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THE MARITIME CONTAINER TRANSPORT STRUCTURE IN THE MEDITERRANEAN AND ITALY

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Discussion Paper
n. 24

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THE MARITIME CONTAINER TRANSPORT STRUCTURE IN THE MEDITERRANEAN AND ITALY

Abstract
The maritime container transport structure in Mediterranean and Italy

In this paper we will describe the liner shipping industry in the Mediterranean and in Italy. The structure of the industry is representative of the oligopolistic structure that is taking shape on a worldwide level. In particular the main terminals in Italy have undergone a "colonization process" by the big liner shipping companies. At the same time the Italian shipping industry is made up of small to medium companies that are strong in inter-regional and specialized traffic.

Classificazione JEL: L100, L920
Keywords: Hub and spokes, liner shipping industry, Mediterranean, ports, maritime economics

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1. Introduction

In this paper we will describe the liner shipping industry in the Mediterranean and in Italy. The structure of the industry is representative of the oligopolistic structure that is taking shape on a worldwide level. In particular the main terminals in Italy have undergone a "colonization process" by the big liner shipping companies. At the same time the Italian shipping industry is made up of small to medium companies that are strong in inter-regional and specialized traffic.

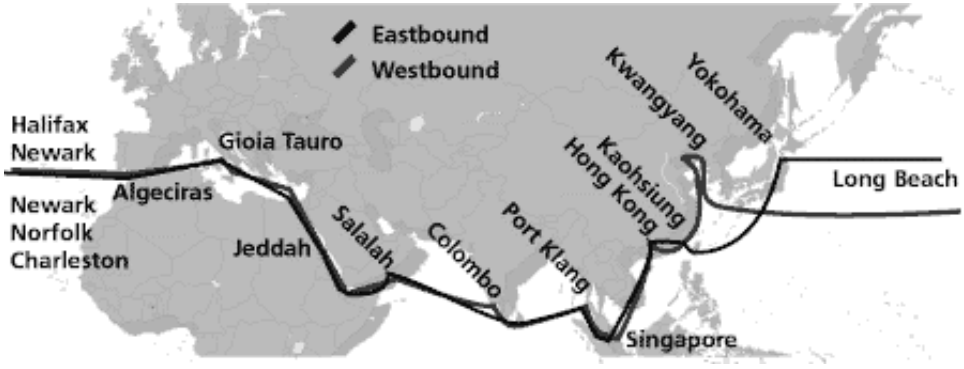
1.1. Expansion of the worldwide model to regional areas: the case of the Mediterranean

The maritime container transport structure in the Mediterranean and Italy mirrors the structure of the liner shipping industry on a worldwide level: it is characterized by a new phenomenon of the union of two sub-industries which can be defined, on the basis of the navigation routes, as consisting of:

- all transport that travels along the oceanic routes and,
- the set of so-called "niche" service routes, feeders and others.

The oceanic "pendulum" routes travel mainly between the Far East, Northern Europe and North America and are the main lines that feed the hub and spokes system in this zone. On these routes the top twenty liner shipping companies play a major role and the entrance barriers, at least in terms of ports controlled by 'incumbents', are stronger given the particular geographical configuration.

FIG.1. *'Pendulum' routes Eastbound and Westbound.*



Source: Maersk - Sealand, 2002

There are mainly local, less specialized and more competitive companies involved on regional, international short to medium range North to South, specialized and feeder etc. routes In particular for the feeder stretches the 'top twenty' can have their own feeder companies (direct feeders) along side the independent feeder companies (common feeder). Since the common feeders do not control the goods, it is not profitable for them to reach large dimensions. In the "niche" services market behavior that indicates both a type of competitive selection and monopolistic competition can be detected.

To be able to understand better which companies are involved in the different services and the role they play in the Mediterranean and Italy, both the services and ports in the Mediterranean port system need to be examined.

1.2.From isolation to the integration of trans-oceanic routes

In the eighties the Mediterranean was considered a market apart that was separately connected to Asia, North America and North Europe. The liner shipping companies who normally worked on the main routes between the Far East and North America or North Europe also deployed ships dedicated specifically to services with the Mediterranean.

The physical routes and the organizational inefficiency or, the excessive distance from the optimal route- affecting even of some of the

major hinterland ports that would be of interest because of their potential for attracting large volumes of freight – resulted in real physical - economic barriers for the big ships in transit.

In the nineties the biggest shipping companies decided to incorporate the Mediterranean in the oceanic routes, as a result of a number of contributory causes, some intrinsic to the world linear shipping industry and international commerce, some specific to the Mediterranean.

In the Mediterranean, hub ports (such as Gioia Tauro[1]), or specialized transshipment ports (such as Algeciras[2]) sprang up. The main existing commercial ports were modernized (such as the large ports of Genoa, Barcelona, Valencia and Marseille).

The hub and spokes model adopted by the big companies led to an important structural transformation in the Mediterranean.

This new organization coexists with the previous one, obviously resulting in a different distribution in traffic quotas between the more traditional direct services systems and the new network systems. As can be seen in Table 1 further on in the text, the previous dominant position of direct services has given way, today, to a new position of near equilibrium with the new network services. The forecast for the future is that the balance will be tipped in favor of hub and spokes organization.

1.3. Ports and Services

All the services that are offered in the Mediterranean (and in Italy) can be classified in two large categories:

- direct services (direct call), also known as origin/destination services, O/D, (associated with the point to point services),
- transshipment services

The O/D services (origin/destination) can expect to make one or more calls to port. Within this category there can be either:

[1] The port of Gioia Tauro (2.488.332 TEU in 2001) is a true transshipment hub port (see § 1.2. for the distinction), the undisputed leader in the Mediterranean. The port is centrally situated, but there is a 66 nautical mile deviation from the main route connecting Gibraltar with the Suez Canal. This causes a rise in navigation costs as compared to Malta. Its draught is about 15 meters, allowing for the mooring of ships the size of the Sovereign Maersk (8.400 TEU), that require a draught of 14 meters. There could be possible difficulties for the mega ships of the future like Suezmax (11.989 TEU) which need a little over 17 meters draught and the largest ships imagined so far, namely the Malacca –max (18.154 TEU) which need 21 meters draught.

[2] Algeciras ((2.151.770 in 2001) and the figures are rising), was for a long time the first relay –transshipment port for a long time in the Mediterranean. It is a port with special characteristics as Maersk, its owner for transshipment, uses it above all for the long routes along Africa and the European Atlantic. Algeciras is too decentralized to be an efficient hub port for the whole of the Mediterranean. This port has numerous development plans to increase its capacity. A disadvantage is that the bay is not very deep. The port was planned to manage mega ship containers. The deepest quay is now about 16 meters deep, but there are plans for the creation of another quay, 18 meters deep. At the moment ships reaching the size of Sovereign Maersk can be moored there. The Suezmax will be able to moor on the new 18 meters quay; the Malaccas –max is so far excluded from future projects in this port. Nevertheless there is a clear willingness to prepare for the mooring of mega containers in port projects.

- oceanic services
- feeder services, that originate within the hub and spokes system (both infra-regional and international).
-and infra-regional and international services

Transshipment services involve an interruption of the transit of a load that can be from ship to ship (maritime transport), as well as from ship to another form of transport (combined transport, in particular ship-train). Transshipment between ships can be between oceanic ships, mother ships, and small feeder ships, that carry out the above mentioned services (O/D): or between oceanic ships of the same capacity, with one traveling on the east-west route and the other on the North- South route.
In the first case transshipment is more precisely definable as hub and spokes; in the second case transshipment is definable as a relay between ships. Table 1 provides the relative data for container traffic in the Mediterranean by traffic type.

