofmann - *Concentration in Liner Shipping: Causes and Impacts*, World Sea Trade Service Review, Volume 1, Third Quarter 1998.
- [4] Directorate for Science, Technology and Industry, Division of transport - *Competition policy in liner shipping*, Final report, April 2002.
- [5] Mary R. Brooks, *Restructuring in the Liner shipping Industry: A Case Study in Evolution*, August 2000.
- [6] Dr. Asaf Ashar - *Revolution now!* - Containerization International, Jan 2002. 56-59.
- [7] Bill Porritt - *Déjà vu* - Containerization International, June 2002. 46-49.
- [8] Dr. Photis M. Panayides and dr. Dong-Wook Song - *Liner Shipping Strategic Alliances as Cooperative Games: A Conceptual Approach* - IAME Symposium, Hong Kong 2001.
- [9] Dr. Yoshida Shiger, Ms. Yang Jian Hua, Ms. Kim Kwang Hee - *The Network Economy of the Alliance in the Liner Shipping* - IAME Symposium, Hong Kong 2001.
- [10] Institute of Shipping Economics and Logistics ISL - *Shipping Statistics and Market Review*, Issues - June 1999, 2000, 2001, November/December 2001.
- [11] *Containerization International* - January, April, June and July 2002.
- [12] www.ci-online.co.uk

Sažetak

SVJETSKA KRETANJA I PREDVIĐANJA RAZVOJA LINIJSKOG BRODARSTVA

U radu se analiziraju trenutačni trendovi i predviđanja budućeg razvoja linijskog brodarstva na početku novog stoljeća. Linijsko brodarstvo danas ima tendenciju napredovanja što je posljedica iznimno brzog razvoja kontejnerizacije u svijetu. Zbog toga je većina prevezenog tereta linijskim brodovima teret u kontejnerima, a flota linijskih brodara sastoji se najviše od potpuno kontejnerskih brodova. Nadalje, linijske kompanije neprekidno povećavaju flotu kontejnerskih brodova uglavnom ostvarivanja jačeg utjecaja na tržištu. Na kraju, kontejnerske luke suočene su s potrebom stalnog razvoja zbog brzih promjena u sustavu linijskog brodarstva, a posebno zbog kontinuirane tendencije izgradnje vrlo velikih kontejnerski brodova.

Ključne riječi: linijsko brodarstvo, kontejnerski brodovi, udruživanje kompanija, razvoj luka