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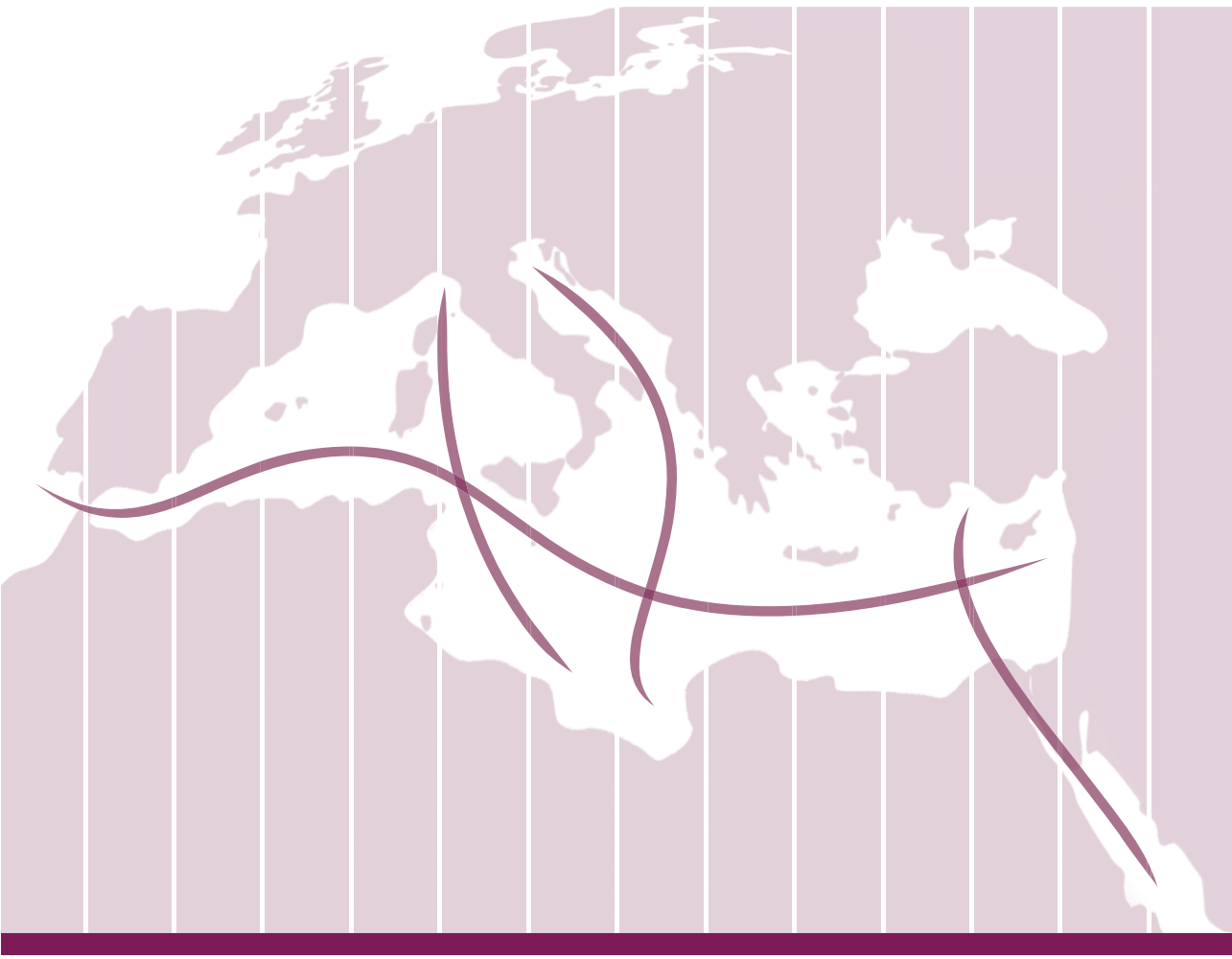
ITALIAN MARITIME TRANSPORT: IMPACT ON THE ECONOMIC DEVELOPMENT

Scenarios, sea traffic analysis and case studies



GIANNINI EDITORE

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NOTES:
Notwithstanding the care and responsibility of SRM in the drawing up of the whole research, please note that Chapters from I to VI were edited by SRM; Chapter V – Case study No. 1 – by Ennio FORTE, Erica PIGHETTI, Lucio SIVIERO; Chapter V – Case study No. 2 – by Enrico BERETTA, Alessandra DALLE VACCHE, Andrea MIGLIARDI; Chapter V – Case study No. 3 – by Giacomo BORRUSO and Giuseppe BORRUSO.
See page 155 for further details.

To those who with ideas,
works and actions contribute to
the social and economic development
of Southern Italy, through a
European and Mediterranean vision

GENERAL INDEX

PART III
SHIPPING AND PORTS: TERRITORIAL CASE STUDIES

PREFACE

In recent years, profound and important changes have affected the socio-economic tissue of Italy; in particular, phenomena such as the globalisation, the liberalisation of the markets, the increasing demand for internationalisation of companies and, last but not least, the advent of a severe economic and financial crisis that is affecting and changing, among other things, the structure of the world trade, have occurred.

These changes have affected and are affecting significantly the role of maritime transport which now has carved out a leading position in the economy. In this context, Italy is called to face new trading, economic and productive challenges in order to reach those levels of competitiveness that are required to "stay in Europe" and to compete with the Asian and Atlantic trading giants, more than ever, with a crisis.

According to SRM, one of the starting points can be strongly represented by investment in the sectors in which the Italian economy has a consolidated know-how and history, and it is in this context that we should place the importance of the maritime sector, seen as a vital link in a chain of integrated logistics.

With this perspective, a new research on the development of Italy's "sea economy", with particular reference to shipping, has been carried out and introduced in the international context. SRM comes then back on a key issue for the development of the country, considering that it should be among the priorities of Italian national growth strategies, with the South at the fore.

In recent years, while significantly affected by the current crisis, shipping has continued to innovate, to invest and contribute increasingly to the internationalisation of the Italian manufacturing system. But that is not enough; especially in the container sector, shipping is strongly characterised by the presence of large foreign carriers - Danish, German and Eastern companies - which indicates that the business and the turnover are more and more interesting, as well as that stronger trade relations are being activated, providing more opportunities.

Shipping is continually evolving: new routes, new ideas to create innovative ships; think of the sea highways, of the increasingly structured Ro-Ro ships and of an important fleet such as the Italian one, the youngest in the world. But also of new and existing insidious competitors, especially at a port level, ready to attract Italian traffic, including North Africa, Spain and the Northern European emblem (with Rotterdam, Hamburg and Antwerp) that, conscious of the opportunities offered by the sector, are investing more and more in the maritime economy.

In Italy there are critical issues. First of all, a bureaucratic system whose complexity represents a serious obstacle to business investment; but certainty about the funds available for the development of infrastructure is also needed, along with a medium to long-term proper planning of the country's maritime sector development in which shipping, together with ports, represents one of the peaks of excellence.

Moreover, phenomena like the naval gigantism (larger and larger vessels crossing our seas and docking in our ports), are not new. Naval gigantism involves the need for increasingly equipped facilities, as well as for faster and more efficient unloading and

distribution services, without considering that the increase of trade in the global economy and changes in the cargo handling techniques require increasingly wide spaces.

The research has therefore immediately underlined the structural and economic aspects of sea transport, providing guidance on the competitiveness of the sector which would require even greater attention on the part of institutional bodies, to enable the achievement of standards of facilities and services equal to those of the main European competitors. In short, we ought to think to maritime transport more and more as a strategic asset of the country and then plan its growth in a wise and structured way.

The Southern economy is an economy in which the greatest attention must be paid to the solution of structural problems that still affect growth but, now more than ever, these constraints have to be dealt with according to a strategic view, in the context of a comprehensive and systemic panorama of the interventions and development processes that require promotion.

Thanks to all the research team for completing this important work that aims at representing a contribution of SRM to those who work for a healthy and widespread development of Italy, in order to make the country more competitive in Europe.

Paolo SCUDIERI
President of SRM

PART I

MAIN RESULTS AND POLICY FRAMEWORKS

CHAPTER I
INTRODUCTION AND MAIN RESULTS OF THE RESEARCH

1. Starting points and objectives

This paper is part of an SRM branch of research that, for several years now, has been addressing aspects tied to the development of transport and logistics in Italy. The sector has been examined over time from various standpoints: an analysis of the port system, (SRM, 2005 and 2009), integrated logistics through intermodal transport and inter-ports (2007), the airport system (2008), and the rail system (2010). In this case, focus will be on sea shipping, and specifically on maritime transport.

Initially conceived to concentrate more closely on the naval sector, the paper, in the course of its writing, broadened its field of investigation to embrace also aspects tied to the development of maritime transport, with a vision, by no means exhaustive, that also includes the system of port traffic.

Maritime transport has been, is, and will be also in the future, one of the drivers of economic growth in Italy; efficient and effective maritime transport acts as a shuttlecock for internationalisation, innovation, investments in infrastructure, employment and GDP growth. Therefore, at a time when Italy – like the whole of Europe – is facing a persistent economic crisis, the strongest segments of the "Made in Italy" sector need to be consolidated and supported, meaning not only manufacturing, but also services, including maritime transport: an asset on which Italy can boast tradition, know-how, and a system of companies and infrastructures characterised by excellencies, with Southern Italy at the fore.

However, the paper's vision is not to concentrate specifically on Southern Italy, the "maritime heritage" of which is well known, but to give this research an international scope – European and global – devoting particular attention to the MED Area, a region which SRM has been spotlighting for some time now through its portal www.srm-med.com. We will only quote one figure here: 70% of Italy's trade with the Med Area is ascribable to maritime transport.

This paper will show that maritime transport is a dynamic sector, a business that over time has attracted investments also from abroad; it has a historical value and has resisted, and is still resisting, not without difficulty, to the crisis, by consistently seeking new paths and solutions to offer increasingly fast and efficient connections. However, the path is not always a smooth one. Italy still has much progress to make on many fronts, for instance: the slim-lining of what is still a burdensome bureaucratic system, the drawing up of adequate planning for the development of the sector, paying greater attention to port and dry port policies in general, structurally defining publicly backed incentives (despite the lack of financial resources at the present time) and, last but not least, drawing up policies increasingly geared to encourage internationalisation and innovation, capable of prompting companies to use sea routes to ship their goods. Another aspect which should not be neglected is the development of forms of aggregation which could make the entrepreneurial system increasingly strong.

This paper's aim is therefore to analyse the role played by maritime transport as a competitiveness-building factor, its importance for the economy, and its growth prospects. With the support of data and statistics, the paper will highlight the value of the sector at the international level, in terms of the country system as well as of individual regional territories, by means of case studies.

SRM looks to the sector as a *complex system* of players and has therefore deemed it necessary, in order to draw up this research, to activate a dense network of relations that has made it possible to carry out an important territorial analysis. Interviews were held with prominent international personalities, who contributed to providing strategic guidance and privileged viewpoints, adding value to the method pursued, and aiding the collection of important documents and information; in this version of the paper, this part has not been included.

2. The structure of the research

The research is structured in three parts, each containing different thematic approaches, taking on the subject matter from various perspectives. An opening section in which the research as a whole is presented, together with its findings, is followed by the chapters of the second part of the volume, which place the sector in the national and international context.

The paper starts out by analysing maritime transport dynamics within the framework of the international economic situation, drawing a picture of the sector's characteristics within the global and European scenario, as well as detailing the specific features and the value of the sector in the Italian economic and territorial contexts[1]. To this avail, it focuses in particular on the companies of the Italian maritime cluster, specifying their activities and regional distribution, and on the features of the national port system, outlining the state of health and the vocation of Italian ports through the analysis of data on cargo traffic.

The paper then investigates maritime traffic in the Mediterranean, articulating its analysis along the two paths represented by international routes, transhipment and short sea shipping on the one side, and cabotage on the other. Based on data on the evolution of maritime transport, an analysis is set forth of the competitive scenario of ports in the Mediterranean area, presenting the characteristics of the main ports in the different areas into which the Mediterranean basin is divided, the most recent data on traffic, and an outline of development prospects. The Italian market is then analysed from the point of view of sea highways, with focus on the characteristics of demand and supply, and data on the services offered, on the main routes, and on the fleet. Finally, the analysis of the Med Area is complemented by a review of the sources of financing that support the sector.

[1] At all levels of analysis, the paper examines the distinctive aspects of the sector both on the demand side (volumes handled, routes and port traffic) and the supply side (size and composition of the fleet, with a reference to the performance of the shipbuilding industry).

The paper continues with a statistical analysis aimed at highlighting Italy's international relations in terms of maritime commercial interexchange. Data analysis is also geared to identifying Italy's main trade partners in qualitative terms, so as to pick out those that are of most interest for the country. In order to better assess Italy's "commercial weight" in the Mediterranean basin, a closer investigation is offered of the scenario of Italian maritime traffic from and to the Med area, with an outline of the intensity of trade and of the main partners involved. Similar assessments are also made for the main European partners active in the Mediterranean basin, drawing a synthetic and immediate picture of maritime trade relations between EU member states and Med Area countries.

Lastly, the paper rounds up with a third section devoted to three thematic case studies, which offer readers a closer look at three areas of Italy in which the culture of maritime transport is widespread, and in which the sector accounts for an important share of the territory's economy. The English version of the paper contains a summary of the analysis. In particular, the areas examined are: the ship-owner cluster of the Campania region, edited by Prof. Ennio Forte (University of Naples "Federico II") and by Prof. Lucio Siviero (University of Catania), as well as by Erica Pighetti (University of Naples "Federico II"); the port of Genoa, as analysed by researchers of the Bank of Italy's Genoa branch, Enrico Beretta, Alessandra Dalle Vacche and Andrea Migliardi; the port of Trieste, whose analysis was supervised by Prof. Giacomo Borruso, of the University of Trieste, and by Giuseppe Borruso, researcher at the University of Trieste.

3. Main results

3.1. Introduction

The research investigated the evolutionary dynamics affecting maritime transport according to a dual-track approach: a bibliographical and statistical one and a strategic and territorial one.

Under the first approach, the complexity of the topic involved the use of multiple types of sources, providing the most various interpretations of the phenomena. In the current economic context, maritime transport acts as a shuttlecock for the growth of the Italian economy, both when considered in absolute terms (in 2012, its impact on GDP was 15.4%) and as privileged access of raw materials and marketing of finished products in terms of tonnage (53.4% of the Italian foreign trade uses maritime carriers).

Thanks to its position in the Mediterranean, Italy has an important strategic advantage and its relevance in the routes of the shipping companies has not diminished despite the crisis; on the contrary, some predictions (Censis, Federazione del Mare) estimate that in 2015, there will be an intensification of handling in this area, such as to justify the propensity to new investments in terms of opening to the international trade.

However, there are many factors that threaten the economic and social structure of Italian ports and the entire industrial production structure of the country: the cost advantages of emerging countries and their impact on the choices of companies with regard to their places of establishment, delays and port infrastructure gaps,

interconnection and accessibility problems, as well as issues related to the timing, costs of services and scarce innovation initiatives, the long and cumbersome administrative procedures for public works and related environmental assessments. These factors, along with an increasingly robust and qualified port offer in the Mediterranean areas outside Europe and with the strategies of the major shipping companies – made of cooperation agreements and mergers, reorganisations of the lines and reduction of ship speeds – have designed a scenario that involves a risk of marginalisation for Italy. However, the competitive advantage that the European side of the Mediterranean offers in terms of cost of the maritime route is undeniable. Recent estimates quantify a calculated saving of 100 euros for a 40-TEU container from Singapore to a port of the North Western side of the Mediterranean. Thus, the presence of not yet exploited potentials, and their possibility to translate into concrete opportunities of development and employment, can not do without targeted policies.

By focusing primarily on streamlining the existing regulatory system and optimising the use of available financial resources, they can help to increase the competitiveness of the sector, thus generating a set of direct and indirect effects, able to promote the development of multiple typically port economic activities and other *port related* activities functionally linked to them.

3.2. Results of the research

The results of the research have been structured in the following main areas:

a) reference national and international economic scenarios;
b) shipping and ports in the Mediterranean;
c) maritime trade.

a) Reference national and international economic scenarios

The analysis of the most recent data available and of the dynamics affecting demand, namely the development of maritime transport, and supply, i.e. the size and composition of the fleet, confirms the strength of an industry that is beginning to configure itself more as a complex mix of activities that are relevant for the economic growth.

With reference to the world scenario, a profound change of the economic balances has taken place in recent years, producing the gradual shift of the traffic hub towards the Asian countries. Since 2009, China has been the country with the largest share of global trade. In fact, especially the economies of countries like China and India are those that have recorded the strongest signs of recovery after the crisis, while the growth is less vigorous in the advanced economies, especially the European ones, with the sole exception of Germany.

In this framework, international trade has become increasingly important, and has a strong connection with the performance of production. The value of exports in 2010 recorded a record volume increase of 14%, as opposed to a 5% increase of the world GDP; emerging countries gave the main contribution to this increase, accounting for over two thirds. The positive trend continued in 2011, with a GDP increase of 3.9% and a world trade increase of 5%.

Within this new scenario, the maritime world traffic has been characterised by an increase in the volume of goods transported, that doubled in a two-decade period from 1990 to 2011, growing from 4 to 8.7 billion tons, with a growth affected only to a limited extent by the 2009 crisis. With reference to the countries of the European Union, about 75% of the goods is transported by sea.

As part of these traffic, the reduction of handling in the ports of the industrialised countries (in this sense, for example, the reduction of the growth rate of some U.S. ports) was countered by a sustained development of the handling of bulk goods, containerised or non-containerised cargos in the emerging countries.

In particular, with regard to the container traffic, it is mainly concentrated on routes involving the Asian Far East, North America, Asia and Europe. The leading world ports in terms of container traffic are located in Asia. At a global level, Far East ports handle about 80% of the world trade. Among the top 5 ports in the world, 3 are Chinese (Shanghai, Hong Kong, Shenzhen). Only these three handled just under 80 million TEUs in 2012.

The qualitative and quantitative change of maritime traffic has also had operating implications on the ports. The dynamics of household consumption, the trend of the exchange rates and the demand for raw materials and energy have led to a shift in the trade flows, as demonstrated by the reorganisation processes that are undergoing various scheduled services of some global carriers.

On the supply side, with reference to merchant ships, the composition of the world fleet reflects the demand for different products. As a result of the increase in the containerisation of manufactured goods, the incidence of container ships on the total world shipping grew from 1.6% in 1980 to over 12.9% in 2012. Among all types of ships, the latter are the most recent ones. In general, the average age of the world fleet has decreased over time, especially after the delivery of new tonnage. In particular, the age for dwt of tonnage has decreased, in consideration of the fact that new ships tend to be larger than most of the existing ones. Ships built in the last four years are on average more than six times larger than those built twenty years before. Greece places first among the top 20 maritime countries in terms of cargo tonnage controlled; Italy places thirteenth, with a total of 834 ships of 1,000 gt and over, for a little less than 25 million dwt.

The world fleet has grown steadily in terms of ship capacity: large scale units have in fact increased compared to the so called “small range”. However, the world order book for new ships has decreased progressively since 2008, so much so that in 2012, the total volume of orders for merchant ships was of 26.2 million cgt (compensated gross tons), down 18% compared to the previous year.

The international financial and economic crisis has had an impact on the shipping sector, leading to a decrease in the volume of import-export and maritime traffic in all major business segments, albeit with different intensities. The contraction of international trade has also impacted the construction sector of cargo transport ships, with the result of raising unused storage capacity. Following the fleet upgrading policies pursued during the upward phase of the economic cycle, the shipbuilding industry – considered its intrinsic characteristics – has not been able to quickly adapt the fleet to the needs expressed by the market in terms of tonnage and characteristics of

the vessels, generating a problem of oversupply. This oversupply has resulted in the decline of freight rates which in some areas decreased below the break-even levels. The fall in freight rates was reflected in turn by a drop in sales prices of new ships, creating a gap between the prices established for contracts prior to the crisis and the values recognized for vessels being delivered. In a context of reduction of revenues and profits, there has been a significant revision of the investment plans of the ship owners, with the cancellation of orders for new ships and the rationalisation of services (related to partnerships and collaborations among the shipping groups aimed at making the most from the capacity available on the market).

The reduction of the shipbuilding order book, tied with the cancellation of confirmed orders, has generated several problems for the shipbuilding industry. Most of the operators involved have implemented waiting strategies, taking containment measures as the mooring or dismantling of older ships.

In addition, in order to compete in the market, the major shipping groups are driven to increase their market share, buying larger and larger ships that can ensure economies of scale and reduce the cost of each unit transported.

As an effect of these choices on the sector, the concentration of traffic in a decreasing number of super companies, along with the gradual reduction of shippers (ports and port services) able to negotiate with the large shipping groups, is occurring.

Despite the general difficulties that have marked the economic landscape in recent years, the shipping industry in Italy has shown resilience, thanks to a series of intrinsic features such as the high quality of services and products made, the high degree of internationalisation of companies, the endowment of skilled labour available, the capacity of innovation in the shipbuilding production, the variety of services offered thanks to the large number of commercial ports.

The importance of maritime activities for Italy and the "weight" of shipping on the country's economy is evident; it is a sector that involves several fields in a more or less direct way, including logistics, shipbuilding, freight and tourism (both classic and cruise). If the sea plays a leading role among the various modes of transport used for the exchange of goods (53.4% of the Italian foreign trade uses maritime transport), the importance of this sector is further emphasized by impact measures that the maritime system generates on the national economy. The GDP originated from the industrial, manufacturing and tertiary component of the national maritime system amounts to about 35 billion euros.

Also the capacity of the maritime sector to generate employment is relevant. Confitarma estimated 36,995 jobs on board of the Italian fleet by the end of 2010, with 7,400 occupied people on the ground. The economic crisis has brought to light the need to ensure, through appropriate instruments, the employment levels; in this context, the issue of vocational training becomes important, along with the upgrading of skills. On the one hand is the training, which will enable the learning of techniques and knowledge up to date with the innovations introduced; on the other side, career paths are needed, allowing a change in the employment status during one's career, when for example one decides not to navigate any longer and to take up employment on the ground.

The field of sea shipping in Italy is also characterised by the peculiarities of the shipbuilding industry, that the crisis affected with less pronounced effects than in

other countries. Italian shipyards have a prominent position both in Europe and in the world, operating in highly specialized niche markets characterised by high technology, such as the construction of state-of-the-art cruise ships and ferries. It is thanks to the specialisation in those market segments that are less exposed to the competition of Asian countries (mainly concentrated in liquid and dry bulk goods) that the activities of the Italian naval industry resisted, despite the economic situation is not easy.

If, on the one hand, sea shipping (as all the sectors exposed to internationalisation) was affected by the economic crisis, on the other hand it is expected that it will be able to resuming promptly, as soon as there will be a confirmation of the recovery of traffic on those routes between Europe and Asia that Italian ports – natural gateways from the Mediterranean to the Northern European markets – are called to intercept. In this context, the traffic flows produced by the emerging economies will be a good opportunity to urge growth resumption in this sector.

However, for the shipping industry to be able to contribute again significantly to the growth of the national economy, first of all it is necessary, as part of a general strategic vision, to redefine the sector's lines of governance (such redefinition is all the more necessary in the light of the changes occurred in the market scenarios), to be translated into concrete tools able to support the recovery of its development. It is necessary to work in a programmatic way, in order to draw a real growth of the sector, and to define, in a clear and unambiguous way, the support of a national policy aimed at removing the bottlenecks and recognizing the importance of supporting shipping, in order to keep on creating development opportunities and strengthening its role in the international context.

b) Shipping and ports in the Mediterranean

Statistics and most recent data analysis on deep sea and short sea traffic, highlighted the role played by the Mediterranean on international shipping, underlining at the same time the opportunities and risks for Italy which, thanks to its geographic position and to the economic and trade relations already established with the countries bordering the basin, can play a leading role provided that some bureaucratic and infrastructural constraints are overcome.

After the business slowdown, which had an impact on the performance and strategies of the sector's players, 2012 saw the consolidation of the recovery signs already appeared in the previous year. In this evolutionary context, the Mediterranean has assumed a strategic role, being at the centre of shipping companies' interests, thanks to its development potential both for international routes, since it is the optimal path for the eastbound flow of goods, and for short sea shipping fed by feeder and by the increase of trade in the North-South direction.

The analysis highlights the changing face of port competition in the Mediterranean, that has seen the emergence and strengthening of new structures on the South Eastern shores, which have now climbed the basin ranking confirming themselves as a global infrastructure of reference for shipping companies. The new configuration of the Mediterranean port system is the result of the choices made by

the countries of the South-Eastern shore to strengthen their calls with both domestic investment and with the approval of logistic projects that have attracted foreign investment, in particular from terminal operators that, independently or through joint ventures with shipping companies and local institutions, have identified the guarantee of return on investment in the potential traffic increase in that area. Added to this is the lack of economic, social and political homogeneity between the two shores, that still constitutes a factor of attractiveness of the North African ports.

The analysis also highlighted the growth of intra-regional flows in the North-South direction as a result of the economic development of the countries on the South-Eastern shore and of the Euro-Mediterranean integration: these flows, together with the increase of feeder, which is closely linked to the increase of transhipment, led to the growth of short sea shipping in the Mediterranean: this area accounts now for one third of the EU-27 short sea shipping. It should not be underestimated that the short sea shipping networks for the Southern shore countries are particularly important for the limited reliability of other modes of transport, due to the short distances and scarcity of viable land routes in many areas.

In the current Italian context there are new development opportunities: the network of international container line services, which includes the transit of global carriers in the Mediterranean as well as feeder and intra-Mediterranean services, is now an extremely articulate and capillary network.

In particular, short sea shipping is a market segment that still has plenty of room to grow in Italy, both for the impetus of EU and national policies for the development of intermodal transport and for the process of economic and commercial integration of the Mediterranean area. In this framework, Italy enjoys important strategic advantages: it is a leader among the EU-27 countries for the SSS transport of goods in the Mediterranean; moreover, on the supply side, Italian owners invested heavily in this segment, making the Italian fleet the first in the world in terms of Ro-Ro ferries. The network of sea highways offers a substantial number of national connections, linking Central and Northern Italy, and then onward to continental Europe; international connections are also significantly increasing, in particular to the Balkans and to the North African shore, in view of facilitating the European policy aimed at encouraging the process of Euro-Mediterranean integration both on the economic and commercial side and on the political and cultural one.

It is clear that the advantage of the total sum of the two networks in terms of available connections, market accessibility – in Europe and worldwide – is significant and can generate further positive aspects. In fact, the Italian business is made up of small and medium enterprises that, with these important links, can grasp relevant internationalisation opportunities and that otherwise would have had considerable difficulty to connect and relate with other countries; in this sense, the port system is an important support to the development of the local economy.

Despite the opportunities of development and intervention are numerous, many of them are still affected by an infrastructure system that is not adequate to support a significant increase of traffic. This is true for the short sea shipping segment, whose integration in the supply chain certainly requires the promotion of efficient maritime connections, but that can not be separated from the implementation of appropriate

links, in terms of capacity and level of service, with the system of road and rail transport. The infrastructure constraints hamper the potential of Italian hubs to capture the flow of container traffic, which is increasingly attracted by the new ports of the Southern and Eastern shores of the Mediterranean, as well as by the Spanish ones, that provide infrastructure and intermodal connections that allow to perform port operations according to criteria of efficiency and effectiveness, which are increasingly important to the needs of shipping companies.

In such a scenario, some questions for the Italian ports are undoubtedly to be placed: one is the great opportunity to develop new traffic with ports of the other sides of the Mediterranean, that can only be beneficial to the national calls. This advantage is even more evident when one considers that, in addition to the origin/destination traffic of these countries that is generated by the economic development of the area, where these new ports act as a hub subtracting traffic at the transhipment calls of the Northern shore and the Northern Range, unexpected possibilities of growth will open up for the Italian ports, with which feeder connections will be possibly developed. On the other hand, the presence of other hubs in the Mediterranean basin, with competitive advantages in terms of time and costs, could be harmful to the Italian transhipment ports.

It is clear that in order to realise development opportunities related to the deep sea and short sea traffic, it will be necessary to overcome the infrastructure constraints that characterise our ports as soon as possible: make the logistic process smooth, efficient and effective by reducing the time for the passage of goods from the ports to the consumption centres; streamline bureaucratic and procedural constraints related to port operations. The geographical advantage, by itself, is no longer sufficient to ensure traffic results; it is necessary to stay on the market and, in the economic context pressed by the crisis, this means offering to shipping companies adequate infrastructure, as well as efficiency and effectiveness in the services provided.

c) Foreign maritime trade

The statistical analysis, which was carried out essentially to show the "weight" of maritime transport, reported a sector which still moves a considerable amount of goods associated with a significant value in terms of million euros, thus an important lymph in a difficult time like the one the Italian economy is facing. In fact, it is not just one of the major modes of transport used for the entry and exit of goods from the country, but it also represents a growing segment than in the past; a sector that, compared to the 2009 levels and despite the crisis that characterised that year, showed a recovery of 4 percentage points on GDP.

China and the United States are the two most important partners, with a total trade estimated at more than 47 billion euros. With the former, in particular, Italy mostly has import relations for machinery and equipment and products derived from the textile and clothing industries. For the United States, on the contrary, Italy is primarily an exporter of machinery and equipment, food and transport means.

Narrowing the field of observation to the European (EU-27) and Mediterranean area, it can be seen that the main commercial relations are with Spain and France in the first case and with Libya and Turkey in the second one.

Specifically for the Med Area – which is the subject of an in-depth focus – it emerged that the overall maritime trade amounts to over 47 billion euros and this figure makes Italy the biggest trading partner of the area for this type of traffic, ahead of France and Germany.

Analysing in detail the three sub-areas identified, maritime trade mainly regards the countries of the Southern Med Area (Algeria, Morocco, Tunisia, Libya and Egypt). These territories, in fact, account for over 62% of the total and are Italy's business partners especially with regard to oil products. The trade of machinery and equipment, metals and fabricated metal products and textiles and clothing come next.

Finally, in terms of single countries, Libya prevails on all the others accounting for more than one quarter of the total maritime trade with the Med Area. After the 2011 decrease, the country is again Italy's first partner for maritime trade in this area, despite it records a decline of 25% compared to the values of 2008.

3.3. The "weight" on the national economic system

The adoption of measures in support of maritime transport in Italy could develop a very high potential in terms of competitiveness and growth, particularly in the current economic situation. In 2010, the contribution of the national maritime system as a whole to GDP was 2.6%; also in terms of employment, the importance of this sector is significant with more than 213,000 people directly employed.

The value of this sector in the overall economic system is enhanced by the high degree of integration of the logistic and port system with the Italian production tissue. This relation is effectively represented by multipliers of income and employment in the Italian maritime cluster, which were estimated by Censis at 2.37 and 1.73 respectively (data from 2009). This means that:

- every 100 euros of investment/services carried out in the sector, 237 euros of total income in the national economy are activated;
- 100 new people operating in the maritime cluster activate 173 new jobs in the overall production system.

The impact of this sector on the national economy is therefore important and its strategic characteristic imply a reflection: it emerges as one of the main areas on which it is necessary to meditate in terms of new and significant investment.

In view of these findings, it was considered useful to provide further evidence, real *weight indicators* that, on the basis of data and considerations made during the research, give an immediate and synthetic image of the relevance of shipping on the Italian economy. For the explanation of the analysis, a table was chosen.

Shipping weight indicators

GDP generated by the national maritime system (€ bn)	39.5		
Annual turnover generated by the Italian shipping sector (€ bn) - 2009	11		
Number of national maritime cluster companies - 2012	6,941		
Maritime trade (mln tons) - 2012	244	8,9% of EU-27	2° in EU-27
Maritime foreign trade (€ bn) - 2012	240.8		
Maritime foreign trade/GDP - 2012	15.4%		
Maritime transport weight of the total	31.3%		
SSS cargo (mln tons) - 2010	223.2	39.2% of Med Area	1° in Med Area
Number of passengers embarked or disembarked, (thousands) 2011	81,895	21% of EU-27	1° in EU-27
Italian Fleet (dwt) December 31, 2011	21,470,327	7.7% of EU-27	4° in EU-27
Italian Ro-Ro Fleet (dwt) - 2012	1,273,648	13% of the World	1° in the World

TABLE 1 - SOURCE: SRM elaborations

4. Policy indication

Starting from the reflections carried out in the research, a few tips were proposed: focusing primarily on the rationalisation of the existing regulatory and bureaucratic framework, as well as on optimising the use of available financial resources, they can help to support the sector and the country's competitiveness, urging the shift to a logistic model more consistent with the needs dictated by the global context.

The indications identified were summarized in a report that represents a distinction between infrastructure and companies, thereby analysing the different aspects of the shipping sector.

FOR COMPANIES:

- *Fostering of internationalisation and innovation of the manufacturing system*
- *Bureaucratic incentives and regulations*
- *Creation of a single port desk*
- *Incentives for logistic innovation*
- *Structured support to sea highways*
- *Drawing up of a development plan for maritime transport*

FOR INFRASTRUCTURE:

- *Investment orientation towards the consolidation of existing infrastructure*
- *Clearer legal definition of Financial Autonomy*
- *Facilitation of the intervention of private capitals in the financing of port works*

PART II

NATIONAL AND INTERNATIONAL MARITIME TRANSPORT

CHAPTER II
MERCHANT SHIPPING: ANALYSIS OF THE NATIONAL AND INTERNATIONAL SCENARIOS, AND INDUSTRY OUTLOOK

1. Introduction

Shipping, ports, and logistics have become important industries for the dynamics and evolution of today's global economy. The development of the shipping industry in particular is tied to long-term trends such as demographics, economic growth in the various regions of the world, structural and permanent changes in the demand for commodities. Due to these characteristics, the maritime shipping sector was hit rather significantly by the crisis of 2008 and its diffusion to all the major economies. The slowdown of the economy resulted in a contraction, between 2008 and 2009, in all categories of volumes handled, and in particular of containerised goods. A significant recovery in international maritime trade and traffic was recorded already the following year, to levels in excess of pre-crisis levels. Economic data confirm a rise back in traffic, and the positive forecasts for the future may be considered as a good starting point from which to recover the positions held in the past.

This chapter analyses the state of the industry and its possible evolutions, focusing on the cargo shipping segment alone. Generally speaking, shipping is intended to mean the maritime transport of both goods and passengers, distinguishing between merchant shipping and passenger transport. The former segment is an integral part of the productive cycle of goods transportation, whereas the second embraces factors tied to the passenger transport and tourist services. The aim of this chapter is to photograph the current state of merchant shipping, by examining the trend of a number of variables which characterise the industry both on the side of demand and of supply.

The chapter starts off by observing industry trends at the global level, within the context of the international economic situation, highlighting the role played by shipping within this context, and then moves on to consider the characteristics of the industry within the European economic scenario. Finally, it examines in depth the peculiarities and value of the industry within the Italian economic and territorial context. At every level of analysis, the distinctive features of the industry have been examined, on both the demand and supply sides. The trends of demand have been investigated through an analysis of the volumes handled, with particular attention for data on the maritime shipping of goods, in terms of the routes operated and port traffic. Supply trends, on the other hand, have been examined with regards to the size and composition of the merchant fleet, with particular focus on the ship-owning sector and on the trend of the shipbuilding industry.

2. Industry trends at the global level

In recent years, economic balances have changed significantly. The eastward motion of the barycentre of traffic and trade has consolidated, to the point that as of 2009 China has become the country commanding the largest share of world trade. European trade, which up to a few years earlier mostly travelled along the Atlantic route towards the United States (Europe's main trade partner), has accordingly adjusted to address Asia. As shown in the table below, the value of bilateral export flows between Europe and Asia amounted in 2011 to 1.561 billion dollars, as opposed to 1.119 billion generated by trade relations between the Old Continent and America.

Merchandise trade flows between regions (exports). Years 2007-2011
(US$ billion)

Routes	2007	2008	2009	2010	2011	*var % 07-11*	*var % 10-11*
North America - Europe	329	369	292	330	382	*16.1*	*15.8*
Europe - North America	458	475	366	416	480	*4.8*	*15.4*
Central & South America - Europe	106	121	90	108	138	*30.2*	*27.8*
Europe - Central & South America	80	96	75	98	119	*48.8*	*21.4*
Asia - Europe	715	801	641	808	922	*29.0*	*14.1*
Europe - Asia	434	486	426	524	639	*47.2*	*21.9*
Africa - Europe	167	218	149	184	205	*22.8*	*11.4*
Europe - Africa	148	185	162	177	199	*34.5*	*12.4*

TABLE 1 - SOURCE: SRM elaborations on WTO (World Trade Organization) data, 2012

As well as the quantities shipped, the miles travelled have also grown. Today, transoceanic routes have taken on a primary role, linking production sites with consumption sites in a complex reorganisation of the international subdivision of labour, as a result of globalisation processes.

The emerging economies of countries such as China and India are at the fore in showing the most robust signals of a recovery following the crisis of 2009; on the other hand, growth in the advanced economies, and in Europe especially, with the sole exception of Germany, is proving more sluggish.

Within this framework, international trade has become increasingly important, and is closely linked with the trend of output. Following the crisis of 2008 and 2009, which caused a contraction in world GDP growth, and subsequently a reduction in trade volumes and loads handled, the value of exports soared in 2010 compared to the previous year, increasing by a record-breaking 14% in terms of volumes, as opposed to GDP growth of 5%; the strongest contribution to growth, in excess of two-thirds of the total, was made by the emerging countries. The positive trend continued in 2011, with GDP growth of 3.9%, and an increase in world trade of 5%.

It is evident, therefore, that trade volumes are increasing at a consistently faster pace than GDP.

Within this new geo-economic scenario, the sea has retained its function as an important economic space, crossed by the main flows of transported goods, bestowing increasing importance on all the sectors of the maritime economy, and making the link between industrial output, trade, and maritime transport, an increasingly close one.

GDP, World Trade and Maritime Trade

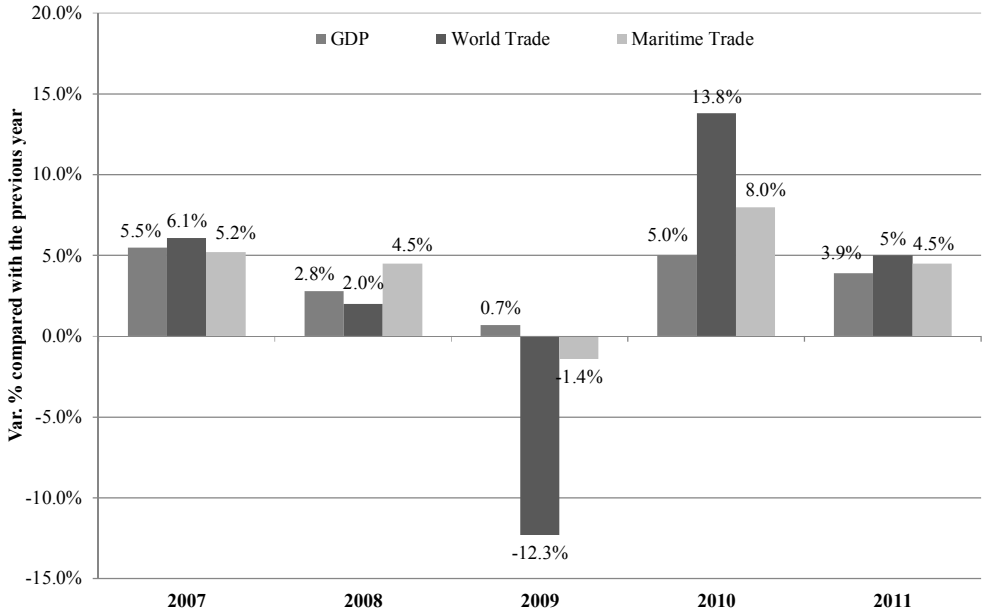


CHART 1 - SOURCE: Confitarma, 2012

The development of the economy and of trade has also influenced the trend of maritime traffic. A trend which began already in the course of the 1990s has thus intensified, resulting in a doubling of the shipped goods: from 4 billion tonnes in 1990 to over 8.7 billion tonnes in 2011, a growth trend only marginally cooled by the recession of 2009.