TAB. 1 *Container traffic in the Mediterranean from 1980 to 1998 with regard to origin/destination and transshipment services (data in'000 of TEU)*

		1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998
Transhipme	H&S and Relay	414	784	1552	1885	2178	2482	2955	3467	4069	5107	6509
OD	Feeder	186	353	659	801	925	1055	1256	1387	1627	1915	2278
	Infra-regional	467	656	850	908	946	1075	1164	1356	1520	1733	1895
	Ocean routes	2501	3425	4233	4426	4520	5128	5440	6416	7119	8056	8629
Total		3569	5218	7294	8020	8570	9740	10815	12625	14336	16811	19311

Source: Own elaboration of Drewry Shipping Consultants, Ltd. data (2000)

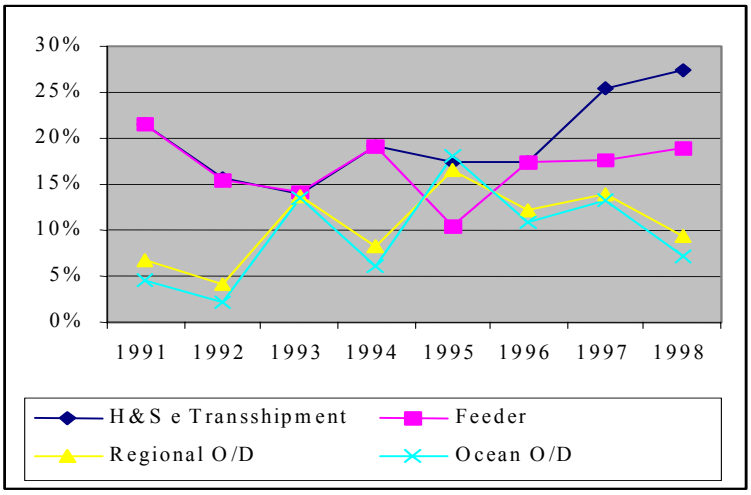
As seen in Figure 2, between 1990 and 1998 there was considerable growth in transshipment as compared to O/D, typical of a mature sector with respect to an innovative sector.[3].
In total, variations recorded from 1990 to 1998 amount to a 19.6% variation in transshipment, 16.8% in feederage, and 9.3% in direct services (direct calls).

[3] The growth of transshipment over eight years corresponds to an average variation of 46%, followed by feederage as a service induced by transshipment, with an average variation of 17%

The infra-regional O/D services and the services on the ocean direct routes show a more contained positive variation, 10% and 4% respectively.

Considering the quotas of transshipment services together with the feeder quotas versus the two remaining O/D services, the quota obtained from these last two is greater overall: 54% against 46%.

FIG. 2 *Annual growth of container traffic in the Mediterranean from 1990 to 1998 pertaining to origin/destination and transshipment services (data in %)*



Source: Own elaboration of Drewry Shipping Consultants, Ltd. data (2000)

1.4. Types of ports

Three types of port are present within this variety of services:

- Transshipment ports, which according to the definition of services as stated above can work as the hub center in a hub and spokes system (for example Gioia Tauro, Marsaxllok[4], Damietta[5], Alexandria[6], Port Said[7]) or as relay, linking two orthogonal routes (like most of the activity at Algeciras);

[4] Marsaxllok is the port on the island of Malta. It is a little smaller than Algeciras, but it has numerous development plans that reveal a determined program to increase the throughput of containers (equal to 1.300.00 in 2001). At the moment its depth does not exceed 15 and a half meters. Nevertheless there are plans to build a 21 meters deep terminal. The main advantage of this port is its position at the center of the Mediterranean. The fact that it is an island is a disadvantage: our calculations show that the unit cost of transport is notably reduced when some of the containers actually have the hub port as their final destination (Cazzaniga, Francesetti and Foschi, 2002b).

[5] The port of Damietta (696.693 TEU in 2001) at present has an important role as a local hub. It has limits with regards to the length of ships, and these limits seem likely to be difficult to overcome. This port at present plays an important role in the distribution of freight in the southern and eastern Mediterranean but could not used for ships of increasing size.

[6] The port of Alexandria (505.049 in 2000) has restrictions regarding the maximum depth, about 12 meters: as a result of this even now it cannot moor ships that are over 6.000 TEU, which instead normally moor at Gioia Tauro. To be able to host the mega ships of the future, the authorities would need to dig another 10 meters. Furthermore, in its current state the port is not specialized as a container port and in total has only 720 meters of quay (note that a 6.400 TEU ship reaches 300-340 meters in length).

[7] Port Said (544.094 TEU in 2001) has many disadvantages. For example the entrance in the canal is only 11.28 meters deep and the quays 350 meters long. The length of a container ship such as the Malacca-max exceeds this length. However, Port Said, is now having a new

- Gateway ports (main ports or commercial ports), namely ports with a hinterland supporting them that is rich in production and consumption.

Gateway ports constitute the basic outlet for the regions supporting them. For example Genoa, Marseilles, Barcelona in the west of the Mediterranean and Piraeus, Odessa, Haifa, Izmir, in the east of the Mediterranean. If they have suitable physical, technical and infrastructural characteristics, the large ocean-going ships with international traffic can call at these ports. Otherwise, both on the East-West route and the North-South route, they can serve small ocean ships performing regional and interregional cabotage services,– short sea shipping [8] -, or that carrying out feeder services in a hub and spokes system.

- Regional ports

These can also be situated in the vicinity of industrial centers or densely populated areas, but positioned in remote locations with respect to the actual urban area (like most eastern Mediterranean ports). The traffic in these ports consists of smaller feeder ships, or infra-regional connected directly with gateway ports or to other minor ports.

terminal constructed called East Port Said, but this will be too decentralized with respect to the other feeder ports in the Mediterranean. It could be of interest for the eastern Mediterranean, but the strong development of Haifa, especially as regards the presence of ZIM terminals, makes these possibilities very unlikely.

[8] In the definition given by the European community, the concept of short sea shipping (which differs from coastal shipping) is the "movement of goods and passengers via sea between ports situated in geographic Europe or between these and non European countries with coastal lines on seas closed at the European borders. Maritime short sea shipping transport includes national and international maritime transport, including feederage services, along the coast and from/towards the islands, rivers and lakes. The concept of short sea shipping also includes maritime transport between member states of the union and Norway and Iceland, as well as other countries that border on the Baltic sea, the Black Sea and the Mediterranean Sea"

Italy considers coastal shipping as shipping between national ports, but upon entrance into the EU it corresponds to short sea shipping.

FIG. 3. *Main Mediterranean transshipment and gateway ports*

Source: own creation, 2002

1.5. Deviations from the main routes and depth of port waters

The services offered by Mediterranean ports tend to belong simultaneously to more than one category. Nevertheless the 'core business', i.e. the specialization of a given port, depends on their port's position and the services offered: the distance from the route that directly crosses the Mediterranean from Suez to Gibraltar, the physical characteristics of each port, the depth of port waters, the length of the quays, the technology – gantry crane[9], IT, etc – and the intermodal infrastructures (Cazzaniga Francesetti and Foschi, 2002b). Table 2 shows why it can readily be understood that Algeciras, Gioia Tauro, Marsaxllok, Damietta and Port Said, are the most important transshipment ports in the Mediterranean.

[9]The new cranes must guarantee 21 - 33 deployments per hour

TAB. 2 *Depth of port waters and deviations in terms of distance and time from Suez-Gibraltar route, for the main Mediterranean ports*.

