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Sea Global Containerized Trade. Present and Future

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Abstract: The global economy, global trade and maritime transport show a trend of development in the next period of time, remaining still some serious risks with the potential to reduce the positive trend, including: modest economic recovery of developed economies, difficulties in emerging growth and development of increasing geopolitical tensions in many parts of the world. Stimulating measures are presently applied in order to achieve the world economic growth, the international trade, the investment and profit growth in consumer's demand, especially in Western Asia and Africa, as well as increased exports of mineral resources.

Keywords: world economy; container; containerization; future prospection

JEL Classification: F40; N70; N70; N10

1. Maritime Transport - link between Production and Consumption

The main role of maritime transport is to provide the link between production activity and consumption of goods and commodities, the primary objective being to ensure a permanent flow of raw materials, machinery, spare parts to industrial production and service and timely move finished products to markets and consumers.

Maritime transport, by its close connection to the shipbuilding industry, has a multiplier effect in the economy by training related industries or economic sectors. Beyond this multiplier effect, the importance of modern maritime transport has also been recognized through the jobs they create and significant revenue to the national budgets and private sector.

Maritime transport has grown along with the development of the world economy, while knowing both the growth of world trade and the decline due to cyclical economic crises, but gradually turning into a global industry. Today, shipping is represented by an international community well-defined, using fleet performance, advanced communications systems, highly specialized, enjoying the fundamental principle of free trade.

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Since its beginning and up to the present, maritime transport, not only kept pace with the global economy, but also contributed greatly and effectively to its development. The crucial role played by the carriage of goods by sea in the early stages of economic development has been recognized by the great economists of the world. Given the economic speed that current ships have reached, the current overcrowding road and rail infrastructures, and the need to minimize pollution levels, the seas and oceans of the world assume special importance in a globalized world trade.

2. The Prospect of the World Economy and the International Maritime Trade

According to the 2014 edition of the specialty publication UNCTAD, Review of Maritime Transport, while reorientation in terms of world production and trade continued with developing countries with great contributions to world economic output, trade and global economic performance in 2013 has improved very little in industrialized regions and stagnated in other parts of the world (table 1 and figure 1). Increased global trade in goods was only 2.2%, in line with the increase of 2.3% of GDP in the world. Global maritime trade decreased on average by 3.8% to a total volume of approximately 9.6 billion tons / year.

The proportion of global maritime trade by type of goods was as it follows: 70.2% dry goods (in particular, bulk cargo volume increased by 5.5%), containerized cargo, general cargo, and 29.8% was represented by crude oil and petroleum products .

Table 1. Global economy and major economies evolution in 2011-2014 [%]

Annual percentage change	**2011**	**2012**	**2013**	**2014**
World	2,8	2,3	2,3	2,7
UE	1,7	-0,3	0,1	1,6
France	2,0	0	0,2	0,7
Germany	3,3	0,7	0,4	1,9
Italy	0,4	-2,4	-1,9	0,1
UK	1,1	0,3	1,7	3,1
Japan	-0,6	1,4	1,6	1,4
USA	1,6	2,3	2,2	2,1
South Africa	3,6	2,5	1,9	1,8
China	9,3	7,7	7,7	7,5
India	7,9	4,9	4,7	5,6
Brazil	2,7	1	2,5	1,3
Russian Federation	4,3	3,4	1,3	0,5