Development in international Seaborne trade (millions of tonnes loaded)

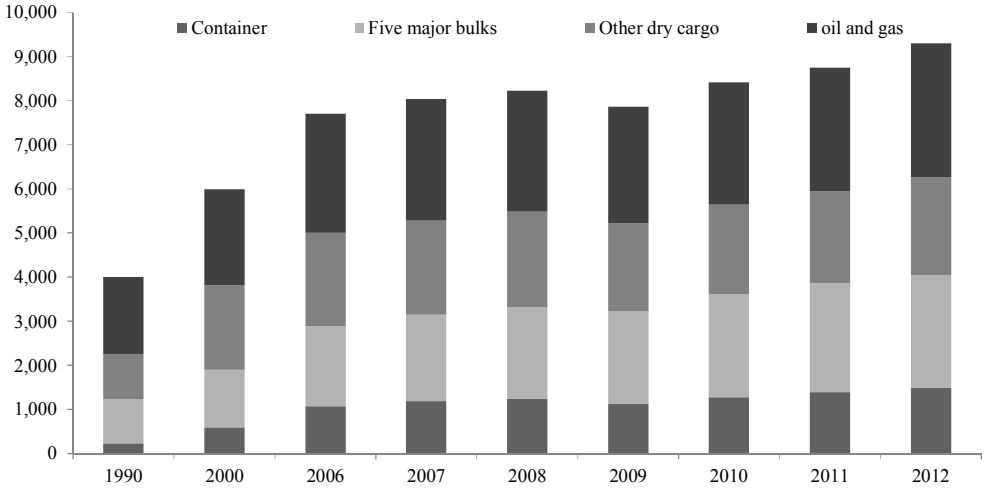
Year	Millions of tons
1990	4,008
2000	5,984
2006	7,700
2007	8,034
2008	8,229
2009	7,858
2010	8,409
2011	8,748

TABLE 2 - SOURCE: UNCTAD, *Review of maritime transport*, 2012

When observing the trend of maritime traffic by segment of activity, the shipping of containers and of dry bulk emerge as the leading forces behind the growth of maritime trade at the global level. In 2012, maritime trade was dominated by the shipping of

commodities, and a further 27% was accounted for by the five main types of solid goods (iron ore, coal, cereals, bauxite, alumina, and phosphates). Other dry bulk – including containerised loads – account for a share of around 40%.

International Seaborne trade, by cargo type, selected years
(millions of tonnes loaded)



* 2012 data based on the forecasts contained in Clarkson Research, *Shipping Review and Outlook*, Spring 2012.

CHART 2 - SOURCE: SRM elaborations on UNCTAD data, *Review of maritime transport*, 2012

Revived maritime traffic growth after 2009 reflects the effect of spending incentives which have effectively encouraged investments, and therefore demand for commodities. The positive trend was also fuelled by increasing industrial activity in the emerging countries, and by the replenishing of inventories.

More in detail, the five main types of dry bulk experienced significant growth, of around +6.1% in 2011 vs. 201, and of 2.8% in 2012 compared to the previous year. Of these, iron ore and coal account for most of the shipped bulk. The improvement is explained by this very composition of the dry bulk loads shipped. Around half of the volumes handled is directly linked with the world production of steel, which despite the economic crisis has continued to grow at a rather consistent pace in the past two years, returning to pre-crisis levels. The volumes of oil products shipped also recovered, showing an increase of over 8% in 2012 compared to the previous year; this expansion was mostly led by increased demand for energy in the emerging countries of the Asian continent.

International Seaborne trade, by cargo type, selected years
(millions of tonnes loaded)

	2008	2009	2010	2011	2012	var 2010/2011	var 2011/2012
Container	1,249	1,127	1,275	1,385	1,498	8.63	8.16
Five major bulks	2,065	2,085	2,335	2,477	2,547	6.08	2.83
Other dry cargo	2,173	2,004	2,027	2,090	2,219	3.11	6.17
oil and gas	2,742	2,642	2,772	2,796	3,033	0.87	8.48
Total	**8,229**	**7,858**	**8,409**	**8,748**	**9,297**	**4.03**	**6.28**

* 2012 data based on the forecasts contained in , *Shipping Review and Outlook*, Spring 2012.

TABLE 3 - SOURCE: SRM elaborations on UNCTAD data, *Review of maritime transport*, 2012

When observing the contribution of the various regions to world maritime trade, the role played by the emerging economies stands out. These economies remain the hubs around which traffic revolves, reflecting the concentration of resources and commodities to be found in those regions, which account for most of overall dry bulk shipping.

World seaborne trade, by region. 2011
(percentage share of world tonnage)

CHART 3 - SOURCE: SRM elaborations on UNCTAD data, *Review of maritime transport*, 2012

Asia emerges as being the most important region for maritime traffic both in terms of loading and unloading, and accounts for respectively 39% and a hefty 56% of total loading and unloading; the Americas rank second, followed by Europe.

All sectors of maritime transport suffered the effects of the economic crisis, but started to show a recovery in volumes shipped as of 2010. Each market segment has its own peculiar dynamics in terms of the intensity of the effects of the crisis, and of the drivers of the recovery. Therefore, an exact understanding of the relevant phenomena and future prospects, cannot be obtained without first drawing a more punctual analysis of the different segments: liquid bulk, dry bulk, and container traffic. The latter, while representing in terms of volumes the smallest share of overall traffic, is the type of shipping which offers the highest added value.

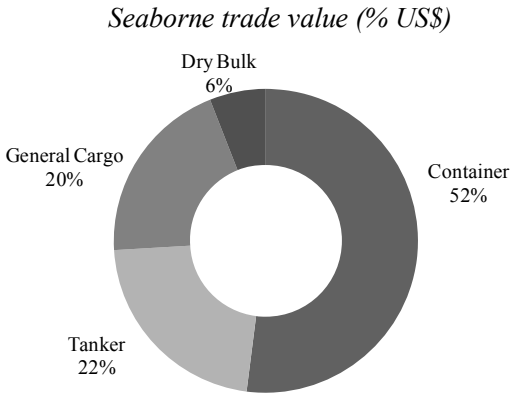
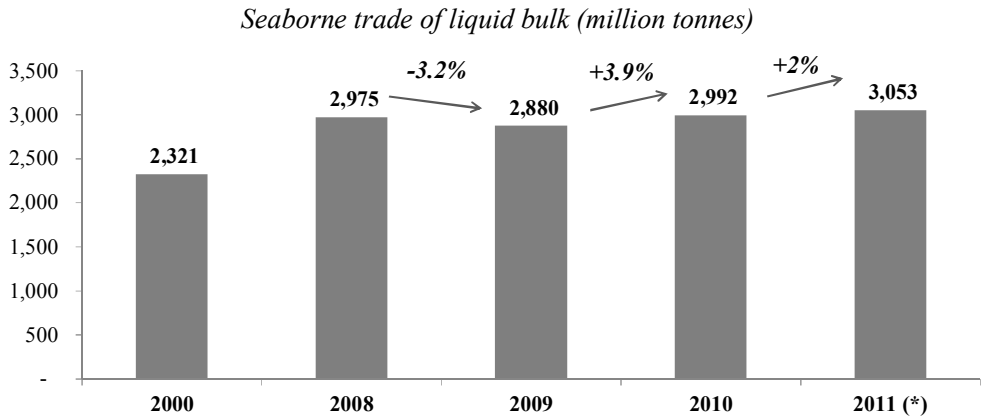


CHART 4 - SOURCE: SRM elaborations on Lloyd's Maritime Intelligence Unit data, 2012

The liquid bulk market experienced a 3.9% increase in shipped volumes in 2010; a result which fully balanced the contraction recorded in 2009 (-3.2% vs. 2008). Estimates for 2011 point to a further 2% rise. Within this segment, oil tops the table, accounting for around 66% of the total. The recovery in energy commodity trade flows drove the recovery of the entire segment.

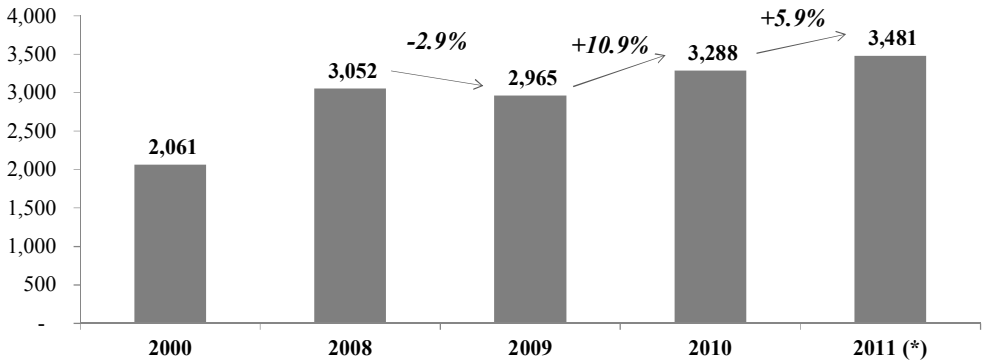


* Forecasts.

CHART 5 - SOURCE: Unicredit on Clarkson's Research data, 2011

The maritime handling of dry bulk was less affected by the global economic recession. After a 2.9% contraction in volumes in 2009, the trend of traffic in 2010 was fully back on the rise, showing a 10.9% expansion. Growth continued in 2011, at a pace of around +6%. Within this segment, iron ore and coal weigh the most, accounting for around 60% of the total. The stubbornness shown by the trade of these commodities contributed to the overall segment's resilience.

Seaborne trade of dry bulk (million tonnes)



* Forecasts.

CHART 6 - SOURCE: Unicredit on Clarkson's Research data, 2011

The container market at the international level is also strongly influenced by the trend of the economy, and in a sharp contraction phase for international trade, the segment suffered significant setbacks.

Development in international Seaborne Container trade (%)

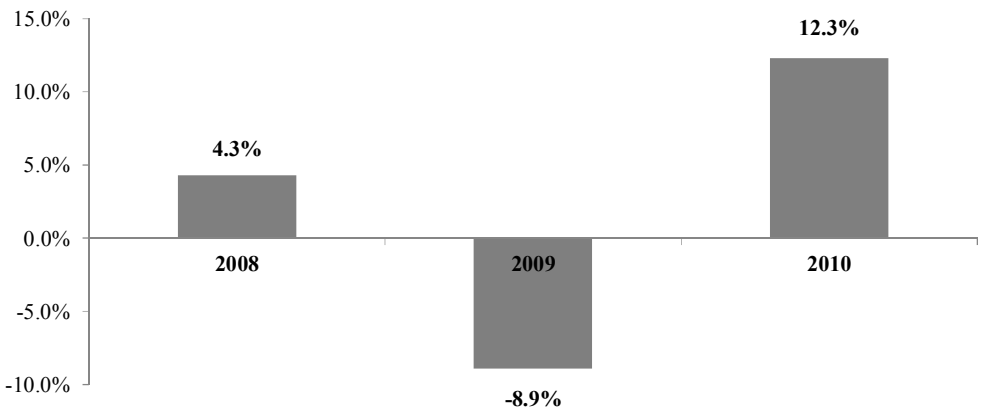


CHART 7 - SOURCE: Unicredit on Clarkson's Research data, 2011

Most importantly, changes have affected container traffic depending on the trade routes followed.

Maritime routes for the shipping of containers may be divided into three main groups:

- *East-West routes*, which cross the Northern Hemisphere of the globe, connecting the main industrialised centres of North America, Western Europe, and Asia;

- *North-South routes*, from and to the main centres of production and consumption in Europe, Asia, and North America, connecting the latter to the developing countries of the Southern Hemisphere;
- *Intraregional routes*, i.e. short-distance connections carried out by smaller ships than those used for the previous two groups of routes.

The chart below offers a breakdown of total world entire container traffic by route. The shares of trade are concentrated along the transpacific routes (which connect the countries of the Far East with North America), the transatlantic routes (connecting the countries of North America and of the European Union), and routes between Europe and the Far East (connecting the Far East to the European Union, including transhipment operations in the Indian subcontinent).

World Seaborne Container trade, by maritime routes.

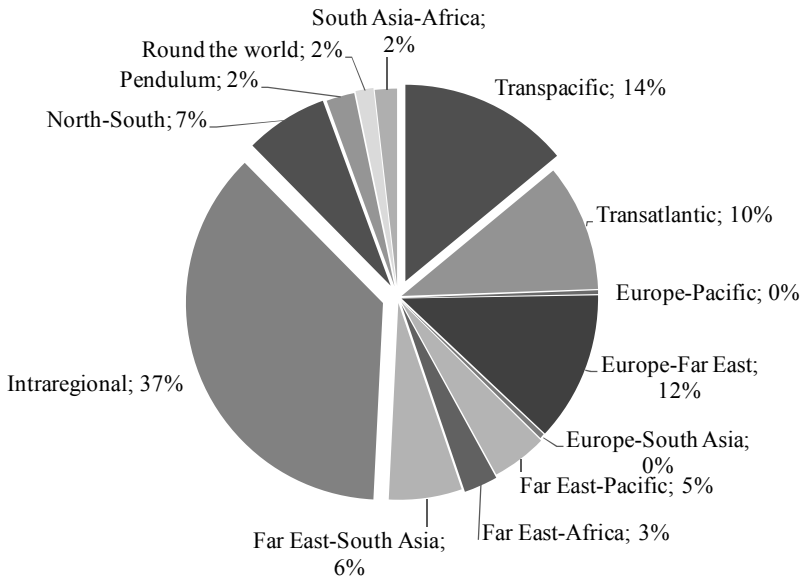


CHART 8 - SOURCE: CIELI (Centro Italiano di Eccellenza sulla Logistica Integrata), 2011

The global growth of container traffic in 2011 was cooled by the slowdown recorded on the main East-West routes. Traffic along the transpacific route decreased by 0.5%, whereas volumes handled along the Asia-Europe and transatlantic routes grew by 6.3% and 5.7% respectively.

Growth was mostly driven by higher demand for imports in emerging countries; container traffic volumes increased most along the secondary routes of the East-West group (+8.9%), on the North-South routes (+8.9%), and along intra-regional routes (+9.2%).

According to Clarkson Research Services, in 2011 traffic along the three main routes amounted to 47.3 million TEUs, whereas traffic on the secondary routes reached 103.3 million TEUs.

Estimated containerized cargo flows on major East-West container trade routes, 2009-2011 (millions of TEUs and percentage change)

Year	Transpacific		Europe - Asia		Transatlantic	
	Asia - North America	*North America - Asia*	*Asia - Europe*	*Europe - Asia*	*Europe - North America*	*North America - Europe*
2009	10.6	6.1	11.5	5.5	2.8	2.5
2010	12.8	6	13.5	5.6	3.1	2.8
2011	12.7	6	14.1	6.2	3.4	2.8
Percentage change 2010-2011	1.2	0.9	4.6	10.6	8.3	2.8

TABLE 4 - SOURCE: UNCTAD, *Review of maritime transport*, 2012

The figure below shows the distribution of container traffic along these routes.

East-West container trade routes, 2011 (million TEUs)

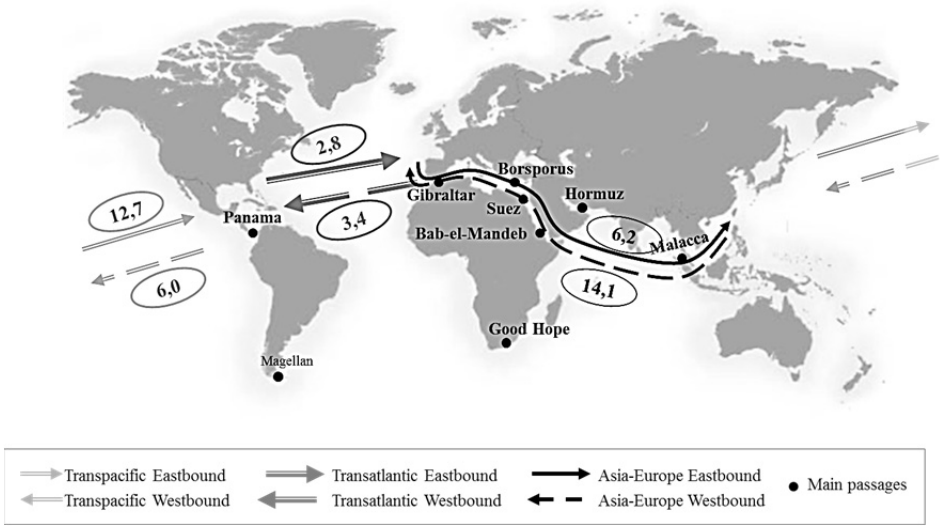


FIGURE 1 - SOURCE: UNCTAD, *Review of maritime transport*, 2012

The growth in container traffic volumes was supported by double-digit rates in Asian countries on the Far East-North America, and Asia-Europe routes. Volumes shipped along these latter routes rose in 2011, exceeding the pre-crisis levels recorded in 2008, while volumes on the transatlantic route stayed below the 2008 levels. In general, while the importance of the transatlantic route has gradually waned at the global level, trade along the Asian route, towards the developing economies of the Indian subcontinent and in the Southern Hemisphere, is expanding rapidly.

The concentration of traffic on the routes linking Asia, Europe, and North America, highlights the role played by the new emerging countries (such as China, India, and Vietnam) within the global economy and world trade. The entire container segment, therefore, revolves around the Asian continent, whose ports handle over 80% of global traffic.

Container trade in main ports, by Region 2012 (% TEUs)

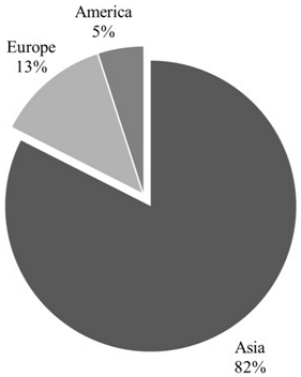


CHART 9 - SOURCE: SRM elaborations on Port Authority data, Informare, 2013

Asian ports are of significant size, to the point that Singapore alone handles around three times the container traffic volumes handled by Rotterdam, which is Europe's main port.

In the past year, traffic volumes have increased in almost all ports. Exceptions were Hong Kong (-5.20%), which, however, held on to third position, and the ports of Hamburg, Antwerp, and Long Beach in the United States. The top performing ports, on the other hand, were Chinese: Ningbo & Zhoushan (+14.3%), Qingdao (+11.5%), Tianjin (+16%), and Xiamen (+ 11.3%).

Container trade in main ports. Years 2008 - 2012 (Thousand TEUs)

	Port	Country	2012	2011	2010	2009	2008	*var 2012/ 2011*
1	Shanghai	China	**32,500**	31,700	29,070	25,002	27,980	*2.52*
2	Singapore	Singapore	**31,649**	29,938	28,430	25,870	29,918	*5.72*
3	Hong Kong	China	**23,117**	24,384	23,699	21,040	24,494	*-5.20*
4	Shenzhen	China	**22,900**	22,540	22,510	18,250	21,400	*1.60*
5	Busan	South Korea	**17,041**	16,185	14,194	11,980	13,453	*5.29*
6	Ningbo &Zhoushan	China	**16,800**	14,700	13,144	10,502	11,226	*14.29*
7	Guangzhou	China	**14,700**	14,400	12,550	11,190	11,001	*2.08*
8	Quingdao	China	**14,500**	13,000	12,012	10,260	10,320	*11.54*
9	Dubai Ports	United Arab Emirates	**13,280**	13,031	11,600	11,124	11,827	*1.91*
10	Tianjin	China	**12,300**	10,604	10,080	8,700	8,500	*15.99*
11	Rotterdam	Netherlands	**11,900**	11,877	11,146	9,743	10,784	*0.19*
12	Port Klang	Malaysia	**10,001**	9,604	8,872	7,310	7,974	*4.13*
13	Kaohsiung	Taiwan	**9,781**	9,636	9,181	8,581	9,677	*1.50*
14	Amburgo	Germany	**8,864**	9,014	7,896	7,008	9,737	*-1.66*
15	Antwerp	Belgium	**8,635**	8,664	8,468	7,310	8,663	*-0.33*
16	Los Angeles	Unites States	**8,078**	7,941	7,832	6,749	7,850	*1.73*
17	Tanjung Pelepas	Malaysia	**7,700**	7,500	6,530	6,000	5,600	*2.67*
18	Xiamen	China	**7,200**	6,470	5,820	4,680	5,035	*11.28*
19	Brema	Germany	**6,115**	5,916	4,888	4,565	5,529	*3.36*
20	Long Beach	United States	**6,046**	6,061	6,263	5,068	6,488	*-0.25*

TABLE 5 - SOURCE: Port Authority, Informare, 2013

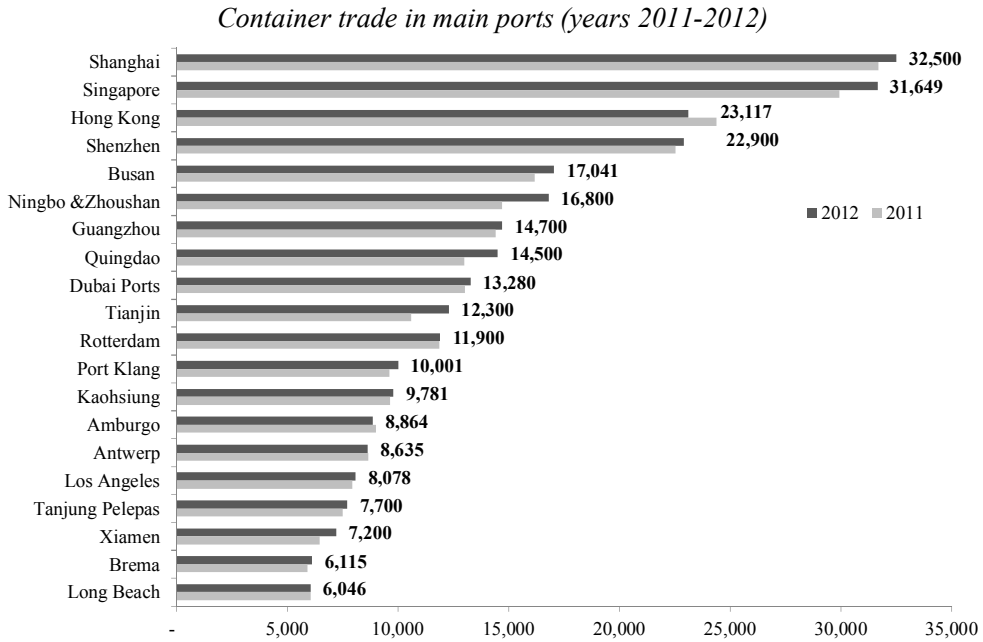


CHART 10 - SOURCE: SRM elaborations on Port Authority data, Informare, 2013

Performance in terms of volumes is only one of the aspects which determine a the overall trend of the shipping industry, as it only reflects demand dynamics. On the supply side, on the other hand, the features of the industry may be investigated focusing on the size and composition of the world merchant fleet.

At the beginning of 2012, there were 104.305 commercial ships in operation, for a total tonnage of 1.534 million dwt[1].

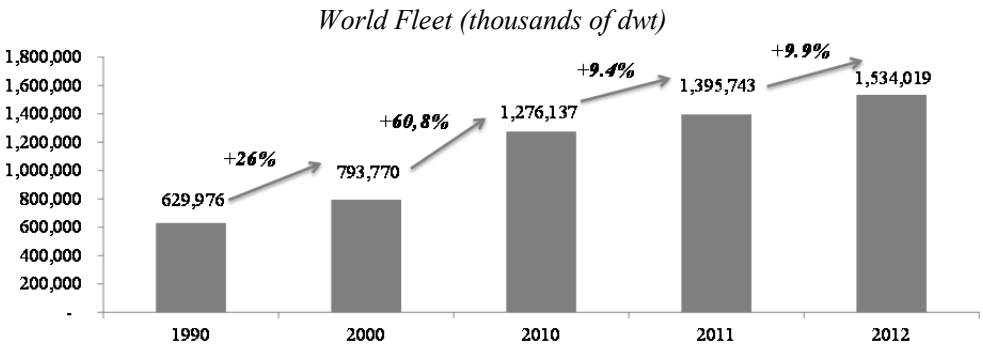


CHART 11 - SOURCE: SRM elaborations on UNCTAD, *Review of maritime transport*, 2012

[1] *Dwt (deadweight tonnage)*: the maximum weight a ship can safely carry at full load. The total includes passengers, fuel, crew, provisions, and load.

Gt (gross tonnage): a measure of the ships overall internal volume, including engine room areas, fuel tanks, and crew quarters.

Source: Confitarma

The composition of the fleet reflects demand for the different types of products. As a result of the increased containerisation of manufactured products, the weight of container ships on the total world fleet grew from 1.6% in 1980 to 12.9% in 2012. The increase was mostly to the detriment of general cargo vessels, the share of which on the total world fleet dropped from 17% to 6.9% over the same period.

Oil tankers account for 33% of the total, with a tonnage of 507 million dwt, while bulk carriers account for a share of over 40%, totalling 623 million dwt. Between 2011 and 2012, these two segments posted growth rates of 6.9% and 17% respectively.

Container ships added up to 198 million dwt, up by 7.7% vs. 2011. The fleet of general cargo ships shrank compared to 2011 by 2.4%, to around 106 million dwt. Within the "Other vessel types" category", the tonnage of gas carriers increased.

World Fleet by principal vessel types 2011 -2012 (Thousand dwt)

Vessel Types	2011		2012		var % 2012/2011
		%		%	
Oil tankers	474,846	*34*	507,454	*33.1*	6.9
Bulk carriers	532,039	*38.1*	622,536	*40.6*	17.0
General cargo ships	108,971	*7.8*	106,385	*6.9*	-2.4
Container ships	183,859	*13.2*	198,002	*12.9*	7.7
Other types	96,028	*6.9*	99,642	*6.5*	3.8
WORLD TOTAL	**1,395,743**		**1,534,019**		**9.9**

TABLE 6 - SOURCE: UNCTAD, *Review of maritime transport*, 2012

World Fleet by principal vessel types (2012)

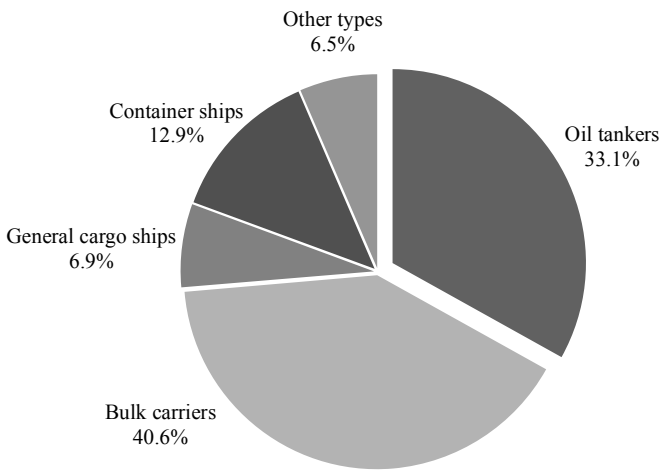


CHART 12 - SOURCE: SRM elaborations on UNCTAD, *Review of maritime transport*, 2012

As regards fleet ages, over half of the total are older than 20 years. Container ships are still the youngest, followed by bulk carriers.

Age distribution of the world merchant fleet, by vessel type (percentage of total ships)

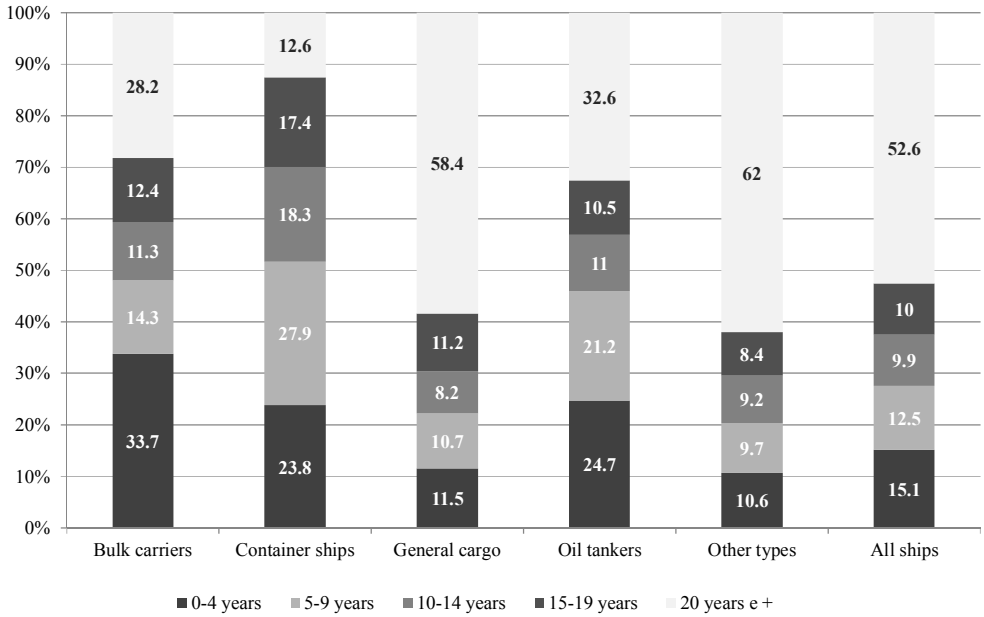


CHART 13 - SOURCE: SRM elaborations on UNCTAD, *Review of maritime transport*, 2012

A breakdown of cargo tonnage by country-owned fleets sees Greece at the top of the ranking, commanding 16.1% of total dwt, equivalent to over 224 million dwt. Japan ranks second with 15.6%, followed by Germany with 9%, and China with 8.9%.

In terms of the number of vessels, Germany, Japan, and China are ahead of Greece. In terms of tonnage and flag (national or foreign), the Greek national flag fleet is by far the largest in the world, totalling around 65 million dwt, followed by the Chinese national flag fleet, of over 51 million dwt.

Nine out of the top ten countries listed in Table 7 operate more than half the tonnage they own under a foreign flag. The sole exception is Taiwan, which ships 63.5% of its tonnage under its own flag.

Combined, the top 20 countries by fleet owned account for 86% of total world tonnage, while around half of total tonnage (49.7%) is controlled by the shipping companies of four countries (Greece, Japan, Germany and China).

As regards the type of flag used, 71.5% of world tonnage navigates under a foreign flag. One of the main reasons prompting ship-owners to use a flag other than the national flag is the possibility of employing foreign staff on board the ships. This is of particular interest for ship-owners in advanced countries, in which the minimum wages in the sector are higher. Therefore, it is not surprising that the percentage of ships registered with a foreign flag is much higher in advanced countries than in developing countries.

World Fleet. The 20 countries and territories with the largest owned fleets (vessels of 1000 gt and over)

	Country	National Flag		Foreign Flag		TOTAL		Foreign Flag as a percentage of Total	Market share
		N.	dwt	N.	dwt	N.	dwt		
1	**Greece**	**738**	**64,921,486**	**2583**	**159,130,395**	**3321**	**224,051,881**	**71.0**	**16.1**
2	**Japan**	**717**	**20,452,832**	**3243**	**197,210,070**	**3960**	**217,662,902**	**90.6**	**15.6**
3	**Germany**	**422**	**17,296,198**	**3567**	**108,330,510**	**3989**	**125,626,708**	**86.2**	**9.0**
4	**China**	**2060**	**51,716,318**	**1569**	**72,285,422**	**3629**	**124,001,740**	**58.3**	**8.9**
5	**Republic of Korea**	**740**	**17,102,300**	**496**	**39,083,270**	**1236**	**56,185,570**	**69.6**	**4.0**
6	**United States**	**741**	**7,162,685**	**1314**	**47,460,048**	**2055**	**54,622,733**	**86.9**	**3.9**
7	**China, Taiwan**	**470**	**28,884,470**	**383**	**16,601,518**	**853**	**45,485,988**	**36.5**	**3.3**
8	**Norway**	**851**	**15,772,288**	**1141**	**27,327,579**	**1992**	**43,099,867**	**63.4**	**3.1**
9	**Denmark**	**394**	**13,463,727**	**649**	**26,527,607**	**1043**	**39,991,334**	**66.3**	**2.9**
10	**China, Taipei**	**102**	**4,076,815**	**601**	**34,968,474**	**703**	**39,045,289**	**89.6**	**2.8**
11	Singapore	712	22,082,648	398	16,480,079	1110	38,562,727	**42.7**	**2.8**
12	Bermuda	17	2,297,441	251	27,698,605	268	29,996,046	**92.3**	**2.2**
13	ITALY	608	18,113,984	226	6,874,748	834	24,988,732	27.5	1.8
14	Turkey	527	8,554,745	647	14,925,883	1174	23,480,628	**63.6**	**1.7**
15	Canada	205	2,489,989	251	19,360,007	456	21,849,996	88.6	1.6
16	India	455	15,276,544	105	6,086,410	560	21,362,954	28.5	1.5
17	Russian Federation	1336	5,410,608	451	14,957,599	1787	20,368,207		
18	United Kingdom	230	2,034,570	480	16,395,185	710	18,429,755	89.0	1.3
19	Belgium	97	6,319,103	180	8,202,208	277	14,521,311	56.5	1.0
20	Malaysia	432	9,710,922	107	4,734,174	539	14,445,096	32.8	1.0
	Total Top 20	**11854**	**333,139,673**	**18642**	**864,639,791**	**30496**	**1,197,779,464**	**72.2**	**86.1**
	Total of known economy of ownership					**39722**	**1,391,792,319**		**100.0**
	Others, unknown economy of ownership					**7179**	**126,317,184**		
	WORLD TOTAL					**46901**	**1,518,109,503**		

TABLE 7 - SOURCE: UNCTAD, *Review of maritime transport*, 2012

Data on tonnage by fleet-owner countries in the various segments sees Greek ship-owners rank first in the world in terms of tanker fleets.

World's leading tanker fleets. First 15 Countries
(ships of 1.000 gt and over by nationality of owner)

		N	Tonnes (thousands of dwt)
1	Greece	1,193	99,096
2	Japan	1,076	60,399
3	Germany	474	23,862
4	China	507	22,370
5	USA	295	21,337
6	Bermuda	142	20,192
7	Norway	472	20,131
8	Singapore	435	18,682
9	Denmark	361	14,959
10	Hong Kong	246	14,278
11	Russia	338	13,821
12	United Kingdom	235	13,751
13	Rep. of Korea	307	13,507
13	ITALY	328	12,895
15	Saudi Arabia	90	12,070

TABLE 8 - SOURCE: Confitarma on ISL Bremen data, 2012

Together with Japan, Greece owns over 40% of the total tonnage commanded by the top 15 countries in this fleet segment. Italy ranks 14th, with over 12.8 million dwt.

Japan is the world leader in bulk carriers. Together with Greece and China, it owns 60% of the total number of ships, as well as of the total tonnage owned by the top 15 countries in this fleet segment. In this particular ranking, Italy holds 14th place, with 119 vessels and just under 8.2 million dwt.

World leading bulk carrier fleets. First 15 Countries
(ships of 1.000 gt and over by nationality of owner)

		N	Tonnes (thousands of dwt)
1	Japan	1,480	123,138
2	Greece	1,425	103,783
3	China	1,154	72,142
4	Rep. of Korea	358	33,140
5	Germany	385	25,425
6	Hong Kong	330	23,791
7	Taiwan	262	19,539
8	USA	232	16,831
9	United kingdom	141	16,311
10	Turkey	220	10,874
11	Singapore	154	10,055
12	Norway	171	9,924
13	India	146	8,907
14	ITALY	119	8,209
15	Brazil	40	7,412

TABLE 9 - SOURCE: Confitarma on ISL Bremen data, 2012

In the container ship segment leadership is held by Germany, which controls just under 40% of the total TEUs commanded by the top 15 countries which own fleets of this type, followed at a distance by Japan and Denmark.

World leading container fleets. First 15 Countries
(ships of 1.000 gt and over by nationality of owner)

		N	TEU
1	Germany	1,803	5,068
2	Japan	313	1,189
3	Denmark	230	1,129
4	Greece	235	881
5	China	319	845
6	United kingdom	115	656
7	France	111	626
8	Taiwan	187	588
9	Rep. of Korea	142	437
10	Singapore	159	379
11	Canada	62	330
12	USA	92	250
13	Hong Kong	58	224
14	Israel	39	181
15	Kuwait	28	126

TABLE 10 - SOURCE: Confitarma on ISL Bremen data, 2012

When observing the path which has led to the present situation, the years 2000 emerge as having been characterised by a long growth phase, which lasted until 2008. On the eve of the crisis, new ships for an compensated gross tonnage of around 42 million cgt a year[2] were placed on the market, more than twice the amount shipbuilding industry was able to produce at the start of the decade. Orders for new vessels were mostly absorbed by soaring productive capacity in China, which at the end of the decade managed to match and surpass the productive capacity of the Japanese and Korean shipyards, historical leaders in the shipbuilding business.

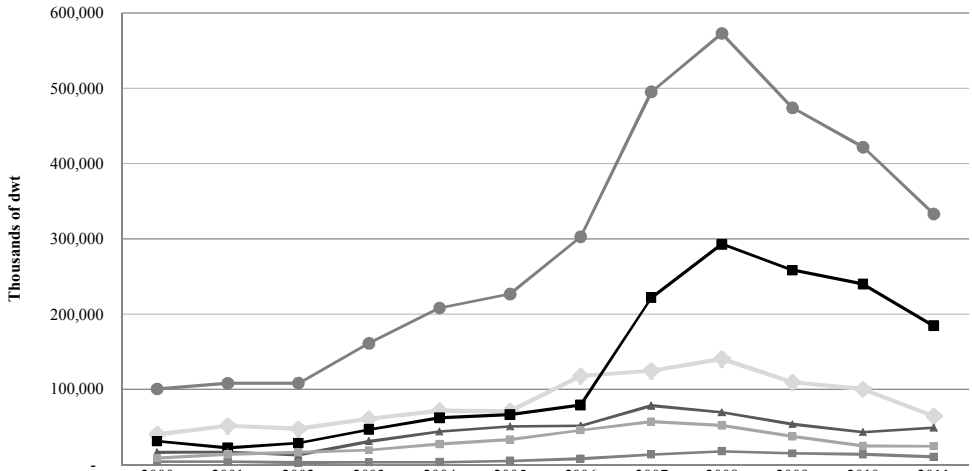
Therefore, China, Korea and Japan are the world's most important shipbuilders, that have built their competitiveness on the one hand on the devaluation of their currencies against the dollar, and on the other on the possibility of building hulls or standard transport unit blocks in low-labour-cost neighbouring countries. This is especially true for Japan and Korea.

The world fleet has grown constantly over this time period in terms of ship capacity, as large vessels have increased compared to so-called "small range" ships.

However, at the end of 2010, the order book for new ships shrank by around 42% compared to the peak level before the 2008 crisis. The sharpest reductions from peak, between 2008 and 2011, were incurred by container ships, -29.4%, tankers, -54%, and bulk carriers, -37%.

[2] FEDERAZIONE DEL MARE, 2011.

World Order book. Years 2000-2011 (Thousand dwt)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Tanker	40,328	51,894	47,591	61,123	71,563	70,847	118,008	124,845	140,504	109,310	100,442	64,618
Bulk carrier	31,208	22,184	28,641	46,732	62,051	66,614	79,364	221,808	292,837	258,343	239,898	184,353
General cargo	3,966	3,826	2,832	3,068	3,306	5,088	8,004	13,360	17,849	15,018	13,487	10,464
Container	16,140	16,550	13,000	30,974	43,904	50,856	51,717	78,348	69,593	53,903	43,180	49,088
Other types	8,870	13,501	16,174	19,277	27,361	33,147	45,612	56,947	52,088	37,434	24,888	24,527
TOTAL	100,513	107,955	108,238	161,174	208,185	226,551	302,706	495,309	572,871	474,008	421,895	333,051

CHART 14 - SOURCE: UNCTAD, *Review of maritime transport*, 2012

As pointed out by Assonave, the total volume of merchant ship orders in 2012 amounted to 26.2 million cgt, down by 18% compared to the previous year.[3]

Due to the recession and to the resulting contraction in maritime transport, spare stowage capacity has increased sharply. A mismatch between the demand and supply of stowage capacity was generated by the placing on the market of a large number of new ships. An uptrend that continued also during the recession, which resulted in an oversupply situation, mitigated only in part by the cancellation and deferment of orders to shipyards.