Ports	Depth of Of floor*	Deviation nautical Miles*	in Deviation In hours**
Algeciras	16	0	0
Barcelona	16	209	22
Marsiglia	14	290	27
Genoa	15	352	31
La Spezia	14	337	30
Gioia Tauro	15,5	66	13
Marsaxlokk	15,5	6	9,5
Pireo	16,5	178	20
Alessandria	12	32	6,2
Damietta	14,5	0	0
Port Said	11,28	0	0
Izmir	n.d.	345	30,5

Source: Own processing of Ministry of Transport and Shipping * (2001) data, and Containerisation International ** (1995) data

1.6. Level of specialization in ports

As can be seen in Table 3, the only hub port that is only a transshipment port in the Mediterranean is Gioia Tauro (100% of its total through-put). This port currently receives ships of up to 6400 TEU and in the future could undergo further important developments; furthermore, a production diversification is not out of the question. Nevertheless, in the following order, Damietta (95%), Marsaxllok (90%) and Algeciras (90%) are also important. Porto Said comes next at 65%. These data are from 1997, but as far as port specialization is concerned they are still valid

TAB. 3. *Production specialization of the major Mediterranean ports (data 1997)*

Ports	Algesiras	Barcelona	Marseille	Genoa	La Spezia	Gioia Tauro
container movement in %	90%	25%	8%	0	0	100%
Ports	Marsaxlokk	Pireo	Alessandria	Damietta	Port Said	Izmi
container movement in %	90%	20%	4%	95%	64%	0

Source: Tuna (2002)

The hub ports, for the abovementioned reasons, are found on the East-West route and viceversa, while on the North-South route direct call (point to point) or feeder services are more common and can also include the African and European Atlantic routes. The types of ships can be

multicargo ships, with on board cranes, as the ports may not be self-equipped.

There are some ports that have important connections on both routes.[10] Often even Genoa, Barcelona and Valencia, are mentioned as hub ports, despite being geographically unsuitable as a result of their distance from the main route, because dedicated weekly feeder services leave from these ports.

2. A single Mediterranean?

It is often asked whether there is any sense in speaking of the North-West and South-West Mediterranean, and an Eastern Mediterranean, when speaking of maritime transport, or whether its global nature renders this distinction no longer necessary. As a matter of fact some peculiarities of these two sub-regions suggest that it is still necessary for them to treated as be distinct areas, although on the way towards integration. By distinguishing these different areas, one can give a clearer analysis of the aspects that influence their development and of the critical factors that need to be taken into consideration in planning socio-economic and industrial policies for a balanced development of the zone.

The presence of important European and world level hub and gateway ports and the average satisfactory level of port infrastructures consent all types of services to be carried out in the western Mediterranean. In the Eastern part the predominant presence of regional ports involves a greater need for technological reorganization and qualification of services.

Although the expected development (see. tables 4. and 5.), in terms of per-capita GDP and of GDP for the countries that border on the Mediterranean[11] may be dishomogeneous, it is likely that the maritime transit deriving from the exchange and trade among these areas will be increasing, as will exchanges deriving from world trade.

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[10] Barcelona, Valencia, Marseille, Gioia Tauro and Genoa are ports that are part of the above mentioned case. Gioia Tauro has more calls on the East-West routes, but this derives from its specialization as a hub port. Better still, one can say that the calls to Gioia Tauro in a North-South direction are only direct and triangular (point to point) feederage calls.

Often Genoa, Barcelona and Valencia are also indicated as hub ports, even though they are geographically unsuitable due to their distance from the main route, because they also have dedicated feeder services that leave from these ports, with a weekly frequency (Drewry , 2000)

[11] According to the classification supplied by World Bank (2002) among the countries bordering on the Mediterranean there are high income countries, i.e. those that are part of the EU plus Slovenia and Cyprus in Europe and Israel in the Middle East; medium-high income countries, like Croatia in Europe, Libya in North Africa as well as Malta in the West Mediterranean and Lebanon in the Middle East, and low income countries like Turkey and the ex Soviet Republics in Europe, Algeria, Morocco, Tunisia and Egypt in North Africa, Jordan, Syria and the West Banks and Gaza in the Middle East.

TAB 3. *Growth of per-capita GDP and of GDP in real terms from 1971 to 2010 for geographic areas, expressed by income levels*

	GDP Billions US$	1971 -	1981 -	1991-	200	Esti 200	Forecasts 2001-
World	31.98	3,	3,	2,	3,	1,	2,
igh income economies	25.55	3,	3,	2,	3,	0,	2,
Area	6.07	3,	2,	2,	3,	1,	2,
Other countries high	78	7,	5,	5,	6,	0,	3,
edium- low income	6.40	5,	3,	3,	5,	2,	4,
Europe and Central Asia	99	5,	3,	-	6,	2,	3,
Russia Federation	24	5,	4,	-	8,	4,	n.d
Turkey	20	4,	5,	3,	7,	-	n.d
Poland	15	5	-	3,	4,	1,	n.d
Middle East and North	54	6,	2,	3,	3,	3,	3,
Eygpt	96	6	5	4	5	4	3

Note: With regards to the Russian Federation the data preceding 1992 refers to the Soviet Union

Source: World Bank data, 2002

TAB. 4. *Growth of per capita GDP in real terms from 1971 to 2010 for geographic areas, expressed by income levels.*

	GDP pro Billion US$	1971 -	1981 -	1991-	200	Esti 200	Forecasts 2001-
World	5.53	1,	1,	1,	2,	0	1,
High income economies	28.75	2,	2,	1,	2,	0,	2,
Area	20.08	2,	2,	1,	3,	1,	2,
Other high income	17.01	5,	3,	3,	4,	-	2,
Medium-low income economies	1.30	3,	1,	1,	4	1,	3,
Europe and Central Asia	2.17	4,	2,	-	6,	1,	3,
Russian	1.63	4,	3,	-	8,	5	n.d
Turkey	3.06	1,	2,	2	5,	-	n.d
Poland	4.07	4,	-	3,	4,	1,	n.d
Middle East and North	1.94	3,	-	1	1,	1,	1,
Eygpt	1.50	4	2	2	3	2	n.d

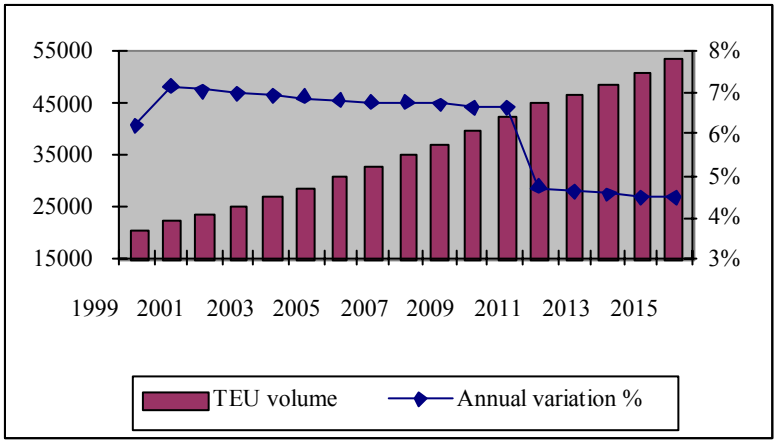
Note: With regards to the Russian Federation the data preceding 1992 refers to the Soviet Union

Source: World Bank data, 2002

The expected positive economic development (even though it may be subject to political and organizational limitations and may have different levels in the various countries) can only confirm the belief that container throughput will continue to show constant growth in the future, as in the past. The trend of overall container throughput in the main Mediterranean countries and the annual growth rates are shown in Figure 4. The highest growth in percentage terms is between 1999 and 2001; constant growth at high rates of almost 7 % are expected until 2011, following which there

will be a sudden fall in the rate to around 4%. The forecast (according to the most important analysts in this sector - Drewry, OSC, WEFA – DRI, Fairplay, etc) is for an average growth of 6%.