Source: UNCTAD Trade and Development Report 2014

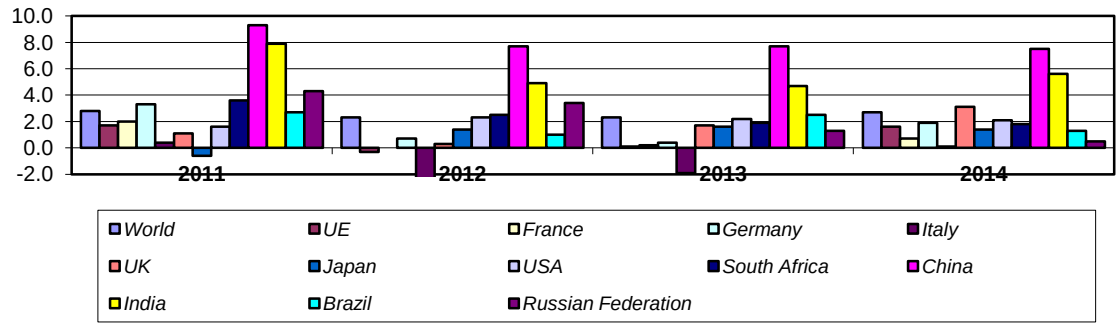

Figure 1. Global economy and major economies evolution in 2011-2014

Analysis of future prospects for the global economy, global trade and maritime transport show a tendency to improve the conditions of development in the next period of time, remaining still some serious risks, potentially reducing the positive trend, among which we mention: the modest economic recovery of countries with developed economies, emerging difficulties in growth and development of increasing geopolitical tensions in many parts of the world. In addition *G20* countries have established their 2014 meeting incentives for world economic growth, international trade, investment and profit growth in consumer's demand, especially in Western Asia and Africa, as well as export growthof mineral resources.

Major effects involved in the EU's economic problems developing economies are obvious, while the slowdown in emerging countries, particularly China and India, resonate with other regions in the developing and underdeveloped countries. Meanwhile, especially domestic demand growth in China and the development of intra-Asian and South-South, led to a relatively good development of international maritime trade with volumes increasing by 4.3% over the year. International maritime trade performance remains, however, vulnerable to downside risks and uncertainties affecting the world economy and international trade (table 2 and figure 2, 3).

Table 2. The volume of world merchandise trade 2010-2013 [Annual percentage change]

Annual percentage change	**2010**	**2011**	**2012**	**2013**
	export/import	export/import	export/import	export/import
World	13,9/13,8	5,5/5,4	2,3/2,1	2,2/2,1
UE	11,6/9,4	5,5/2,8	-0,1/-2,5	1,4/-1,2
Japan	27,5/10,1	-0,6/4,2	-1,0/3,8	-1,8/0,5
USA	15,4/14,8	7,2/3,8	4,0/2,8	2,6/0,9
China	29,5/25,0	13,4/10,7	7,4/6,1	4,8/8,8
India	14,0/13,8	15,0/9,7	-1,8/5,5	7,6/0,1

Source: UNCTAD, Trade and Development Report 2014

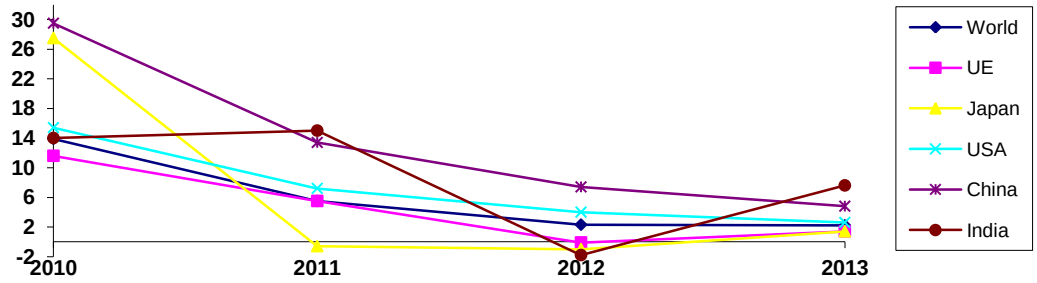

Figure 2. The volume of merchandise trade export 2010-2013 [Annual percentage change]