This gap between demand and supply is explained by the cyclical nature of the shipping market, in which the effect of macroeconomic dynamics determined by demand reflect on supply at a significant time lag (between one and three years on average). This is situation is also tied to the intrinsic characteristics of the shipbuilding industry, which do not allow for a prompt adjustment of the fleet, in terms of tonnage and features, to the needs expressed by the market. These characteristics, that are structural in a capital-intensive industry, exposed to international dynamics, such as the shipping industry, have had a fallout on the current market phase. The crisis broke out in a phase characterised by very high demand for new tonnage (generated by the boom which preceded the crisis) and affected, albeit to varying degrees, all the main international markets.

Market players are still very cautious, and are managing spare supply through anchorage and the decommissioning of the older vessels. This situation is leading to a

[3] ASSONAVE, 2013.

further reorganisation of services, and to the birth of new alliances/collaborations geared to optimising the use of the capacity available on the market.

To counter the ever increasing number of empty container ships, shipping companies are adopting defensive strategies, in waiting for the market to resume growing, for instance by merging services or entering into ship-owner partnerships.

In 2011, Swiss group MSC entered into an alliance with French group CMA CGM, and in more recent times a vessel sharing agreement was signed by Maersk Line and CMA CGM. Despite the 9% capacity cut announced by the Danish company on the Asia-Europe route, this agreement should allow Maersk to safeguard the market shares won over the past few years, freeing spare ships and redirecting them where there is greater need for them.

More in detail, with regards to new orders in the container ship segment, the table below lists them by the delivery date of the commissioned tonnage. A trend towards naval gigantism is evident; indeed, the share of vessels with a nominal capacity in excess of 7,500 TEUs is the largest, and experiencing an ongoing expansion. The order book for ships with a nominal capacity of between 10,000 and 18,000 TEUs has grown at a significant pace (+21.8% between the beginning of 2012 and the beginning of 2015), as opposed to a growth rate of only 0.2% in the same period for the feeder fleet (between 500 and 999 TEUs).

The thrust to cut the unit cost of maritime shipping has led, over time, to an increase in the load capacity of container ships, even if the increased size of ships does not translate linearly into a reduction of the unit shipping cost, due to higher fuel consumption (which rises more than proportionally compared to the increase in tonnage).

Container ship order book

Fleet as at:	**31 dec 2012**		**31 dec 2013**		**31 dec 2014**		**31 dec 2015**		**31 dec 2016**		**Rise per annum (during three years 2012 -2014)**
TEU nominal	**Ships**	**Teu**	**Ships**	**Teu**	**Ships**	**Teu**	**Ships**	**Teu**	**Ships**	**Teu**	Teu
10000 - 18000	162	2,066,495	209	2,713,340	254	3,316,192	283	3,736,154	283	3,736,154	**21.8%**
7500 - 9999	326	2,825,749	382	3,322,981	421	3,674,691	429	3,744,591	430	3,753,791	**9.8%**
5100 - 7499	475	2,915,449	496	3,054,863	502	3,093,739	502	3,093,739	502	3,093,739	**2.0%**
4000 - 5099	739	3,339,269	793	3,589,193	813	3,686,380	818	3,711,390	818	3,711,390	**3.6%**
3000 - 3999	296	1,012,646	324	1,116,929	329	1,136,429	341	1,181,929	342	1,185,029	**5.3%**
2000 - 2999	677	1,723,561	691	1,762,990	706	1,798,334	707	1,801,134	707	1,801,134	**1.5%**
1500 - 1999	572	972,341	602	1,026,596	611	1,041,940	611	1,041,940	611	1,041,940	**2.3%**
1000 - 1499	702	823,031	715	835,936	723	844,660	724	845,720	724	845,720	**0.9%**
500 - 999	786	584,197	790	587,679	790	587,679	790	587,679	790	587,679	**0.2%**
100 - 499	226	72,659	226	72,659	226	72,659	226	72,659	226	72,659	
Total	4,961	16,335,397	5,228	18,083,166	5,375	19,252,703	5,431	19,816,935	5,433	19,829,235	**6.7%**
Total expected fleet after provision for future scrappings and delivery slippage	4,961	16,335,397	5,031	17,646,209	5,153	18,815,746	5,134	19,229,978	5,061	19,092,278	**5.6%**

TABLE 11 - SOURCE: Alphaliner, February 2013

Therefore, the trend of ordering ships of increasingly large size continues, in line with shipping companies' strategy of achieving economies of scale in the cost of maritime transport. This strategy is implying an acceleration in the already high degree of concentration in the industry, in which the market share held by the top 20 companies continued to expand in 2012, reaching over 88% of total shipping capacity in TEUs.

Danish company Maersk Line remains the world leader, although MSC and CMA CGM, respectively second and third players at the global level, have experienced strong growth rates, narrowing the gap.

While Asian economies are the most represented in the ranking, the top two shipping companies are European.

The mismatch between demand and supply in the shipping industry has also affected freight prices, which have dropped sharply, as reflected by benchmark market indices such as the Baltic Dry Index (BDI). The index measures the shipping costs of commodities, and between January 2008 and October 2009 plunged by 74.5% in absolute terms. While the merchant shipping industry undoubtedly experienced sustained volumes growth in 2010, is also true that, while significant, the recovery is still not solid enough to trigger a positive fallout on the freight trend, which remains below pre-crisis levels for broadly all vessel types, with important repercussions on the entire shipping industry. The BDI is presently showing a marginal improvement compared to last year. In April 2013, the index rose beyond 860 points, achieving an increase of over 23% since the beginning of the year, albeit on the decline from a peak of 935 in March 2013.

Top 20 Container Shipping Companies

		Total		Owned		Chartered			Orderbook		
Rnk	**Operator**	TEU	Ships	TEU	Ships	TEU	Ships	% Chart	TEU	Ships	% existing
1	APM-Maersk	2,601,156	597	1,342,635	239	1,258,521	358	48.4%	373,120	22	14.3%
2	MSC	2,306,613	475	1,026,125	188	1,280,488	287	55.5%	184,996	16	8.0%
3	CMA CGM Group	1,422,580	417	500,234	85	922,346	332	64.8%	124,930	12	8.8%
4	Hapag-Lloyd	739,112	160	406,443	106	332,669	54	45.0%	127,726	15	17.3%
5	APL	717,514	182	399,379	95	318,135	87	44.3%	360,187	36	50.2%
6	COSCO Container L.	678,073	147	343,091	63	334,982	84	49.4%	65,845	5	9.7%
7	Evergreen Line	611,614	114	280,658	42	330,956	72	54.1%	140,588	20	23.0%
8	CSCL	605,164	126	261,364	43	343,800	83	56.8%	165,300	16	27.3%
9	Hanjin Shipping	573,438	140	403,877	78	169,561	62	29.6%	98,952	12	17.3%
10	MOL	502,719	109	240,926	40	261,793	69	52.1%	127,200	11	25.3%
11	Hamburg Süd Group	481,365	98	322,711	50	158,654	48	33.0%	88,384	8	18.4%
12	NYK Line	412,431	97	300,513	54	111,918	43	27.1%	39,624	3	9.6%
13	OOCL	409,413	100	218,048	44	191,365	56	46.7%	159,455	24	38.9%
14	CSAV Group	359,084	84	230,271	49	128,813	35	35.9%	119,876	14	33.4%
15	K Line	358,424	71	127,352	21	231,072	50	64.5%	69,350	5	19.3%
16	Yang Ming Marine Transport Corp.	346,520	58	100,646	17	245,874	41	71.0%	75,546	7	21.8%
17	Zim	335,182	87	152,818	32	182,364	55	54.4%	85,408	8	25.5%
18	Hyundai M.M.	303,699	148	205,189	106	98,510	42	32.4%	84,012	21	27.7%
19	PIL (Pacific Int. Line)	271,495	45	211,264	27	60,231	18	22.2%			
20	UASC	248,514	53	48,178	10	200,336	43	80.6%	99,500	11	40.0%

TABLE 12 - SOURCE: Alphaliner, *Top 100: Operated fleets*, April 2013

According to sector press reports, some ship-owners in the industry have decided to join forces to restore freight levels to healthier levels. In 2008, containers travelled at a price of 2000 dollars per TEU, whereas at the end of 2011 the price had dropped to less

than 500 dollars per TEU, with troughs of 350 dollars per TEU. The situation is therefore a complex one for ship-owning companies, which as of 1st March 2012 have reportedly entered into an operational agreement to keep fright prices in a range of between 600 and 775 dollars per TEU. Subsequent increases seem to have been planned, to attempt to consolidate the trend reversal and restore prices to tolerable market levels for the companies. The rises have been applied to all routes, and primarily the Asia-Europe line, which is the most important for the industry.

3. Merchant shipping within the European economic scenario

Within the context of changing global economic balances, the increasing weight of maritime trade, and the contribution it makes in terms of economic development, is important also for the European Union.

The EU's foreign trade amounts to 2.211 billion tonnes (as at 2011), of which over 1.6 billion tonnes, i.e. 75% of the total, are shipped by sea.

EU trade by system of transport

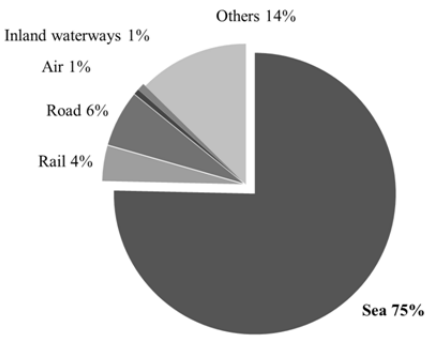


CHART 15 - SOURCE: Confitarma on Eurostat 2012 data

The European maritime import export trade ranking is topped by the Low Countries (237.2 million tonnes) and Italy (233.5 million), followed by the United Kingdom (204.4 million), Spain (193.3 million), Germany (191.5 million), and France (185 million).

In the Low Countries and Italy, over 80% of goods are traded by sea; a percentage that rises to over 93% for the United Kingdom, and to 91% for Spain.

EU 27 trade (imports + exports) by system of transport

		Total	*Sea*		Rail		Road		Air		Inland Waterways		Others	
		tonns	*tonns*	*%*	tonns	%	tonns	%	tonns	%	tonns	%	tonns	%
1	**Netherlands**	285,949,355	*237,219,100*	*83.0*	201,172	0.1	10,413,776	3.6	849,425	0.3	2,305,913	0.8	34,959,969	12.2
2	**ITALY**	**285,501,297**	***233,481,842***	*81.8*	**2,063,404**	0.7	**11,489,702**	4.0	**1,176,604**	0.4	**15**	0.0	**37,289,730**	13.1
3	**United Kingdom**	219,189,571	*204,391,611*	*93.2*	21,303	0.0	40,635	0.0	1,393,058	0.6	-	0.0	13,342,964	6.1
4	**Spain**	212,836,273	*193,327,627*	*90.8*	38,871	0.0	3,684,848	1.7	3,395,056	1.6	4,590	0.0	12,385,281	5.8
5	**Germany**	321,790,557	*191,477,791*	*59.5*	5,831,067	1.8	33,118,707	10.3	2,695,636	0.8	1,935,639	0.6	86,731,717	27.0
6	**France**	205,686,368	*184,916,967*	*89.9*	598,371	0.3	13,032,260	6.3	1,015,944	0.5	964,283	0.5	5,158,543	2.5
7	**Belgium**	125,658,645	*100,426,185*	*79.9*	1,179,915	0.9	7,898,173	6.3	1,215,684	1.0	6,069,698	4.8	8,868,990	7.1
8	**Sweden**	66,093,941	*52,348,170*	*79.2*	1,716,584	2.6	10,463,572	15.8	222,786	0.3	7,125	0.0	1,335,704	2.0
9	**Finland**	54,677,906	*40,522,840*	*74.1*	6,112,499	11.2	4,651,169	8.5	126,271	0.2	381,430	0.7	2,883,697	5.3
10	**Greece**	44,574,098	*40,198,396*	*90.2*	94,905	0.2	918,707	2.1	98,077	0.2	-	0.0	3,264,013	7.3
11	**Portugal**	36,284,768	*35,421,743*	*97.6*	17,524	0.0	261,066	0.7	581,313	1.6	-	0.0	3,122	0.0
12	**Romania**	35,520,215	*27,443,210*	*77.3*	3,141,245	8.8	3,564,908	10.0	64,701	0.2	1,277,122	3.6	29,029	0.1
13	**Denmark**	29,011,108	*25,304,593*	*87.2*	5,555	0.0	1,740,698	6.0	193,819	0.7	29	0.0	1,766,414	6.1
14	**Poland**	80,840,412	*23,939,701*	*29.6*	27,152,580	33.6	9,094,875	11.3	137,139	0.2	2,037	0.0	20,514,080	25.4
15	**Bulgaria**	25,674,014	*19,408,010*	*75.6*	1,056,906	4.1	3,769,498	14.7	45,778	0.2	1,377,927	5.4	15,895	0.1
16	**Lithuania**	24,906,124	*14,194,926*	*57.0*	5,871,618	23.6	2,171,934	8.7	42,764	0.2	2,274	0.0	2,622,608	10.5
17	**Ireland**	14,029,787	*13,883,816*	*99.0*	383	0.0	29,594	0.2	111,735	0.8	-	0.0	4,259	0.0
18	**Austria**	36,047,747	*8,554,473*	*23.7*	3,788,607	10.5	7,092,292	19.7	146,021	0.4	3,007,054	8.3	13,459,300	37.3
19	**Slovenia**	12,776,135	*6,062,416*	*47.5*	800,231	6.3	5,241,185	41.0	10,115	0.1	-	0.0	662,188	5.2
20	**Estonia**	7,755,035	*4,289,491*	*55.3*	1,920,880	24.8	1,059,269	13.7	52,847	0.7	-	0.0	432,548	5.6
21	**Cyprus**	2,608,818	*2,538,925*	*97.3*	-	-	2	0.0	69,258	2.7	-	0.0	633	0.0
22	**Latvia**	7,645,035	*2,532,093*	*33.1*	3,058,853	40.0	900,798	11.8	47,992	0.6	-	0.0	1,105,299	14.5
23	**Malta**	1,322,191	*1,315,535*	*99.5*	-	-	-	0.0	6,171	0.5	-	0.0	485	0.0
24	**Czech Rep.**	27,889,933	*1,074,856*	*3.9*	10,871,502	39.0	4,203,419	15.1	144,002	0.5	2,986	0.0	11,593,168	41.6
25	**Luxembourg**	1,346,235	*993,611*	*73.8*	134,726	10.0	189,633	14.1	25,884	1.9	1,214	0.1	1,167	0.1
26	**Slovakia**	22,813,134	*972,653*	*4.3*	9,391,087	41.2	1,481,716	6.5	42,614	0.2	66,079	0.3	10,858,985	47.6
27	**Hungary**	22,764,672	-	*0.0*	4,791,744	21.0	6,324,891	27.8	187,452	0.8	1,266,110	5.6	10,194,475	44.8
	TOTAL	**2,211,193,374**	***1,666,240,581***	***75.4***	**89,861,532**	**4.1**	**142,837,327**	**6.5**	**14,098,146**	**0.6**	**18,671,525**	**0.8**	**279,484,263**	**12.6**

TABLE 13 - SOURCE: Confitarma on Eurostat 2012 data

As regards container traffic data in particular, total commercial flows from and to Europe in 2011 amounted to 39.7 million TEUs, on the rise by 6.3% compared to the previous year (37.4 million TEUs handled in 2010). More in detail, along the routes between Europe and Asia traffic increased in both directions, adding up to a total of 19.9 million TEUs in 2011, 4.5% higher than in 2010 (19.1 million TEUs).

Trade flows between Europe and North America also intensified; on this route container traffic in 2011 reached 6.2 million TEUs, scoring a rise (+6.1%) over the previous year (5.9 million TEUs handled al 2010).

However, container traffic is mostly concentrated on the routes from and to the Asian continent. Of the total TEUs entering and exiting the European countries, flows from and to Asia account for around 50%.

Container trade

	All routes from and to Europe		
	Exports	Imports	Total
2010	15,942,900	21,427,500	37,370,400
2011	17,317,200	22,428,600	39,745,800
% chg. 2011/2010	*8.6*	*4.7*	*6.4*
	Europe - Asia		
	Exports	Imports	Total
2010	5,631,300	13,476,500	19,107,800
2011	6,052,500	13,920,700	19,973,200
% chg. 2011/2010	*7.5*	*3.3*	*4.5*
	Europe - North America		
	Exports	Imports	Total
2010	3,107,100	2,770,500	5,877,600
2011	3,369,100	2,865,600	6,234,700
% chg. 2011/2010	*8.4*	*3.4*	*6.1*

TABLE 14 - SOURCE: CTS, *Container Trades Statistics*, 2012

In April 2012, the total volume of containerised maritime shipping amounted to over 10.6 million container TEUs, up by 4.1% from April 2011. More in detail, exports from Europe added up to 1.3 million TEUs (-0.1% vs. April 2011), and imports entering Europe to 1.8 million TEUs (-4.9%). Asian exports and imports totalled 3.7 million TEUs (+4.8%) and 1.7 million TEUs (-3.2%) respectively. North America's exports and imports came in at 1.2 million TEUs (-2.4%) and 1.9 million TEUs (+13.4%).

Last January, the total global volume of containerised goods exports was 10,494,300 TEUs. The comparison between this figure and the corresponding figure referred to January 2012 reveals a 1.5% increase, equivalent to 156,124 TEUs.[4]

The hub of the entire container segment at the European level is the port of Rotterdam, which handled 11.9 million TEUs in 2012, confirming its leadership.

In the past year, traffic volumes have increased in many ports; however, some also experienced a contraction, limited in the cases of Rotterdam, Hamburg, and Antwerp, but more serious for Zeebrugge (-11.47%) and Barcelona (-13.96%).

Among Spanish ports, that are in direct competition with Italian ports, the strongest expansion was recorded by Algeciras (+12.99%), which topped the chart of major

[4] CTS, Container Trades Statistics, March 2013

European ports in terms of growth, followed by Bilbao (+6.46%), and Valencia (+3.3%). However, the port of Valencia safeguarded its status as the country's most important port, commanding container traffic of over 4.47 million TEUs.

The German ports of Hamburg and Bremen, combined came close to handling 15 million TEUs in 2012; however, Hamburg suffered a slight decrease in traffic (-1.66%), as opposed to an increase for Bremen (+3.36%).

As many as three Italian names rank among the top European ports: Gioia Tauro, Genoa, and La Spezia. An important results was increased handling in the port of Gioia Tauro (+18% in 2012 vs. 2011), as also the positive result achieved by the port of Genoa, which beat the 2 million TEU mark (+11.8%). La Spezia handled just over 1.2 million TEUs in container traffic in 2012, down by 4.6% vs. 2011.

Container trade by major European ports. Years 2008-2012 (Thousand TEUs)

	Porto	Paese	2012	2011	2010	2009	2008	*var 2012/2011*
1	Rotterdam	Holland	**11,866**	11,877	11,146	9,743	10,784	*-0.09*
2	Hamburg	Germany	**8,864**	9,014	7,896	7,008	9,737	*-1.66*
3	Antwerp	Belgium	**8,635**	8,664	8,468	7,310	8,663	*-0.33*
4	Bremen	Germany	**6,115**	5,916	4,888	4,579	5,448	*3.36*
5	Valencia	Spain	**4,470**	4,327	4,207	3,654	3,602	*3.30*
6	Algeciras	Spain	**4,071**	3,603	2,810	3,043	3,327	*12.99*
7	Piraeus	Greece	**2,734**	1,680	878	665	434	*62.74*
8	Gioia Tauro	Italy	**2,721**	2,305	2,852	2,857	3,468	*18.05*
9	Marsaxlokk	Malta	**2,540**	2,360	2,371	2,260	2,330	*7.63*
10	Le Havre	France	**2,306**	2,215	2,356	2,241	2,450	*4.11*
11	Genoa	Italy	**2,065**	1,847	1,759	1,534	1,767	*11.80*
12	Zeebrugge	Belgium	**1,953**	2,206	2,500	2,328	2,210	*-11.47*
13	Barcelona	Spain	**1,750**	2,034	1,948	1,797	2,569	*-13.96*
14	La Spezia	Italy	**1,247**	1,307	1,285	1,046	1,246	*-4.59*
15	London	United Kingdom	**920**	736	733	846	1,167	*25.00*
16	Constantza	Romania	**684**	663	557	594	1,381	*3.17*
17	Bilbao	Spain	**610**	573	531	443	557	*6.46*
18	Felixstowe	United Kingdom	**nd**	3,249	3,415	3,100	3,200	-
19	St. Petersburg	Russia	**nd**	nd	1,930	1,340	1,983	-
20	Southampton	United Kingdom	**nd**	1,590	1,564	1,400	1,710	-

TABLE 15 - SOURCE: Port Authority, Informare, 2013

Container trade by major European port. Years 2011-2012 (Thousand TEUs)

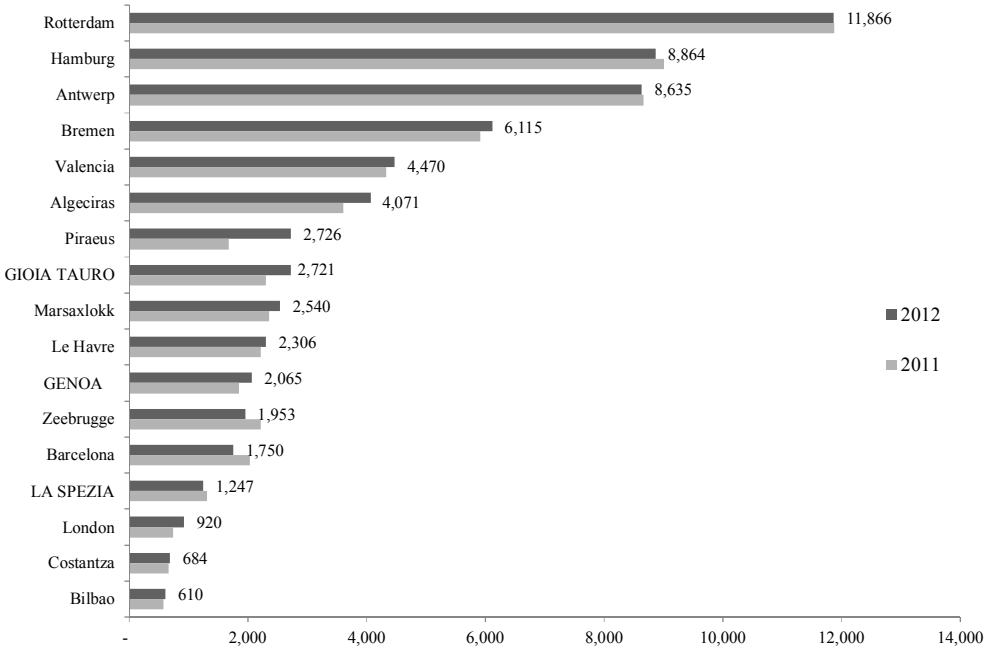


CHART 16 - SOURCE: SRM elaborations on Port Authority data, Informare, 2013

On the supply side, for what concerns the merchant fleet, the tonnage transported under European Union flags at the end of 2011 included 15,698 units totalling just over 279 million dwt. Greece ranked first, commanding 26% of total European tonnage; Italy came in fourth, with over over 21 million dwt, or 7.7% of the European total.

European Union Fleet (ships of 100 gt and over) December 31, 2011

	Countries	N.	%	dwt	%
1	Greece	1,386	8.8%	72,601,184	26.0%
2	Malta	1,815	11.6%	70,971,267	25.4%
3	Cyprus	1,022	6.5%	32,496,556	11.6%
4	ITALY	1,667	10.6%	21,470,327	7.7%
5	United Kingdom	1,662	10.6%	17,647,485	6.3%
6	Germany	868	5.5%	17,330,507	6.2%
7	Denmark	998	6.4%	13,894,579	5.0%
8	France	819	5.2%	8,581,561	3.1%
9	Netherlands	1,382	8.8%	7,402,726	2.6%
10	Belgium	235	1.5%	6,359,288	2.3%
11	Spain	1,255	8.0%	2,365,036	0.8%
12	Sweden	452	2.9%	1,591,575	0.6%
13	Finland	280	1.8%	1,212,255	0.4%
14	Portugal	459	2.9%	1,171,051	0.4%
15	Luxembourg	151	1.0%	621,833	0.2%
16	Bulgaria	84	0.5%	432,862	0.2%
17	Lithuania	96	0.6%	305,081	0.1%
18	Irish Republic	247	1.6%	239,480	0.1%
19	Estonia	107	0.7%	70,720	0.0%
20	Latvia	133	0.8%	50,290	0.0%
21	Romania	80	0.5%	39,785	0.0%
22	Poland	182	1.2%	34,314	0.0%
23	Slovakia	7	0.0%	21,552	0.0%
24	Austria	-	0.0%	-	0.0%
25	Slovenia	8	0.1%	-	-
	Gibraltar Register	303	1.9%	2,506,353	0.9%
	TOTAL	**15,698**		**279,417,667**	

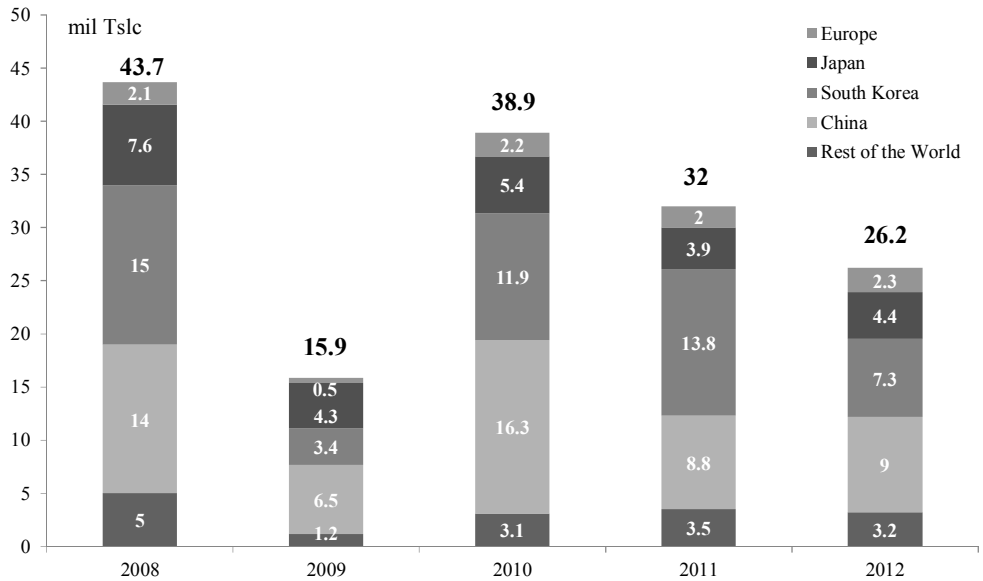
TABLE 16 - SOURCE: Confitarma on IHS-Fairplay data, 2012

As regards the order book of new ships, in the European continent as well, given the evolution of supply, overall demand volumes have progressively shrunk following the crisis of 2008. Of all the major production regions, Europe has been hit hardest by the crisis. CSEA countries (i.e. members of the Community of European Shipyards' Association) have progressively become less competitive and, over time, met with increasing hardships in countering the appeal of Asian shipyards (Chinese first of all, but also Korean and Japanese).

European naval engineering companies have all been hit hard by the crisis, and have progressively been cut out from the global market of cargo ships (oil tankers, container ships, bulk carriers), produced on a vast scale in Asian shipyards at very low costs, and further penalised by the strong euro. However, shipbuilding in the Old Continent has retained its leadership in high value added productions, namely cruise ships and ferries, in particular of the Ro-Ro kind, which account for most of its order book.

Within the crisis of the shipbuilding business at the global level, European industry has managed to attract, in the past five years, between 3% and 9% of world demand, which corresponds to an unsatisfactory volume of orders compared to its production capacity.

Order book trend in 2008-2012 and market share by country



	2008	2009	2010	2011	2012
Europe	5%	3%	6%	6%	9%
Japan	17%	27%	14%	12%	17%
South Korea	34%	21%	30%	43%	28%
China	32%	41%	42%	28%	34%
Rest of the World	12%	8%	8%	11%	12%

CHART 17 - SOURCE: Assonave on Lloyd's-Fairplay data, 2013

Europe retained a market share of 9% in 2012, with order volumes on the rise to 2.3 million cgt from 2 million cgt in 2011. Japan stepped up its share from 12% in 2011 to 17% the following year, as did China, from 28% to 34%. South Korea, on the other hand, incurred a strong contraction. The market shares controlled by the Rest of the World also recovered, from 11% to 12% in 2012.

The national shipbuilding industries with the largest number of active companies (in countries such as Germany, Holland, and Spain, all with more than 20 shipyards) all have an order book/production capacity ratio of less than 1.

A more detailed analysis of the situation in these three countries shows that: in Spain, the new order volumes are decreasing sharply, and none at all were won in the first nine months of 2011, compared to an average of around 80 new orders in the 2006-2008 period. On the whole, the order book has shrunk by 65-70% from pre-crisis levels, both in terms of number of vessels and tonnage.

In Germany, order volumes won in 2010 were down by 70% from pre-crisis levels in terms of the number of ships; the decline was less evident when considering tonnage, mostly thanks to cruise ship orders. Orders for river ships also proved resilient. On the whole, the order book has shrunk, and amounted to 1.7 million cgt as at 30 June 2011.

In Holland as well, the volumes of new orders dropped significantly, by around 80% from the peak levels hit in 2007. The brunt of the contraction was borne by orders of small vessels (<100 gt), which fell from an average of 100 orders (in the 2007-2008 biennium) to 26 in 2010. Orders of yachts also plunged by one-third compared to pre-crisis levels. On the whole, the order book is getting smaller, and as at 31 December 2010 it amounted to 0.9 million cgt.[5]

Lastly, it should be pointed out, as illustrated in the chart below, that only a small portion of orders from European ship-owners stay in the Old Continent, whereas over 80% (data referred to the January-May 2011 period) are directed to Asian shipyards.

European shipping order book by country

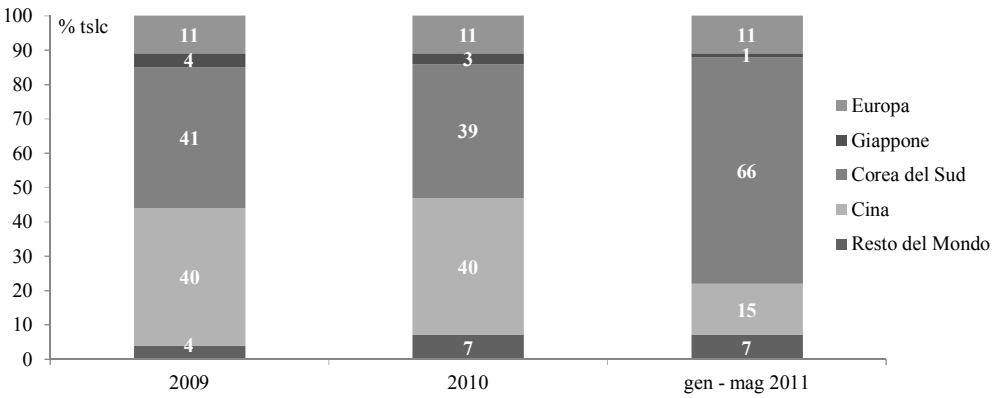


CHART 18 - SOURCE: Assonave on Lloyd's Register-Fairplay data, 2012

Box – European Maritime Transport Policy Until 2018

With its Communication 008 of 2009 - *Strategic goals and recommendations for the EU's maritime transport policy until 2018*, the European Commission has identified the main strategic goals of the Union's maritime transport policy up to 2018, recommending a number of actions geared to enhancing competitiveness and sustainability in the industry.

The EU's intervention should help: support development of stable competitive conditions, allowing the adoption of positive measures to support greater environmental sustainability and innovation in the maritime transport sector; fairer competition rules and maritime trade conditions at the international level; alignment of the substantive competition rules globally. More in detail, the EU's actions touch on:

- *Human resources, seamanship, and maritime know-how*, a field in which the EU intends to facilitate career prospects and promote skills in order to counter the growing shortage of maritime professionals, and enhance the image of the shipping industry;

[5] ASSONAVE, 2012.

- *Quality shipping, in the sense of working towards "zero-waste, zero-emission" maritime transport*. To this end, the EU aims to reduce greenhouse gas emissions produced by international shipping; enhance the environmental status of marine water; manage ship-generated waste and ship dismantling; reduce sulphur oxides and nitrogen oxides emissions from ships; promote greener maritime transport;
- *Exploiting the full potential of short-sea shipping*, providing new infrastructures and improving the use of existing capacities, focusing on the creation of a true "European maritime transport space without barriers";
- *Commitment to research and innovation*, in developing new ship designs and equipment; technological development maximising the efficiency of the transport chain; inspection and monitoring tools, as well as advanced telecommunications systems.

4. The shipping industry within the Italian economic and territorial context

An analysis of the latest data available confirms the intrinsic strength of the sector, which is increasingly taking shape as a complex mix of activities that are important in enhancing Italy's competitiveness.

As mentioned previously, the EU's foreign trade is amounts to 2.211 billion tonnes (as at 2011), of which over 1.6 billion tonnes, or 74.5% of the total, travel by sea. Italy makes a major contribution to this import-export trade total, and in 2011 ranked second in Europe in terms of goods shipped by sea.

The latest data (as at 2012) show that over 53.4% of Italy's foreign trade relies on maritime transport.

Italian foreign trade by system of transport - 2012 (% tonnes)

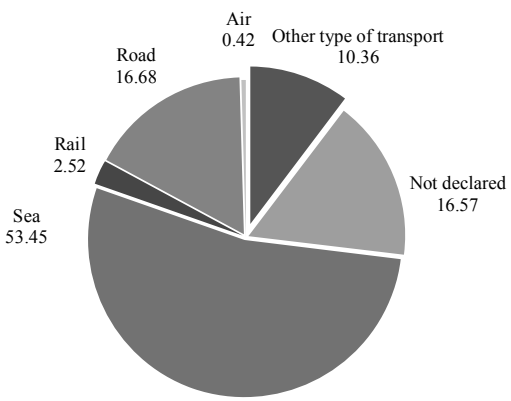


CHART 19 - SOURCE: SRM elaborations on Coeweb, Istat data, 2013

Out of a total handling of over 456 million tonnes of goods entering and exiting Italy, just over 244 million tonnes travel by sea. Of this total, 27.8% is directed to countries of the European continent, and around 30% from and to Asia.

Italian foreign trade by system of transport (2012)

PAESE	Sea		Rail	Road	Air	Other	Not declared	TOTAL	
	tonnes	%	tonnes	tonnes	tonnes	tonnes	tonnes	**tonnes**	**%**
Europe	67,964,537	27.8	11,470,671	75,571,636	697,667	26,431,480	75,655,280	**257,791,271**	**56.4**
UE 27	*21,635,431*	*8.9*	*9,619,407*	*64,952,157*	*679,627*	*10,859,019*	*75,655,280*	**183,400,921**	**40.2**
Africa	52,209,379	21.4	2,820	117,172	26,629	19,866,164	-	**72,222,164**	**15.8**
America	46,514,411	19.1	14,295	125,055	157,703	212,978	-	**47,024,440**	**10.3**
Asia	73,878,742	30.3	21,630	350,079	345,729	738,014	0.12	**75,334,195**	**16.5**
Oceania and other countries	3,536,942	1.4	509	11,991	712,226	40,816	-	**4,302,484**	**0.9**
TOTAL	**244,104,011**	100.0	**11,509,924**	**76,175,933**	**1,939,954**	**47,289,452**	**75,655,280**	**456,674,554**	**100.0**

TABLE 17 - SOURCE: SRM elaborations on Coeweb, Istat data, 2013

Therefore, the importance of maritime activities for Italy is evident, all the more so when considering the maritime system's impact on the national economy.

GDP generated by the national maritime system, including both the industrial, manufacturing and services component[6], and the institutional component[7], amounts to 39.5 billion euros, or 2.6% of the national total at current prices.[8] The largest contribution comes from the manufacturing and services segments, which combined account for a GDP of around 35 billion euros.

GDP generated by the shipping industry in Italy (2009, million euros at current prices)

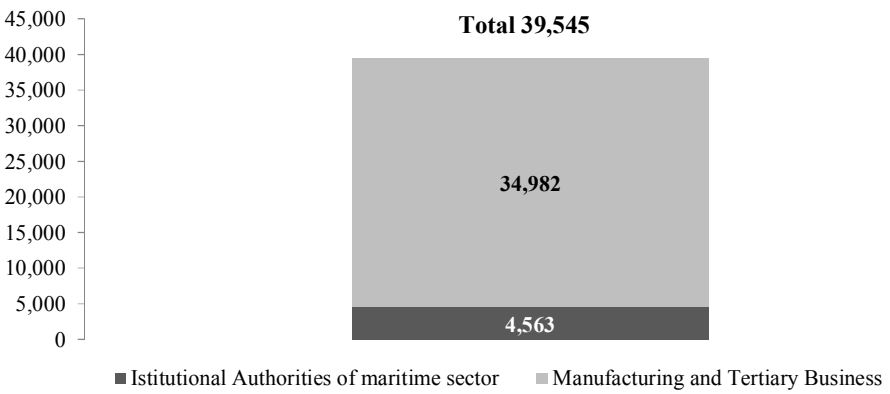


CHART 20 - SOURCE: Federazione del Mare, 2011

[6] Includes the following items: maritime transport, including the spending of cruise-goers, port logistics activities, and auxiliary maritime transport services, shipbuilding, pleasure boating, including the spending of pleasure boaters, fishing.

[7] Includes: Military Navy, Harbour Offices, Port Authorities, and maritime worker welfare and pension system.

[8] FEDERAZIONE DEL MARE, 2011.

Net of spending tied to cruises and leisure yachting (approximately 6 billion euros), GDP generated adds up to almost 33.5 billion euros, of which just over 29 billion attributable to the manufacturing and services activities components.

When examining in detail the contributions made by the individual segments of this aggregate to GDP growth, the merchant shipping sector ranks first with 10.3 billion euros.

Contribution to GDP of manufacturing and services activities
(2009, million euros at current prices)

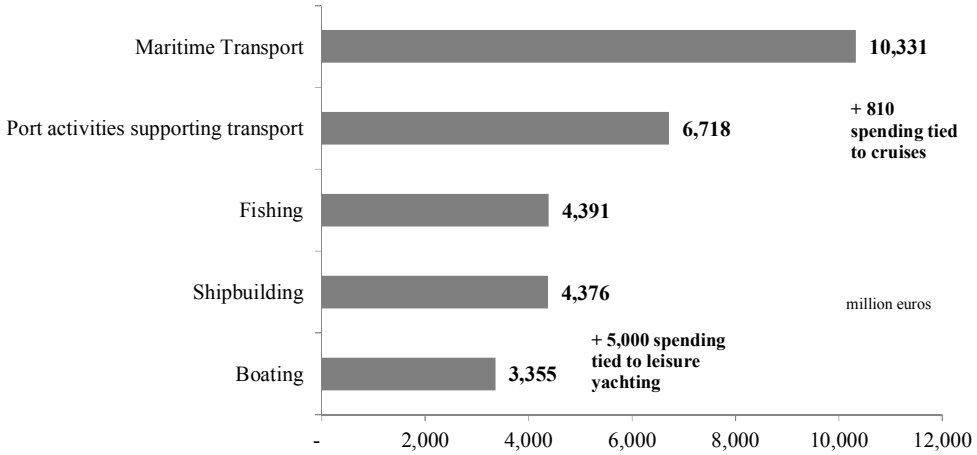


CHART 21 - SOURCE: Federazione del Mare, 2011

At a distance, these are followed by: maritime activities tied to port logistics and auxiliary transport activities, with 6.7 billion euros; fishing, which adds around 4.4 billion euros to GDP, shipbuilding, with 4.3 billion euros, and finally pleasure boating, with 3.3 billion euros. Considering also the spending of pleasure boaters (5 billion euros), with a total of 12.7 billion euros, more than one-third of the roughly 35 billion euros produced by maritime activities tied to the manufacturing and services sectors are generated by the ship-owner segment, while port activities and auxiliary transport activities account for just under one-fourth of the total contribution to GDP creation.