FIG. 4. *Increase in the volume of container throughput in the Mediterranean from 1999 to 2015, and annual growth rates.*



Source: Author elaboration of Drewry Shipping Consultant Ltd data (2000)

2.1.Balancing of demand and supply of port services

Table 6 shows the trend of container throughput between 1998 and 2001 in the main Mediterranean ports, and highlights the importance of Italian container volume.

TAB. 6 *Trend of container throughput between 1998 and 2001*

Porti	1998	1999	2000	2001
Gioia	2.125.64	2.253.40	2.652.70	2.488.33
Algecir	1.825.61	1.832.55	2.009.12	2.151.77
Genoa	1.265.59	1.233.81	1.500.63	1.600.00
Barcelona	1.092.92	1.235.00	1.387.57	1.400.00
Valenc	970.75	1.170.19	1.308.01	1.371.88
Marsaxlok	1.071.66	1.044.97	1.033.05	1.300.00
Pirae	933.09	964.90	1.161.09	1.200.00
La	731.88	843.23	910.00	974.64
Haif	832.37	800.00	870.00	901.00
Marseill	644.00	667.00	726.00	740.00
Damiett	309.67	433.69	583.20	696.69
Alessandr	495.77	559.12	505.04	n.d.
Port	n.d.	422.17	503.79	544.09
Livorn	576.68	478.64	501.33	531.81
Ashdo	363.78	441.27	479.78	510.29
Izmi	396.61	435.96	470.00	460.00

Source: CI Online (15 May 2002)

As can be seen in table 7 these volumes of traffic come from the two main routes: Europe (to/from North and South ports) to Far East and Europe to Middle East.

The volume on these routes is almost equal to the transpacific route that has the highest container traffic in the world[12]. This observation confirms the importance of the Mediterranean.

TAB. 7. *Container traffic on the main world-wide routes (in '000 of TEU)*

	Eastboun	*Westboun*	Total
Transpacific	6.338	3.392	9.730
Transatlantic	1.650	2.062	4.270
Europe Far East	2.950	4.925	7.875
Europe - Middle East	975	175	1.150
North America- Middle East	245	100	345
Far East*t* -Middle East	250	1.455	1.705
Total East - West			25.07
Total North -			15.42
Total			21.58
European Total			5.235

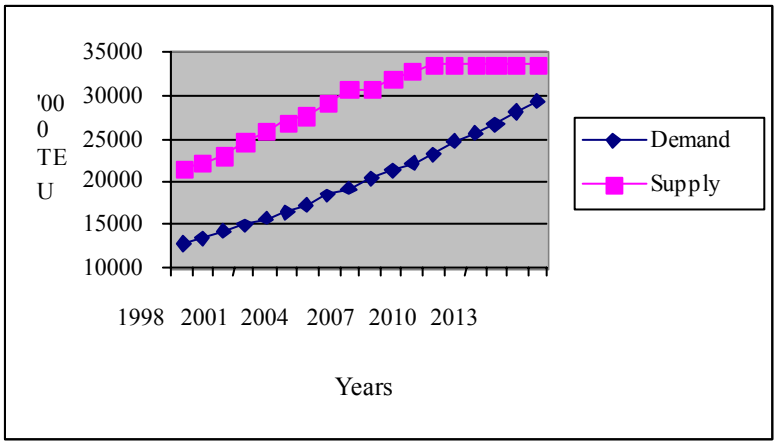
Source: Bologna, 2001

A problem that is important with regards to the growth in the Mediterranean traffic is whether the capacity of services offered by the Mediterranean ports as a whole permits the balancing of demand and supply of these services. This is to avoid the risk that in case of excessive demand, the liner shipping companies might deviate towards the more competitive ports, namely those of the Northern Range, as well as the opposite risk, i.e. that an excess of supply would lead to a decrease in profitability of the ports and the associated businesses.

Some surveys and forecasts from 1998 to 2015 (DSCL,2000) indicate a stable excess in port supply with regards to O/D services, even though a marked slow down is expected as from 2007 (Figure 5). With regards to transshipment, an excess in port supply is expected between 1998 and 2012. This is an invitation to caution when establishing new terminals in the short-medium term: for example this imbalance would worsen if Cagliari were also to enter. In 2013 the world growth in container flows, estimated at about 6% a year, as mentioned, would lead instead to an inversion in the trend (Figure 6)

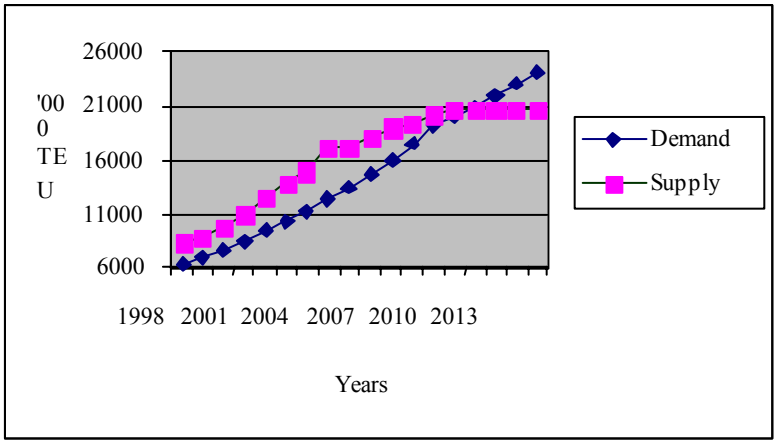
[12] More precisely, about 10 million containers transit from the Mediterranean via Suez, of which about 4.500.000 from west to east and about 5.500.000 from east to west (Bologna, 2001)

FIG. 5. *Port demand and supply for O/D services*



Source: Author elaboration of Drewry Shipping Consultants, Ltd. data(2000)

FIG. 6. *Port demand and supply for transshipment services*



Source: Author elaboration of Drewry Shipping Consultants, Ltd. Data (2000)

It should be noted, however, that the results are relative to aggregate data. The observation of what happens in the individual ports suggests that this aggregate analysis overestimates [13] the true supply capacity of the Mediterranean port system, which should be considered not as an unicum but subdivided according to the specialization of the individual ports considered in the whole analysis.

Furthermore, some ports are much more attractive than others within the particular specializations, as a result of the better services offered .

[13] Mediterranean "The scenario during the period 1999-2005 is generally characterized by a growing use of capacity, except in Europe and in the Mediterranean, where capacity exceeds demand and consequently the pressure for lower handling fees is strong (...) in particular in the center and eastern Mediterranean there will be stronger pressure on fees. The expected utilization rate in 2005 is 66% and 69% respectively" (OSC, 1998)

Consequently there are terminals that are used more intensely while others are used very little; only some ports are called at on account of their particular characteristics, others not at all. It is not merely a question of offering space for mooring and anchoring, or generic services. Rather, it is very important that each port is able to forecast what will be its relevant market. Therefore the supply capacity is effectively far less for many market segments than suggested by the graphs.

Overall, the reasons why there can be an excess or scarcity in port supply are due to:

- the quantity of TEU requested and supplied by the markets that refer to a certain port;
- the decision by a company to stop or not in a port (because they own the port terminals – having bought them - or because they have made an agreement with other companies to accumulate loads in another port)
- the general trend in growth of GDP in a zone.

3. Development and critical state factors in Italian ports

The TEU throughput gives a description of the growth of Italian ports. In total the 140 Italian ports had a remarkable throughput of 7.280.000 TEU in 2001.