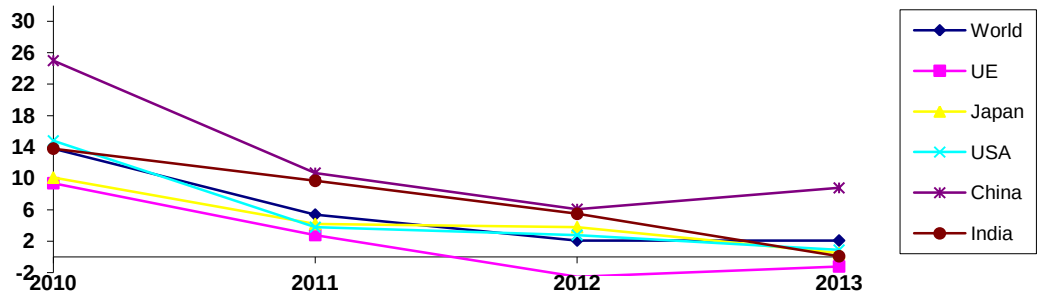

Figure 3. The volume of merchandise trade import 2010-2013 [Annual percentage change]

3. Maritime Containerized Present

Containerization is a system of intermodal freight transport in containers made of steel. The containers have standardized dimensions of 20 or 40 TEU. They can be loaded and unloaded, stacked, effectively transported over long distances and transferred from one mode to another, container ships, railway cars, truck trailers without being opened. The containers have appeared in international trade in the 50s. The advantage of the container is that it saves substantial cargo packages, up to almost substituting economies that expresses the lower value of the goods, cargo insurance cost is lower.

For a period of several decades, container trade segment was the fastest growing market, accounting for over 16% of global maritime trade volume in 2012 and more than half that amount. How containerization is closely associated with globalization and fragmentation of global production, it was necessary to make a study which had a sample of 157 countries. This study provided empirical evidence for the period 1962-1990 the overall economic development in the twentieth century is the containment (Bernhofen et al. 2013).

In the 22 industrialized countries examined, containerization indicates a 320% increase in bilateral trade in the first five years after the adoption of this type of transport and 790% over 20 years. By comparison and for a period of 20 years, a bilateral free trade has increased trade by 45%, while the members of the General Agreement on Tariffs and Trade add to 285%.

In the 1962-1990 period, containerization seems to have had less of an effect on the north-south and south-south trade, probably reflecting the role of the port and the availability and effectiveness of transport infrastructure.

The complexity is due to the global maritime industry, among others decisive factors influencing supply and demand in the market for shipping, such as:

- the average distance - in 2012, container trade tonnes/mile increased by 3% compared with 8.8% in 2011. Between 2000 and 2012, the average distance travelled by container trade fell by 1.2%, with lower long trade routes Asia-Europe and Trans-Pacific, being offset by a rapid increase in intra-Asian flows over shorter distances;

- specific consumption - higher oil prices have a major impact on transport maritime trade, both by their inhibitory effect on growth and upward pressure on and put the cost of fuel used to propel ships. Since 2005, oil prices began to rise faster, observable since 2007, and in 2008 when there was the historical value of $ 150 per barrel. For comparison, the average price provided by European Brent was around $ 29 in 2000, $ 55 in 2005, $ 73 in 2007 and $ 112 in

2012 (Energy Information Administration data from the United States - 2013). This means that oil prices have doubled between 2005 and 2012 and have increased by more than half since 2007;

- climate changes - which continue to affect international policy agenda, including shipping and port activities. Despite some positive developments, the world is not yet able to limit global average temperature increase to 2° C reached (above pre-industrial levels) and thus ensure that climate change remains manageable (International Energy Agency, 2013);

- the global economy - the negative effects of the economic crisis of 2008-2009 and

still has a significant impact on demand, finance and trade. The global economic crisis has destabilized rather than container transport, it depends, more than other modes, the world economic situation. Despite this decrease, International container volume still reached 160 million TEU value. (Review of Maritime Transport, 2014), an increase of 4.6% / year;

- characteristics of consumption - a major cause of short-term volatility is seasonality. Despite positive growth occurred in 2012, international shipping remains vulnerable to many disavantages, risks and exposed to some possible changes and trends that could redefine the operation mode. International shipping is facing a new and complex environment that involves both challenges and opportunities as global uncertainty still hanging over the economy and geopolitics tensions. All these challenges, linked with security issues and energy costs, climate changes are probably the most important. Despite all the gloomy predictions, however, new opportunities arise, such as the emergence of new navigation routes and improving existing (Panama Canal expansion and development of the Arctic route), the appearance of new business partners, due to the better understanding between corporates and the arise of national banks on the international market which can finance economic growth (Brazil, India, China, South Africa, Russia) and lead to the stabilization of international maritime trade.