The maritime sector's job-creation capacity is also important for Italy. Over 167.5 thousand people are employed in the maritime activity and manufacturing sector. In 2004, Federazione del Mare estimated that in the five segments considered, direct labour units amounted to just over 122.3 thousand. Data for 2009 point to a 45.2 thousand unit rise in employment.

Direct employment in maritime manufacturing and services activities (2009)

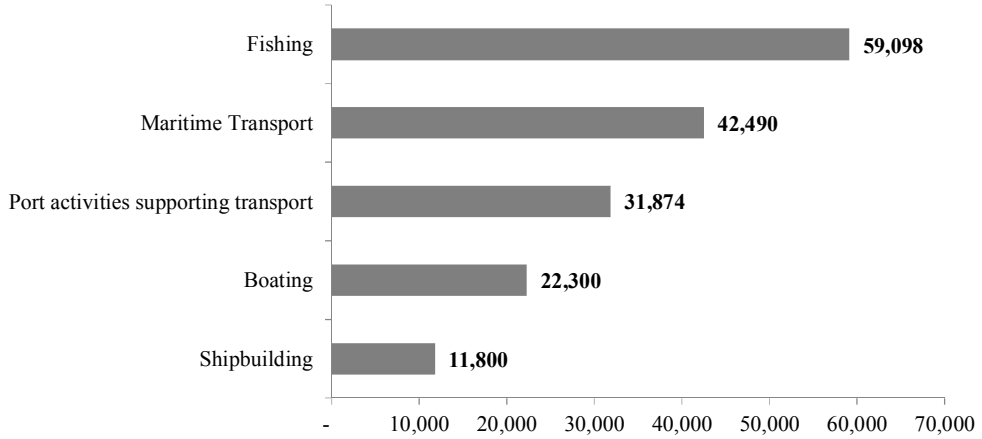


CHART 22 - SOURCE: Federazione del Mare, 2011

The maritime transport industry offers 42,490 labour units, of which over 35,300 on board, and a further 7,100 in land staff. Data as at the end of 2010 (source: Confitarma, 2011) estimate the number of jobs on board the Italian fleet at 36,995, with a land staff of 7,400.

The various activities tied to the maritime sector feature high levels of internal and external integration, and therefore generate significant multiplier effects.

The growth effects induced by industrial, manufacturing, and services maritime activities, are evident both in terms of income creation, i.e. the sector's capacity to drive the development of the national economic context, and in terms of job creation. Moving from these premise, Federazione del Mare has estimated an *income multiplier effect of 2.49*, which means that for every 100 euros in demand for maritime goods or services, or spending on investments or exports, 249 euros in spending are activated across the economic system as a whole. The *employment multiplier,* on the other hand, has been estimated at *1.81*, which means that every 100 new jobs in the maritime system generate, on average, 181 new jobs in the overall economic system.

A comparison between the data on multipliers as calculated by Federazione del Mare in 2004 with the latter set of data, the income multiplier emerges as having strengthened, confirming the positive trend of the influence of maritime activities on the creation of development and growth in Italy's productive structure. The employment multiplier, on the other hand, has weakened, due to the downsizing of the workforce in the industry as of the outbreak of the 2008 crisis. On this front, the importance of safeguarding certain employment environments emerges as being important, by focusing first of all on professional training and on the continued updating of skills, bearing in mind that while the multiplier effect on employment is smaller than that reaped on income, it is in any case significant.

Among the advantages of the Italian maritime system, the multitude of services offered is certainly one of the most important offered, thanks to the high number of commercial ports in operation.

As regards the port system, in 2012 almost all the country's ports performed well. As is made evident by the data listed in the table below, the results obtained by transhipment ports drove the overall trend of handling. Among them, Gioia Tauro achieved 18% growth compared to 2011. Cagliari also experienced positive growth in the year (1.1%), with 621 thousand TEUs handled. Taranto, on the other hand, brought up the rear with a -56% decline to 263 thousand TEUs, as a result of the loss of the moorings for Evergreen, its main client.

Among end destination ports, Genoa stands out with over 2 million TEUs handled. The ports of La Spezia and Livorno incurred declines of respectively 4.6% and 13.8%. In the South, the port of Naples grew from 527 thousand TEUs in 2011 to 547 thousand in 2012 (+3.8%), and on the Adriatic shore a strong performance was posted by Trieste, +3.8% to 408 thousand TEUs; Ravenna suffered a 3.3% contraction, to 208 thousand TEUs handled; lastly, Venice incurred a 6.1% decrease to 430 thousand TEUs.

Container trade in main Italian ports (Thousand TEUs)

	2012	2011	2010	2009	2008	*var 2012/2011*
Gioia Tauro	**2,721**	2,305	2,851	2,857	3,468	18.0
Genoa	**2,065**	1,847	1,759	1,534	1,767	11.8
La Spezia	**1,247**	1,307	1,285	1,046	1,246	-4.6
Cagliari	**621**	614	629	737	308	1.1
Livorno	**549**	637	628	592	779	-13.8
Napoli	**547**	527	534	516	481	3.8
Venezia	**430**	458	394	369	379	-6.1
Trieste	**408**	393	282	277	336	3.8
Taranto	**263**	604	582	741	787	-56.5
Ravenna	**208**	215	183	185	214	-3.3

TABLE 18 - SOURCE: Port Authority, 2013

As regards Italian shipping on the supply side, merchant fleet tonnage of Italian ownership includes 1,619 ships, totalling more than 18.7 million gt. Of the total, 808 ships have a gross tonnage of over 1,000 gt, whereas the other 811 vessels fall in the range between 100 and 999 gt.

Italian merchant Fleet (ships of 100 gt and over) December 31, 2011

	2011		2010		*var 2011/2010*	
	N.	**thousands gt**	**N.**	**thousands gt**	***N.***	**thousands gt**
Liquid Cargo ships	307	5,606	317	5,422	-3.2	3.4
Dry Cargo ships	245	8,143	233	7,162	5.2	13.7
Mixed and Passenger ships	463	4,251	482	3,991	-3.9	6.5
Obo Carriers	1	33	1	33	0.0	0.0
Auxiliary services ships	603	746	631	721	-4.4	3.5
TOTAL	***1,619***	***18,779***	***1,664***	***17,329***	***-2.7***	***8.4***

TABLE 19 - SOURCE: Confitarma, 2012

Compared to 2010 data, a 3% drop in the number of vessels was recorded, as opposed to an 8% in overall tonnage.

Dry bulk ships in particular stand out in terms of tonnage, with bulk carriers and ferries topping the table at respectively 4.475 gt and 2.526 gt. As regards the liquid bulk segment, oil tankers and chemical tankers stand out, at 3.348 gt and 1.888 gt respectively.

Private ship-owners own 96.9% of the fleet, which over time has become younger, with a gradual reduction in the share of older vessels, and an increase in newer tonnage. Sixty-seven per cent of total tonnage is less than 10 years old, and 46% less than 5 years old.

Age of the Italian and World fleets

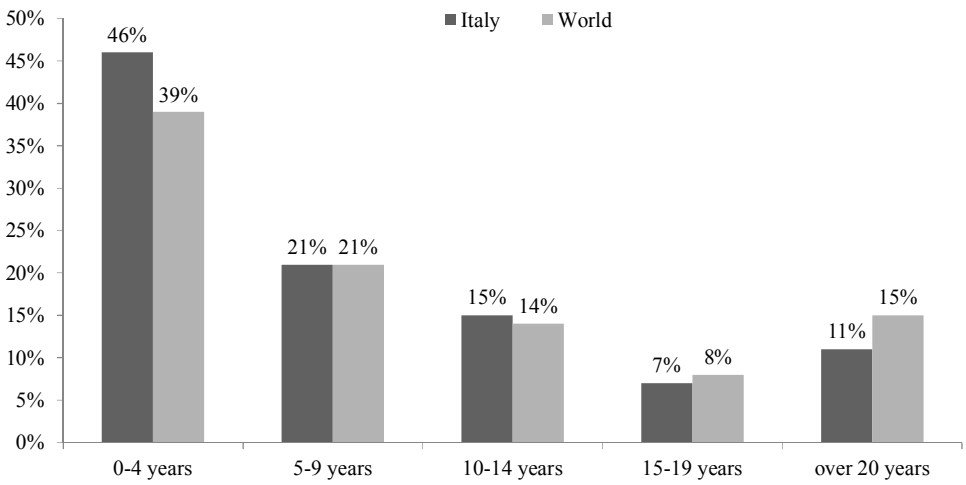


CHART 23 - SOURCE: Confitarma and Confitarma Clarkson Research Services data, 2012

At the end of 2010, orders placed with world shipyards by Italian ship-owners amounted to 109 vessels, for a total of 3.34 million gt, with deliveries planned between 2011 and 2013. Between 2001 and 2010, testifying to the young age of most Italian tonnage, 468 new ships were delivered, totalling over 10 million gt, i.e. 58% of the existing fleet.

Despite the significant contraction in investments observed in recent years, between 2007 and 2010 Italian ship-owners placed orders with national and foreign shipyards for over 300 ships, worth a total of 18 billion dollars.

Italian Merchant Fleet renewal

	Ships delivered between 2002 and 2011		**Ships under construction as of 31.12.2011**	
	N.	**gt**	**N.**	**gt**
Liquid Cargo ships	183	4,326,006	19	485,654
Dry Cargo ships	104	3,840,692	18	744,955
Mixed and Passenger ships	64	2,066,829	6	171,900
Auxiliary services ships	84	244,551	14	28,675
TOTAL	***435***	***10,478,078***	***57***	***1,431,184***

TABLE 20 - SOURCE: Confitarma on RINA data, 2012

The Italian ship-owning business includes around 40 players, which generate sales volumes of 11 billion euros a year (2009 data). The top three operators (Grimaldi, Costa Crociere, Italia Marittima) account for 56% of the market, and the top ten for

86%. The highest specialisation sectors are liquid bulk and dry bulk. A breakdown of ship-owners by region shows that the regions with the largest number of ship-owning companies are Campania (39%), Liguria (17%), and Lazio (14%). Campania and Liguria also top the chart in terms of the revenues of the different players, followed by Friuli.

Ship-owner revenues by region

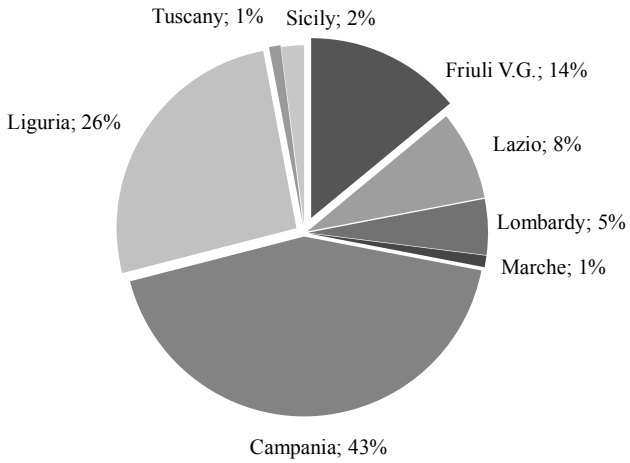


CHART 24 - SOURCE: Sace, 2010

As regards the order book of the national shipbuilding industry, it should be said that Italian shipyards hold an important position both in Europe and at the global level, as they operate in highly specialised markets niches of high technological content, such as the construction of new-generation cruise ships and ferries. The cruise ship market, together with ferries, accounts for over 90% of the Italian shipbuilding sector's order book in terms of tonnage (2009 data). More in detail, in the ferry boat segment European shipyards account for over 88% of the world order book, with Italian companies commanding a share of 40% if the total order book.[9]

The activity of the Italian shipbuilding industry has proven resilient despite the challenging economic situation, thanks to its specialisation in market segments that are less exposed to competition from the Asian countries (mostly concentrated in the liquid and dry bulk segments). However, the industry is undoubtedly experiencing a contraction phase, following the global economic crisis. Available data as at 2009 place the order book at 1.5 million tonnes, and at a value of 6.2 billion euros. In 2010 and in 2011 the gradual downtrend in orders continued; if between 2008 and 2009 only three cruise ships were ordered, at the beginning of 2010 only one new order was placed.[10]

[9] SACE, 2010.
[10] FEDERAZIONE DEL MARE, 2011.

CHAPTER III
THE MED AREA: ANALYSIS OF TRAFFIC AND COMPETITORS

1. Introduction

The Mediterranean and its ports are experiencing new and dynamic growth opportunities, resulting from the evolution of the global economic situation and from changing geopolitical balances. This chapter intends to outline the present trends and potential future scenarios of sea shipping in the Mediterranean, a region that is no longer just a transit area for international cargo flows travelling from East to West, but is also seeing an increase in local exchanges, with growing intra-Mediterranean flows fuelled by the development of countries located on the sea's South-Eastern shore. This context presents obvious growth opportunities to the European countries with shores on the Mediterranean, and to Italy in particular, thanks to its favourable geographical position and well-established trade relations with Med Area countries.

The analysis is conducted along the two paths represented by international routes and transhipment on the one side, and short sea shipping and cabotage on the other, pointing out the impact reaped by post-crisis developments, principally naval gigantism and infrastructural investments by South-Eastern shore countries, on the port configuration of the Mediterranean. More in detail, the competitive scenario of ports is investigated focusing on the Euro-Mediterranean dimension, highlighting the characteristics and growth prospects of the ports located in the different sections of the Basin. The topic has become a relevant one given the increasing interest shown by international terminal operators in the non-EU ports of the Basin, on the back of the bureaucratic and administrative facilitations offered in those areas to attracting foreign investments, and of the changes in socio-economic conditions taking place in the countries of North Africa.

The chapter ends with an analysis of Motorways of the Sea in Italy, the further development of which could represent an important instrument in bringing together the European Union and the countries of the Southern Shore, aiding the Euro-Mediterranean integration process, in which Italy is well-positioned to play a leading role.

2. The Mediterranean's restored centrality for maritime traffic

Sea shipping has taken on increasing importance in the economy and growth prospects of both industrialised and emerging regions: over 80% of world trade (i.e. around 8 billion tons transported) relies on maritime transport.

As a result of this articulated and complex system of traffic flows at the global scale, the Mediterranean has become a market of significant potential on various fronts, albeit in constant evolution. The region, which embraces 25 states belonging to three different continents, is crossed by 19% of the world's entire maritime traffic: around 1.4 billion tonnes of goods; 30% of world oil and almost two-thirds of all the other energy resources en route to Italy and to the other European countries transit through the Mediterranean,

including those transported by underwater pipelines. Therefore, it is only natural for the Basin to represent a market of great interest for shipping sector players, given its position at the centre of the most important international traffic routes.

In the course of 2011, the countries of the Southern and Eastern Shores of the Mediterranean experienced important changes, which resulted in new political and socio-political balances setups, with a significant fallout on import-export trade.

The so-called "Arab Spring" triggered a more or less rapid process of change of the institutional-political picture of the entire area, starting an epochal transformation. In the short term, these conflicts contributed to fuelling factors of instability, and in many cases to heighten the socio-economic issues at the very heart of the protest. While elements of uncertainty persist, tied to political instability, the presence of social risks linked with high unemployment rates, maritime security issues, environmental risks, and illegal activities and trafficking, there are undoubtedly positive aspects.

The countries of the Southern and Eastern Shores of the Mediterranean have managed to retain an average growth rate in 2011 of over 4%, with peaks of more than 7.6% for Turkey. Economic growth should continue in much the same conditions, based on forecasts for 2013. North Africa and the Middle East represent a market of over 600 million potential consumers, and therefore remain a strategic un target for the European Union's import-export activities. This is confirmed by the 12% increase in import-export trade between the two macro regions in 2011, to over 320 billion euros[1].

In spite of the common impulse shown towards democratic government, it is still not possible to talk of the "Mediterranean Area" as a single entity, intended as a united legal entity: the states have no shared systems, nor are they integrated from an economic point of view. What's more, the conflicts open in the region pose a limit on its unification potential.

Difficulties in this sense are obvious not only in terms of the integration among countries of the Southern Shore, but also among Europe and its partners in the Mediterranean. It may be said that all Euro-Mediterranean policies are based on the idea that EU countries have a common interest in developing forms of cooperation and solidarity with Southern Shore countries, but despite this, these policies still haven't produced the desired results.

If from a political and social point of view many steps still need to be made towards a Euro-Mediterranean integration, from an economic point of view, and in particular with regards to maritime transport, the performance of the infrastructures located on the opposite shores have become more similar, also on the back of the sea port development programmes already implemented, or being implemented, by the countries of North Africa and of the Middle East.

Starting in the early 1990s, the role played by the Mediterranean in the main maritime traffic routes has progressively strengthened. This has mostly been due to:

- Vessel gigantism, that has made the trans-Mediterranean route the favoured route for traffic with the Far East, as, unlike the Panama Canal, the Suez Canal has structural characteristics that allow the transit of large container ships;

[1] Economic and Financial Forum for the Mediterranean, 2012.

- The economic performance of Far Eastern countries and of the emerging countries of North Africa, which has led to a significant increase in trade interexchange by sea on the main trade routes from and to Europe, and between the two shores of the Mediterranean;
- The impulse provided over the past decade by the European Union to short sea shipping, strongly encouraged in an attempt to reduce road congestion, and which today accounts for 62% of the total goods transported by sea by the Union[2].

In this context, the goal of relaunching Italy as a strategic axis for maritime traffic within the Mediterranean is possible, as conditions are in place not only from a geographical standpoint, but, more importantly, from a commercial one as well. Italy's trade interexchange with the Med Area countries in 2012 was worth 31.7 billion euros in exports, and 35.8 billion in imports[3]: these flows travelled almost exclusively by sea: not only along deep sea routes, but also along short sea routes.

The Mediterranean Basin sees the presence of players that are active in the various business segments (containers, bulk, and Ro-Ro), and which differ significantly in terms of size and industrial strategies. Alongside the major shipping companies, which aim to intercept the most important deep sea traffic flows also by controlling the area's major ports, there are several smaller companies, focused on specific market segments, or on specific short sea routes.

The chart below illustrates the presence of shipping companies in the Mediterranean Area, by presence:

Distribution of services in the Mediterranean by shipping line (of the 25 main companies in the world)

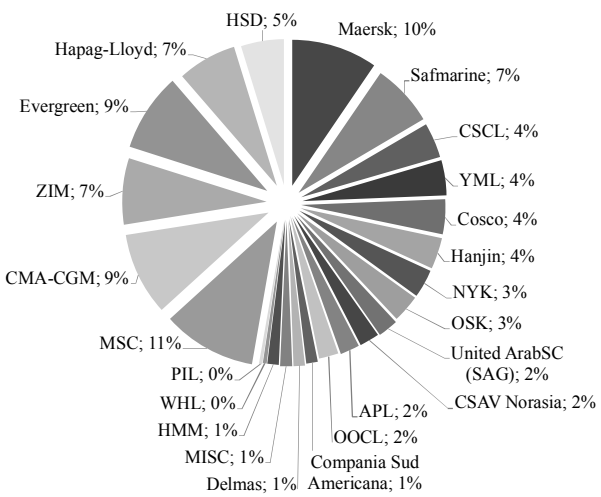


CHART 1 - SOURCE: C.I.E.L.I., 2011

[2] EUROSTAT, *Maritime transport statistics - Short sea shipping of goods*, 2012.

[3] COEWEB, *Database*. The countries with which trade interexchange was calculated are: Albania, Algeria, Bosnia-Herzegovina, Croatia, Egypt, Israel, Lebanon, Libya, Morocco, Montenegro, Syria, Tunisia, Turkey.

The global economic recession has impacted maritime traffic flows in the Mediterranean Basin, where as of the second half of 2008 the demand for maritime services has contracted, in particular in the container and dry bulk sectors.

The trend of maritime interexchange in the Mediterranean was also impacted by episodes of piracy off the shores of Somalia, which influenced traffic crossing the Suez Canal, a strategic axis for world maritime trade, in its role as privileged point of entry for cargo flows travelling from east to west.

Many of the main shipping companies are considering the possibility of shifting vessels servicing eastbound routes to the Cape of Good Hope route, showing a willingness to lengthen delivery times rather than to cross the Suez Canal.

In spite of this, in 2012 the Egyptian canal, while suffering a drop in the number of vessels in transit, recorded a 7% increase in cargo traffic, testifying to the larger size of the ships servicing East-West routes.

Number of vessels and tonnes of goods transiting trough the Suez Canal

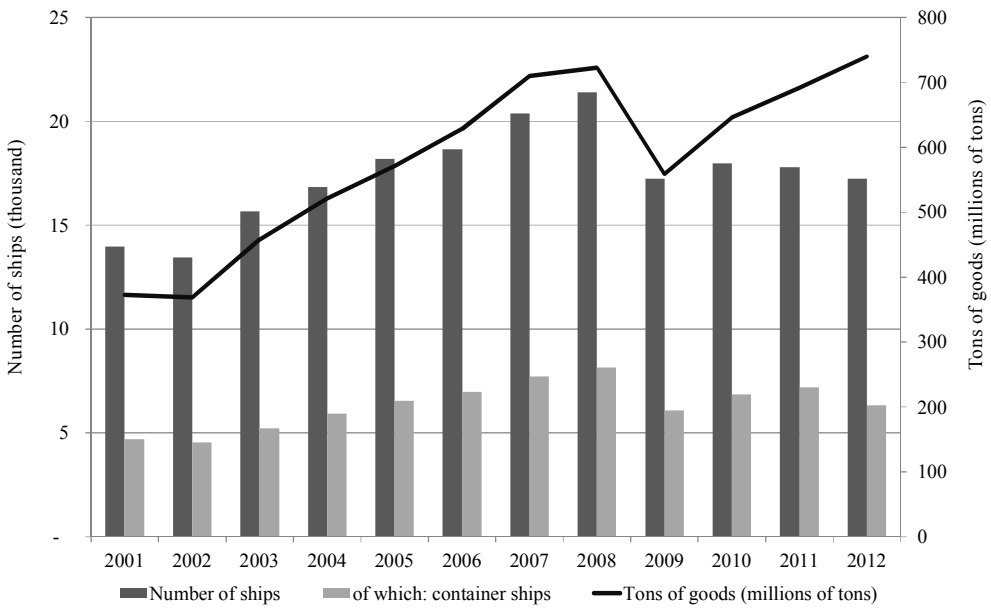


CHART 2 - SOURCE: SRM elaborations on Suez Canal Authority data, 2013

While Ro-Ro traffic has also been hit by the decline in global demand and by the crisis of international trade, this type of transport has proven able, on the whole, to react positively to changes in external conditions.

The Ro-Ro services sector is capable of adapting rapidly to changes in the market context, thanks to its use of very flexible vessels in terms of cargo mix. More in detail, with the advent of the new generation of ferry boats, which offer maximum flexibility in combining the transportation of different types of cargo as well as of passengers, shipping companies in a position to rapidly implement the operational and management

adjustments needed to optimise the filling of the hold in the presence of contingent crisis factors arising in a specific market and/or geographical area.

3. The new picture of maritime competition in the Mediterranean

The Mediterranean's recent dynamism is largely tied to the reorganisation of the maritime transport sector, and to the new world geo-economy. Within the framework of European Union integration and expansion, as well as of increasing globalisation, that has resulted in Asia replacing North America as the engine of growth, the Mediterranean has resumed acting as a "magnet" for the global network of trade – as cargo traffic between Europe and the Far East is showing a preference for the Suez Canal route – and has therefore found itself at the centre of the networks operated by shipping companies.

In response to these conjunctural developments, the Southern Shore of the Mediterranean is experiencing a phase of renewal: numerous investments are being made, aimed at reducing the infrastructural gap separating Southern Shore ports from the maritime nodes of the European Union.

At present, two main categories of ports dedicated to international traffic are present in the Mediterranean:

- Transhipment ports: destination ports for large container ships, from which traffic is then redirected to other ports, via smaller vessels (feeder ships).
- Gateway ports: strategically placed with respect to the major markets of origin/destination of goods.

Ports are generally considered as transhipment ports if 50% of the TEUs they handle are transhipped (containers are transferred from mother ships to feeder ships) or relayed (from mother ships to mother ships), based on the hub and spoke system, used by all the main shipping companies, while the residual share is principally addressed to the local market.

Therefore, the two categories of ports are not in competition among themselves, as transhipment ports are also in part functional servers of end destination ports, because of the hub and spoke system, which connects dozens of ports, allowing the internationalisation of numerous small companies that would otherwise have faced great difficulties in connecting with, and relating to, other countries.

In this perspective, hub ports, for the role they play and thanks to their geographical position (near the Mediterranean's "portals" towards the ′Atlantic and the Indian Ocean, or close to the Suez-Gibraltar median line), will continue to play an essential role, therefore the major expansion projects launched in several locations (including Port Said in Egypt, Tangier in Morocco, and Enfidha in Tunisia) seem entirely justified.

The table below specifies the share of transhipment in the Mediterranean's main hubs:

Share of transhipment on total traffic in the main hub ports of the Mediterranean

Mediterranean Hubs	% Transhipment
Gioia Tauro	97%
Malta	95%
Tanger-Med	90%
Port Said	87%
Algeciras	83%
Damietta	82%
Valencia	58%

TABLE 1 - SOURCE: SRM on Ministry of Infrastructure and Transport data, and Port Authority data, 2012

The data above outline the "pure hub" vocation of Gioia Tauro and Malta, where almost all traffic is of the transhipment kind; the situation is different for Spanish ports, and in particular Valencia, reached by almost half the total number of containers as a final destination, for redirecting to the local market via transloading to a different means of transport.

If until a decade ago the ports located on the Southern Shore played a marginal role in deep-sea maritime services, the development of transhipment terminals, first in Egypt and then in Morocco, has marked the entry of these countries in the container traffic management market. This change has fuelled significant growth for hub ports in the Mediterranean, which between 2005 and 2011 experienced a 44% rise in the total number of containers handled.

Container traffic trend in the main hubs of the Mediterranean (thousand TEUs)

Port	2005	2006	2007	2008	2009	2010	2011	05-11 chg.	08-11 chg.
Mediterranean Hubs	**13,297**	**13,387**	**15,156**	**18,043**	**17,767**	**18,917**	**19,199**	**44%**	**6%**
Valencia	2,612	2,609	2,771	3,593	3,653	4,206	4,327	**66%**	**20%**
Port Said	1,621	2,127	2,640	3,202	3,470	3,450	3,800	**134%**	**19%**
Algeciras	3,256	3,244	3,414	3,324	3,042	2,800	3,603	**11%**	**8%**
Malta	1,321	1,485	1,887	2,300	2,260	2,200	2,360	**79%**	**3%**
Gioia Tauro	3,208	2,938	3,445	3,467	2,857	2,851	2,305	**-28%**	**-34%**
Tanger-Med	-	-	-	921	1,222	2,058	2,093	-	**127%**
Damietta	1,279	984	999	1,236	1,263	1,352	711	**-44%**	**-42%**

TABLE 2 - SOURCE: SRM on Ministry of Infrastructure and Transport data, and Assoporti data, 2012

The economic crisis has helped change the scenario of container-based shipping between Europe and the Far East, and to draw a new picture of port competition in the Mediterranean. Demand for goods has declined, imposing a reduction in industrial production; in turn, the shipping industry has been affected, due to the tight link between trade and maritime activities.

The cost of port operations account for an important share of the overall cost of maritime transport, therefore shipping companies exercise increasingly tight control over the cost of each phase of the shipping, opting to use increasingly large vessels to leverage economies of scale, and showing a preference for the new, large hub ports located in North Africa or on the Eastern Shore of the Mediterranean, less expensive than the European ports traditionally used.

These "new" ports, which can count on a wealth of physical space for their operations, and on morphological characteristics (namely their geographical position, on the barycentre of eastbound routes, and deep water channels) that make them ideal for the development of container ship traffic, are setting themselves forth as privileged interlocutors for the shipping companies that cross the Suez Canal.

As well as by infrastructural actions, the development of the ports of North Africa has also been fuelled by the reforms put in place by the countries of the area to slim-line administrative procedures tied to maritime transport. Also, environmental procedures are not as strict as in Europe, and further enhance the appeal exercised by the area on investors. The effects of legislation on port labour cannot be underestimated, as in these regions it provides for a lower average cost of labour compared to European countries[4], as well as operating cost incentives (staff, concessions, energy), and tax breaks (mooring and towing taxes).

The area's growth prospects are also important in attracting the major international shipping companies, with increasingly frequent production facility de-localisations by some of the most important multinationals in the world playing a role, as well.

On the back of these advantages, therefore, the ports located on the African shore of the Mediterranean represent an alternative to their European competitors; while they may not be able to guarantee the same level of efficiency, they are economically more convenient for the major shipping companies.

What's more, the policy pursued by North African governments to entrust the development of their ports to international players has increased the guarantee of forecast traffic volumes being reached, thanks to the mix of pure terminal operators, already present in potentially complementary markets, and shipping companies, which are therefore encouraged to shift their traffic to these ports[5].

These international players include, among others, APM Terminals (port operations branch of Maersk, the world's leading shipping company) and Eurogate Tanger (a consortium formed by French company CMA CGM, by the Moroccan state company Comanav, and, with a minority share, by Swiss-Italian company MSC, the second shipping line in the world) which are active in the port of Tanger-Med; APM is also present in the Mediterranean Area in Port Said, Hutchison Port Holding in Alexandria and El Dekheila, and DP World in Algiers in a joint venture with the Port Authority.

The entry of these ports into the business arena has changed the competitive scenario within the Mediterranean, broadening it and introducing notable changes in the ranking of container ship ports.

[4] Research carried out by Eurispes shows that the average hourly cost of labour for a worker, as surveyed in 2009 in Italian transhipment terminals, was 22.1 euros, as opposed to 3.1 euros in Morocco, and 1.9 euros in Egypt (respectively seven and over 11 times higher than the average Italian figure). Similar differences emerge between the hourly cost of labour for employees, of 22.9 euros in Italy, 10.1 euros in Egypt, and 7.1 euros in Morocco (respectively 2.3 and 3.2 times lower than the average Italian figure).

EURISPES, *Cagliari, Gioia Tauro e Taranto: 60 milioni di euro in 5 anni per salvare più di 9.000 posti di lavoro a rischio*, September 2010.

[5] TEI A., FERRARI C., *Evoluzione dell'industria terminalistica per i servizi di linea nel Mediterraneo. Implicazioni per la portualità nazionale*, SIET 2010.

As shown in Chart 3, the situation in the hubs of the Mediterranean has changed significantly between 2005 and 2011, mostly to the disadvantage of Gioia Tauro and Algeciras, which shed 10% and 4% of their market shares. The case of Damietta should be pointed out, as the port suffered a 5% contraction in the period considered, although its performance in 2011 (-38% vs. 2010) was affected by unrest among the Egyptian population, which resulted in a slowdown in activity and the port actually being closed to traffic for a period of time. On the other hand, Port Said, Malta, and Valencia, experienced increase in the volumes handled in the seven years considered, of 134%, 79%, and 66% respectively.

Market shares in the hubs of the Mediterranean. 2005-2011 comparison (based on TEUs handled)

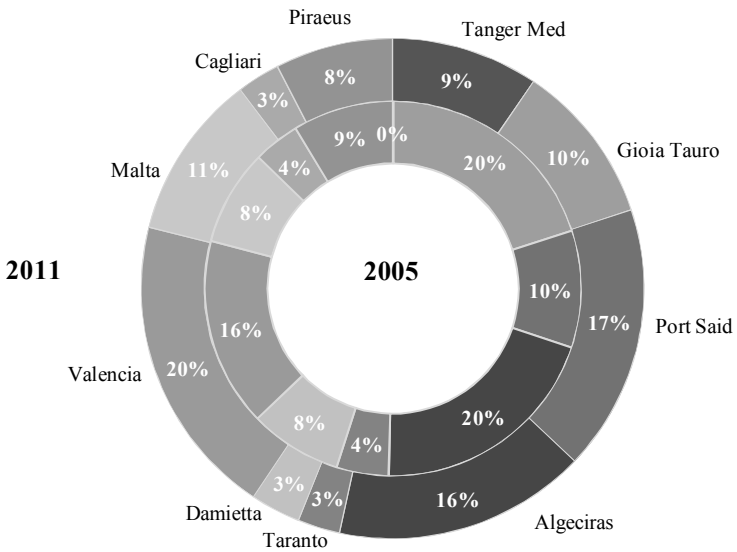


CHART 3 - SOURCE: SRM on Assoporti and Port Authorities data, 2012

More in detail, the ports of the Southern Shore of the Mediterranean increased their market share from 18% to 30%, mostly to the detriment of Italian transhipment ports, whose market share dropped from 28% to 16%.[6]

The latter, which benefit from an obvious advantage in geo-chart terms, risk being marginalised due to their delay, compared to competitors, on the front of railway links and logistics services in dry port areas, and due to the presence of a system of small, spread out ports, that are inadequate to attract cargo flows shipped in containers.

[6] The first data available for 2012 show a contraction in traffic volumes for the transhipment ports located on the Southern Shore, due to the outbreak of social unrest in those countries.
% chg. TEUs handled 2012/2011: Gioia Tauro +18%; Cagliari +3%; Taranto -56%; Algeciras +13%; Valencia +3,3%; Piraeus +63%; Malta +8%; Damietta -11%; Tanger-Med -13%.

In the near future, the competitive environment in the Mediterranean will presumably see an increase in the importance of the ports located on the southern rim, foe which further investments in infrastructure are being planned. Based on information provided by the competent authorities, the overall value of the works expected to be completed by the end of 2015 is higher than 8 billion euros, and will imply an increase in transhipment handling capacity estimated at between 4.8 and 10 million TEUs. Specifically:

- The largest investments (5 billion euros) are addressed to the realisation of new container terminals in the port of Tanger-Med, which are estimated to increase its transhipment capacity by 650.000 TEUs;
- The new container terminal of the port of Enfidha, in Tunisia, with an overall planned investment of 1.4 billion euros, will have a transhipment capacity of 1.3 million TEUs. An expansion of the Tunis-Rades port is also on the cards, with an investment of 198 million euros;
- In Egypt, in addition to the expansion of the container terminals of Port Said (395 million euros, with additional transhipment capacity of 3.5 million TEUs), the new container terminal of the Alexandria port will become operational: an investment of 860 million euros will make it capable of handling 420,000 TEUs[7].

In this context, if Europe intends to attempt to latch on its markets to the Asian economic region – which is achieving double-digit growth rates and is increasingly affirming itself as an export market (and no longer only an import market) – it must equip itself with connections "from and to" the world, capable of efficiently intermediating products and goods. In this respect, the European ports are the crucial interexchange node between the Western economy and the Far East; all the more so for the ports of the Mediterranean, that can count on the competitive advantage tied to their geographical position, which in terms of transit time guarantees highly competitive servicing of the European markets through Suez, compared to the ports of Northern Europe.

Despite the strengthening of the port structures of the Mediterranean, Northern Range ports continue to play a preponderant role the container-based shipping between European Union countries and Asia. The reasons for this are well known, and relate to the efficiency of port operations in terms of equipment and facilities, services, and bureaucratic and customs procedures.

Also, the competitive potential of alternative routes to reach those same destinations while avoiding the Mediterranean should not be underestimated. The reduction of the Arctic ice cover, set to continue in the next decades according to some researchers, allows for speculation that hitherto difficult to navigate maritime routes, such as the North East Passage, could remain open for several months a year before mid-century. The possibility of commercially exploiting these new routes linking Asia, Europe, and North America, must be taken as a challenge to improve the efficiency and safety of the Mediterranean axis, as well as to encourage a competitive offer of logistics, to safeguard the economic appeal of the Mediterranean route.

[7] EURISPES, *Cagliari, Gioia Tauro and Taranto: 60 milioni di euro in 5 anni per salvare più di 9.000 posti di lavoro a rischio*, September 2010.

This is the reason why the Mediterranean transport network must respond to the logic of present and future commercial flows in the most efficient and sustainable manner possible.

The table below lists the top 10 ports of the Mediterranean and of the Black Sea which in 2011 handled over 26.7 million di TEUs.

Top ten ports of the Mediterranean and of the Black Sea (Teus)

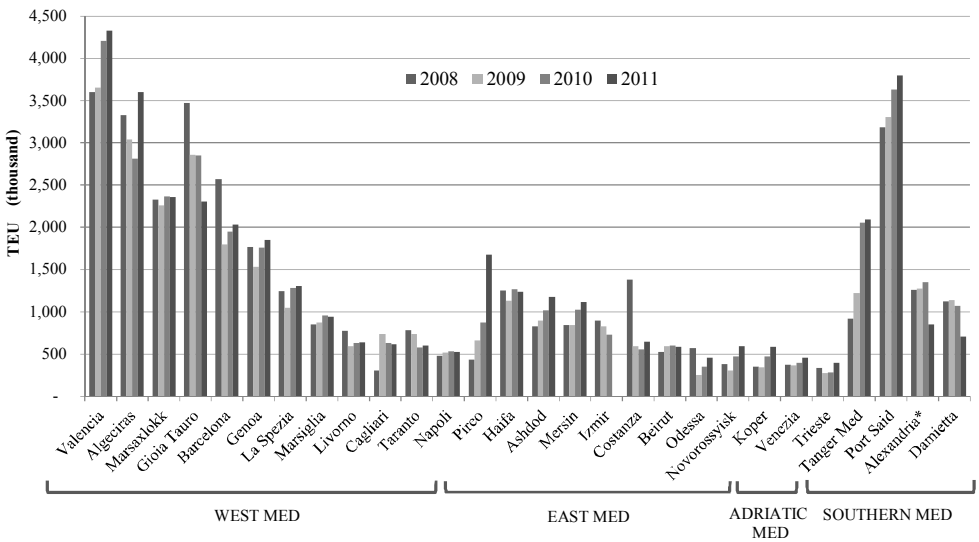
	Port	2008	2009	2010	2011	11/10	11/08
ES	Valencia	3,602,000	3,654,000	4,206,937	4,327,000	2.9%	20,1%
ET	Port Said	3,186,589	3,300,951	3,627,813	3,800,000	4.7%	19,2%
ES	Algeciras	3,327,616	3,043,268	2,810,242	3,602,631	28.2%	8,3%
TR	Ambarli	2,262,000	1,836,000	2,540,000	2,686,000	5.7%	18,7%
M	Marsaxlokk	2,330,000	2,260,000	2,370,000	2,360,000	-0.4%	1,3%
IT	Gioia Tauro	3,467,824	2,857,440	2,852,264	2,305,000	-19.2%	-33,5%
MA	Tanger-Med	920,708	1,222,000	2,058,430	2,093,408	1.7%	127,4%
ES	Barcelona	2,569,477	1,797,156	1,948,422	2,033,549	4.4%	-20,9%
IT	Genoa	1,766,605	1,533,627	1,758,858	1,847,102	5.0%	4,6%
GR	Pireaeus	433,582	664,895	878,083	1,680,133	91.3%	287,5%
Total		**23.866.401**	**23,866,401**	**22,169,337**	**25,051,049**	**26,734,823**	**6.7%**

TABLE 3 - SOURCE: SRM on Port Authorities' data, 2012

The trend of commercial flows and of the related economic activities have impacted, in some cases in very different ways, the countries located on the Mediterranean's shores, calling for a division of the Basin into several port groupings in order to carry out a more punctual analysis of the various dynamics at play.