The only port that appeared in the classification of the top twenty ports in the world is Gioia Tauro. Genoa, which has won back leadership in the Mediterranean among the gateway or commercial ports, is classified at number 31.

The ranking of Italian ports in order of their importance on the worldwide scene by TEU throughput is taken from data in the specialized yearbook 'Containerisation International Yearbook (2000). The data refer to the first 342 world-wide ports of call.

TAB. 8. *Main Italian ports for container flows.*

	1995	1996	1997	1998	1999	2000	Variation 2000/1999	Rank '98 *	Rank '97*
Gioia Tauro	16.048	486.946	1.444.441	2.082.761	2.371.627	2.652.701	11,85%	17	27
Genoa	615.152	825.752	1.179.954	1.265.593	1.233.817	1.500.632	21,63%	31	32
La Spezia	965.483	871.100	615.542	731.882	802.191	909.962	13,43%	61	61
Livorno	423.729	416.622	501.146	522.466	457.842	501.339	9,50%	70	70
Naples	234.767	245.806	299.117	319.686	308.679	396.562	28,47%	n.d.	n.d.
Salerno	173.880	190.032	201.680	207.927	238.025	275.963	15,94%	n.d.	n.d.
Venice	127.878	168.821	211.969	206.389	199.803	218.023	9,12%	135	127
Trieste	150.013	172.847	201.918	171.297	185.263	206.134	11,27%	144	126
Ravenna	193.374	159.818	188.223	172.524	173.405	181.387	4,60%	143	130
Ancona	26.873	46.727	65.555	66.138	45.524	83.934	84,37%	n.d.	n.d.
Palermo	n.d.	n.d.	n.d.	24.000*	n.d.	n.d.	n.d.	267	252
Savona	n.d.	n.d.	n.d.	14.495*	n.d.	n.d.	n.d.	298	276
Bari	n.d.	n.d.	n.d.	1.445*	n.d.	n.d.	n.d.	336	306
Civitavecchia	n.d.	n.d.	n.d.	n.d.	n.d.	12.000**	n.d.	n.d.	n.d.

Source: Confitarma, 2001; * CI Yearbook, 2000; ** AP Civitavecchia

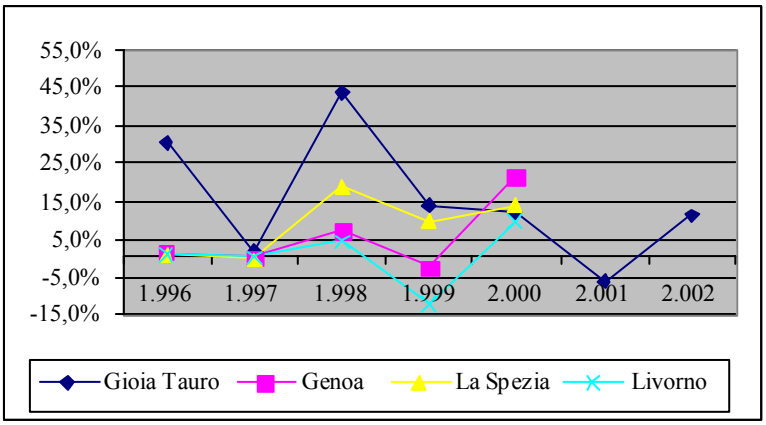
Other data to be noted are the 2001 data from the port of Taranto (estimated at about 500,000 TEU). As is known, Taranto acts as a hub managed by Evergreen.

Civitavecchia, which has recently stipulated an agreement with the managers of Taranto, is not only an established pole for cruises and cars, but is also expected to undergo a non marginal development in container traffic (14.000 TEU forecast for 2002)

In the first year that Taranto opened, in 2001, Gioia Tauro experienced for the first time a 6.2% negative growth trend with the departure of the Evergreen ships, (see tables 8. and 9.); however, business has recovered in 2002.

During the first six months of this year (2002) Gioia Tauro had a throughput of 1.421.000 TEU: if the trend continues at the same rate, the variation at the end of the year will show an 11% increase, which is the same variation as the year 2000 compared to 1999 (Eurogate, 2002)
As figure 9 shows, throughput in the main Italian ports has grown in the period 1998-2001.

FIG 7. *Percentage variation of TEU throughput in the main Italian ports from 1995 to 2001*.



Souce: Author elaboration of data from table 17 and Euromed (2002)

3.1.Development and critical state factors.

The success or failure of ports is often attributed to so-called development factors or critical factors.

The ‘development factors' of Italian ports can be described as:

- privatization of terminals;
- the establishment of the Port Authority;
- ‘colonization’ of terminals by the liner shipping Companies and big terminalists, both organizing their services on a worldwide level in terms of a hub and spokes that transports freight even from less structurally favored ports;

- growth of GDP in the various countries in the Mediterranean basin, also taking into account the expected economic development of North Africa and Mediterranean Third countries;
- strategic position at the center of the Mediterranean and growing importance of trade between the Far East and North America;
- the extremely important advantage of a savings of no less than seven days in reaching the Northern ports for freight arriving from the East;
- potential customer base that extends from North Italy to Switzerland, Austria, Bavaria, Hungary and other eastern countries;
- European Union policies designed to create a free exchange area in the Mediterranean and the integration of maritime transport development plans within the broader framework of transport infrastructure development in Europe.

3.2. Critical state factors

The critical state factors are due to :

- Excessive competition between ports;
- Episodic and arbitrary financing that has allowed marginal ports to leap to a position first in line;
- Absence of a specialization policy developed by the ports themselves;
- Extreme difficulty of rail transit[14] and the objective barrier constituted by the Alps
- Lack of a coherent plan for the ports notwithstanding the various versions of the national transport plan since 1985. The 1985 plan had more efficiently than the others '…laid the groundwork for a the process of rationalization of the infrastructural choices, by identifying a series of multimodal corridors to be supplied with infrastructures that are coherent with the specific regional necessities, the relative urgencies and the available resources. In this network, a prime position was attributed to the port systems, each made up of ports that can be functionally and complementarily brought together. In the first hypothesis formulated the port systems numbered 6, but there was still the hypotheses of arriving at 12, which corresponded to the number of maritime directorates at that time (Mostardi 2002). But in actual fact, at present every Italian port continues to set up its own independent policies[15]".

[14] The example of the Pontromoli line is emblematic: it does not need new tracks, even if doubling of all of the tracks would be useful and would permit the transit of at least twenty more trains than currently run on this old line. But the real problem is that the Pontremoli is suffocated by a lack of a direct connection with other lines that do not necesitate recourse to the Milan- Bologna _ Venice routes. In short, there is a need for the controversial Parma-Mantova line, essential to be able to satisfy the flow of traffic that the Mediterranean ports need to use in order to reach the towns close to the Alps (Mostardi 2002).

[15] For this reason we find Monfalcone competing against Venice and Taranto competing against Brindisi, wihout any kind of criteria for network synergy.

4. Italian ports versus Northern Range ports.

Many studies maintain that the Mediterranean ports have had a greater development than those in the Northern Range. A study by the Drewry Shipping Consultants (Dardani, 2002 a) maintains that a two-speed growth of the European ports is now consolidated, with ports of call in the North of the continent that develop at a fairly slow pace of 2.1% and with the Mediterranean ports growing at a rates higher than 5%. According to the same report the Mediterranean grew by 16% in'96, 18.9% in '97 and by 18.1% in ' 98 while during the same periods those in the North developed by 7.3%, 10.6%, and 6.3%.[16].