4. Containerezed Maritime Transport Perspective

Containerization has reduced costs in international trade, has increased the speed of rotation of goods, especially consumer goods and commodities. It also dramatically changed the character of worldwide city-ports. Sometimes ago crews of 20 ... 22 people individually packed goods in the ship holds, container transport is now almost mechanized and automated. So large crews packaging the goods in the past are no longer needed, port facilities were modernized, and thus sailor profession has changed drastically. The port facilities necessary for the full container ships have changed, have become more complex, automated computer driven. One effect was the decline of certain ports and development of others.

Generally, the importance of inland ports with big depths, situated inland decreased in favor of seaports, where they built large container terminals. The importance of containerization has gradually increased worldwide, container ships were built increasingly larger and more complex. There were companies in the transportation of containers by sea, which entered the competition, but they have cooperated for winning huge markets evolving. Inevitably, some companies have developed some have disappeared. In 1989, Hong Kong became the largest container port in the world, able to operate 4.5 million TEUs. In 1994, Hong Kong and Singapore have exceeded together operating capacity of 10 million TEU / year, in 2013 were operating together about 56 million TEU / year (table 3).

Table 3. Top 10 container terminals in the period 2011- 2013

	2011 Thousands TEUs	**2012 Thousands TEUs**	**2013 Thousands TEUs**	**2012/2011 %**	**2013/2011 %**
Shanghai	31700	32529	36 617	2,62	12,57
Singapore	29937	31649	32 600	5,72	3,00
Shenzen	22569	22940	23279	1,64	1,48
Honk Kong	24384	23117	22232	-5,2	-3,31
Busan	16184	17046	17686	5,32	3,75
Nigbo	14686	15678	17351	6,70	10,73
Quingdao	13020	14503	15520	11,39	7,01
Guangzhou	14400	14743	15309	2,39	3,86
Dubai	13000	13270	13641	2.08	2,80
Tianjin	11500	12300	13000	6,96	5,69
Rotterdam	11876	11865	11621	-0,09	-2,06

Source: Review of maritime transport 2014 from UNCTAD Secretariat and Dynamar B.V., June 2014

Now, the container transport by sea is truly globalized and is part of everyday life, everywhere. And continues to grow, in 2013 China became the largest exporter and importer in the world, 7 of the top 10 container terminals are located on Chinese territory. The global market is constantly changing and container transport provides the support that enables this change (table 4 and figure 4) which are the main shipping routes Containerized transportation and value of the goods transported (million TEU) during 2011-2014. One can notice the following: South-South route is the most important (approx. 50…70 mil.TEU / year) than Transatlantic route (aprox.6 ... 7 mil. TEU/ year), which is approximately 8 times less; on all routes (except the transatlantic) containerized cargo volume is increasing in the years 2011 ... 2014.

Table 4. Distribution of global containerized trade by route, 2011–2014 (Millions of TEUs)

Region	**2011**	**2012**	**2013**	**2014**
South-South	56,2	60,1	63,7	68,0
North-South	25,8	26,0	27,2	28,7
Trans-Pacific	20,8	20,8	21,7	22,7
Far East-Europe	20,4	20,1	21,0	22,1
Secondary East-West	18,8	19,5	20,1	21,3
Transatlantic	6,9	6,1	6,2	6,5

Source: Review of Maritime Transport 2014, based on Clarkson Research Services, Container Intelligence Monthly, June 2014 (Clarkson Research Services, 2014b).

For several decades, container trade segment was the fastest growing market, accounting for over 16% of global maritime trade volume in 2012 and an increase of 7.2% in 2013 compared to 2012 (for developed economies) to the percentage of 5.2% achieved in the previous year. Containerization is closely associated with the term globalization of production (the global growth of container transport by sea in 2013 was 5.2% higher than in 2012, with a volume of 466.1 million TEUs transported in 2013), it was necessary to make a study which had a sample of 157 countries.