The main ports of the Mediterranean and of the Black Sea which handled more than 390 thousand TEUs are grouped in the chart below in four areas: West Med, East Med, Adriatic Med and Southern Med.

Main ports for container traffic in the Mediterranean (TEUs). Years 2008-2011



* 2011 traffic data for the del port of Izmir unavailable.

CHART 4 - SOURCE: SRM on Port Authorities' data, 2012

When segmenting the analysis by area, the West Med port system, which confirms its position as the Mediterranean's most important, with over 21.1 million TEUs handled by the top 12 ports of the area, emerges as having recovered in 2011. Valencia ranks first in terms of containers handled, with 4.327 million TEUs in 2011, achieving a 20.1% increase in volumes compared to 2008. The region's second port is also Spanish, Algeciras, which handled over 3.6 million TEUs experiencing 28% growth compared to 2010, also thanks to the new container terminal managed by Korean company Hanjin. Malta follows, having been able to safeguard its market share between 2008 and 2011, handling around 2.36 million TEUs. As regards the other transhipment ports of South Europe, Gioia Tauro confirmed its difficulties and lost one-third of its volumes between 2008 and 2011. Taranto also lost market shares in the four-year period examined, while scoring a 4% recovery in 2011, with 604 thousand TEUs handled. Stronger performances in Italy were recorded, in terms of containers handled, by regional gateway ports, i.e. "final" destination ports in which goods are definitively unloaded to be delivered or to continue their journey across land. The Liguria region tops this specific ranking, with Genoa at the top (+5% vs. 2010 with 1.847 million TEUs) followed by La Spezia (+1.7% vs. 2010. with 1.307 million TEUs). The third-ranking gateway port is Livorno, up by 1.5% last year with almost 638 thousand TEUs, followed by Naples with 527 thousand TEUs, which despite a contraction in volumes in 2011 compared to 2008 achieved a 10% increase in the period. In the Western Mediterranean area, Barcelona emerges as being the gateway port most impacted by the effects of the crisis Spain has been experiencing in recent years, with a 21% drop in TEUs handled between 2008 and 2011, although it recovered by 4.4% in 2011 compared to 2010, handling 2.033 million containers.

When drawing a comparison with the other areas of the Mediterranean, ports in the Adriatic section emerge as having recorded strong performances, achieving overall growth of 35% vs. 2008 and 25% vs. 2010, albeit with much smaller traffic volumes compared to Tyrrhenian ports. Koper's performance was particularly noteworthy, as it handled over 589 thousand containers, achieving a 66.5% increase between 2008 and 2011, thanks to economic development in Eastern Europe and increasing support from Central Europe.

The ports of the East Mediterranean also stepped up container handling, to over 10 million TEUs, although with mixed individual performances. The area's main port system, Ambarli, strengthened its position as port of access to East Europe and transhipment hub for the Black Sea, handling 2.69 million TEUs in 2011 (+6% vs. 2010 and +19% vs. 2008), and rose to fourth place in the Mediterranean ranking. The strong results achieved by Greek port Piraeus were evident, and allowed it to re-enter the top 10 ranking of ports in 2011, with over 1.6 million TEUs, also on the back of the opening of a second container terminal starting in 2010, managed by COSCO. In Israel, the port of Ashdod performed well, handling 1.16 million TEUs and achieving growth rates of 15.5% vs. 2010 and 42% vs. 2008. As regards Black Sea ports, container handling increased compared to 2010 (+29.6% for Odessa, +26.8% for Novorossiysk, and +16.5% for Constanta) but only Odessa achieved positive growth compared to 2008, as opposed to negative rates for the other two ports.

Lastly, containerised maritime traffic in the ports of the Southern Shore of the Mediterranean was also surveyed. In this area, Port Said is a favoured stop among shipping companies, as it holds the advantage of being positioned at the mouth of the Suez Canal, and therefore of being the first port to intercept cargo flows coming from the Far East; with 3.8 million TEUs handled in 2011, it confirmed its position as second port of the Mediterranean. Also on the South Shore, the rapid ascent of Tanger-Med in Morocco should be pointed out: since 2008, opening year of the first of its two container terminals, due to become fully operational in 2016 when overall capacity will rise to 8.5 million containers, the port has kept attracting increasing traffic volume, beating the two million TEU mark in 2011. In addition to the container segment, Tanger-Med also scored a strong performance in ferry traffic, up compared to 2010 by 67% in terms of articulated trucks transported.

On the other hand, the performances of Egyptian ports Alexandria (-37% vs. 2010) and Damietta (-33%) went against the trend, dragging the results of the entire Southern Med into negative territory, with an 8% reduction to 7.5 million TEUs handled in total. Thus was due to social and political turmoil in Egypt in the course of 2011, which on more than a few occasions led to port operations being disrupted or blocked.

The figure below offers a graphic illustration of the trends outlined above, with a representation of the top 10 ports of the Mediterranean by traffic increase vs. 2010:

Top ten most dynamic ports of the Mediterranean (% chg. TEUs handled 2011/2010)

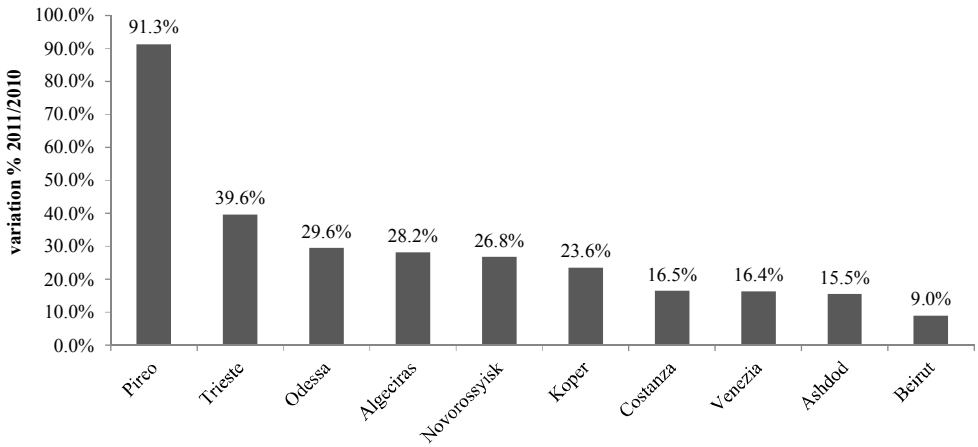


CHART 5 - SOURCE: SRM on Port Authorities' data, 2012

An analysis of the first sets of data available for 2012, however, reveals a change in course, with a decline in traffic for North African ports to the advantage of North Shore facilities, Italian ports included.

While Tanger-Med suffered a 13% contraction to 1.8 million TEUs handled, and Damietta an 11% decline to 756 thousand TEUs, Gioia Tauro achieved 18% growth vs. 2011 to 2.721 million TEUs handled, driven by MSC's decision to make it its base port in Italy, and Cagliari, grew by 3% to 621 thousand TEUs; only Taranto continued

incurring a negative trend (-56% to 263 thousand TEUs) following the Thai decision of Thai giant Evergreen to abandon the port.

The Arab Spring played an important role in fuelling traffic for Italian ports, as on the one hand it prevented North African transhipment ports from operating at full capacity, and on the other it prompted some companies to assess country risk and chose safer transhipment ports.

4. Short sea shipping in the Med Area

The European Union, as part of the review process of Trans-European Networks (TEN), is guiding Member States towards an intermodal and environmentally sustainable transport system, implying the creation of a network of ports of strategic importance on which to concentrate resources and investments, both public and private, and towards greater territorial cohesion between EU and non-EU countries.

This is the framework within which efforts are being made to encourage the growth of short sea shipping (SSS), intended as the short-haul segment of the maritime transport market, which at the European level includes sea links between national and international ports, as well as services to and from the islands of geographical Europe and of other countries with shores on the Baltic Sea, the Black Sea, and the Mediterranean Sea.

The development of SSS is one of the priorities of EU transport policy, as it is functional to the implementation of the plan drafted in support of inter-modality, aimed at:

- reducing road congestion, with a consequent attenuation of the negative aspects consequences to it (such as the accident rate and environmental pollution);
- concentrating cargo traffic on maritime logistics routes;
- strengthening economic and social cohesion among Member States.

The European strategy to promote short sea shipping is centred on the "Motorways of the Sea" (MoS) project, directly geared to shifting a significant portion of cargo traffic from roads to short-haul maritime transport. An integrated MoS network will help achieve the goal of creating a new, ample free-trade area in the Mediterranean Basin: a single Euro-Mediterranean market, but also the development of local internal markets and a vocation for exports, for the promotion of trade and the free circulation of people and goods.

By no coincidence, the development of "maritime and land highways"[8] is one of the six priority projects the Member States of the UfM have decided to pursue to help bring closer together the Mediterranean and European countries.

[8] The Mediterranean Sea is an important commercial highway in the region. The development of the Motorways of the Sea, the linking of ports throughout the Mediterranean Basin, the creation of costal highways, and modernisation of the trans-Maghreb railway, will increase the flow and freedom of movement of people and goods.

Specifically, the expression "Motorways of the Sea" indicates the combined land-sea transport of goods and, where appropriate, of passengers as well, essentially using Ro-Ro, Lo-Lo, and combo Ro-pax[9] vessels. The initiative will require:

- activation of a dense network of transnational sea links, scheduled (with published timetables), frequent and reliable;
- construction of dedicated port infrastructures (such as logistics facilities and platforms, parking areas, Ro-Ro terminals) required to support the development of a high-volume, high-frequency intermodal maritime transport service.

Navigation with Ro-Ro vessels is also one of the modes of transport on which EU policy is focused in aiding the development of inter-modality. This form of transport emerges as being one of the main antagonists of the "full-road" approach, over which it offers numerous advantages:

- more competitive overall costs, especially with regards to "unaccompanied" shipping (i.e. only trailers are loaded on board ferries) on medium-long distances;
- significant cut in environmental and social costs, thanks to the reduction of motorway system congestion;
- relatively small investments for the modernisation and/or construction of infrastructures supporting Ro-Ro[10] traffic.

The Motorways of the Sea and short sea shipping are a strategic resource for Europe, and in particular for Italy, as this a system that, if correctly integrated, not only reduces the environmental impact of cargo transport, but can also reach new emerging markets which are expected to generate strong economic growth. Over the past decade, short-haul maritime transport in the Southern Range context has experienced an especially positive phase ha, characterised by a consistent growth in flows handled, and in cargo and passenger traffic, as well as by a significant increase in the routes operated. Available statistics confirm this trend: in 2010, with around 1.8 billion tonnes[11] shipped, SSS grew compared to 2009 by 5.3%, accounting for 62% (in line with 2009) of total maritime cargo shipping in the EU-27; however, the share varies considerably among from country to country. The predominance of short sea shipping over other forms (Deep Sea Shipping) is particularly strong in Italy (76.9%), explained in part by the country's geographical position.

If until a few years ago the restored centrality of the Mediterranean in the commercial strategies of the major shipping companies was almost exclusively explained by the strong growth in container traffic, which led to the creation of large hub ports, in the

[9] With the development of transhipment activities, short sea shipping also plays a role in distributing the containers shipped between continents from one hub port to another, resorting to deep-sea vessels. Feeder shipping, and more in general also straightforward short-haul container shipping, is increasingly included, when its characteristics apply, in the "Motorways of the Sea" definition.

[10] MCC, *Bridge over troubled water*, 2009.

[11] EUROSTAT, *Maritime transport statistics - Short Sea Shipping of goods,* April 2012.

present phase, characterised by an economic downturn, the liveliness of maritime interexchange in the area also owes considerably to the system of Ro-Ro services.

In 2010, SSS between EU and Mediterranean ports amounted to 570 million tonnes, and the Mediterranean has therefore become the area with the strongest concentration of short sea shipping in the EU-27, as shown in the chart below:

Destinations of EU-27 short sea shipping of goods

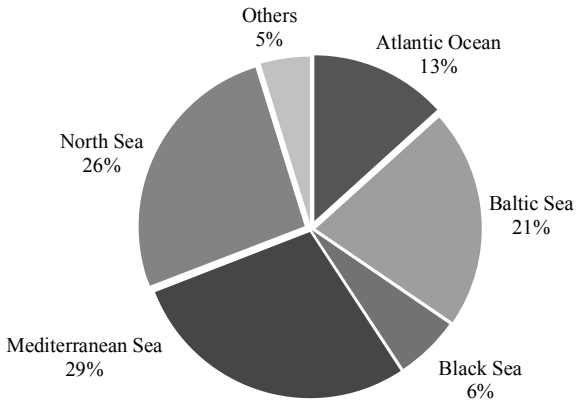


CHART 6 - SOURCE: Eurostat, 2012

There are different forms of short sea shipping, ranging from container and bulk handling, to general cargo and Ro-Ro shipping. In Europe, a predominant role is played by liquid bulk, which accounts for around 48% of the total cargo handled (847 million tonnes); dry bulk follows, with 341.3 million tonnes, raking second among the category of goods transported in the Short Sea segment (19%).

A meaningful contribution to the growth of short sea shipping between Mediterranean ports has also come from:

- Increased feeder shipping, as a direct result of the substantial growth of container traffic volumes in the area. Post-crisis trends show that in many cases the route systems of large transhipment vessels are planned avoiding multiple stops in different ports in each country of destination, with a preference for more direct routes and for concentrating larger greater quantities of goods in a few, major ports, with exchanges of traffic of regional destination among companies (multi-hub transhipment);
- The strong development of Ro-Ro services, which benefited from European programmes in support of combined land-sea transport.
- Economic development in countries of the Southern Shore of the Mediterranean and of the Middle East, which in recent years are driving import-export trade within the Euro-Mediterranean area. These countries are experiencing strong economic growth and have been less affected by the global crisis, due to the strict regulation of their local financial systems. Going forward, demographic growth, higher income levels, and the strengthening of trade relations between these countries and the EU should

fuel a further expansion of short sea shipping in the Basin; this represents a potential advantage for Italy especially, given its geographical position and its close commercial ties with Med countries.

Ro-Ro vessels used mostly on short-medium haul routes have experienced increasing commercial successful over the years, on the back of the advantages they offer, in economic and operational terms, over traditional vessels:

- High integration capacity with other systems of transport;
- Flexibility in transporting any type of load (passengers, containers, motor vehicles, palletised truck trailers, etc.), which allows the fractioning of risk and a more rapid achievement of economic sustainability;
- Speed of commercial loading/unloading, stowing and mooring operations;
- Possibility of using less complex support facilities, as they are capable of operating, for instance, in low-depth ports or ports without lifting equipment.

What's more, the higher cruising speed of the ships (up to 25 knots for cargo Ro-Ro vessels, and around 30 knots for passenger Ro-Ros) has further increased the efficiency of this form of shipping, which has become the key vector for the development of short sea shipping in the Mediterranean, meeting the increasing need for "door-to-door" intermodal transport.

As regards international cargo traffic, the three main sections crossed by intra-Mediterranean commercial flows have difference characteristics:

- The **West Med** section handles the interexchange of goods among Italy, Spain, France, and Malta; this is the best-consolidated market segment within the MoS context, characterised by a wide offer of transport services, diversified in terms of destinations, prices, and frequencies. This section of the Mediterranean hosts a broad network of routes served by competing players;
- The **East Med** section includes all the international routes linking the Balkans (Albania, Croatia, Montenegro), South East Europe (Greece) and the Middle East (Egypt, Israel, Turkey); it represents a fast-developing area in terms of both traffic volumes and the level of competition. While the eastern axis is mostly travelled by Greek shipbuilders, Italian companies are stepping up their offer with the aim of exploiting the Adriatic-Mediterranean system's growth potential in the wake of the eastward expansion of the EU. The Adriatic-Ionian corridor represents a strategic route for international cargo traffic, as it leads to the emerging markets of Central-Eastern Europe. In the Eastern section of the Mediterranean in particular, there are countries with high economic growth potential, open to international business, and in which port economies area growing rapidly (Port Said, for instance, has become the second most important port in the Mediterranean in terms of container handling). Also, these countries show a high level of commercial integration with Europe and Italy. As regards the growth potential of the Adriatic-Ionian axis, the establishment of nine new MoS corridors along the East Med is currently being promoted within the framework of the European TEN-T programme.

- Based on the data included in the presentation paper of the *"Eastern Mediterranean Region Motorways of the Sea (East Med MoS)"*, the activation of the new MoS lines should fuel a significant increase in cargo traffic, estimated at around 11,000 tonnes/Km in 2015, corresponding to 400,000-700,000 articulated trucks/trailers transported.
- The **North African** section, which hosts trade relations with Morocco, Tunisia, and Libya: an emerging market that offers shipping companies ample margin to activate a high number of links. This region has a port system through which an important share of global trade volumes transit, in addition to cargo flows on the North Africa/Middle East route directed to South and Central Europe. More in detail, Tunisia and Morocco can already count on regular connections for the transport of goods and passengers/vehicles, and going forward the number of connections activated is very likely to increase, in line with the need to strengthen the integration of these areas with the European economy. Given its high growth potential, shipping sector players are showing a strong interest in this route, destined to absorb increasing shares of global commercial traffic.

All the above leads to the conclusion that the inter-modal transport services market, based on the use of Ro-Ro vessels in an intra-Mediterranean context, offers considerable growth potential in terms of economic dimension and profitability levels. Although the major shipping companies active in the sector mange the main MoS lines, the market is not saturated. Indeed, there is still plenty of room for the activation of new links along the Eastern and North African sections, given the sharp expected increase in traffic, of both goods and passengers

The MoS network at the Mediterranean level is, to date, managed by a large number of players, that are proving highly dynamic in pursuing commercial policies and competitive positioning strategies.

Therefore, competitors with different characteristics in terms of size and operational environment[12] are active in the sector:

- The major shipping companies, active both at the national and international levels, which control the network of the main Mediterranean short sea traffic routes;
- Smaller companies, specialised in local traffic and positioned in specific market niches, which offer services on a limited number of lines.

As regards the major shipping companies, more dynamic on the front of business strategies, the development paths pursued also include:

- M&A deals and collaboration agreements with national and international partners, aimed at penetrating new markets that are strategic/complementary to those traditionally served (for instance, the Grimaldi Group controls Minoan Lines, leader in the passenger and cargo ferries business in Greece, the Maltese company Malta Motorways of the Sea, and is part of a joint venture in Spain);

[12] MCC, *Bridge over troubled water*, 2009.

- Growth in size, through the acquisition of companies active in sectors that are complementary to the core business, aimed at generating synergies, improving the quality of the services offered, and rationalising the use of productive resources;
- Investment policies addressed to new high-speed ships, larger in size and, above all, extremely flexible in terms of load mix, with the aim of reducing exposure to potential oscillations on individual markets.

There is also a tendency by the larger players to adopt strategies aimed at creating value, by means of concentration processes that are not only horizontal, but also vertical, through expansion of their business to port terminals. The management of these facilities – which constitute a junction between the maritime and land components of inter-modal transport – is a strategic factor for the competitiveness and operations of shipping companies, as it enables them to:

- Improve the quality of the service provided through direct control of the variables that condition offer (waiting times, accessory services, etc.);
- Recover profitability margins, by reducing the impact that port operations have on the overall cost of transport.

With regards to the geographical area of activity[13], a predominant role is played by Italian companies on the international routes, with the Grimaldi Group and Grandi Navi Veloci respectively managing 32 and 9 links with ports of the West Mediterranean and of North Africa. Through its Greek subsidiary Minoan Lines, Grimaldi Group is active in the Mediterranean also along the Adriatic corridor, with lines from/to Greece, a market traditionally served by local players (such as Anek Lines, Agoudimos and Blue Star Ferries.

The offer of transport in the Croatian section of the Adriatic features the predominance of shipping company Jadrolinija, which operates four lines; however, this is a seasonal business, strongly impacted by the trend of tourist flows. In general, sea links from/to Croatia are seeing a significant increase in the presence of Italian companies (such as BluLines and SNAV), which aim to penetrate a market that is still scarcely served.

The international routes with North Africa as their origin/destination are served by Grimaldi Group (13 lines linking Tunisia, Libya, and Morocco), and Grandi Navi Veloci (7 lines to Morocco and Tunisia).

As regards short sea shipping within the Mediterranean Basin, the competitive environment is characterised by:

- Strong competition on the commercially more interesting routes/destinations;
- Positioning of smaller companies on specific traffic routes;
- Constant focus on the quality level of the service provided;
- Logistics chain integration process;

[13] Information on routes obtained from the Internet sites of shipping companies as at March 2013.

- Thrust towards alliances and joint ventures, aimed at activating/enhancing services[14].

To date, the Ro-Ro transport market is dominated by players pursuing business expansion strategies within the Mediterranean Basin, through:

- Enlargement of the network of ports served and penetration of high-growth markets, with the launch of new lines and the strengthening of existing regular lines;
- Pursuit of aggressive commercial policies on the price front and attention to the qualitative standards of the offer.

Although the short sea maritime services sector qualifies as a capital intensive activity, investment costs are lower than those required to service transcontinental routes.

More than the availability of an extensive fleet or of large ships, operating medium-short haul services requires the capacity to offer clients tailor-made, specialised services, characterised by flexibility in terms of timetables and ports reached.

In general, the aspects leveraged by companies to strengthen their competitive position are:

- Quality and reliability of service;
- Competitive tariffs;
- Speed and technological features of the vessels;
- Control over a broad commercial network;
- Integration with land transport networks

The sector also includes low-cost offers, modelled on similar initiatives in the air transport business, which rely heavily on tariff flexibility: companies adjust prices in function of the time or period in which the service is offered (high/low season), in order to optimise the load factor. Cost-saving policies, put in place by using the Internet to promote the offer and a slimmer personnel structure, allow companies extreme flexibility in using the tariff lever, with the result of maximising vessel load ratios[15].

On the whole, prospects for the Ro-Ro shipping sector transport are good. In this context, one of the main drivers of market growth will be a tangible take-off of the Motorways of the Sea project, which should lead to the creation of a dense network of short sea shipping dedicated to Ro-Ro cargo traffic, both at the national level and in the Mediterranean Basin. The integration of these short sea shipping services in the logistics chain, to offer operators competitive solutions on cost and time, will certainly require the promotion of efficient maritime links, but should not be separated from the establishment of adequate connections in terms of capacity and service levels with the land transport system, embracing both road and rail.

[14] MCC, *Bridge over troubled water*, 2009.
[15] MCC, *Bridge over troubled water*, 2009.

5. Short sea shipping in Italy. Characteristics of demand and supply

The Motorways of the Sea represent an alternative and complementary transport service to road transport, aimed at encouraging trucks, containers, and vehicles to travel by ship; this is especially important in Italy, which has a coastline of almost 8,000 kilometres.

This type of service eases road congestion and produces tangible benefits in terms of the reduction of accident rates and environmental pollution. In Italy, the sector of Ro-Ro transport services on cargo lines has experienced an especially positive trend in the past ten years in terms of traffic volumes, links activated (national and foreign), and the level of service offered (frequency and timetables).

The geographical position of the Italian peninsula has encouraged the growth of short-haul transport services, both on the Tyrrhenian and Adriatic-Ionian sides, with flows progressively on the rise along the international routes connecting Italy to Spain, North Africa, the Balkans, and South East Europe (Greece and Turkey).

Therefore, it is by no coincidence that Italy ranks first in the EU27 in terms of goods transported via SSS in the Mediterranean Sea, with 223.2 million tonnes in 2010, or 39.2% of the total; Italy also ranks first in the Black Sea, with 44.8 million tonnes, or 36.2% of the total.[16]

The positive performance of the cargo sector was greatly helped by use of the so-called Eco-bonus, introduced as part of the 2008 Budget (Law 244/07) and aimed at encouraging road haulage companies to choose maritime transport over the "full road" option. This initiative provides for the acknowledgement of a direct contribution to compensate external costs not borne by road transport, relating to the national and EU sea routes that qualify for the bonus. The latter are specifically identified by the Ministry of Transport based on three main parameters:

- Suitability to encourage the shift of substantial shares of traffic from road to sea;
- Suitability to reduce road congestion on the national road network;
- Improvement in environmental standards expected thanks to recourse to sea shipping over road transport.

The size of the bonus may reach a maximum of 30% of the tariff applied, and is paid to road haulage companies that:

- Board their vehicles on a vessel prevalently destined to cargo shipping (Ro-Ro and passenger Ro-Ro), accompanied or not by drivers;
- Have made at least 80 trips in a year on the same maritime route.

The Eco-bonus has been authorised by the European Commission, overcoming the restrictions imposed on state aid. This is the first case of its kind in Europe, and to date this particular form of incentive represents a best practice at the EU level, as it directly rewards road haulage companies in function both of the distance travelled by sea, and of the number of trips made. This successful Italian experience has therefore become a

[16] EUROSTAT, *Maritime transport statistics - short sea shipping of goods*, 2012.

model, starting from which work is now being done to put in place an Eco-bonus at the European level.

In addition to incentives, infrastructural interventions are also required – especially aimed at integration with inter-ports, logistics platforms, and port terminals – to enhance the competitiveness of Ro-Ro services versus road haulage, guaranteeing speed in loading/unloading operations, load flexibility/steadiness, and delivery time certainty. In order to control the payment of the bonuses and the actual development of these policies, a limited company was established in 2004, RAM-Rete Autostrade Mediterranee, under the direct control of the Ministry of the Economy, with the task of controlling the awarding of Eco-bonuses and carrying out constant controls on the actual implementation of the connections network.

Trend of national Ro-Ro cargo traffic, 2007-2011

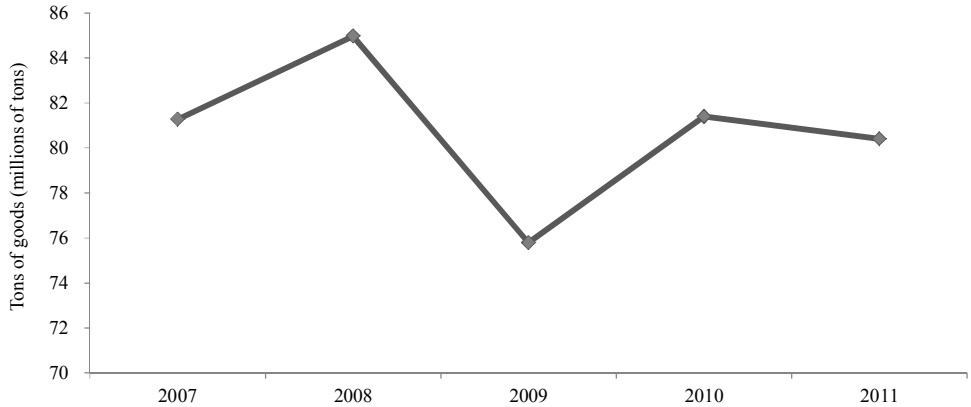


CHART 7 - SOURCE: SRM on Assoporti data

The chart above illustrates the trend of cargo shipping in Italy by means of Ro-Ro vessels, and shows that this segment has also been impacted by the effects of the crisis, while experiencing a significant recovery in 2010, which slowed in part in 2011. However, based on data illustrated in a research by Confetra[17], this type of traffic suffered a considerable setback in 2012, tied to reduced traffic with Greece and to political unrest in Middle Eastern and North African countries.

As regards the market of MoS routes from/to Italy, the port network created by the shipping companies for combined land-sea transport in the Mediterranean Basin provides a highly articulated system of routes, along which regular, high-speed and high-frequency Ro-Ro services are operated.

Routes from/to Italy (national, international, and territorial continuity lines) are serviced by 38 shipping companies of different nationalities, each with activities mostly concentrated in the geographical area closest to their country if origin.

[17] CONFETRA, *Nota congiunturale sul trasporto merci. Gennaio - Dicembre 2012*, published in February 2013.

Of the lines activated, 49.7% are managed by the top five operators, outlining a dual market structure, dominated by a few large shipping companies, and beneath which a large number of smaller companies are in fierce competition among each other[18].

An analysis of the Italian market shows that, despite the dragging on of the recession, the offer of annual services carried out by national operators with Ro-Ro vessels departing from Italian ports is keeping up a positive trend. In particular, national lines emerge has having developed almost exclusively between Tyrrhenian ports, whereas the Adriatic ports show a stronger vocation for international traffic, thanks to their greater proximity to the ports of Greece, Albania, former Yugoslavia, and to the intense exchanges established with Turkey. Data available as at June 2012 show for Sicily a reduction in both the number of weekly return departures (from 82 to 74) and in the number of links operated (from 22 to 19), as opposed to an increase in the number of linear metres offered, to over 336,000 per week. Connections with Sardinia recorded an increase of over 15% in the number of weekly departures (from 79 to 91), and of over 20% in linear metres offered, up to over 289,000.

For what concerns international traffic, Italian shipping companies now operate links between Italy and most of the West Med countries (France, Spain, Morocco, Tunisia, Libya, Malta), and are looking with a keen eye also to the East Mediterranean, where services are in place to Greece, Syria, and Egypt. On the international traffic front, the number of weekly return connections offered was stable (50.5), while linear metres increased by 21% (239,660) thanks to the introduction of larger ships, and the average distances covered rose following the activation of lines to Syria and Egypt.

On the whole, hold capacity offered annually by national operators adds up to over 2.3 million commercial vehicles, or 2.9 million semi-trailers[19].

The type of services offered by the various companies should also be considered: while cargo-only operators account for approximately only one-third of the total number of companies, only a small portion of the services offered, of around 17%, is exclusively dedicated to cargo, while the residual lines usually transport a mix of goods and passengers. This factor, in addition to confirming an increasing trend in the sector, has effects on both the type of service the operators are able to offer, and on the different characteristics of the actual port terminals. On the one hand, it determines the presence of a number of exclusively seasonal lines, such as those linking some ports in Sardegna, while on the other it may require the presence of facilities suited to embarking and disembarking passengers, as well as a possible differentiation in schedules and tariffs compared to cargo-only activities.

Despite these positive market characteristics, in Italy the development of MoS still seems to be facing criticalities: the current structure of the services offered is essentially concentrated on obligatory SSS, i.e. services to the Islands, and not on alternative routes, with the sola exception of the Salerno-Reggio Calabria route that avoids using the corresponding motorway stretch. All considered, the presence of higher index values for island ports than for their continental counterparts seems to confirm this configuration. This is also highlighted by the fewer services active on the Adriatic side of the country.

[18] MCC, *Bridge over troubled water*, December 2009.
[19] CONFITARMA, *Assemblea annuale*, 20 giugno 2012.

On this front, in order for the Motorways of the Sea to definitively take off, a crucial aspect seems to the achievement of high levels of service reliability and continuity over time, and high frequencies, thus making the offer more stable.

However, there are still obstacles on the front of cost factors, namely: the duration of inter-modal transport, including short sea shipping, mostly due to the inadequacy of multi-modal infrastructures; the lack of smooth inter-operability between the various multi-modal transport operators involved; and still excessively long transit times.

The expansion, modernisation, and redevelopment of Italian ports, with the construction of infrastructures dedicated exclusively to Ro-Ro traffic, combined with the coming into force of the planned incentives to the benefit of road haulage companies, will be an essential factor in the further development of MoS. It should also be said that port and terminal costs, on a par with transport service tariffs, may significantly impact the development of the project, as traffic along the MoS routes can always travel alternatively across land, and specifically by road. Therefore, port pricing policies will be of great importance, as they can play a decisive role in making MoS routes economically convenient.

In the segment of ferry boats, which represent the vessels of choice for short sea shipping, Italy holds world leadership in terms of number and tonnage. Italy operates 180 ships (145 Ro-Ro passenger and 35 Ro-Ro cargo vessels), with an aggregate capacity of 1.3 million dwt, i.e. around 13% of world stowing offer. Compared to 2011, the number of vessels has decreased, especially in the passenger segment, as opposed to a rise in gross capacity, testifying to the larger size of the ferry boats.

Main ferry boat fleets in the world (as at 1st January 2012)

Countries	Ro-ro cargo		Ro -ro pax		Total		% share
	N.	dwt	N.	dwt	N.	dwt	
Italy	35	731,955	145	541,693	180	1,273,648	13%
Japan	63	401,055	105	333,640	168	734,695	8%
Sweden	30	370,560	39	200,173	69	570,733	6%
Finland	36	296,211	29	180,735	65	476,946	5%
Greece	26	159,877	101	251,497	127	411,374	4%
Denmark	30	282,135	42	126,963	72	409,098	4%
USA	30	286,412	56	91,548	86	377,960	4%
France	19	173,624	43	143,281	62	316,905	3%
Germany	26	179,073	41	112,684	67	291,757	3%
Turkey	27	232,028	48	58,059	75	290,087	3%
China	12	82,391	43	169,355	55	251,746	3%
Norway	12	86,492	120	154,070	132	240,562	3%
UK	16	168,173	39	60,772	55	228,945	2%
Spain	11	70,658	60	146,366	71	217,024	2%
Arab emirates	7	182,655	0	-	7	182,655	2%
TOTAL	**765**	**5,715,446**	**1,528**	**3,875,021**	**2,293**	**9,590,467**	**100%**

Ships of 1,000 gt and over by nationality of owner. Fleet of Ro-Ro cargo ships excluding vehicles carriers. Passenger Ro-Ro cargo, Passenger Ro-Ro cargo/Ferry

TABELLA 4 - SOURCE: Confitarma 2012

Despite the negative economic picture, prospects for the national fleet addressed to Ro-Ro services are still good, given the tendency shown by shipbuilders to invest in highly versatile vessels in terms of the mixed transport of goods and passengers.

Box – Sources of funding for the Motorways of the Sea

Projects for the realisation of MoS tap various sources of financing, private and public, including national aid and a number of EU finding programmes. More in detail, the EU offers financial helps support MoS investments through two main instruments:

- **The budget for the TEN-T network programme**, for the 2007-2013 period, which allocates a budget of 85 million to 2009, 85 million to 2010, 70 million to 2011, and 80 million to 2012. The financial contribution is acknowledged for coverage of up to 30% of investment costs over a two-year period.
  Of the four macro routes identified at the EU level for the per construction of MoS projects of European scope, two involve the Mediterranean Area:
  - The South-East Europe Motorway of the sea (South-East axis, so-called East Mediterranean), covering the Adriatic and Ionian sections up to Cyprus and Turkey.
  - The South-West Europe Motorway of the sea (South-West axis, so-called West Mediterranean), connecting Spain, France, Italy, Malta, and linking with the South-East Europe motorway of the sea.

To access financing, the project must concern one of the MoS routes identified at the EU level, and be aimed at modal change or cohesion geared to concentrating cargo flows on maritime routes, improving the existing sea links, or creating new, sustainable links.

- **The Marco Polo II programme,** of which the MoS represent one of the five priority actions, which provides for funding of up to 35% of operating costs over five years, essentially addressed to the services component. Funding is only issued for initiatives involving the territory of at least two Member States, or of at least one Member State and of a close third country. The programme can count on an endowment of 450 million euros for the 2007-2013 period, of which 59 million in 2009, 63.54 million in 2010, 56.87 million for the 2011 call, and 66.4 milioni in 2012. The projects selected for 2007-2010 funding were 120.

Financing made available within the framework of the TEN networks and of the Marco Polo II programme may be cumulated for a single project. More in detail, recourse can be made to TEN funds when the investments for MoS concern equipment and infrastructures, and the beneficiaries are Member States, whereas services and operating costs may be supported by the Marco Polo programme, and the beneficiaries are private. The projects proposed are realised by public-private partnerships or based on tenders launched jointly by the Member States involved.

- **The Mediterranean transnational cooperation programme,** as part of which the "Transport and accessibility" call is open, aimed at strengthening port activities in

the Basin and improving accessibility and maritime transport, thanks to multi-modality and inter-modality.

The Med is not geared to same type of activity as the TEN-T and Marco Polo programmes, as it is an international cooperation programme, therefore its main characteristic is its territorial dimension and its capacity to activate local and regional actors. On the topic of transport, its goal is to improve accessibility of territories, promote the transport of passengers and goods using sustainable and integrated transport systems.

Where EU funds available to for the upgrading of ports and infrastructures, for the start-up of new maritime services, and for investments in ships and equipment are not enough to carry forward such projects, financial support from Member States is also possible.

To this avail, the European Commission has issued Communication 2008/C 317/08 ("Guidance on **State aid** complementary to Community funding for the launching of the **Motorways of the Sea**"), establishing that Member States may fund the short sea shipping sector with the aim of optimising the intermodal chain and decongesting roads. Complementary aid provided by Member States must have the same maximum intensity and duration of Community funding, and cannot be cumulated with public service compensation.

Other state aid schemes are admitted, aimed at offering indirect support to short sea shipping and to encourage the shifting of freight traffic from land to sea. Specific reference is made to the Eco-bonus system introduced in Italy with the 2008 Budget, which includes the offer of incentives – in the form of refunds of a part of maritime transport fares – to road haulage companies which opt for the road-sea combination.

Alongside state aid and the allocations provided for each year by the TEN-T budget and the Marco Polo II programme, other forms of support for the MoS are also possible, including:

- **EIB funding,** in the form of "Loan Guarantee Instruments for trans-European transport network projects" (LGTT) to cover risks in the first 5-7 years following the realisation of the project (tied for instance to unexpected reductions in revenues from the use of a specific infrastructure). The EIB's financial intervention is limited to 50% of the project's investment cost;
- **Structural Funds.** Based on the rules governing European Structural Funds, at least 60% of the share assigned to the Member State must be used to fund actions supporting the development of the European corridors and of the MoS. In particular, with regards to the European Regional Development Fund (ERDF), the co-funding limit is set at 75% of public spending on the "Convergence" objective, and at 50% for the "Regional Competitiveness and Employment" objective, whereas the Community co-financing rate for the Cohesion Fund may reach 85% of the investment[20].

[20] MCC, *Bridge over troubled water*, 2009.

CHAPTER IV
MARITIME TRADE: STATISTICAL ANALYSIS

1. Introduction

The aim of this chapter is to highlight Italy's international relations in terms of maritime trade; the analysis has a statistical nature and takes the Istat Coeweb database as a reference.

A first consideration regards the importance of sea traffics in the national economy: in 2012, their incidence on GDP was of 15.4% and looking at historical data, after the decline due to the 2009 crisis (when the percentage was 11.3%), it can be noted that they have constantly increased.

Moreover, this transport mode, along with the road one, plays a leading role among the various options available for the transit of goods. In fact, it accounts for about one third of the total and, between 2008 and 2012, it showed a significant increase compared to the other alternatives.

In the following study, two aspects are given attention: on the one hand, the target areas and, therefore, Italy's main trading partners, while on the other hand their qualitative aspect in order to better identify the nature of the trade affecting the country.

Particularly in the first case, after reporting the global scenario, the focus is directed to the trade with the European and Mediterranean countries; on the contrary, in the second case, the aim is to investigate on the main groups of products concerned, distinguishing in particular between oil and non-oil products.

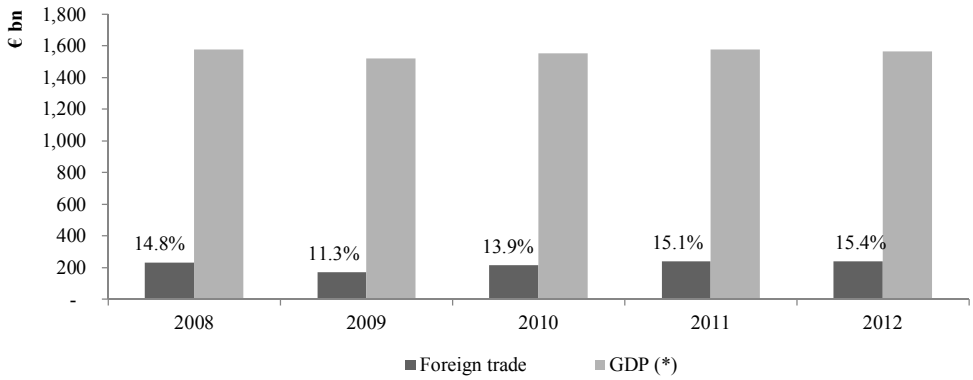
To better contextualise the Italian situation in the wider international scenario, an in-depth analysis of the maritime traffic to and from the Med Area of the main European countries (France, Germany, Spain and Italy) was also performed, on the basis of the data provided by Eurostat with reference to the trade of the EU-27 countries.