A recent study by Isemar [17] reveals that the ports in the Northern range recorded a reduction in their total share of the freight market from 54% in 1970 to 50% in 2000. The Mediterranean ports are reported to have increased their share from 24.5% to 26.5%.

A study by OSC (1998) [18]) on Northern European containerization comes to a conclusion consistent with Isemar's. The loss of share by the ports in the north appears to be caused by the fact that many more containers are now making calls in the Mediterranean without passing via Rotterdam or Hamburg, to then return via land to their destination in southern Europe and Italian markets (and viceversa).

However, despite the development of Mediterranean ports and their strategic location, especially for the Italian ports, there is still a notable tendency to serve the European markets by using the intermodal services from the ports of Antwerp, Rotterdam and Hamburg for a substantial number of containers.

In this context, some commentators maintain that the recovery of market share by the Mediterranean ports at the expense of the North is more apparent than real. This is a result of a statistical illusion determined by the presence of transshipment ports that count the TEU twice. Thus if one considered only the non transshipment terminals (Le Havre, Rotterdam, Antwerp, Zeebruge, Hamburg and Bremenhaven for the North and Valencia, Barcelona, Marseilles, Genoa, Livorno, La Spezia, Venice and Koper for the Mediterranean), the result would show a much more substantial total growth of ports in the north

[16] Neverthless the enormous difference in the quantity of containers handled in the Northern Range ports in comparision to Italian ports is worth noting. Thus as against the 7.280.000 TEU of the Italian ports, Rotterdam alone recorded a throughput of 6.950.000 TEU, Hamburg was around 4.650.000 TEU and Antwerp 4.218.000 TEU. This explains the lower annual growth of the Northern Range ports compared to those in the Mediterranean.

[17] The inquiry conducted by Isemar (Insitut Superieur d'economie Maritime) analzsed ports that have an annual traffic greater than 5.000.000 million tonnes of freight and 20.000 TEU. Therefore it was carried out on a very large sample

[18] The problem in this study was analyzed from two points of view: attention focused on the possibility that the ports in the Northern Range might have a sharp loss in terms of market share, and the possibility of an indirect loss provoked by the substitution of direct ocean services with feeder short sea services starting from the transshipment ports in the Mediterranean. This second hypothesis may perhaps be confirmed by the entrance into service of full container ships of such a size as to advise against their use for direct Far East - North Europe services, restricting their use to Far East-North America pendulum services instead.

than those in the south, namely a growth of 17.1% against a growth of 15.9% between 1997 and 1999 (Trotta, 2000).
The loyalty to the Northern Range ports persists in many of the Italian forwarders.

In our own recent study focusing on understanding the extent and causes of this phenomenon as well as its quantitative importance (Cazzanigi Francesetti and Foschi, 2002a) we found that the option in favor of the North European ports was considered better above all for shipments from/to Asia. Nevertheless it appears to be undergoing a slow decline that will worsen, we believe, with the arrival of Evergreen in Taranto and the new agreements with the Chinese companies in Genoa and at Gioia Tauro [19].
The figures, however, indicate a relative shifting, significant for the future, towards the Northern Italian ports.
What appears from these studies is that the ports in Italy are currently competitive, especially as regards:

- equipment at transshipment and gateway ports
- some port handling fees [20] (Bologna, 2002)
- short sea distances

However, neglecting the critical state factors that effectively exist would mean preventing the correct exploitation of these very potentialities. It would mean losing the positions that have already been attained.

4.1. Gioia Tauro, Super-hub of the Mediterranean

Another factor that makes Gioia Tauro attractive involves the hypothesis that sees Gioia Tauro as a super-hub [21] of the Mediterranean.

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[19] In any case, in 1990 the Asian containers from/to the Northern European ports towards/from Italy reached about 200 thousand TEU, while those arriving /departing from/to the Northern European ports and Asia exceeded 4000 thousand, but the total handled by the northern European ports exceeded one million and seven hundred thousand.

[20] In the case of transshipment, the average costs -considering that the containers are of different sizes- range from a minimum of 22.25$ per handling to a maximum of 120, so on average 50-55 per container per handling. The cost in the case of O/D is US$ 89.50 for exportation and 102 for importation (Drewry, 2000).

The potential of Gioia Tauro as a super-hub has also been theorized on many other occasions. For example, in a study carried out by the Chamber of Commerce in Genoa, it is maintained that: "all the experts are agreed on providing a further development of the world-wide network of post-panamax ships. Every big shipping company or alliance will operate on lines with 8.000 TEU ships and on other lines with 6.000 to8.000 TEU ships. Only a handful of ports will be able to serve such ships because of the availability of quays with suitable draughts and cranes with strong enough capacities. At the moment there are about 300 ports in the world that are able to serve container carrier ships and there are only a few hundred that can serve ships of over 4.000 TEU. In our group Gioia Tauro, Bremerhaven, Hamburg and La Spezia should be upgraded for this type of service within the next few years. However, of the 1000 ports mentioned only about 10 will be able to provide services suitable for the large transporters, leaving the rest to feederage transport. Gioia Tauro will be among these ten.".
(http://www.tral.liguria.it/SSI/trafgt.html)

[21] The port of Gioia Tauro: the super hub of the Mediterranean? The forecast that within a decade cellular ships of 12.000, 15.000 and even 18.000 TEU will be usable (their constructions is technically possible) is maintained not only by the scholars from this sector (both engineers and economists), but also by the operators themselves. If at the moment 8.4000.000 TEU ships are already in service, the next step can only be to construct 12.000 ships,

The hypothesis of an indirect erosion of the share of the Northern Ports arising from the creation of a super-hub is in fact put forward in other studies as well, among which those conducted by Walls and Wijnolsy (2001) and Ashar (2000, 2001, 2002). These studies forecast the radicalization of the hierarchical structure in terms of hub and spokes as a result of several factors, namely the increase in the amount of containers transported on a world-wide level, the development of container ship capacity and therefore the increase in all the necessary collateral structures (to use an expression from Waals and Wijnolst: mega mergers, mega volumes, mega ships, mega hubs, mega modal shift).
But many scholars maintain that a more moderate and less extreme development model is plausible, such as Hoffman (1998), Baird (1997), Haralambides et all (2000) and Stopford (2001). While forecasting a more concentrated industry, they are that growth in ship size will be more contained.

5. Strategies of liner shipping companies in the Mediterranean and Italy

The strategy of the liner shipping companies is no different in the Mediterranean than it is on a world-wide level.
The great ocean routes are affected by the predominance of the top twenty, alone or in groups [22]. The most important in terms of frequency and volume of traffic controlled are Maersk-Sealand and Evergreen, neither of which belongs to any alliance on these routes crossing the Mediterranean, Zim, CMA-CGM, MSC, Huyndai, P&O Nedlloyd.

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because a 10.000 TEU ship already needs two engines, so that costs do not rise linearly and the impact on unit transport costs would be too high. With two motors it is necessary to start at least from 12.000 TEU (Eckelmann Battitestello, 2001).

The impact on the transport model cannot be neglected. To be able to take advantage of the economies of scale linked to their capacity, ships have to maximize the load factor and minimize the transit time.(Cullinane and Khanna, 1999; Cazzaniga Francesetti and Foschi, 2001b). On a Far East- North American pendulum route they cannot afford to make more than four-five calls. The Mediterranean, at this point, can expect to have only one call. A study was made by Waals and Wijnolst (2001) which considered the main necessities of the large mega ships by taking into consideration the various parameters: physical character of the ports, localisation long the route and their centrality with respect to the network of the other potential feeder ports (Waals and Wijnolst, 2001). The following ports were studied: Algeciras, Gioia Tauro, Marsaxllok and (East) Port Said, Alexandria, Damietta. These first four were judged to be candidates for becoming the Mediterranean hub. Nevertheless, these physical parameters are not sufficient by themselves to determine the most suitable port. A new analysis conducted by the same authors indicates Gioia Tauro as the best located to become a mega hub port in the Mediterranean region, closely followed by Marsazllok. The authors also add to the previous parameters the weight of each container port, calculated on the basis of their current container throughput. This is rather a theoretical study that neglects some new ports, for example, Taranto and Cagliari, and other important ports such as Piraeus. However, the parameters used are effectively significant of the relevant characteristics weighed up by the large shipping companies when selecting their hub ports. The difference with respect to Marsallok is minimum: it is the costs that determine the choice.