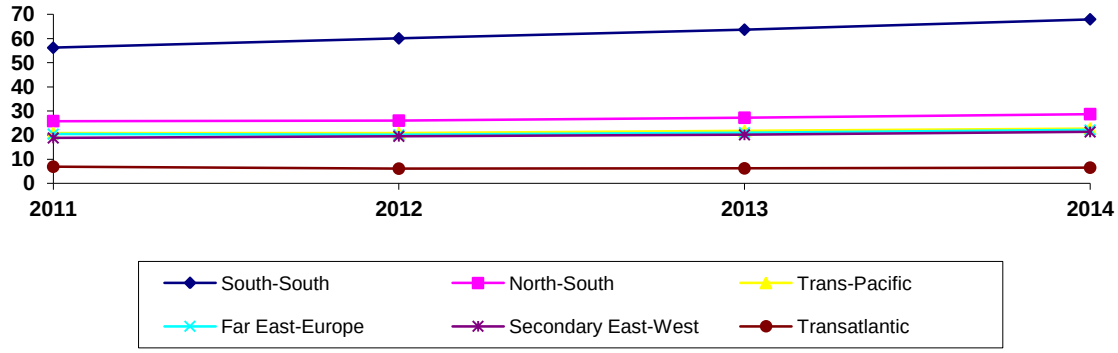

Figure 4. Distribution of global containerized trade by route, 2011–2014 (Millions of TEUs)

5. Conclusions

For a long time, containerized trade flows could be predicted by looking at the performance of global GDP, the multiplier effect of the increasing volume of containers. This report is currently being questioned by some observers point out that it is not an accurate predictor container growing demand because other factors are also at play, such as offshore production rate the degree of containerization of bulk goods, the report goods - services. Some analysts argue that the multiplier GDP declined from an average of 3.4 times more than in 1990-2005, only 1.5 times in 2012, but should be considered much higher value containerized cargo carried on sea.

The low multiplier has implications for future growth in demand and trade of container, a fact that is increasingly recognized as an industry. Current growth rates should be seen as a "new normality" for the container industry and the fact that the result of the maximum crisis of 2008...2009 led the economic growth very down, comparing it with the flowering period before the global crisis.

In this respect, while economic growth meets difficulties, containerized trade volume has increased steadily. Container trade, which was in 2012, 65% of "other dry goods" (value which is almost two thirds of 2.28 billion tons of dry cargo remaining after removal of dry-bulk cargo) increased by 3,2% in 2012, down from 13.1% in 2010 and 7.1% in 2011.

Container trade linking Asia, South America, Africa and Oceania has been increasing in recent years, emphasizing increasing South-South economic relations. Reflecting volume enhancing inter-regional trade, the average size of vessels deployed on these routes has increased significantly. With consumer demand in developing regions aimed to increase, the "south" markets will continue to lead global growth container trade. While, as mentioned above, the impact of containerization on trade North-South and South-South, during the period 1962-1990, appears to have been relatively lower than in advanced regions, the rapid growth of containerized trade observed in recent years highlights, in a certain extent, the increasing importance of containerization in promoting trade within and among developing regions.

Weak market and the evolution of vessels that have become increasingly large forced the owners to send ships on secondary and regional routes. However, during the year, the market has seen the arrival of the largest ships to date (16,000 TEU container vessel and Triple-E of 18,300 TEU). In addition despide the appearance of these giant ships, in 2012 there was an operational restructuring through which the largest container ships companies *Maersk Line*, *Mediterranean Shipping Company* (MSC)

and CMA CGM alliance formed P3, which supports large vessels and affects three major east-west trade routes. It will likely affect not only carriers but also ports, shippers and smaller operators.