2. Italy's maritime trade in the global and European context

In 2012, Italy's maritime import-export trade with the rest of the world amounted to over 240.8 billion euros. On the total of the country's national GDP, this figure accounts for 15.4% and shows a further growth, after the decline due to the 2009 crisis (when the percentage was 11.3%, with a traffic of almost 171 billion euros of total value) and a first turnaround in 2010 (13.9%).

Considering the 2008-2012 period, despite the above-mentioned decline, it can be observed that the overall national maritime traffic increased by more than 8 billion euros.

The weight of Italy's maritime trade on GDP



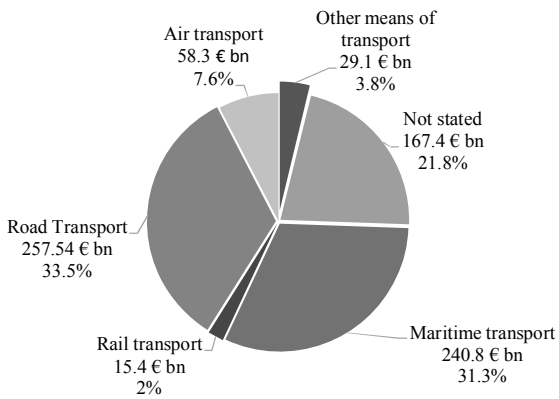
* Gross Domestic Product at market prices, EUR millions, current prices.

GRAPH 1 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

As part of the overall national trade, maritime transport therefore plays an important role and this is evident when looking at Italy's trade flows with regards to the different modes of transport. In fact, together with road, maritime transport is one of the main items, accounting for 31.3% of the total.

Moreover, between 2008 and 2012, a decrease in the use of the road transport was recorded (-13.8%), whereas the use of the maritime mode increased (+3.6%). It has also to be considered that in the period analysed, the incidence of road traffic on the total decreased from 39.8% to 33.5%, while maritime trade rose from 30.9% to 31.3%.

Italy's foreign trade by mode of transport – Year 2012



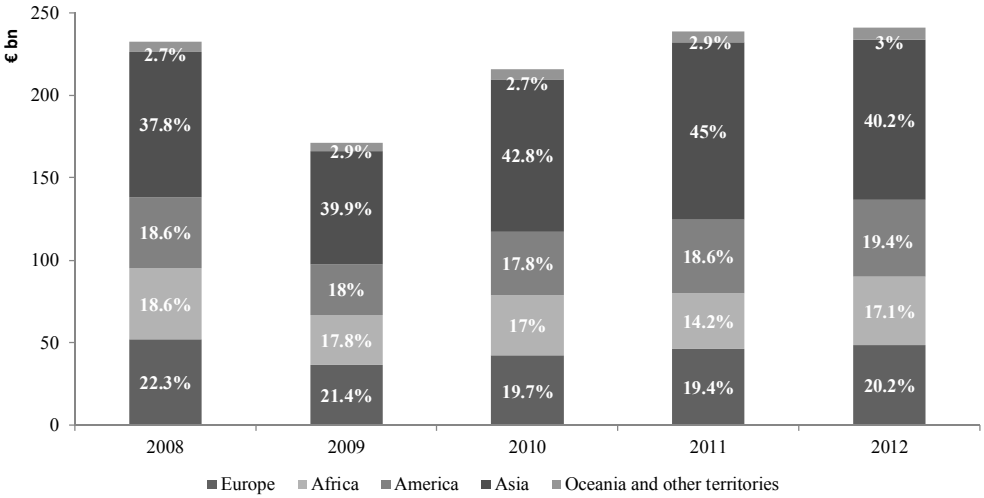
GRAPH 2 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Analysing the main source/target areas of the traffic examined, the Asian continent is the one that matters most (40.2% as a whole), followed by Europe and America, with 20.2% and 19.4% respectively, Africa (17.1%) and Oceania (3%).

Data also show that, between 2008 and 2012, the relations with Asian and American countries intensified. In particular, in 2012 the first ones represented a trading partner for Italy in 40.2% of the cases, compared to 37.8% in 2008, while the latter's relative weight increased from 18.6% in 2008 to 19.4% in 2012.

On the other hand, flows to European countries decreased, with a progressive decline ranging from 22.3% in 2008 to 20.2% in 2012.

Italy's maritime trade by target areas – Years 2008-2012

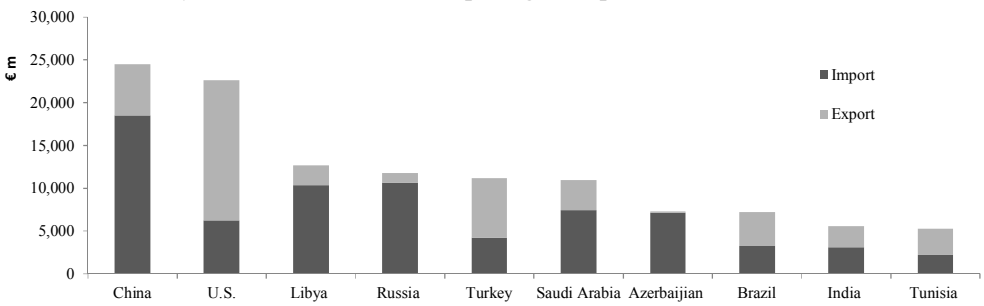


GRAPH 3 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Within the areas considered, China, the United States and Libya are Italy's three main partner countries in terms of sea trade of goods.

In particular, the trade with China accounts for more than 24 billion euros, and it is represented by inflows to Italy for more than 75%. A reverse situation can be detected, however, in the relation with the United States that, with a total traffic of 22.6 billion euros, are mostly recipients of trade flows from Italy (72.6% of the total).

Italy's maritime trade: the top 10 global partners – Year 2012

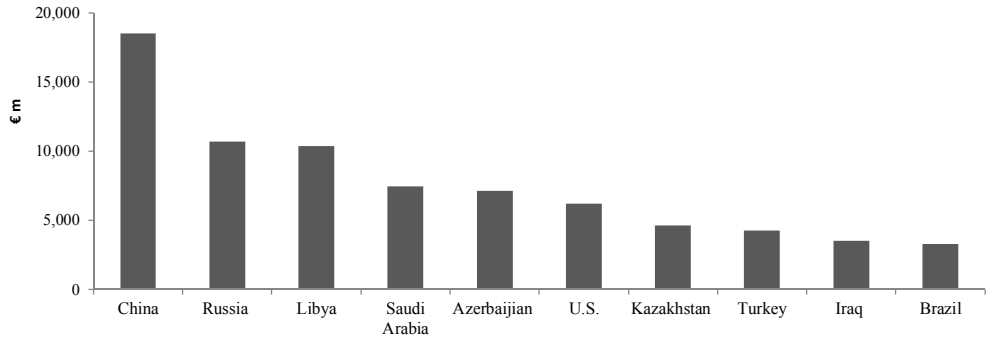


GRAPH 4 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

The ranking of the leading partners changes if we consider Italy's flows of sea imports and exports with the rest of the world separately.

In particular, as regards imports, we observe that, after the confirmation of China in the first place, with an estimated volume of approximately 18.5 billion euros, there are Russia and Libya, from which Italy imports goods for 10.7 and 10.3 billion euros respectively. It can also be noted that India and Tunisia no longer appear among the top 10 positions (they now place 11th and 16th), while there is Kazakhstan, which exports goods to Italy for 4.5 billion euros.

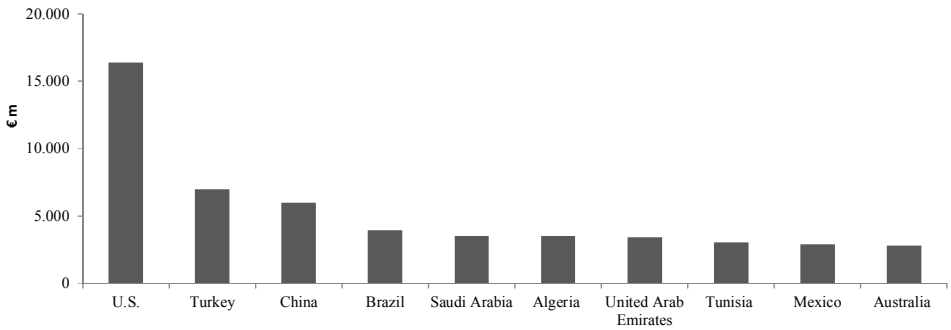
Italy's maritime imports: the top 10 global partners – Year 2012



GRAPH 5 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

As regards the export flows alone, however, the United States, Turkey and China are the top three recipients of goods from Italy, with a total volume of more than 29 billion euros. In the overall configuration, India, Libya, Russia and Azerbaijan no longer appear (they now place 12th, 13th, 29th and 72nd) and are replaced by Algeria, the United Arab Emirates, Mexico and Australia.

Italy's maritime exports: the top 10 global partners – Year 2012



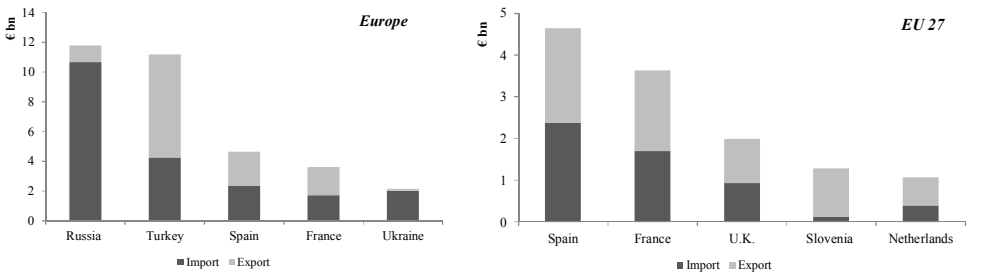
GRAPH 6 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Analysing Europe alone, Russia and Turkey are the countries with most trade, with an estimated flow of goods of 11.8 billion euros for the former and 11.2 billion euros for the latter. Moreover, it can be noted that trade relations with Russia are characterized by the

predominant presence (over 90%) of inflows to Italy, while those with Turkey are more balanced (37.8% of the total is represented by Italian imports, against 62.2% of exports).

In addition, if the range of analysis is reduced to the EU-27 countries, it can be observed that the three main counterparts of the Italian maritime traffics are Spain, France and the United Kingdom, with a total flow of more than 10 billion euros. Approximately 45% (4.6 billions) of this amount is related to the trade relations with Spain.

Italy's maritime trade: the top 5 European partners – Year 2012



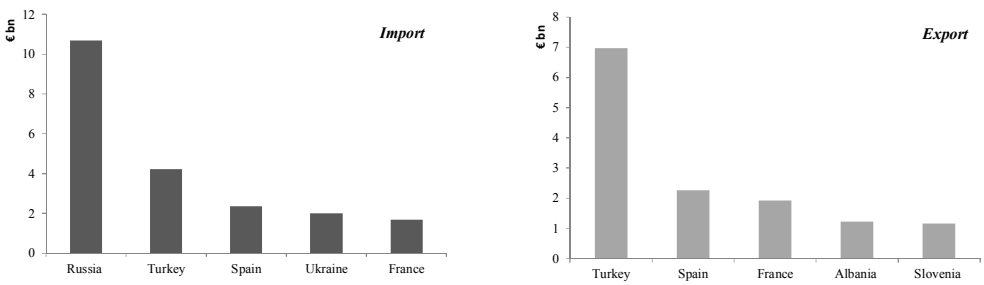
GRAPH 7 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Even in this case, the import and export relations were analysed separately.

Italy's top 5 European partners in terms of incoming flows are the same as for the total trade, even if with a different relevance. On the other hand, Russia and Ukraine are no longer among the first five in terms of exports (they now place 7th and 16th), and were replaced by Albania and Slovenia.

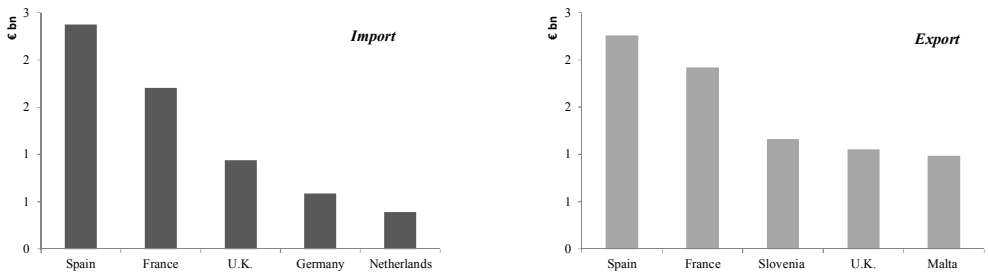
Also with reference to imports from the EU-27 countries only, the top 5 positions are occupied by the same countries as for the total trade, except for Slovenia, which is replaced by Germany. On the other hand, as regards the outflows from Italy, the Netherlands do not appear in the top 5 positions, being replaced by Malta.

Italy's maritime imports and exports: the top 5 European partners – Year 2012



GRAPH 8 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Italy's maritime imports and exports: the top 5 EU-27 partners – Year 2012

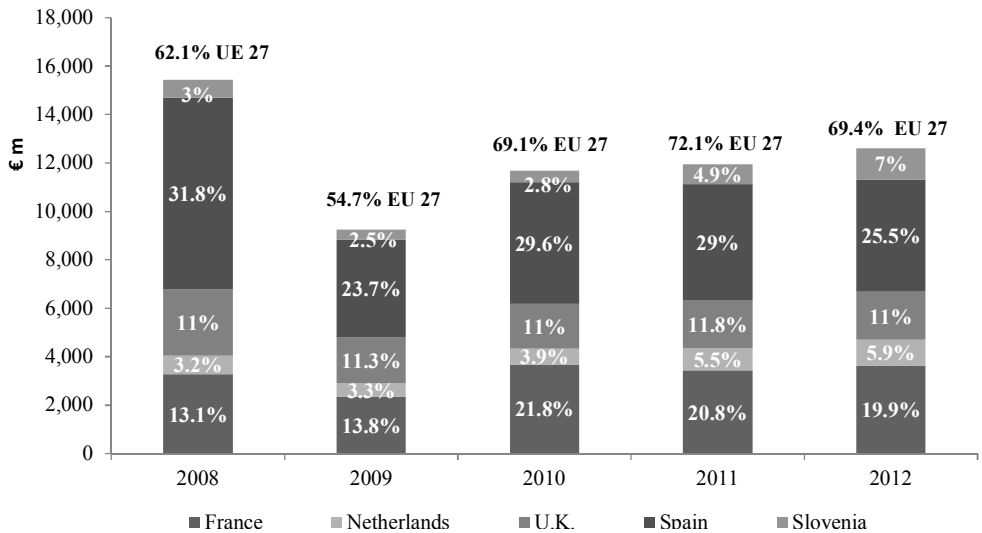


GRAPH 9 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Italy's top five EU-27 partners (Spain, France, the United Kingdom, Slovenia and the Netherlands) account for nearly 70% of the total trade of the country with that area. Although in absolute terms the total flows of these 5 countries declined – from 15.4 billion euros in 2008 to 12.6 billion euros in 2012 (-18.4%) – their relative traffic share increased by 7.3 percentage points over the period 2008-2012.

In particular, France has the most consolidated maritime trade with Italy, recording a weight of 13.1% in 2008 and of 19.9% in 2012; smaller increments refer to the Netherlands and Slovenia, while the United Kingdom remains almost unchanged and trade between Spain and Italy decreases.

The maritime trade between Italy and the top 5 EU-27 partner countries
Years 2008-2012



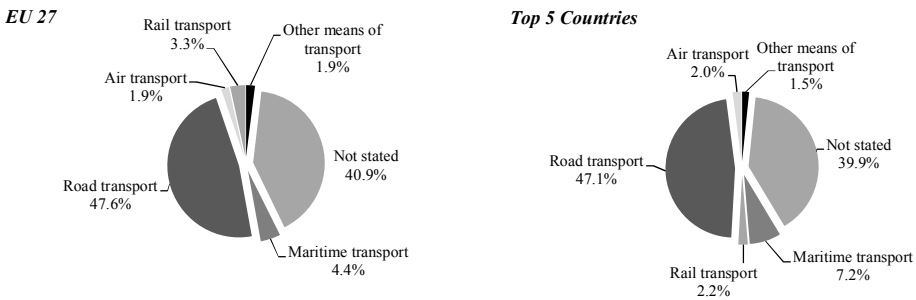
GRAPH 10 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Finally, always referring to the EU-27 area, it can be noted that, unlike the global context, shipping affects total traffic only for 4.4%; this percentage corresponds to a

commercial flow of 18.2 billion euros, of which 43.7% consists of inflows to Italy and the remaining portion of outflows. Even considering that about 40% of the total traffic affecting the analysed area does not report the mode of transport used, most of the goods travel by road, with a weight of 47.6% on the total.

On the contrary, only analysing the top 5 partner countries, the weight of shipping rises to 7.2%, with a trade flow of 12.6 billion euros out of a total of 174.5 billion euros.

Italy's foreign trade by mode of transport in the EU-27 area – Year 2012



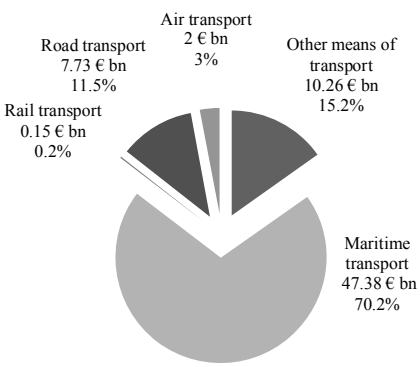
GRAPH 11 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

3. Outlook on the Med Area

Sea is the main channel through which Italian goods travel to and from the Mediterranean basin.

In fact, in 2012 the total trade with the countries of this area amounted to about 67.5 billion euros, of which over 70% (47.4 billion euros) is attributable to maritime transport, with a slight predominance of export flows (51.8% versus 48.2% of imports).

Italy's foreign trade with the Med Area by mode of transport –Year 2012



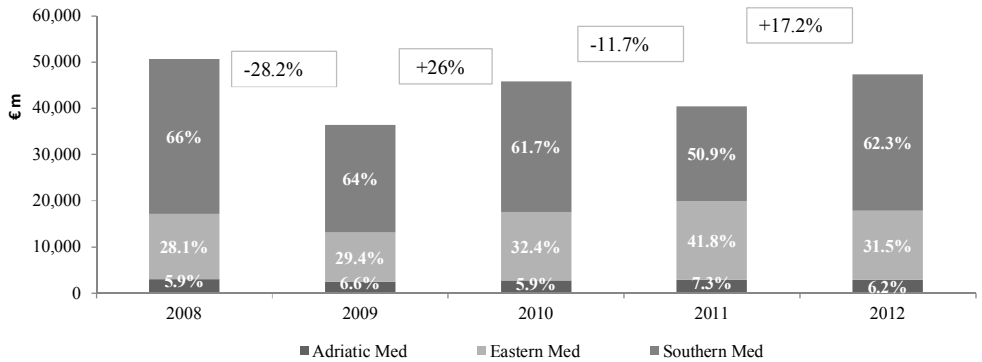
GRAPH 12 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

The maritime trade with the Med Area is 19.7% of the total transport between Italy and the rest of the world; with more than 29.5 billion euros in 2012 (62.3%), it is mainly concentrated in the *Southern Med* countries (Algeria, Egypt, Libya, Morocco and Tunisia). The *Eastern Med* Area (Israel, Lebanon, Syria and Turkey) places second, with almost 15 billion euros (31.5%), followed by the *Adriatic Med* countries (Albania, Bosnia, Croatia and Montenegro) whose maritime trade with Italy amounts at about 3 billion euros (6.2%).

The time course of these trades is, however, fluctuating and in 2012 recorded an increase of 17.2 percentage points over the previous year (in turn characterized by a decline of almost 12% compared to 2010).

Trade flows are therefore recovering, and observing the data of each single area, it can be noted that this result is mainly due to the Southern Med countries that, partially overcoming the political events previously suffered, recorded an increase of over 43%. On the other hand, the maritime trade flows with the Adriatic Med Area remain virtually unchanged (+0.7%), while those with the Eastern Med decrease by 12%.

Italy's maritime trade with the Med Area – Years 2008-2012

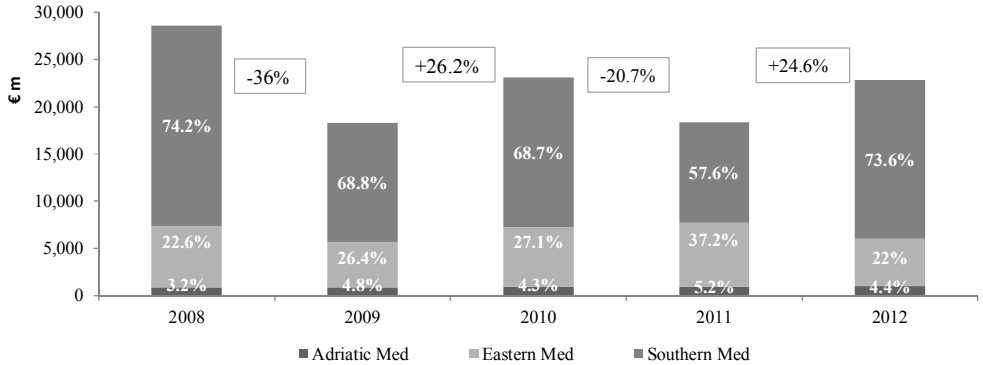


GRAPH 13 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

The Southern Med countries are Italy's main partners even if sea imports and exports are considered separately. In particular, in 2012 the former accounted for over 73% of the total value, compared with 22% of the Eastern Med and 4.4% of the Adriatic Med. It should be noted, however, that in view of the data of the last five years, the Southern Med and the Eastern Med areas have lost market shares while the weight of the other area has increased. In addition, considering only import flows, 2012 recorded a growth rate that, on the whole of the Med Area, is of almost 25% compared to 2011.

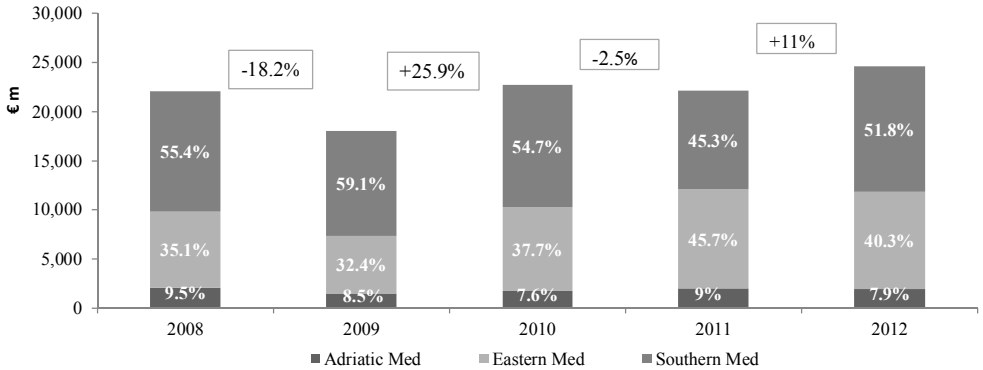
Similar considerations can be made with reference to exports from Italy to the Med Area: with 51.8% of the total, the Southern Med countries are those which absorb the largest share. Moreover, in this case the variation recorded in 2012 over the previous year confirms the general trend, with an increase of 11%.

Italy's maritime imports from the Med Area – Years 2008-2012



GRAPH 14 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

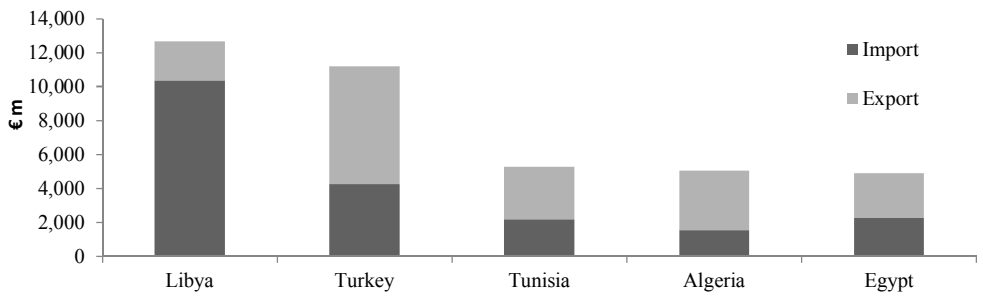
Italy's maritime exports to the Med Area – Years 2008-2012



GRAPH 15 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Considering each single country, the main partner involved in the Italian maritime trade is Libya, with an estimated flow of goods of 12.7 billion euros, followed by Turkey and Tunisia, with a traffic of 11.2 and 5.2 billion euros respectively.

Italy's maritime import and export trade with the Med Area: the top 5 partners – Year 2012

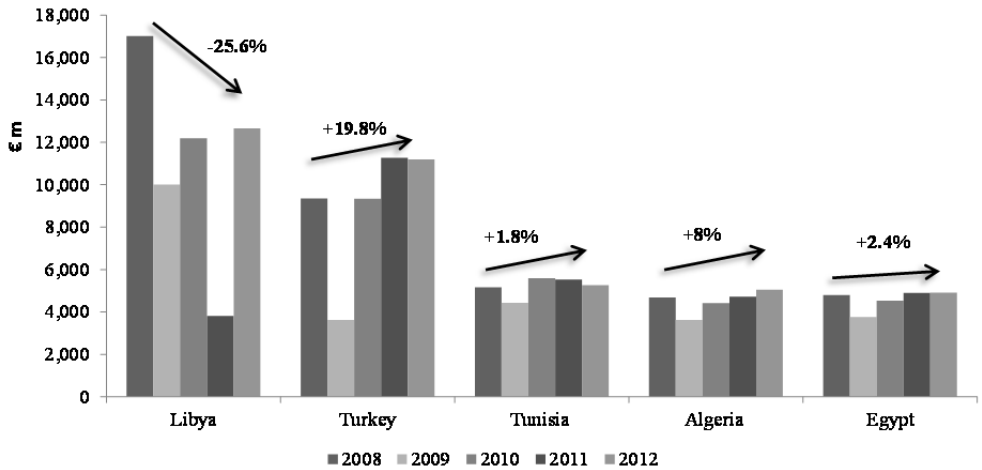


GRAPH 16 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

After the 2011 decline, Libya is still Italy's main partner in terms of sea trade in the Mediterranean; reference data are recovering even though, if compared to 2008 figures, a drop of more than 25% has been recorded.

Although their absolute values are often lower and despite the reduction in trade due to the general 2009 crisis, the remaining countries reported an increase in their maritime business with Italy; in the case of Turkey, it reaches almost 20%.

Italy's maritime trade with the Med Area: the top 5 partners − Years 2008-2012



GRAPH 17 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

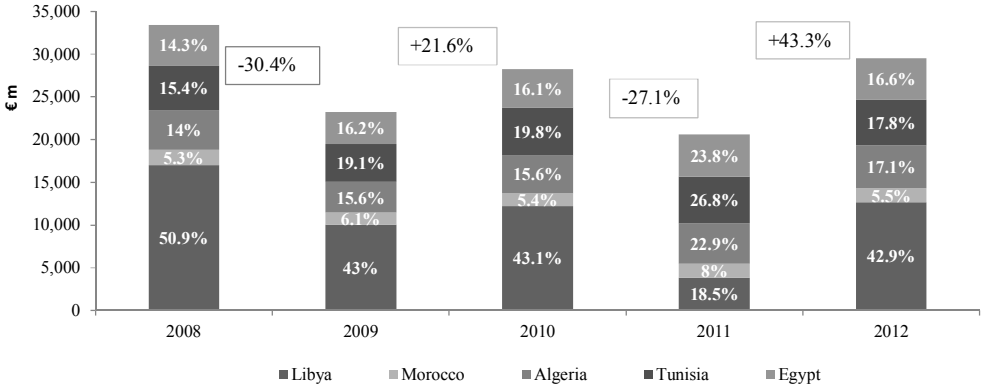
It has already been noted that the Southern Med Area is the most involved in sea commercial transactions with Italy, with a total traffic of approximately 29.5 billion euros.

Looking at the details of its single country, in 2012 Libya absorbed the largest share, with a turnover that accounts for more than 12.6 billion euros (42.9% of the total of the area), followed by Tunisia (5.2 billion euros, equal to 17.8%) and Algeria (5 billion euros, equal to 17.1%).

Compared to the previous year, Libya has more than doubled its traffic to and from Italy, almost completely recovering the loss experienced in 2011.

Therefore, the shares of the remaining countries have decreased (they had significantly increased in 2011) producing a realignment of the overall situation to the 2008-2010 scenarios.

Italy's maritime trade with the Southern Med countries – Years 2008-2012

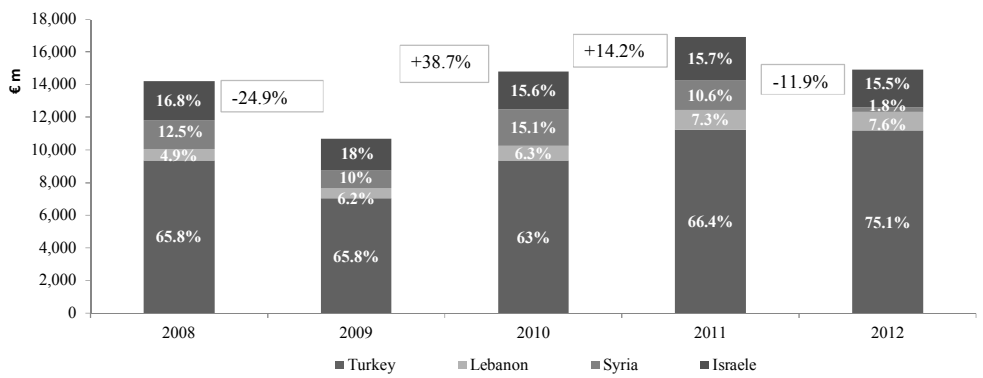


GRAPH 18 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

The situation changes if we consider only the trade of non-oil products; in this case, in fact, Italy's first partner is Tunisia, with 36.1% of the total, followed by Algeria (22.1%), Egypt (21.4%), Morocco (12.3%) and Libya (8.1%).

For the Eastern Med Area - which has a total volume of traffic of almost 15 billion euros - the most important position is recorded, however, by Turkey; in fact, with a trade volume of almost 11.2 billion euros, in 2012 the country absorbed as much as 75.1% of the macro-area's total. Israel and Lebanon come next, with 2.3 and 1.1 billion euros (equal to 15.5% and 7.6%) respectively, followed by Syria, with 273 million euros (1.8%). This situation only partially reflects the trends reported for the previous 2008-2011 period. In fact, after the first two positions, that remain unchanged, in the past years Italy's third reference partner in the area was Syria.

Italy's maritime trade with the Eastern Med countries – Years 2008-2012

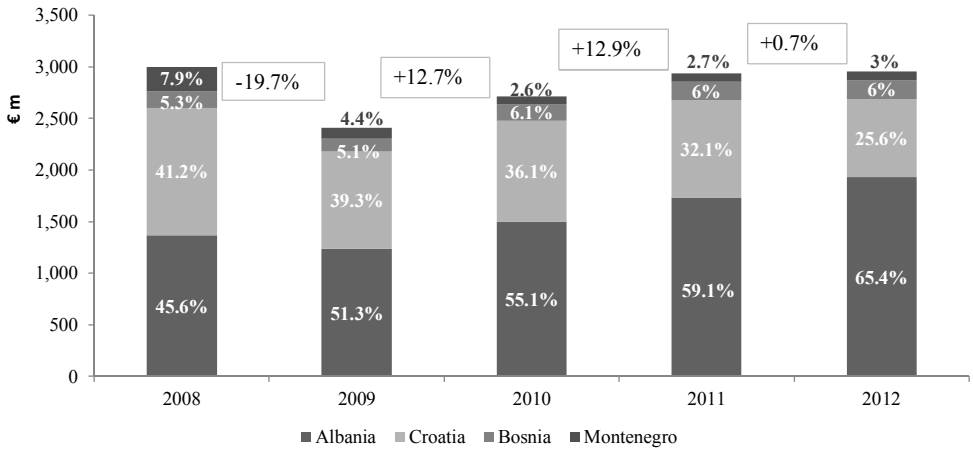


GRAPH 19 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

When considering non-oil products only, the situation does not change: Turkey is Italy's largest trading partner, with an incidence of 74.5%. Israel comes next with 17.9%, followed by Lebanon (5.3%) and lastly by Syria (2.3%).

The Adriatic Med countries are smaller trading partners: their maritime trade with Italy is estimated at approximately 3 billion euros. In this context, the role of Albania and Croatia prevails, since the two countries together account for 91% of the total value; Bosnia comes next, with 6%, followed by Montenegro with 3%.

Italy's maritime trade with the Adriatic Med countries – Years 2008-2012



GRAPH 20 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

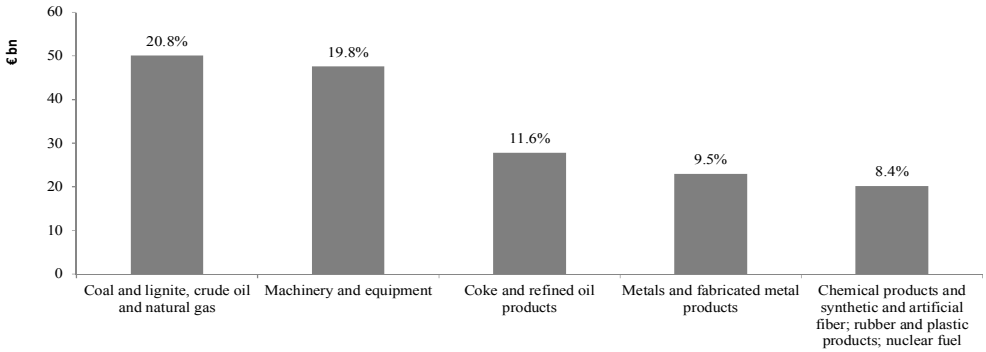
Even considering non-oil product groups alone, the major partners are Albania and Croatia, with an incidence of 70% and 19.5% respectively.

4. Analysis by sectors

With regards to the quality of the goods transported by sea to and from Italy, it can be observed that the top 5 product groups account for over 70% of the total value and include coal, oil and natural gas; machinery and equipment; coke and refined oil products; metals and fabricated metal products; and, finally, chemical products and synthetic fibers.

Moreover, it can be seen that the incidence of oil products is relevant, since they account for over 30% of the total.

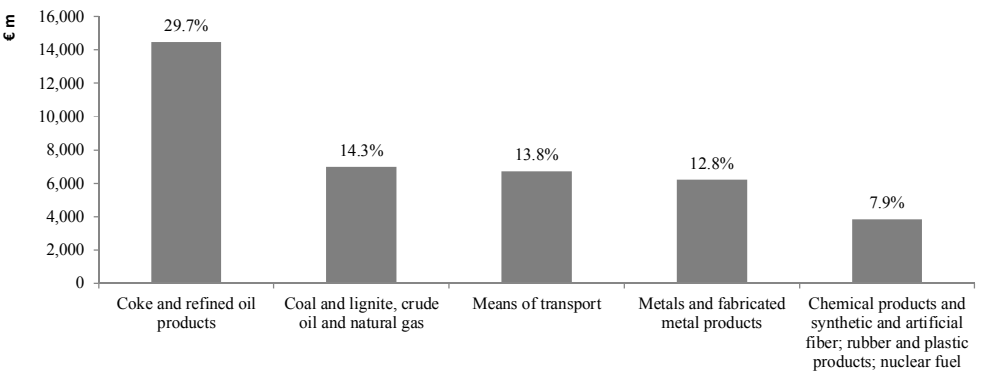
Italy's maritime trade with the rest of the world:
the main product groups – Year 2012



GRAPH 21 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

There are different situations for each single area of reference. In particular, for Europe (considered as a whole and as EU-27) the group of refined oil products and coke has the greatest weight on the total trade, followed by that of coal and lignite, crude oil and natural gas, and by the means of transport.

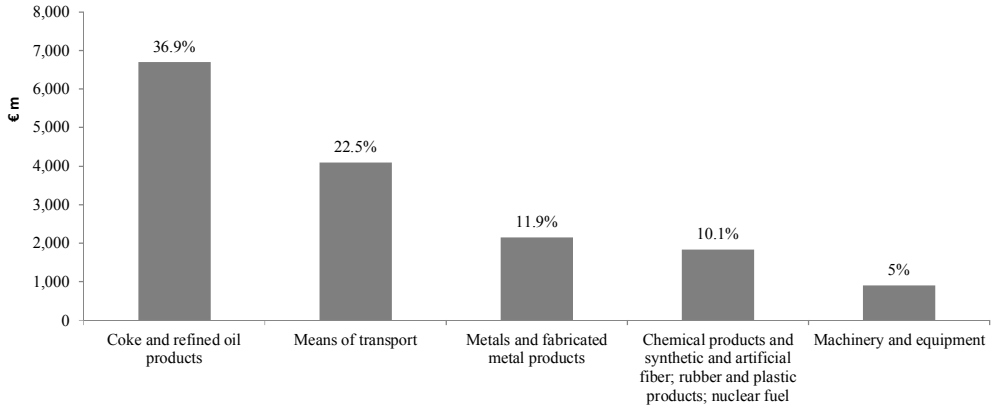
Italy's maritime trade with Europe:
the main product groups – Year 2012



GRAPH 22 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Considering the EU-27 countries in detail, it can be observed that refined oil products account for more than one third of the total trade, followed by the means of transport (22.5%) and by metals (11.9%).

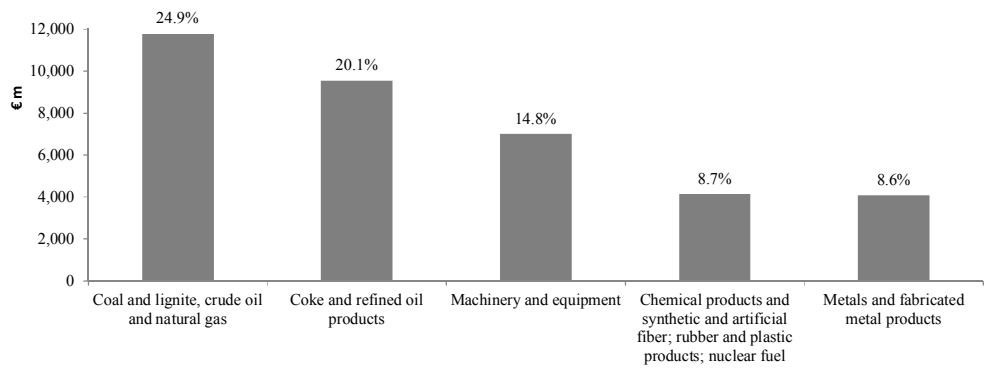
Italy's maritime trade with the EU-27 countries: the main product groups – Year 2012



GRAPH 23 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

A different situation occurs with the Med Area countries: 45% of the total value is referred to oil products (both refined and non-refined). Machinery and equipment come next, accounting for about 15% of the total, followed by chemical products and fibers (8.7%) and metals and fabricated metal products (8.6%).

Italy's maritime trade with the Med Area countries: the main product groups – Year 2012



GRAPH 24 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

This situation only partially reflects that of the single sub-areas previously identified.

In particular, as regards the trade with the Southern Med countries, the scenario is similar to the general situation, with a significant incidence of oil products (both refined and non-refined), which account for over 58% of the total and are estimated at 17 billion euros.