[22] Ninety-six shipping companies have been identified, of which 34 are part of the 18 groups included in the top twenty world-wide classification…44 services have been identified operating along these lines, all operating with full container ships apart from two (Rickmers Linie and Hual) that use mixed ships on the Northern Europe - China routes (CNEL, 2002)

Many of these companies have direct feeder services (or own them), that nevertheless do not saturate the market and therefore they also use third parties. In niche services there are many Italian companies, both private and public [23].Among the private companies, particular mention should be made of service expansion strategies carried out by Grimaldi during 2001. The Grimaldi group has consolidated its presence in the North Atlantic following the acquisition of ACL, of which it controls 94% of the shares [24]. The public groups [25] are present with 32% of the fleet [26].

5.1. Port colonization

The liner shipping companies have attained economies of scale and company consolidation, in order to reduce unit costs, control the market and enjoy network externalities. Their strategy is now to proceed to vertical integration by controlling the terminals, both in transshipment ports and gateway ports.
Control over terminals guarantees the companies lower throughput costs (therefore lower marginal costs), reduction of transit time (therefore lower unit costs) and control of the key points of the supply chain: the expansion of

[23] There are about 26 groups of Italian ship owners with fleets of over 50.000 gross tons burden. They represent 90% of the Italian fleet, if we also consider those registered abroad and controlled by the above-mentioned groups. Among the main 26 groups one may mention: Grimaldi, Covetta, Ferruzzi, D'Alesio, Costa, Coe&Clerici, Fratelli d'amico, Juliano&Lembo, Messina, D'Amato, d'Amico, Rosina & Jacorossi, Barbaro, Telesio, Bollorino, Montanari, Franco De Polis, Pianura, Trombini, Dole (Foreign- but managed by Italian interests) APONTE, CAMELI, CASADEI, etc. The big groups are Tirrenia, with 5%, the State railway with 1.1% and private capital businesses with 94 %. (the data are from the World Ship owning Groups- Lloyd's Register) http://www.informare.it/news

[24] The Grimaldi group (Naples) is composed of the following shipping companies: Atlantica SpA di Navigazione, Grimaldi Compagnia di navigazione S.p.A., Industria Armamento Meridionale S.p.A. The Grimaldi group has recently acquired control (more than 90%) of the Atlantic Container Line, a world leader in multipurpose transport on the North Atlantic routes, having acquired the 10% control of holding of the CMACGM, at the end of October 2001. Grimaldi and ACL are complementary, since there is no overlapping of their fields of operation and therefore the acquisition shows a logic commercial consideration. This merger has allowed the creation of a weekly service between North America – Canada and the Mediterranean, by means of a relay transshipment in Antwerp. This new service follows another that was set up in May 2001 from North America to West Africa, still using Antwerp as a 'bridge' between the ACL and Grimaldi services. (Woodbridge, 2002).

[25] In a 2001 document Confitarma maintains that 'the delay in the privatization of Gruppo Tirrenia creates uncertainty in the national shipping circles concerning expansion programm of their fleets. As a result of this delay the public fleets are weakened, limiting meanwhile the growth options of private shipping'. The same document maintains that 'The presence of the state is called for, through the following policies: a) redefinition of the regime of subsidized public service,…….b) redefinition of the assignment procedures of the subsidized connection services according to the norms imposed by the Treaty of Rome …c) Redefinition of the agreements in existence between the State and the shipping companies with public capital, in order to prevent further distortions of competition, especially as regards new investments in vessels (Confitarma, 2001)

[26] The Italian fleet is composed of 593 controlled ships, 472 of which are Italian. All together the Italian fleet represents 2% of the world fleet. There are 30 container carriers, but many containers are carried on general cargo ships (32) and ferries (208) (Confitarma, 2001).

services offered is a strategy which the maritime shipping companies are undertaking (thus intensifying the verticalization process) in the attempt to shift the price competition[27], to differentiate services and expand the distribution and collection to ensure a greater load factor (again in an attempt to reduce unit costs).

In the framework of this policy concentrated on controlling ports, the Mediterranean ports - but especially Italian Mediterranean ports - are particularly attractive. Italian ports are endowed with the above-described qualities necessary to become ports of call for the large ships traveling on the great routes. In addition, Italy's particular geographical position makes it a potential 'bridge' between the rest of the world and Europe close to the Alps, and the country offers a political stability that is reassuring for foreign investors.

It is not only the shipping companies that show an interest in the ports. Many world-level terminal managers, in competition with one another, have proceeded to buy many terminals in the main European and Italian ports.

In the port sector the concept of 'network economies' prevails rather than that of economies of scale, which dominates the container sector. Large groups such as Hutchinson Wanpoa of Hong Kong (which controls the ECT terminal in Rotterdam), PSA of Singapore, Eurogate of Hamburg/Brema, P&O ports and liner shipping companies like Maersk-Sealand and Evergreen have control over ports in various parts of the world and also in Italy (Ferrari e Benacchio ,2000).

The colonized Italian ports are[28]:

- the port of Gioia Tauro is controlled by Med Center, which belongs to the Eurogate group. Through Med Center control of Gioia Tauro is also partly held by Maersk-Sealand, with 10% of shares (and this gives a boost to the medium-long term stability of this port) and Contship Italia. The latter is also a shareholder of UFS, a leader in the operations of feeder traffic and equipped with over 30 ships to serve 37 ports in the Mediterranean region; consequently, Contship Italia is of considerable interest for feederage of this terminal;
- - the ports of Livorno, la Spezia, Salerno and Ravenna, are controlled by Eurogate (which also controls Lisbon, Bremenhaven and Hamburg);
- the port of Genoa Voltri (Europe terminal) is controlled by PSA of Singapore, which holds 53% and also holds 53% of Venice (Vecon terminal);
- TCT /Evergreen) of Taranto is currently making an agreement with the port of Civitavecchia,

[27] It is important to remember that price competition until now has not taken place between the individual companies, but between Conferences to which the Companies belong, even though the Companies may also belong to Alliances, or to other accords. Once the price is fixed in the official lists (as stipulated by law) the price becomes fixed for the companies that are members of the conference. Paradoxically, even the large companies become price takers, as in a competitive market, even if discounts, rebates and spot and long term contracts allow the price to be manipulated greatly. Recovery of profit is then achieved by global strategies that have various impacts on costs.

[28] The attributions can sometimes seem contradictory with the latest news as a result of extreme dynamism of the agreements between terminalists and Port Authorities.

- In Naples, there is P&O Ports,
- In Cagliari (CICT) P&O Ports and CMA have obtained a presence;
- The port of Taranto (TCT) is controlled by Evergreen;
- In Trieste (Wharf 7), after the departure of ECT-Hutchinson Wanpoa, control has passed to TICT, which is represented by a 49% share of Luka Koper, 10% APT, 6% the port enterprise of Trieste and 35% Parisi;
- In Brindisi the following are present: Malta Freeport, Brindisi Terminal Italia, Paplini participation and Comune di Brindisi. Malta Freeport has the largest quota[29].