Another trend is the continuous entering of containerization in bulk trade, in particular interconnection routes that are based on an unbalanced trade. Regulatory developments in commodity sector supports this trend as in the case of grain from Australia. Since 2008, when grain trading was liberalized in Australia, containerized shipments of wheat in the country has increased tenfold. Similarly, the recent regulation in the grain market in Canada is likely to lead to greater containment grain trade. Finally, an issue that is mentioned more and more concerns *nearsourcing*, whereby a number of companies are forced to move closer to home markets, which is generated by the increase in production costs in China.

Some observers argue, however, that *nearsourcing* affects limited areas of business and, therefore, is overrated. In addition, it was observed that there was more than one factor to consider when deciding on places of production and that there was no solution to solve all these, in some cases - by product - *nearsourcing* can generate significant savings, while others may prove to be costly.

In 2012, the volumes transported by sea has been declining, especially on the containerized trade routes main East-West, combined with an oversupply of tonnage, especially large container vessels. This led to volatile prices for freight containers to a weaker market, while rates for chartering contracts remained in decline.

The worldwide container trade volume grew 3.3% in 2012, compared to 7% in 2011. At the same time, the high influx of new vessels continued to affect container transport market in 2012, with global supply container ship up 5.2%, exceeding global demand. In an attempt to deal with the imbalance between excess demand and low supply, carriers have made voyages with vessels of less capacity on routes where trade was in decline.

The shipping companies have tried to use navigation of large vessels on developing north-south routes, where the trade volum increased by 4% and in the inter-regional which increased by 7% in 2012, boosted by rising consumer demand developing economies. Given the growing gap between supply vessel capacity and demand for freight services, the freight containers of different markets remained low, but improved in relative terms compared to 2011.

This may be attributed, in particular, to the routes that have changed the point of view, by imposing market discipline and that is because they have not sought to obtain the same market share as in 2011, but rather wanted to improve earnings. In 2011, rates remained low because shipping lines have sought to maintain market share and volume of goods transported. In an effort to control freight tariffs, operators exercised in the first half of 2012 a degree of power by applying a common discipline in terms of pricing in the market.

As a result, the average freight rates increased by 51% for the trade in the Far East to Europe and Trans-Pacific route. The rates in the Far East to the West coast of the United States reached $ 2,600 per TEU unit in June 2012, up from $ 1,800 per TEU unit in January 2012. The comparable rates on routes to the Far East Northern Europe rose from $ 750 per TEU unit in January 2012, to a maximum of $ 1,900 per unit TEU in June 2012 (BIMCO, 2013). However, this judgment of the maritime industry ceased in the second half of the year due to positive operating income encouraged by some carriers to return to price competition and reduce prices in order to seize market share. Consequently, rates for Northern Europe declined so much that reached $ 1,000 per TEU in November 2012, due to the continuous decrease in demand (BIMCO, 2013). Globally, the freights observed low income in 2012 decreased almost carriers, and even lower operating costs, especially when fuel prices have

remained so high and changeable. Accompanied by considerable price fluctuations, fuel costs have averaged $ 640 per tonne in 2012, an increase of 4% over the previous year. This was partially submitted by customers adding fuel surcharges pressure on operating costs and low income growth. As a result, the shipping companies tried to apply different strategies to remedy the situation, such as decommissioning of vessels, reducing travel speeds, delaying delivery of new vessels, increasing surcharges and reduced services, suppression of the transmission capacity main routes and scrapping. However, the containerized trade continued to suffer another year due to negative operating income in 2012. A recent study showed that 21 of the 30 comppanies who have published financial results reported a total loss of 239 million in 2012, and only 7 companies have had positive results. Although only a third of the 21 companies have reported profit, the overall result is seen as an improvement in the combined operating losses. On the other hand, the ships providers, outsourcing operation of their ships were direct victims of low demand and overcapacity. The largest decline in freights in 2012 was observed on the large vessels, which amount decreased by 34 ... 48%, compared to the previous year. Large surplus of ships (greater than 8,000 TEUs) leads to decreased transport capacity (redistribution on different routes), and generates pressure on tonnage charter and charter rates volatility. Reallocation of smaller container ship on the main routes faced with declining demand, the rapid growth of secondary route was crucial in managing substantial orders for new ships large.

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