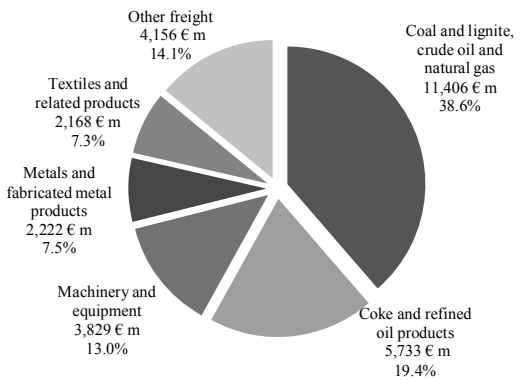
The main group of products involved in the trade is that of coal, crude oil and natural gas, with an incidence of 38.6% on the total, corresponding to a value of over 11.4 billion euros.

Over 80% of this amount is related to Italy's trade relations with Libya, followed by those with Egypt (9.1%) and Algeria (7%). Considering refined oil products – the second group in terms of weight on the total trade, with an incidence of almost 20% – it can be observed that there is a more balanced distribution of traffics between Italy and the countries of the area: Libya is the largest partner (39.1%), followed by Algeria (26.6%), Egypt (21.3%), Tunisia (11.2%) and Morocco (1.8%).

The trade of machinery and equipment, mostly regarding traffics with Tunisia (27.5%), Algeria (26.9%) and Egypt (23.1%), is relevant when considering non-oil products.

Metals and fabricated metal products come next and account for more than 40% of the relations between Italy and Algeria, followed by textiles and clothing.

Italy's maritime trade with the Southern Med countries: the main product groups – Year 2012



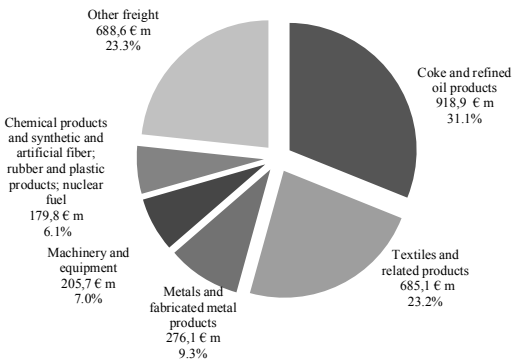
GRAPH 25 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

On the contrary, analysing Italy's trade with the Adriatic Med countries, it can be observed a different qualitative composition.

In particular, while generally remaining the first product group involved, the incidence of oil products decreases as they only account for 36.4% of the total trade, amounting to a value of about 1 billion euros. This percentage is mostly due to the trade of refined products with Albania and Croatia. With reference to crude oil and natural gas, however, it can be pointed out that this group only applies to the relations between Italy and Albania, with a weight of 5.3% on the total.

The second group of products involved in the trade to and from the area analysed is that of textiles and clothing, accounting for 23.2% of the total, followed by metals and fabricated metal products (9.3%), machinery and equipment (7%), and chemical products, rubber and plastic products and nuclear fuel (6.1%). For all the groups mentioned, the main trading partner is Albania.

Italy's maritime trade with the Adriatic Med countries: the main product groups – Year 2012



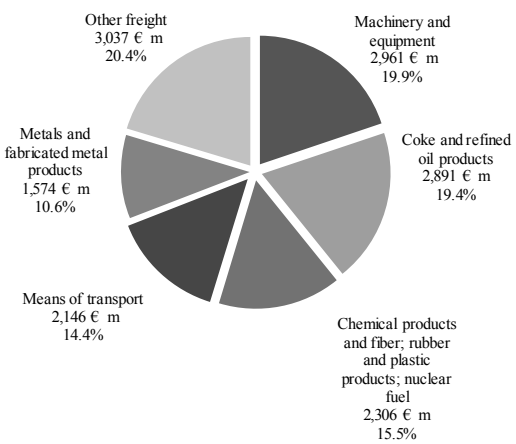
GRAPH 26 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

Finally, considering the Eastern Med countries, it can be pointed out that the main product group involved in the trade with Italy is that of machinery and equipment, with a weight of 19.9% on the total, amounting to nearly 3 billion euros. The main trading partner is Turkey, that accounts for 72.5% of the total, compared with Israel's 17.8%, Lebanon's 6.3%, and Syria's 3.4%.

Refined oil products place second (with a weight of 19.4%) mostly concerning the trade with Turkey (75.7% of the total) and Lebanon (17.5%).

Turkey places first among the other countries of the area also with reference to the other major product groups and, in some cases, it absorbs almost all of the trade; for example, it is the case of the means of transport for which the country results to be an Italian partner in 93.2% of the cases.

Italy's maritime trade with the Eastern Med countries: the main product groups – Year 2012



GRAPH 27 - SOURCE: SRM elaborations on ISTAT Coeweb data, 2013

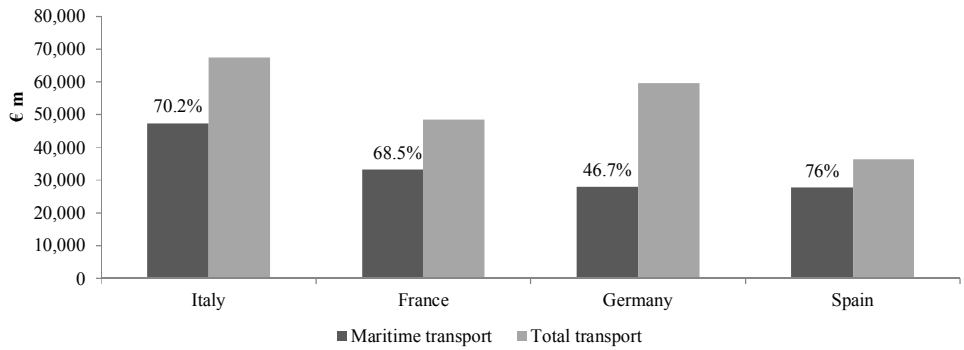
5. The maritime trade with the Med Area: analysis of the main European partners

To better contextualize the scenario of the Italian maritime trade with the Med Area countries, a comparative analysis of the main trading partners for the area involved was carried out. In particular, attention was given to France, Germany and Spain, that in 2012 recorded a total maritime traffic of over 88.8 billion euros.

In absolute terms, Italy is the first reference area for the traffics considered, accounting for over 47 billion euros, followed by France (with 33.2 billions), Germany (27.9 billions) and Spain (27.7 billions).

On the other hand, the situation changes when considering the incidence of sea transport as against all other modes: Spain is first, with 76%, followed by Italy with 70.2%.

The trade with the Med Area countries: the weight of maritime transport on the total trade for the main European partners – Year 2012

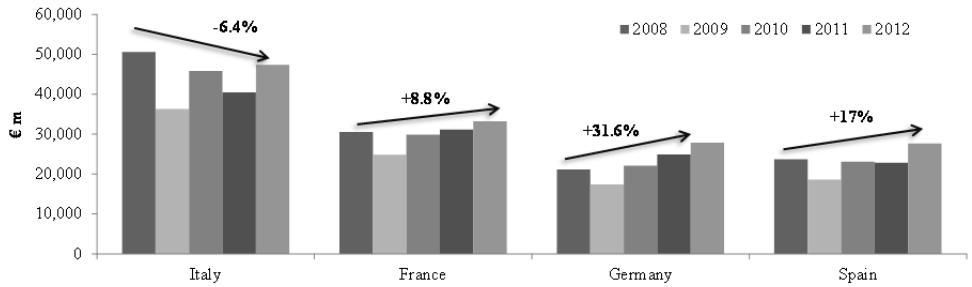


GRAPH 28 - SOURCE: SRM elaborations on ISTAT Coeweb and Eurostat data, 2013

Additional considerations derive from the analysis of historical data.

Looking at the 2008-2012 period, a different trend of traffics of the 4 countries can be observed: they all suffered from a decline in 2009 but, while France and Germany recorded a steady recovery, for Italy and Spain the trend was fluctuating: after the 2010 rise, another decline was recorded in 2011, before the 2012 recovery. In the 5-year period, Germany results to be the country with the best performance, recording a growth of 31.6%, followed by Spain with +17% and France with +8.8%; by contrast, Italy shows results in the opposite direction, with a maritime traffic declining with respect to the past (-6.4%).

The maritime trade with the Med Area countries:
the trend of the main European partners – Years 2008-2012

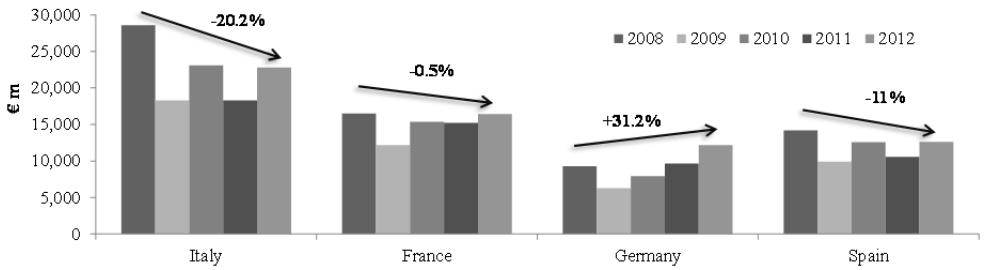


GRAPH 29 - SOURCE: SRM elaborations on ISTAT Coeweb and Eurostat data, 2013

When considering imports only, all the countries considered except Germany recorded a decrease compared to 2008: the most significant is the Italian one, which reaches -20.2%, followed by Spain (-11%) and France (-0.5%).

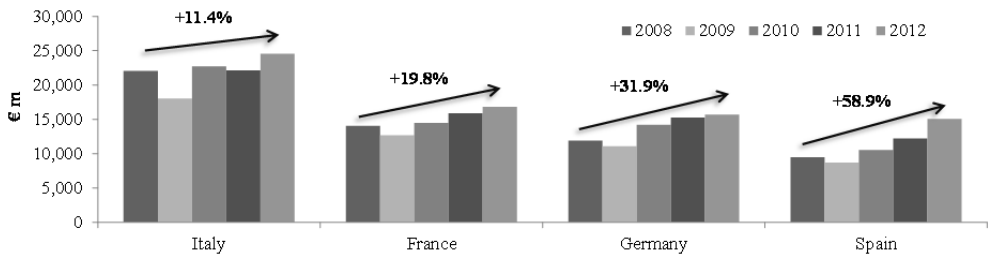
An opposite trend, however, was recorded by exports, that increased in all the countries concerned, with values ranging from +11.4 in Italy and +58.9% in Spain.

Maritime imports from the Med Area countries:
the trend of the main European partners – Years 2008-2012



GRAPH 30 - SOURCE: SRM elaborations on ISTAT Coeweb and Eurostat data, 2013

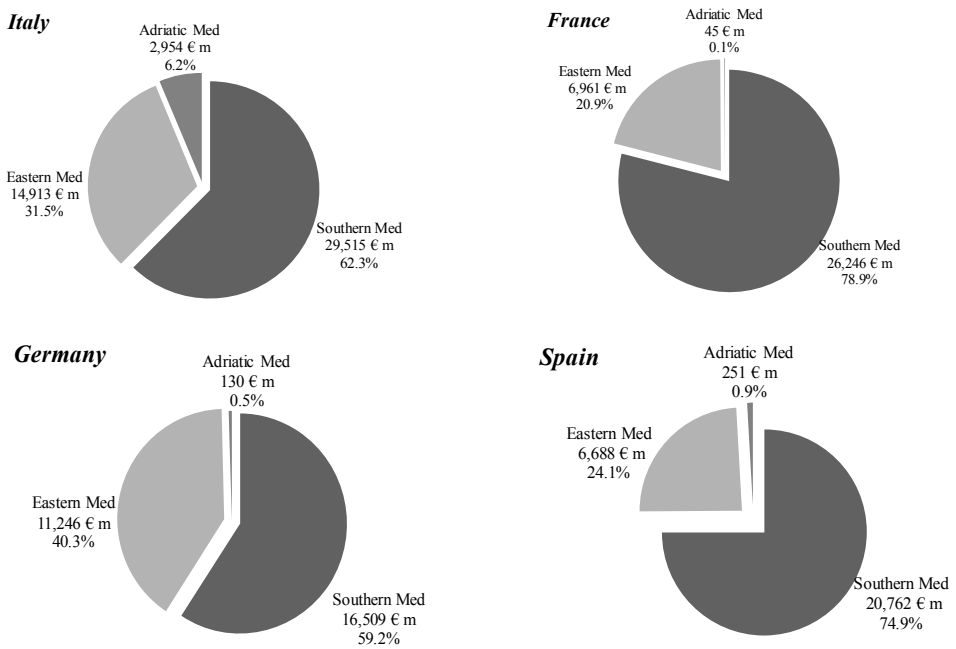
Maritime exports to the Med Area countries:
the trend of the main European partners – Years 2008-2012



GRAPH 31 - SOURCE: SRM elaborations on ISTAT Coeweb and Eurostat data, 2013

Analysing each division of the Med Area in detail, it can be seen that, as in the case of Italy, the main reference area in terms of sea traffics for France and Spain is the Southern Med, that accounts for 78.9% of the total in the first case and for 74.9% in the second one. On the other hand, a more balanced situation is recorded for Germany, whose incoming and outgoing traffics are mostly divided between the Southern and Eastern Med areas. Finally, the Adriatic Med area is less interesting since, with the exception of Italy, it is involved in the maritime trade of the countries concerned with percentages lower than 1%.

The maritime trade with the Med Area countries:
the traffic of the main European partners by area - Year 2012



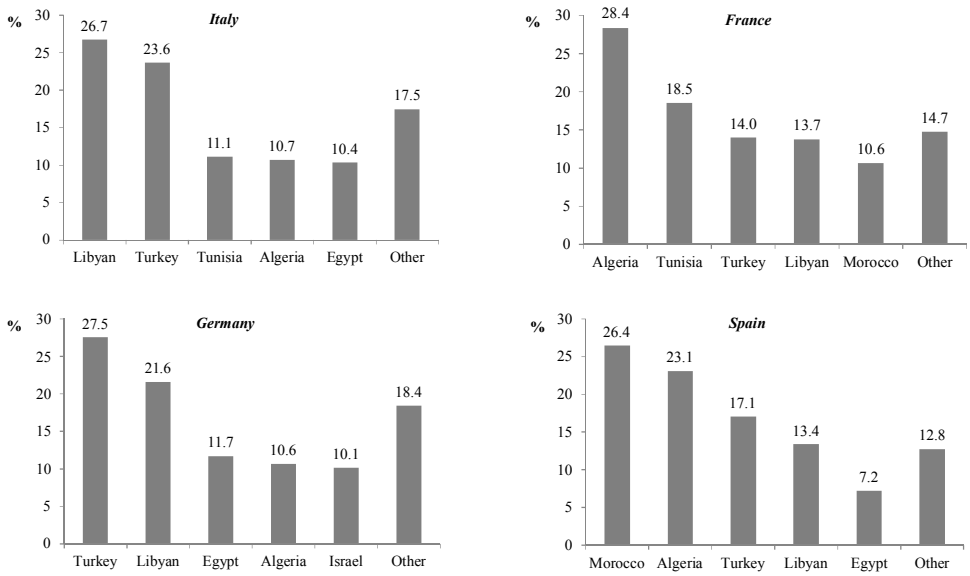
GRAPH 32- SOURCE: SRM elaborations on ISTAT Coeweb and Eurostat data, 2013

Finally, as regards the single countries involved in the trade, significantly different situations can be observed for the four European countries analysed.

Turkey and Libya are Germany's and Italy's main partners, with an estimated total traffic of over 13.7 billion euros, about half of the total, followed by Egypt with 11.7% and Algeria with 10.6%.

On the other hand, for France and Spain, these countries are smaller partners. In the first case, in fact, the first place belongs to Algeria with 28.4% (9.4 billion euros), followed by Tunisia and Turkey, with 18.5% and 14% respectively. For Spain, the first place belongs to Morocco with 26.4% of the total trade (7.3 billion euros), followed by Algeria and Turkey (23.1% and 17.1%).

The maritime trade of the European countries:
the top 5 partners of the Med Area - Year 2012



GRAPH 33 - SOURCE: SRM elaborations on ISTAT Coeweb and Eurostat data, 2013

PART III

SHIPPING AND PORTS:
TERRITORIAL CASE STUDIES

CHAPTER V
CASE STUDIES: MARITIME CLUSTERS OF EXCELLENCE

Case Study No. 1
THE SHIPPING CLUSTER OF THE CAMPANIA REGION*

1. Introduction

The world reorganization of sea traffic has reflected the global development of shipping which, from the geo-economic viewpoint, has witnessed the complete redesigning of world flows and shipping flow intensity of the world's main shipping routes. These sea routes, being corridors but a few kilometers wide link together ports interfacing with overland transport whose very shape has changed, together with the world economic development, and also as a result of technological innovations.

Containerization, has profoundly changed the shape of the lines of freight transport with regular services, which up to a few decades did not exist. And this has been achieved by substantially reducing the unit cost of transport thanks to enormous investments in capacity by the large specialized operators whereby it has been possible to introduce principles inspired by economies of scale and of scope, within the functions of transport production. The *hub and spoke* network model is a typical example of structure designed for reducing the average cost through economies of densities (and economies of scope or variety) in the event of additional new relationships. Global-level expansion of the maritime networks must therefore be analyzed with reference to the economies of scale deriving from the increase in flows on given relationships, and from the spatial economies of scope deriving from new additional spans or links among the nodes.

The international economic-financial crisis has had heavy repercussions on the sea transport sector, bringing about a marked reduction in traffic volumes in all the major business segments, albeit with varying intensity, with a sharp drop in renting rates in some sectors falling below break-even levels, a considerable problem of oversupply, caused by the policies of strengthening the fleet pursued during the expanding cycle phase and a significant revision of the investment plans of the ship owners, in many cases with the cancellation of orders for new ships. Together with the rationalization of the services there has been a considerable reduction in the orders of the ship-building portfolio, together with the cancellation of confirmed orders, which has led to growing financial difficulties also for the ship-building industry sector (Siviero, 2011).

The sea transport of goods sector after the 2008-2009 crisis (which brought about a 12% reduction in world trade), registered in the 2010-2011 two-year period, higher traffic levels compared with the pre-crisis period. The crisis occurred at a markedly

* This chapter is attributable to Ennio Forte, paragraph 1, Lucio Siviero, paragraphs 2, 3 and 4.

expansive moment of the market in which huge investments were being made for developing and modernizing the fleet (which, through the very nature of the ship-building industry, require an average time of between 1 and 3 years). Consequently, *oversupply* represents an element common to all the different typologies of shipping since the growth in volumes, albeit considerable, has not yet been such as to produce positive effects on the freight progress. In this far from encouraging scenario the shipbuilders have also had to face a considerable increase in fuel costs, which only in 2011 increased by more than 48%.

In this general picture of inadequacy and uncertainty, following weak signs of recovery occurring during the 2010-2011 two year period, the balance of the supply of maritime services by world and Italian shipping appears as being transformed into a search for greater efficiency in production and maintenance of the market quotations achieved in the previous years. A specific focus on the ship-owners of the Campania Region tends to show the main economic aspects of these transformations under way.

2. The Italian shipping industry and international comparisons

With an annual turnover of 11 billion euro, Italian shipping represents one of the sectors of excellence of the national economic system, thanks to a fleet that not only continues to grow, but also to modernize, and today for 68% is made up of units which are less than 10 years old and for 43% less than 5 years old (Coppola, Terzulli, 2010). The sections of greater specialization are *liquid bulk* and *dry bulk*. According to the data processing of the Italian Shipowners Confederation (Confitarma) in the IHS Fairplay statistics, in the 2010 classification of the main world fleets, Italy occupies eighth position among the National fleets, fourteenth for ship-owner control (fourth among the EU fleets) and first with a 13% incidence on the total of gross tonnage (Gt) for the control of ferryboats (Ro-Ro cargo and Ro-Ro passengers). Up to the year 2010 the total merchant fleet of Italian property comprised 1,664 ships for a total of 17,329,089 Tsl. Regarding 2009, a 6% increase is recorded in the number of ships and 10% in tonnage (Confitarma, 2011).

About 92% of the Italian owned ships, equal to about 15.9 million Gt, are enrolled in the International Italian Register, while 7.9%, about 1.4 million Gt, are enrolled in the Ordinary Register and a small part of Italian owned tonnage flies under foreign flags (*bareboat charter registration*). To this is added the growing fleet of foreign vessels controlled by Italian ship-owning interests, for the most part the outcome of an expansion process that has led to the acquisition of important foreign shipping companies.

With a 4.3% increase with respect to 2009, at the end of 2010 equal to 36,995 work places are estimated aboard the Italian fleet 22,635 of which are covered by Italian or European sailors, and 14,360 non-European personnel. Some 51,740 seamen rotate on these jobs. The ratio between land personnel and work places on board is estimated at one to five, for which the jobs aboard are assessed at the end of 2010 at about 7,400 units (Confitarma, 2011).

In the freight maritime transport sector the main market segmentation is carried out on the basis of the technical typology of the ships utilized. The following segments of sea transport activity are identified:

- *dry bulk and liquid bulk*: carried out with tankers for bulk cargo, solid or liquid respectively, with overhead crane or pumps;
- *general cargo and containers*: performed with the ship's cargo arranged on deck loaded from above with wharf crane a/o its own crane (container or bulk goods);
- *liner*: performer with ro-ro ships (*Roll on-Roll off*) with "rolling" cargo.

Liquid bulk describes the tankers (*tanker*) specialized in transporting liquid cargoes. Within this segment the following types of ships are distinguished: *oil tankers* specialized in transporting crude oil; *product tankers*, for transporting refined oil products (refined petrol, diesel, refined oils, etc.); *chemical tankers*, for transporting chemical products. The *tanker* market represents about a third of the whole world trade by sea in volume.

The term *dry bulk* refers to the tankers specialized in transporting non-liquid cargoes which can be loaded overhead and by crane. *Dry bulk* is the largest segment for tonnages transported (between 65 and 70%) of the entire *merchant shipping* sector. The *dry bulk* market consists mainly of cargoes comprising iron minerals, coal, grain, bauxite/aluminum oxide and phosphate. These goods are the main raw materials for all the industrial productions and are therefore a key sector for the international situation, so that the indicator of the progress of the *baltic dry index* freight is considered as a general trend indicator of the world economy.

General cargo, defined also as *semi-bulk*, comprises all the goods whose cargo requires special housing. These goods are generally packed or at any rate contained. Cargo handling is performed as a rule through cranes maneuvered with the support of stevedore personnel with a greater burden compared with bulk-type transport. The ships destined for general cargo have ceded their place throughout the course of the years, to container ships, in fact the percentage of containerized traffic grew from 5.1 per cent in 1980 to 24.3 per cent in 2009 (Unctad, 2011) thanks to a favourable combination of factors brought about by the increased marine traffic of semi-finished goods and finished products with a long distance between industrialized countries and emergent economic areas. This caused a drive towards building ships with ever increasing capacity devoted to container transport, towards improvement in *handling* equipment in the ports and an increase in goods in general, including raw materials, transportable in containers.

With the term *Liner* or also *Ro-Ro* (*Roll On/Roll Off*), are identified all the ships with embargo of wheeled vehicles by means of loading ramp. Within the segment are identified certain subcategories, on the basis of the vehicles transported: *car carriers*

(new transport vehicles), *multipurpose*[1], *ro-pax* (combined transport of goods and passengers) and steamships.

The consistency at 2010 of the world fleet was equal to about 54,000 ships the distribution of which is reported in Chart 1, according to main typology.

Composition of the total world fleet in 2010 (n. ships)

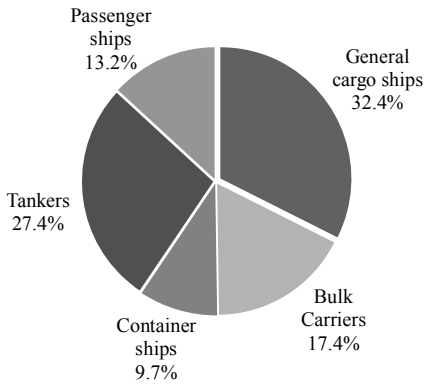


CHART 1 - SOURCE: Lloyd's Register Fairplay, 2010

In addition to the number of operative ships tonnage supply is linked to the demolition rate of the old ships and the amount of ships in the *order book*[2] during the financial year. At the close of the year 2010 the world fleet was equal to about 1 billion gross tons (Tsl/Gt – *Gross tonnage*) and about 1.4 billion capacity tons (Dwt - *Dead weight tonnage*).

High capital intensity which characterizes *shipping* translates into a physiologically high level of degree of debt, the standard ratio between one's personal means and third-party capital does not generally exceed 25%. Apart from the high purchase cost of the ships, the massive use of the financial lever is favoured by the conspicuous "security "[3] value of the good-cum-ship. The ship, in fact, is an *asset* easily and quickly convertible into liquid since an extensive active market exists for used ships.

In 2011 cargo capacity corresponding to about 79 million Dwt, around 1.170 units, was ordered with respect to the 117 million of 2010 and the 33 million in 2009. The average of the last three years was therefore equal to some 80 million ordered compared with the approximate 200 million Dwt per year for the record years of the 2006-2008 triennium.

[1] *Multipurpose* ships combine the characteristics of the Ro-Ro ship and the bulk ships, and are able to house trailers, semitrailers, motor vehicles, containers, material in *pallets* and bulk cargo in general.

[2] Volume of orders for new constructions at the disposal of the ship-building industry.

[3] The "commercial value" refers to the price at which it is presumed the unit in normal conditions can be sold. The cautional value is in contrast made up of the commercial value multiplied by a security value coefficient.

Almost 160 bn Dwt of new ships was consigned in 2011, compared with the 149 mln of 2010, with the 114 mln of 2009 and with the 92 mln of 2008. The annual growth rate of the consignments, which increased to over 25% on the annual basis in 2009 and in 2010 dropped to 7% in 2011, a level nearer the one observed during the 2004-2008 period. The consignments in 2012 should be close to 195 mln Dwt excluding cancellations, delays and postponements, which should significantly reduce the figure to about 160 million.

The Italian register is the eleventh in the world for gross tonnage and fourth among the fleets of the European Union after Greece, Malta and Cyprus, with 1,649 units recorded and about 17.0 million *gross tonnage*. The Italian *order book* has passed from 2.8 million tons, for a value of 10.6 bn euro of 2007, less than 1.1 million tons (-61%) for 4.5 bn euro (-57%) at the end of 2010 (Confitarma, 2011).

Although some restraints of an administrative and bureaucratic nature still remain to be resolved (in particular those relating to the job market and to the fiscal charges), after years spent living in the shadow of the large European and Asiatic shipping groups, Italian *shipping* over the last few years has shown promising signs of recovery through strategies more strongly marked towards internationalization than in the past.

The Mediterranean basin and more especially Italy from the viewpoint of the development of the maritime activities, are experiencing a very dynamic period thanks to the maritime activities and more especially to container and Ro-Ro traffic, the regions of Southern Europe are in a central position towards the main traffic relationships between Europe and the rest of the world and also in the transversal and longitudinal relationships within the European continent itself.

The measuring of technical efficiency and market efficiency of the main business concerns responsible for the maritime logistics of goods and raw materials is of vital importance in a highly competitive setting which is reflected in the choices of production and distribution of world industry. World competition thus requires an improvement in terms of efficiency in all the market segments of the maritime sector including: dry cargo, liquid cargo and *general cargo* (container and Ro-Ro). Also in times of low freight rates, technical and economic-financial efficiency is fundamental for the very survival of *shipping* businesses. It is very important, moreover, for shippers and investors to be able to carry out comparisons of efficiency relating to the different market segments of which the entire industry is made up (Panayides *et al.,* 2011).

The Italian shipping sector (maritime transport of goods) is represented by about 40 *players*, with a business turnover of more than 11 billion euro and an added value of some 4 billion euro in 2009, a particularly negative year on account of the international recession and with about 42,500 direct employees (Censis, 2011). The greatest specialization compartments are *liquid bulk* and *dry bulk.* At the international level an important role is played moreover by the Grimaldi Group of Naples in the *Liner/Ro-Ro* segment and Costa Crociere in the *Cruise* sector.

Considering the world cargo fleet of both Italian shipping and foreign shipping controlled by Italian shippers, Italy possesses a fleet of considerable world relevance. The country with the greatest controlled cargo fleet (more than 1,000 Gt) is Greece with about 200 million Dwt between Italian national ships and controlled foreign ships,

second is Japan with about 195 mln Dwt, Italy is the fourteenth with about 23 mln Dwt per fleet controlled and eighth for its national fleet (Table 1).

World Fleet - Controlled cargo tonnage by the leading countries (January 2011)

Ships of 1,000 gt and over		National flag		Foreign flag		Total controlled fleet		Foreign flag %
	COUNTRY	**N.**	**000 dwt**	**N.**	**000 dwt**	**N.**	**000 dwt**	
1	Greece	748	64,423	2,417	137,633	3,165	202,056	68.1
2	Japan	632	18,262	3,058	176,611	3,690	194,873	90.6
3	Germany	406	17,309	3,351	97,403	3,757	114,712	84.9
4	China	1,708	45,204	1,519	60,937	3,227	106,141	57.4
5	South Korea	712	18,766	454	32,610	1,166	51,376	63.5
6	Norway	493	13,825	947	27,022	1,440	40,847	66.2
7	USA	219	5,842	743	33,324	962	39,166	85.1
8	Hong Kong	395	24,010	279	13,302	674	37,312	35.7
9	Denmark	315	13,408		20,640	864	34,048	60.6
10	Taiwan	87	4,032	554	28,938	641	32,970	87.8
11	Singapore	511	18,377	311	12,377	822	30,754	40.2
12	Bermuda	13	1,557	240	28,467	253	30,024	94.8
13	United Kingdom	271	8,682	346	19,283	617	27,965	69.0
14	**ITALY**	**556**	**16,478**	**206**	**6,390**	**762**	**22,868**	**27.9**
15	Turkey	547	7,797	672	11,863	1.219	19,660	60.3
16	Russia	877	4,801	414	13,568	1.291	18,369	73.9
17	India	290	13,943	56	3,358	346	17,301	19.4
18	Canada	109	825	214	16,042	323	16,867	95.1
19	Iran	46	705	76	11,869	122	12,574	94.4
20	South Arabia	54	1,722	53	10,579	107	12,301	86.0
21	Belgium	68	5,930	105	6,276	173	12,206	51.4
22	Malaysia	257	8,297	72	3,720	329	12,017	31.0
23	Indonesia	801	7,868	80	1,564	881	9,432	16.6
24	Cyprus	133	4,440	144	4,629	277	9,069	51.0
25	Arab Emirates	40	571	268	8,355	308	8,926	93.6
26	Brazil	93	2,133	32	6,771	125	8,904	76.0
27	France	112	2,981	135	5,410	247	8,391	64.5
28	Netherlands	496	4,598	185	2,754	681	7,352	37.5
29	Vietnam	439	4,554	85	2,128	524	6,682	31.8
30	Sweden	102	1,136	189	5,021	291	6,157	81.5
	Others	1,950	28,038	1,836	44,676	3,786	72,714	61.4
Control unknown						5,363	116,621	
TOTAL		**13,480**	**370,514**	**19,590**	**853,520**	**38,433**	**1,340,655**	**63.7**

TABLE 1 - SOURCE: Confitarma on ISL data on IHS Fairplay basis

The operative merchant fleet controlled by Italian shipowners, hence excluding passenger ships, cruisers, for public regional transport links and other registered units not used for cargo transport (tugs, platforms, etc.), united according to shipping companies, in 2012 is made up 628 units for a total tonnage capacity of 26.4 million

Dwt and a total tonnage of about 17 million Gt. 68% of Italian shipping is less than 10 years old, and 43% is less than 5 years old (TTM, 2012).

The division of the fleet controlled by Italian shippers according to cargo typology, reported in Charts 2 and 3, sees the predominance of the liquid bulk sector with the use of *tanker* ships with different specializations (*Oil, Product, Chemical, LNG, LPG*). In this sector operate about 50% of the Italian controlled fleet both in Dwt as well as in number of ships. The *dry bulk* sector follows with 34% carrying capacity and 17% in number of ships as a demonstration of the average large capacity of Italian shipping for dry cargoes. The opposite is verifiable for the *Ro-Ro* sector where there is 17% of the Dwt but 32% of the ships in that this sector is characterized by a lower average cargo capacity.

The direct Italian presence in the general cargo and container sector is rather negligible, this is traditionally an oligopolistic sector where the shipper's supply is heavily concentrated among a few large multinational companies, prevalently Asiatic and North-European ones.

Composition of the Italian controlled goods fleet in 2012

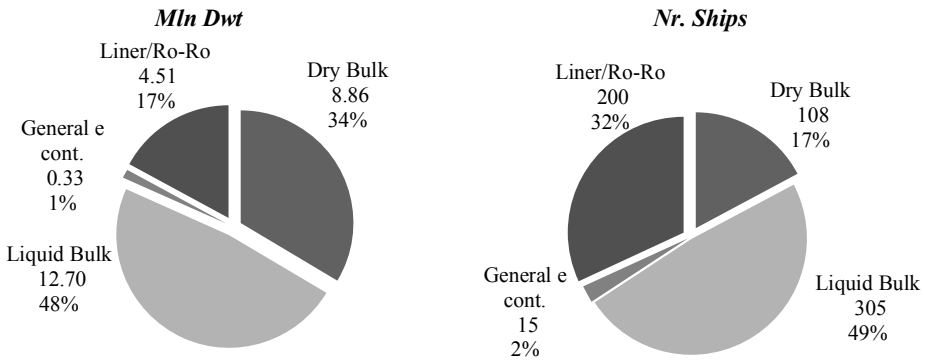


CHART 2 - SOURCE: own elaboration on TTM data

A datum of special importance at a world level is the consistency of the Italian fleet of ships for transporting rolling goods cargoes (Ro-Ro cargo) and mixed merchandise and passengers (Ro-Ro pax) both with regard to the number of ships as well as for the total capacity tonnage or Dwt. The Ro-Ro fleet under Italian control is the world's leader, representing 13% of the total world cargo capacity, having also surpassed Japan, as well as Scandinavian countries and Greece. This primacy is confirmed by the presence in Italy of shipping groups of the leading sector at European and world level such as Grimaldi Group, Grandi Navi Veloci, Moby, and Tirrenia, a recently-privatized public shipping company (Chart 3).

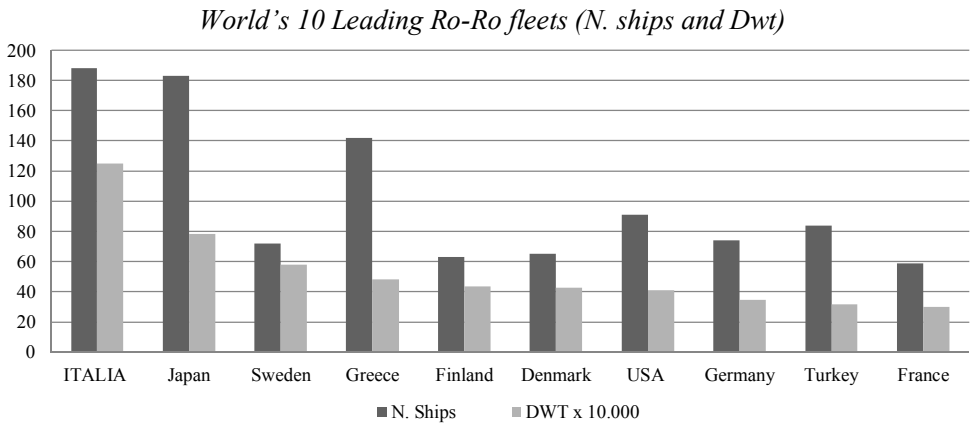


CHART 3 - Source: Confitarma on ISL data on the basis of IHS Fairplay

3. The Campania Region shipping industry cluster

The Italian regions with the greatest presence of shipping companies are Campania (39%), Liguria (17%) and Lazio (14%). The main regions in terms of income from the *players* are Campania (43%), Liguria (26%) and Friuli (14%). In Campania 115 business concerns are present out of 471 totally present (including the smaller-sized companies of all the market segments) in Italy (Coppola, Terzulli, 2010).

The Campania region takes on the role of regional leader for consistency of the operative merchant fleet, thus excluding passenger ships, cruisers, for public regional transport links and other registered units not assigned to goods transport. They belong to business concerns with headquarters in Campania in 2012 comprising some 250 units, about 40% of the national total, for a total capacity equal to 11.2 million Dwt, about 43% of the national total and total tonnage equal to about 7.3 million Gt. The Campania companies moreover occupy important positions in specialized services, such as tugging operations in ports, maritime works, laying underwater cables and the installation of oil rigs.

The shipping industry in Campania is the leading element of the entire maritime cluster which also includes port logistics, auxiliary services and shipyards for ship building or repairs. In the region there are either highly internationalized important entrepreneurial groups directly present or originating therein which have been subsequently transferred for operational needs (some having their headquarters abroad), which have reached *leadership* positions at a European and world level in all market segments.

In the Ateco 2007 classification by Istat (Italian Statistical Institute) sector with 50.0 code: "Maritime and Waterways Transport", 7,842 were present in Campania in 2009 employed with a quota equal to 28.2% of the national total of the sector. The Italian *shipping capital* considered for several decades to be Genoa, today is in Campania located in the Bay of Naples, with some of the more significant concentrations representing the national shipping industry (Censis, 2011).

The fleet controlled by shippers with headquarters in Campania by cargo typology is reported in Table 3.

Goods Fleet in Campania by cargo typology (2012)

Cargo Typology	Dry Bulk	Liquid Bulk	Liner Ro-Ro	Total Campania	Quota on Italy total (%)
Dwt (mln)	6.28	2.62	2.31	11,22	42.5
Dwt (%)	55.9	23.4	20.6	100	
N. ships	64	72	114	250	39.8
N. ships (%)	25.6	28.8	45.6	100	

Table 3 - Source: own elaboration on TTM data

The sectors in which the Campania shippers are more especially present are the dry bulk sector for total carrying capacity and Ro-Ro with regard to the number of ships possessed. In this latter sector is registered the presence of the Grimaldi group, the world's leader, with over 2 Bn euro turnover and about 6,000 employees in 2010. In addition to being operative in *deep sea* links among the Mediterranean, Northern Europe, West and North Africa, the Grimaldi group companies have also made a notable contribution in Italy and in Europe towards the success of the *Motorways of the Sea* (MoS) positively stimulated by the European Union with a specific project within the general constitutive program of the recently-reformed TEN-T network (COM/2011/144).

The industrial logistic supply chains advanced more under the organizational, economic and technological profile, also in view of the general tendency towards the reduction in costs in a period of great market uncertainty, increasingly see the significant involvement of *carrier haulage*, or rather overland transport carried out by, or on behalf of, maritime transport and logistics-integrated sea-land companies. The projection of the logistics supply chains in support of the industrial chain increasingly comes about by these latter operators by considering choice inter-modality strategies. A recent significant case is represented by the rail-sea transport within the supply-chain of the new Fiat 500L produced in Serbia and managed by the Grimaldi group. The vehicles will be transported by rail as far as the port of Bar in Montenegro completing a journey of some 450 kilometers. Grimaldi will activate a regular two-week line dedicated to the transport of rolling cargos between Bar, Salerno, Catania and some ports in the USA where the vehicles will be distributed. In the port of Bar the importations of motor car parts from Italy will also be carried out destined for assembly at the Fiat factory in Serbia. Furthermore the same company has radically innovated the *Ro-Pax* service by launching ships with equipment and specific services for car-conveyors and tourists, such as the new *cruise ferries* of the Eurostar class, which are perceived by the users as a value added service and which for the shipping company may bring about additional income (bar services, refreshment, wellness, games, etc.).

Charts 4 and 5 report the composition of the fleet controlled by Italian companies and by the companies with headquarters in Campania and the relative percentage quota by cargo ship typology. Their presence is most conspicuous also in the dry and liquid bulk sectors with some big shipping companies enjoying a world-wide reputation

which can be traced back to Campania ship-owning families (D'Amato, Bottiglieri-Rizzo, Ievoli, Cafiero-Mattioli).