These large groups control the best Italian terminals, so that in effect the Italian ports are in international hands, either of shipping companies, or large world-wide terminal managers.
Such a phenomenon is positive for Italy, partly because it has enabled Italy's ports to make their debut in the large world-wide network, and also because the decision by the liner shipping companies to invest in a specific port position means the company intends to remain in the zone, given the good prospects.
For the transshipment ports, in particular, success is linked to whether or not the liner shipping companies decide to call at these ports. Container traffic, from this point of view, is very volatile. Suffice it to reflect on how close Malta is to Gioia Tauro. Possibly, it would only take a reduction in port fees and more reliable work times to make these the 66 miles that separate it from Gioia Tauro excessive in terms of cost.

6. Conclusions: limitations and opportunities of ports in Italy

There is nothing new to say about the opportunities and limitations of Italian ports. For almost five years now the major study centers and public and private bodies, ministerial offices, Italian and European researchers have confronted this subject and have identified the main points of weakness.
However, here we would like to highlight in particular the logistical and IT deficiencies.
It is unanimously agreed that there is great potential, and that the opportunities for the future can no longer be deferred..

It would be shortsighted to evaluate the strength of Italian ports only by considering the standpoint of the sea: the ports, by now sufficiently[30]

[29] The Italian ports colonisation, as well the other ports' one in the most part of the world, is very dynamic. This paper data concerns the situation at September 2002. Up to now (December 2003) we can observe changes, we will communicate in the next paper update.
[30] Maneuvering space, wharf length and draught, investments in cranes whose boom is able to straddle the entire 22 rows of containers of next generation ships instead of the current 18; there is a need for space behind the docks that can be dedicated to innovative and effective businesses that will set up there,….Port Authorities with an open view of the future, enjoying the support of their hinterland and in perfect harmony with the terminalists, railway connections and main lines that function at maximum efficiency; it is necessary for the Paola-Sibari line to be brought up to suitable standards for container traffic, the Adriatic line must be able to allow the transit of high cube containers, the railway operators should be able to make available services that can compete with the transit time of available feeders, and to be just as reliable and regular; there need to be locomotives, carts, available personnel,

efficient and competitive from a maritime point of view, risk being suffocated by the land side.

This is the essential point: the terrestrial infrastructures must be brought up to standard in order to avoid losing the competitive advantage that exists on the maritime side and also to recover in part the routes towards Central- Southern Europe such as Hungary, the Czech Republic and other East European countries.

A Far East to Southern Germany service (Singapore to Munich) via Rotterdam takes 20 days, via Hamburg it takes 20 days, via Gioia Tauro it could take 14 days, 12 at sea and 2 by rail (Alberghini, 2000). The reduction in time turns into an elevated financial saving[31]. It cannot be disregarded that, all other conditions being equal – such as security and reliability of service – the price that the client bears crucially decides where the container goes.

Naturally, when discussing the development of combined transport, reference is being made to rail transport and not road transport: the well-known congestion on the roads excludes this possibility from the start, even though it is cheaper (less load breaks and shorter times[32]).

Note, however, that road problems could be mitigated by the construction of IT and telematic services to ensure greater fluidity of transportation.

Indeed, it has been recognized at a European level that the best way to overcome the structural difficulties affecting growth of land traffic would be to adopt telematic and information systems. Nevertheless what makes this option extremely difficult at present – although it is theoretically the simplest solution - is the diversity in standards between the various subjects, companies' reluctance to make their own data available and the complexity of the construction of a network.

Furthermore, substantial investments will be required for expansion of the railways because of the barrier represented by the Alps.

To understand the importance of the railway within the problem of the strategic positioning and success of the Italian ports, one need only consider the case of Gioia Tauro, which is emblematic. During 2002, on average 130 freight trains arrived and departed from the Gioia Tauro terminal every month. The trains travel from Monday to Saturday with an average of 5 trains a day. 50% of the trains leave Gioia Tauro; the other 50% arrive in Gioia Tauro. The

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timetables that are sufficient to sustain a traffic load which within a few years could rise tol as many as 10 pairs of trains a day from the terminals of Brindisi, Taranto and Gioia Tauro (Bologna, 2001)

[31] Another interesting example was given by the president of Medcenter, Cecilia Eckelman Battistello: Suppose a ship leaves from Hong Kong or from Singapore and arrives in Taranto, or Gioia Tauro in 14 days. If it continues to the northern ports like Rotterdam and Hamburg it takes 22 days. The mere fact of stopping for delivery in the port makes a difference of 10 days. Or maybe, let's say five. Now, a container full of lava arriving from Australia and bound for Marzotto is worth 200 thousand dollars and the goods are paid on delivery, when the receiver receives it. What does this mean? At 5% interest, ten days of difference between one delivery date and another, on ten containers, which is the average load, makes 3.000 dollars in my calculations. Therefore it's the goods that decide the road to take to arrive at the destination" (CNEL, 2001)

[32] The break-even point between road and railway is achieved at 200 kilometers. For shorter distances road transport is definitely more economical (at least from a strictly economic point of view) (TRT, 2001)

main destinations of the trains are Bari (Natuzzi trains), Milan (Melzo terminal), Padua and Bologna. There are also spot connections with Nola. On average 20% of transported containers are 20 feet long (roughly 6 meters); therefore most of them are 40 feet containers. The trains have on average 22 carriages and the average load factor is 2.7 TEU[33].
The volume of TEU handled will increase and, on the basis of the considerations made so far, it is very probable that the Mediterranean alternative to the Northern Range ports for South Europe will become a reality.
In this context the strategic role played by the railway is even more evident.

This seems to be confirmed by the text of an agreement drawn up in July 2002 between Db- cargo, the cargo division of the German railways, and Contship Italia – Eurogate, pertaining to the constitution of a joint venture (MarCo) which became operative in September 2002[34].
One consideration should be emphasized: in order to make Italy the door to Europe in the Mediterranean, all the conditions must be satisfied simultaneously. The lack of even only one of these conditions could crush its ambitious prospect of becoming the 'gate' to Europe.[35]

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[33] The cost of a train of this size on the Gioia Tauro - Milan leg, a total length of 500 meters, is about 8000 Euro, which means from 133 to 266 Euro per container.

[34] MarCo will carry out the first intermodal connection from the port of Gioia Tauro, to Basle and Mannheim. In 2003 a second connection to Munich and Nuremberg will accompany this service, but the declared aim is to be able to link up the Italian railway connections network to the continental rail network, constructing an ideal intermodal bridge on the Alps. The sorting center will be in the hub that Contship, through Sogemar, manages at Melzo, in the Milanese hinterland (Dardini,2002b)

Even though the physical limitations of the Italian railways hinder the best utilization of the transport network, it is however clear, with this example, that the restrictions are more managerial rather than structural.

[35] Specialization of ports, alliances, and network external effects
As mentioned earlier, the strategy of the large world terminalists is the network. The same criterion must be adopted in the management of and organization of the ports. The presence of three hub ports in the South Italy competing against one another, or competition between the ports of the Tyrrhenian see and those located on the Adriatic, can only weaken the Italian port system.
The port, as with transportation in general, cannot be seen as other than in terms of the network systems.
A production specialization is necessary: the support policies designed to strengthen the Port Authorities, who bear full responsibility for the function of promotion, should be carried out as part of a single development strategy, in which the complementarities are identified and strengthened in order to increase the competitiveness of the whole system rather than internal competition. Failure to specialize can only serve the shipping companies themselves: with unspecialized ports, they can afford to behave in an oligopsonistic fashion towards such ports.

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