Composition of the Italian and Campania controlled goods fleet in 2012 (Dwt)

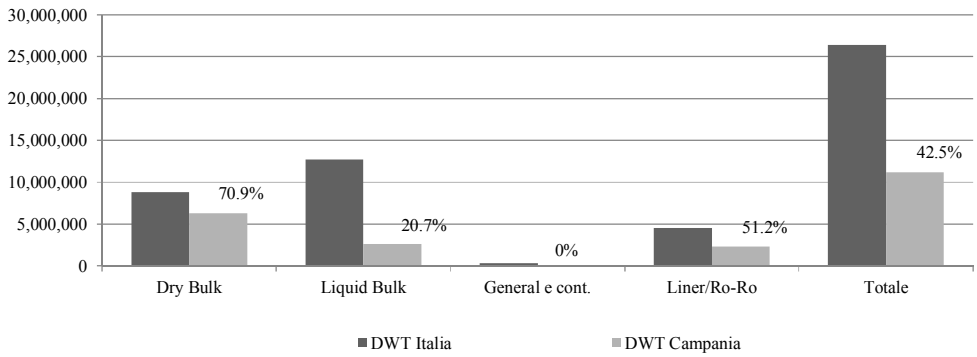


CHART 4 - SOURCE: own elaboration on TTM data

Composition of the Italian and Campania goods fleet controlled in 2012 (Ships)

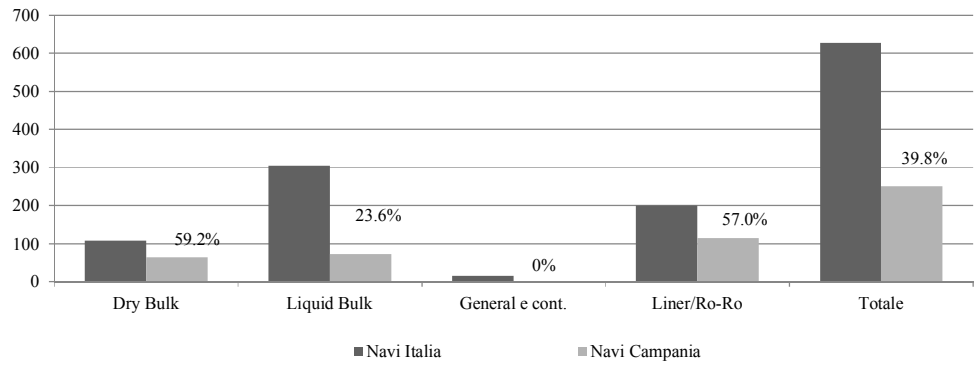


CHART 5 - SOURCE: own elaboration on TTM data

It is to be emphasized moreover that many other Italian and foreign shipping companies are of "Campania origin" in that they are either property of or controlled by Campania entrepreneurs. This is the case of the D'Amico Shipping Group,with a large fleet present in the *bulk* sector, the Moby, which operates with considerable success in the ferryboat sector and which has recently acquired the public company Tirrenia, and the shipping group relating back to the Aponte family. This last group with its legal office in Switzerland controls an enormous fleet of container ships through the MSC company, second in the world with about 1.8 mln TEU capacity (10.8% of world capacity) and 422 ships (Unctad, 2011). In Italy, moreover, the group possesses Marinvest, owner of the Grandi Navi Veloci with its head office in Genoa.

4. Concluding remarks

The Italian fleet, thanks also to the registration of the ships under the Italian National flag made less burdensome from a fiscal viewpoint, excels for quantity and quality in the main shipping market segments, with points of absolute European and world primacy, for example in the sea transport sector of rolling cargoes (Ro-Ro). The need to control flows of demand sufficient to ensure adequate rates of utilizing the ever more relevant transport capacity of the fleet, and at the same time to maintain a certain level of management independence and flexibility, accounts for the growing recourse by the Italian shipping companies to internationalize, through strategic alliances, acquisitions and mergers, as an international instrument of growth. Italian excellence in the sector is confirmed in certain intense regional concentrations of operators traditionally present in the sector and which represent some of the more significant examples of family businesses who have learned how to expand and grow compatibly with the trajectories of economic development, also in phases of marked fluctuations in demand due to the general instability of the international financial markets and to the difficulties of further growth among western countries. The greater concentration of sea transport of goods firms understood in a strict sense of the word is to be encountered in Campania, in the Bay of Naples to be exact, where the presence of over 40% of the Italian fleet and of some 8,000 direct employees is registered.

Case Study No. 2
THE PORT OF GENOA:
A GATEWAY FOR THE NORTH WEST OF ITALY

1. Introduction

The port of Genoa is the main Italian maritime gateway, due to an optimal geographic position in the Mediterranean range. It represents the reference port for the North West of Italy, an area providing a 40 per cent share of the national exports and a correspondent share for the economic value added of Italian manufacture[4].

Genoa ranks at the top among Italian ports, with a market share of over 10 per cent and an average annual traffic of over 50 million tons and of over 1.8 million teu. Genoa is the first Italian and the second Mediterranean origin/destination port for container traffic, absorbing almost one third of the national throughput[5].

More than 150 liner services operate in Genoa, connecting over 550 national and international ports. For container traffic the main routes reflect the commercial trade with the Middle-Far East, the Americas and the Northern Africa. For conventional cargo domestic routes and national traffic are strategic, showing a continuously rising share; Northern and Eastern Africa routes represent the main international connections.

The port, with its correlated economic activities, generates directly and indirectly over 37,000 jobs, and represents the main regional economic sector. Moreover, efficiency in maritime operations plays a key role for the competiveness of Italian manufacturers, especially in the North West of Italy, the natural catchment area of the port[6].

2. Traffics and potential developments

In 2011 total throughput in Genoa reached 51.6 million tons. The traffic was beneath 40 million tons during the nineties (chart 1), experiencing a progressive growth in the subsequent decade, reaching the record level of 59 million tons in 2007; afterward, the economic crisis determined a decrease.

[4] Genoa should represent also a gateway for the Central and Southern Europe markets, due to a five days saving for the Far East-Europe maritime route (Beretta *et al.*, 2009); this saving is actually not exploited for a series of questions better described in section 4.

[5] Including *transhipment*, the port of Genoa is the second port in Italy (with an 18 per cent market share), the sixth in the Mediterranean Europe and the 14th in the whole Europe for container throughput.

[6] According to the analysis of the Centro Italiano di Eccellenza sulla Logistica Integrata – C.I.E.L.I. ("*Dalla Macroregione portuale all'Europa*", 2008), the traffic interesting Genoa is directed for the 94.8 per cent and is originated for the 93.1 per cent in Northern Italy, mainly in the North West of the country and in the region Emilia-Romagna; Milan province absorbs over one fourth of total traffic.

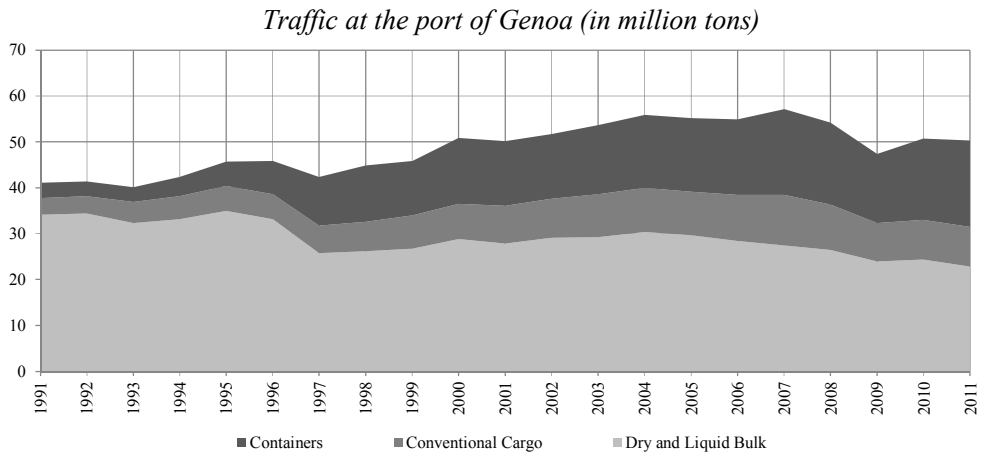


CHART 1 - SOURCE: Port Authority of Genoa

The composition of traffics changed substantially during the last twenty years. Dry and liquid bulks decreased their share from 81 to 45 per cent. On the other hand, conventional cargo and containers soundly increased: at the end of the examined period, containers represent one third of total traffic.

The described evolution is mainly due to three determinants. First, the North West of Italy gradually changed its industrial specificities, with a lower relevance of basic manufactures, that involve for the large majority dry and liquid bulks traffics, and an increase of other economic activities, that are linked to the container traffic. Moreover, containers became more and more widespread for international maritime traffic, following the optimization of time and costs due to standardized transportation: between 1997 and 2010 the maritime traffic grew at an annual average pace of 2.1 per cent for global traffic and of 7.0 per cent for container traffic. Finally, in 1994 the main container terminal of the port of Genoa (VTE terminal in Voltri), began to operate.

The dynamic of the container throughput in Genoa exhibits a correlation with the trend of the intercontinental import/export of manufactures in the North West of Italy[7]. As shown in chart 2, indeed, during the last years both the maritime traffic and the import/export (expressed in million tons) exhibited a similar evolution and their difference remained relatively small.

This confirms that container traffic, being a demand driven and derived sector, reflects the economic conjuncture of manufacturers in the North West and that this macro region represents the physiological catchment area of the port of Genoa.

Considering both dry and liquid bulks, unloads represent a 90 per cent share of traffic; for dry bulks, unloads of coal accounts for over half of total traffic, with a

[7] We excluded the infra-European import/export of manufactures, considering that this traffic is mainly accompanied by road or rail or by RO-RO traffic. Indeed, at the port of Genoa in 2010 a 7.0 per cent share of container interested other Italian ports, while a 6.6 per cent share regarded other European ports.

decreasing evolution; on the contrary, cement, salt and sand exhibited an increasing trend. For liquid bulks, mineral oils represent the large majority, followed by chemical products and wine.

Container traffic at the port of Genoa and intercontinental import/export of manufactures in the North West of Italy (in million tons)

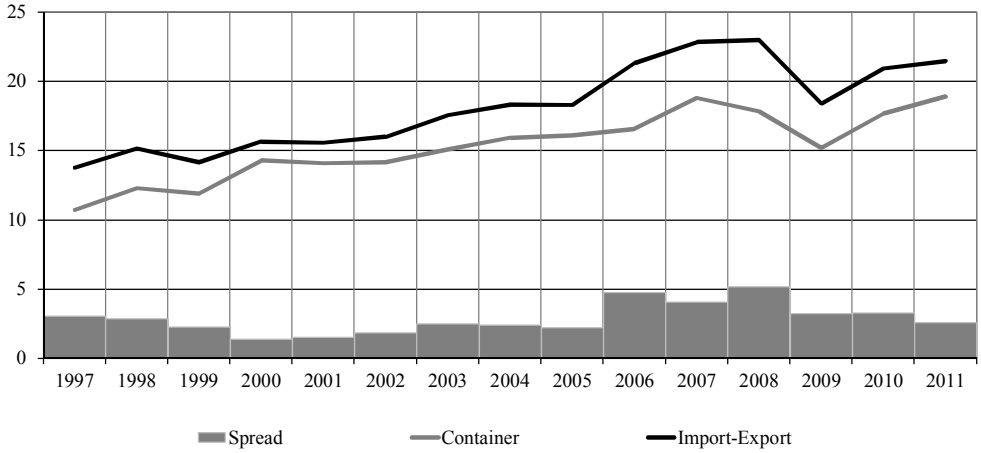


CHART 2 - SOURCE: elaborations on data from Istat and from Port Authority of Genoa

One fourth of dry and liquid bulks has a national origin, while over one third comes from other European countries and mainly from Russia, Georgia and Ukraine. Northern Africa and Middle East also absorb a relevant quote (respectively 9 and 13 per cent).

Loaded dry and liquid bulks absorb only a small share of total loaded cargo; national and European destinations prevail, with shares respectively corresponding to 34 and 32 per cent. Loaded bulks towards Northern Africa and Middle East are experiencing a growing trend, covering at the moment respectively a 11.6 and a 15.9 per cent share.

RO-RO traffic constitutes the 90 per cent of conventional cargo in Genoa, the remaining being represented by fruit and vegetables and other products. Loaded and unloaded goods absorb each a half of total traffic; for conventional cargo national origins and destinations largely prevail; including the other infra-European origins and destinations these destinations cover over three quarter of global traffic. Moreover, traffic with Northern Africa almost doubled during the last ten years. On the contrary, conventional cargo traffic with the Far East and the Americas fell.

Containerized traffic registers a relatively balanced distribution between loaded and unloaded cargo. The share of traffic having origin/destination in Italy and in other European countries is relatively small. A half of unloaded traffic, expressed in tons, originates from Central and Middle East.

The market share for Middle-Far East rapidly increased (it was under 30 per cent at the beginning of this decade); indeed, traffic with the Far East and with India-Pakistan rose at a higher pace (respectively 7 and 9 per cent) with respect to the global traffic.

The quote of North Africa increased, but at a slower pace, while unloaded containers from the Americas and from other European countries slowed down. Loaded containers are directed to a more fragmented number of areas: Central and Far East absorbed less than 30 per cent of total traffic, while Middle East, Africa and the Americas increased their quote.

Traffic at the port of Genoa (thousands of tonnes; thousands of teu)

CATEGORY	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
General cargo (tons/000)	27.517	26.398	23.459	27.714	29.722	26.532	25.524	25.496	24.420	22.691	22.256
- containerized	18.928	17.656	15.180	17.824	18.772	16.547	16.075	15.914	15.071	14.152	14.070
- conventional	8.589	8.742	8.279	9.890	10.949	9.985	9.449	9.583	9.349	8.539	8.186
Dry bulks	5.024	4.608	3.684	5.498	5.993	6.797	8.201	9.320	8.837	8.886	9.006
Liquid bulks	17.852	19.697	20.310	21.006	21.475	21.641	21.464	21.020	20.456	20.172	18.915
- oil and derivated	17.022	18.831	19.387	20.006	20.464	20.567	20.461	19.885	19.424	19.204	17.930
- other products	830	866	923	1.000	1.012	1.073	1.003	1.135	1.032	968	984
Bunker and other	1.230	1.250	1.285	1.445	1.461	1.353	1.266	1.196	1.204	1.099	1.002
Total	**51.623**	**51.952**	**48.738**	**55.663**	**58.650**	**56.323**	**56.456**	**57.033**	**54.918**	**52.848**	**51.178**
Containers (Teus/000)	1.847	1.759	1.534	1.767	1.855	1.657	1.625	1.629	1.606	1.531	1.527
Ships in arrival (n,)	6.943	7.416	7.177	7.254	7.880	7.310	7.702	7.864	7.940	8.380	7.674
Ships in departure (n,)	7.025	7.465	7.338	7.200	7.848	7.577	7.662	7.855	7.911	8.362	7.668
Passengers (n,/000)											
Ferry Boat	2.315	2.780	2.815	2.715	2.703	2.638	2.642	2.728	2.734	2.640	2.410
Cruise	799	860	671	548	520	475	396	288	616	568	471
Total	**3.114**	**3.640**	**3.487**	**3.263**	**3.223**	**3.113**	**3.038**	**3.015**	**3.350**	**3.207**	**2.881**

TABLE 1 - SOURCE: Port Authority of Genoa

Now we turn to a synthetic analysis of perspective development for traffics. On the supply side, the current capacity of the port is not completely exploited. The port is realizing or programming a further expansion of capacity, by implementing specific infrastructure works with an impact also for the hinterland supply-chain; these actions, together with an effort to integrate the ICT of the main operators, should enhance the competiveness of Genoa (see also section 4).

In the short term, however, traffic evolution crucially depends on the conjuncture of production and consumption at the North West of the country. Keeping in mind the current evolution of GDP, a relevant increase of the maritime traffic seems unlikely in the short run. Afterward, the rebound of traffic is correlated with the global economic conditions, specifically in the North West.

3. Enterprises and occupation

Considering the relevance of Genoa in the maritime networks, almost all the main global shipping companies control local branches or agents and provide regular line;

according to the Port Authority, 7,400 ships every year touch the basin of Genoa, linking together over 550 ports and 150 countries.

According to the data by the National Logistics Plan (2011) and by Certet-Bocconi (2011), Genoa is the main international gateway for Italy, displaying the most differentiated supply in the country. European shippers account for over 60 per cent of global traffic, followed by the Asian operators (18 per cent). Within the sample examined in the Plan, the national companies absorb a 10 per cent market share at the port of Genoa.

The port holds a favourable ranking also for RO-RO traffic: according to an analysis by Infrastructure and Transportation Department (2011), Genoa ranks first in Italy; in 2011 six shipping companies operated in this segment of activity, providing 51 weekly routes, using 4 RO-RO terminals, and offering services also for the passengers' connections with Sicily and Sardinia (source: C.I.E.L.I., 2011).

Shipping companies' efficiency depends also on the competitiveness of the supply-chain, especially on efficient services by the stevedores that operate at various terminals in Genoa. Some Italian stevedores operate together with foreign firms that gained market shares for general cargo, cement and container traffics. To name one, PSA from Singapore, the second global operator (with a capacity of 55 million teu), took the control of the VTE Terminal in Voltri. This is the main terminal container in Genoa with a total throughput of 1.1 million teu in 2011, and a volume of 550,000 lm for RO-RO traffic in 2010.

The "Container Terminal Port of Genoa – SECH" soundly increased both traffic and occupation (from 40 to 240 workers in the period 1993-2011), also thanks to an effective policy of investments: the SECH recently hosted ships with a capacity of over 10,000 teu. The "Messina Terminal", specialized both in container traffic (especially connecting Africa) and in RO-RO traffic (over 126,000 lm in 2010), registered a progressive expansion in activity and investments. Moreover, the Messina Group's holding, in association with the Gavio Group, gained recently a tender for the concession of the Terminal Canepa-Libia (ex-Multipurpose). In 2009 the Gavio Group, one of the main logistics groups in Italy (with interests also at the ports of Civitavecchia, Taranto and Trieste), took the control of the Terminal Frutta, considering strategic a presence at the port of Genoa. Another relevant Italian logistics group, the Spinelli Group exhibits a RO-RO traffic of over 415,000 lm and a container traffic of over 120,000 teu in 2010; moreover, the Riva Group (national leader for steel manufacture, with over 22,000 units) operates at the ex-ILVA area in Cornigliano, with a 2.7 million tons traffic. The "Porto Petroli", finally, with a movement of 17.7 million tons of mineral oils, is the main oil import site for the Northern Italy.

If we look at the data provided by the Port Authority, which include also logistics and auxiliary activities, we are able to quantify and to disentangle the labour forces employed in and around the port of Genoa.

Commercial services at the port (tab. 2) account for 4,250 jobs; according to the estimates of the Port Authority, 6,500 more jobs derive from the industrial function (shipbuilding, yards, etc.). Moreover, we register a relevant role for auxiliary and logistics enterprises (and in particular for shipping agents and forwarders), with a global occupation of over 26,000 units. These estimates account globally for over

37,000 jobs, corresponding to a ten per cent share on the total occupation of the Province of Genoa (356,000 units in 2010, according to Istat) and to a 12.3 per cent share (in the year 2009) on the occupation of the Local Labour System of Genoa.

The estimates of the economic value added are also representative of the relevance of the port for local economy. Given the unavailability of data with the desired disaggregation, we have to approximate the estimates for this impact; however, the relevance is confirmed when we use, to this purpose, the data of Federazione del Mare-Censis (2011), that estimates the economic value added per person in port logistics and auxiliary activities correspondent to 70,000 euro.

Workers at the port of Genoa (2010)

Function	Number of units
Commercial port	4.250
Shipbuilding	6.500
Port logistics and auxiliary activities	26.299
Total	**37.049**

TABLE 2 - SOURCE: Port Authority of Genoa

4. Main open questions

The Genoa gateway's competitiveness – as in the case of other ports - depends crucially on efficiency: to reach this goal, ports try to optimize administrative, organizational and management factors, taking into account the growing competition for the same catchment areas, due to globalization. In this section we examine some of these factors, by considering the existing situation and the planned interventions for the port and for the hinterland (see the Port of Genoa Handbook 2010/2011), and keeping in mind the results of two specific surveys over a sample of forwarders and of shipping agents conducted by the Bank of Italy in the last years[8].

4.1. The port infrastructures

The endowment of maritime infrastructures available for mega ships is vital for the competitiveness of ports. Beretta *et al.* (2009) in a survey with a sample of shipping agents indicated the presence of a gap for this endowment at the Italian ports, with respect to the Northern Range ports and, to a lesser extent, to the West Med ports. In the operators' view, the main questions regarded the terminals' depth, in order to be able to host the mega ships, and the need for an expansion of the existing areas (warehouses, port spaces, etc.) of the port. Other disadvantages regarded the endowment of cranes and the length of docks.

[8] Both these surveys were conducted at a national level, even if the players operating in Genoa covered a very relevant role. The first survey, conducted with the shipping agents of the main 12 global *shipping companies*, was described in Beretta *et al*. (2009); the second survey with a sample of forwarders is illustrated in Beretta *et al*. (2011).

According to the results of the survey for Genoa, the scarce availability of working areas - determining some conflicts for concessions among the operators - represented the main disadvantage. Moreover the shipping agents asked for the realization of a buffer for trucks in order to alleviate congestions at the road conjunctions with the port. A second question regarded the inadequate depth of terminals, while the gaps for other variables, such as the endowment of cranes and berths, were considered negligible.

During the last years the Port Authority of Genoa planned, and partially realized, actions aimed at filling these gaps, to reach an adequate depth (Dredging Programme) and to improve the logistics efficiency and the correlated rail services (Rail Programme).

Dredging represents one of the main actions also for other national ports; in Genoa the dredged material is used for some programmed replenishments between terminals, with an investment estimated by the Osservatorio Territoriale Infrastrutture Nord Ovest in 218 million euro; these works, according to Certet-Bocconi (2011), should implement the capacity of the port by 0.8 million teu.

According to the Port Operational Programme 2012-14 by the Port Authority, investments for realizing the whole works indicated in the Port Regulation Programme amount to over 400 million euro. Moreover, this Programme introduces also a project for the realization of a buffer potentially useful for road transportation.

The described actions have enhanced the competitiveness of the port, as showed by the arrival – at the beginning of 2012 – of the biggest ship ever hosted at the Terminal SECH (gross tonnage: 100,000 tons; length: 336 meters; width: 46 meters).

4.2. Inland/Surface infrastructures

Competition among ports actually involves not only the efficiency of services at the docks, but also a growing relevance of the organization of the supply-chain and the efficiency at the hinterland. By this way, adequate surface infrastructures represent a key factor for competitiveness. Considering the survey by Beretta *et al*. (2009), the situation for surface infrastructures at the main Italian ports showed relevant gaps for competitiveness; that was mainly due to problems for the rail network and, at a lesser extent, for the road and motorway networks and for the connections. In the case of Genoa, the main goal consisted in the realization of the 24 Rail Corridor (Genoa-Rotterdam) included in the Trans-European Transport Network (TEN-T). The operators considered strategic also the optimization of the last mile for rail services.

Genoa is connected with the road networks by four motorways (A7 Milan-Genoa, A10 Genoa-Ventimiglia, A12 Genoa-Leghorn, A26 Genoa Voltri-Gravellona Toce), for a total length of 406 Km. According to Agresta-Conta (2010), 18 nodes connect the port with the motorways. To alleviate current and growing future congestions some interventions are suggested for the node at San Benigno. The main rail corridors link the port with Milan and Turin: these lines find some operation restrictions due to the current high gradient.

Strategic works for the optimization of the rail node of Genoa, with an investment corresponding to 622.4 million euro, started in February 2010. As well as increasing

the rail traffic capacity, these works aim at separating the passengers' traffic from the rail freight.

As recalled, the main infrastructure investment to be realized consists in the so called "Terzo Valico dei Giovi", a component of the 24 European Corridor Genoa-Rotterdam that interests the North West of Italy. By the end of 2008, according to the European Commission (EC, 2010), realization of works for the 24 Corridor accounted only for a 43.3 per cent share. In November 2011, to enhance the whole construction of the TEN-T network, the EC distinguished between a core network (to be completed by 2030) and a global network (estimated end by 2050); the core network encompasses 10 Corridors (in a total of 30 Corridors), including the Genoa-Rotterdam Corridor. Above all, taking into account the expected rise of maritime European traffic, this core network will be connected also with the 86 main European ports (DG Tren, 2010). By this way, the EC enhances the realization of works at the bottlenecks near the ports, in order to alleviate the existing congestions. In the meanwhile, at a national level, the Budget Law for 2010 admitted the provision of funding and segmented the core strategic infrastructural works in functional portions; six portions compose the works for the "Terzo Valico", with an estimated global cost of 6.2 billion euro and with an actual provision of funds amounting to 1.8 billion euro.

Financial resources represent the main constraint for the realization of the strategic works; moreover, one of the most debated question concerns financial autonomy for the Port Authorities, in order to finance at least some minor strategic work in the hinterland (such as the optimization of the "last mile" infrastructure). Other than recalling some papers about this question (Baccelli *et al.*, 2007; Baccelli *et al.*, 2008; Beretta *et al.*, 2009, we focus on the results of a study from European Sea Port Organization - ESPO (2010), that sheds light on the Italian ports' disadvantage for financial autonomy with respect to the Northern Range ports. This gap contributes to weaken the competitiveness of ports at the maritime and at the hinterland side.

4.3. The port hinterland and the intermodal transportation

These two questions are interlinked, as the development of hinterland is strictly dependent on the realization of an efficient intermodal system. According to the most recent papers, reliability and quality of connections at the hinterland is becoming a factor of growing relevance for competitiveness of ports (see for example Baccelli *et al.*, 2008).

The shipping companies involved in the mentioned survey by Beretta *et al.* (2009) considered as gaps of medium relevance for Italian ports the current situation for connections, for last miles and, at a lesser extent, for the dislocation and the availability of logistics and distribution centres. Genoa ranked better with respect to other Italian ports, but some gaps were to be filled for rail transportation.

Actually, modal split at the port of Genoa registers a share for rail transportation (ranging from 20 to 17 per cent in 2007-08) that is above the national average (12-11 per cent in the same period), but is lower with respect to the main European competitor ports. The number of goods wagons at the port of Genoa exhibited a relatively low increase: notwithstanding the rise followed to the opening of the VTE Terminal in

Genoa Voltri in 1994, the increase of good wagons was well under the expansion of global traffic at the port. As a consequence, the continuous growth in the number of trucks reaching the port generates congestions all around: Midoro (2009) estimates that on average 3,600 heavy vehicles transit by the port. Road transportation benefits, indeed, from the relative small distances for origin/destination markets of freight.

The Port Authority implemented the Rail Programme in order to enhance a modal shift towards rail traffic, including actions such as the modernization of the Rail park of "Rugna", the institution of new tracks at some docks (Ronco and Canepa) and the electrification of rail lines inside the port. Since May 2010 a new private corporation, denominated Fuori Muro, operates in this area, with an expressed goal of integrating port rail services with the rail network and with the corridors linking the port to the Piedmont and Lombardy Regions. Moreover, some logistics centres in the North West may offer services for cargo traffics from the port of Genoa. The most relevant is at the moment Rivalta Scrivia that is currently linked with the VTE terminal by a dedicated shuttle. In perspective, there is plenty of space near Alessandria useful for logistics scopes (with a potential management of over 0.5 million teu); spaces and rail infrastructures for the port logistics are available also in Novi Ligure.

4.4. The labour market at the port of Genoa

A very specific discipline of labour market applies to temporary jobs offered by authorized companies at Italian ports, according to the article 17 of the Law 84/1994. Stevedores and other port players offer services using their own labour forces, but have to turn to specialized pools of temporary labour (Pools) in case of over demand. This system faces now growing difficulties due to the international evolution and to the current crisis. Notteboom (2010) provides some insights for the international evolution during the last decades and for the impact on port labour: factors like the innovation, the widespread use of ICT, the run towards mega ships, the standardized use of container impacted significantly on the labour supply from port pools. Notwithstanding a range of very different situations in Europe, all ports experienced a general trend of decrease for labour demand (for the USA see Hall, 2009).

Italian port labour supply, accounting for over 22,000 workers at the beginning of the eighties, diminished soundly till 1997; afterward, due to a rebound of traffics and to the reform by the Law 84/1994, occupation increased steadily, reaching 20,000 units in 2006 (Isfort, 2011). However, the composition of labour supply experienced a real change, with a reduction for the share of Pools (from 95 to less than 20 per cent between 1983 and 2009).

Pools ex article 17 of the Law 84/04 operates at 32 of the Italian ports; a 70 per cent share of workers operates in 5 ports (Genoa, Civitavecchia, Ravenna, Palermo and Savona), with the port of Genoa accounting for almost 1,000 units. This latter gateway keeps a long tradition with the Pools, as confirmed by the existence of the "Compagnia Unica fra i Lavoratori delle Merci Varie" (CULMV) since the end of the Second World War; Musso (2008), provides information about the historical evolution of pool in Genoa and quantifies in over 5,600 workers the labour supply from CULMV in 1983.

In Genoa current regulation of temporary labour supply during the last years guaranteed on the one hand a balanced and stable labour environment and on the other hand relatively efficient services. This is confirmed by the survey conducted by the Bank of Italy (Beretta *et al.*, 2009) that registered negligible gaps for time and costs of port operations in comparison with the Northern Range and with the West Med ports. According to Isfort (2011), between 2001 and 2009, notwithstanding the rise in the port traffics, occupation at CULMV grew only by a modest 2 per cent, well beyond the increase of other private enterprises operating at the same gateway. CULMV, as other operators, is at the moment facing the difficulties caused by the current economic crisis.

4.5. Innovation and ICT

Innovation and ICT widely impact on controls rationalization and on integration among operators. Indeed, the Port Authority of Genoa implemented since 2004 the *E-port* project, aiming at diminishing red tape and at developing the use of ICT for port activities; moreover, these variables represent core items for the next Port Regulation Programme. According to Beretta *et al*. (2009), the shipping companies signalled on the one hand some gaps for Customs controls but on the other hand also some improvements due to new projects. The forwarders too (Beretta *et al.*, 2011) adverted gaps in terms of heterogeneity of Customs controls at different ports, shedding light on some improvements for controls due to the introduction of the certification of *Authorized Economic Operator* and to some other specific actions. Actually the main question to be faced seems to be the institution of a Single Window at the Italian port, in order to integrate all the controls from different administrations

The Port Authority's Operational Programme 2012-14 sheds light on the past implementations and on future goals for ICT applications. First, the Port Authority is targeting coordinated actions with the Customs, in order to minimize costs and red tape for the operators. Moreover, the port moves towards a consolidation of the experimented pre-clearing. Finally, the Entry Point (under the name of "Punto di Entrata Designato") represents a strategic goal, in order to concentrate the 17 different kind of potential existing controls (see Beretta *et al*., 2011). The role of ICT is crucial for the integration of the operators' systems also at the surface side, where a coordination of arrival and deliveries for road transportation at the port demonstrates necessary. The Port Authority is finally implementing the integration of E-port, UIRNet (technological platform for specific inland terminals denominated "interporti") and RTE (platform used at the Rivalta Terminal Europa in the hinterland) systems for the efficient exchange of information.

5. Concluding remarks

This paper describes the structure and the main characteristics (included the main operators and the labour market) of the port of Genoa, together with the recent evolution and poses a series of integrated open questions. Global and national maritime

and logistics operators in Genoa have to face a growing competition due to the globalization, through a continuous expansion of captive catchment areas. The Port Authority of Genoa invested to adequate the maritime infrastructures for global challenges. Competition is now played also at the hinterlands-level, making crucial the availability of further investments for surface infrastructures (from public and private counterparts); however, the current crisis produces a further shrinking for funding. A real simplification of red tape and of Customs controls, the realization of the Single Window and the operators' ICT integration represent easier goals to be reached. All these questions impact sharply on the port activity and on the connected labour market.

A relevant opportunity for a further development at the Genoa gateway is represented by a deeper propensity to internationalization, taking into account that currently all the main international maritime and logistics players operate in Genoa. Indeed, the port could aim at widening its own catchment area cross-border. The Port Authority's project and programmes seem oriented to catch these opportunities: the enhancement of intermodal traffic, the development of innovation and an optimization in the use of ICT seem to be feasible, less costly and less time consuming objectives in comparison with the completion of major strategic infrastructures.

Case Study No. 3
THE PORT OF TRIESTE:
ANALYSIS OF TRAFFIC, ECONOMIC IMPACT AND GROWTH PROSPECTS

1. Historical background

The port of Trieste experienced a lively phase of development in the 18th Century, as a result of the economic policy choices pursued by the Habsburgs, and of the downfall of Venice. Charles VI considered Trieste a strategic node, and in 1717 he issued a Trade Licence which proclaimed freedom of navigation in the Adriatic Sea, the protection of vessels flying the Imperial flag, and the possibility of considering anyone opposing freedom of navigation as pirates.

In 1769, Maria Theresa, daughter of Charles VI, declared Trieste a "Free Maritime City", and Free Port status was extended to the entire city.

Between 1792 and 1813, Trieste bore three French occupations, which undoubtedly depressed the city, but did not overly compromise its important position for maritime traffic in the Mediterranean.

In 1813 the Austrians won Trieste back, and in 1814 the Free Port licence was re-established for the city, allowing it and its port to fully resume their role as a gateway to inland Central Europe. In 1857 the Sùdbahn (Southern Railway) was inaugurated, linking Trieste and Vienna. In 1863, construction of the New Port of Trieste was initiated, near the Southern Railway station. The port was designed by Paul Talabot, and completed in 1883. The opening of the Suez Canal in 1869 (with Baron Rivoltella of Trieste also making a contribution) had led to an increase in traffic.

In 1879, the Pontebbana railway came into operation, along the North-Western route (Trieste – Udine – Pontebba – Tarvisio – Villach – Salzburg – Munich), opening up new opportunities for an increase in trade and traffic transiting through the port of Trieste.

In the latter years of the 19th Century, the port facilities were expanded, with the construction of new wharfs in the Sant'Andrea area.

In 1906, the new Transalpine Railway line came into operation (Trieste – Gorizia – Podbrdo – Jesenice – Villach – Linz – Prague) and completed the city's link with Vienna. The period prior to World War I was a florid one for Trieste, in all sectors of economic activity, from the maritime/port business to the financial and industrial sectors; the city experienced considerable growth also in terms of its population, which in 1914 had risen to 250,000.

In 1918, in the aftermath of World War I, the city's role was inevitably diminished, from main port of an empire to marginal port in a country with a host of other port infrastructures, which in many cases, in the Northern Adriatic Sea in particular, were alternative to it and became direct competitors.

In the wake of World War II, Trieste was constrained and conditioned by the Iron Curtain, which effectively stripped it of its hinterland; the port inevitably suffered as a result, and was also affected by the broader downscaling process which involved all the

major Italian ports. In Slovenia, the port of Koper developed rapidly, and became what is today the main port of the Northern Adriatic Sea; the port system of this section of the Adriatic is completed to the East by the port of Fiume, also built under the Austro-Hungarian domination, and to the West by the ports of Venice and Ravenna.

2. Structural characteristics of the port of Trieste

The port of Trieste boasts excellent accessibility both by road and rail. Access to the Italian and European motorway systems is made possible by a flyover between the New Port area and the A4 motorway (Trieste – Venice), with links to the A23 (Palmanova – Tarvisio). Facilitated Direct Transit rules are applied to heavy goods vehicles travelling from and to the border crossings of Brennero, Coccau (Tarvisio), Casa Rossa (Gorizia), and Fernetti (Trieste).

The port is well connected to the Italian railway network, and has a dense internal infrastructure (70 kilometres of track); a direct link has been established with the Villa Opicina railway station, which connects with the national and international networks. Of all Italy's ports, Trieste tops the table in terms of the use of rail transport (33%).

Trieste's geographical position (Latitude: 45° 39' North, Longitude: 13° 47' East) places the city at a crossroads in traffic and trade flows between the Mediterranean Basin and Central and Eastern Europe. Some of the major European infrastructural projects also cross in the Trieste area.

One of the port of Trieste's strengths is its greater berth depth than most other ports in the Adriatic: with a maximum draft of 18 metres, it can service large ships. Port areas cover a total surface of over 2,300,000 square metres, of which around 1.8 million in free port areas (the Old Free Port Area, the New Free Port Area, the Wood Dock, the Mineral Oil Free Port Area, and the Zaule Canal Free Port Area).

The wharfs have an aggregate length of over 12 km; 925,000 square metres of port areas are used for the storing and warehousing of goods (500,000 square metres are covered). As regards rail transport, the Trieste station can handle up to 37 trains a day, with a (current) maximum capacity of 560,000 TEUs a year.

The port of Trieste has a number of different terminals, suited for various types of handling. More in detail, the Old Free Port Area houses the Live Animal Terminal and the Multipurpose Terminal.

Moving from the Old Port towards the New Port, the Maritime Station is located on the City shore, equipped with facilities for the docking and mooring of passenger ships.

The New Free Port Area is naturally the most dynamic and active part of the Trieste port, as this is where the main terminals are located, and where the port's main activities take place. More in detail, the New Free Port Area includes: the Riva Traiana Terminal, dedicated to ferry and Ro-Ro traffic; the Dock V Terminal, specialised in handling general goods, in which the Fruit Terminal is located; the General Goods Terminal; the Dock VI Terminal, and the Cereals Terminal. Dock VII plays host to the Container Terminal: its 18-metre berth makes it one of the deepest in the Mediterranean, with a yard capacity of over 600,000 TEUs, open for business 24 hours a day, 362 working days a year. The Wood Terminal rounds up the port's facility endowment.

The port of Trieste has good access to the motorway system, although an increasingly pressing need, also considering the consistent increase in HGV traffic, is the construction of a third lane in the Mestre-Trieste section, work on which, despite financial difficulties, has already begun. As regards the rail network, the situation is not particularly satisfactory in the North East, more due to management than infrastructural problems. The network must be strengthened, by implementing the works provided for by the Mediterranean Corridor along the section linking Venice, Trieste, and Ljubljana. The Pontebbana line, on the other hand, is adequate in supporting the growth in traffic handled by the Trieste port, and more in general by the entire port system of the North Adriatic Sea.

On the other hand, issues which need to be solved in the short term include the management of rail services, which in their current configuration come across as inadequate and incapable of supporting larger volumes of traffic than at present. Viable solutions to this problem are tied to an actual opening up of the rail industry, in accordance with EU directives, that have hitherto been embraced in a more formal than effective manner.

3. Traffic flows and links

Data referred to the past few years show that the port of Trieste experienced a moderate growth trend until 2008, the year which recorded the highest volumes of traffic in the opening decade of the 21st Century, in all the main segments. Like many other ports, Trieste was hit by the negative effects of the global economic and financial crisis, although the worst now seems to be over.

In 2009 in particular, the port incurred a significant drop in handling volumes, after achieving in 2008 its best result ever in terms of containers handled: over 353 thousand TEUs, on the decline to 275 thousand in 2009. The recovery of this specific item in 2010 was limited, whereas all other sectors of activity returned to their pre-crisis market shares (the Ro-Ro segment in particular).

In 2011 the growth trend resumed, containers handled amounted to over 390 thousand TEUs, and the handling of large load units continued in the opening quarter of 2012 (+16% compared to the same period the previous year).

Among Italian ports, Trieste ranks second in terms of the shipping of goods, with over 47 million tonnes handled in 2010, i.e. 9.98% of the national total; on this front it is bettered only by Genoa, which ranks first with over 50 million tonnes handled and accounts for 10.67% of Italian traffic.

Port of Trieste: handling of the main categories of goods

Handling of goods (tonnes)		2011	2010	2009	2011-2010	2010-2009
Total liquid bulk:		**35,229,638**	**36,208,303**	**35,025,452**	**-2.70%**	**3.38%**
	Crude oil	34,228,706	35,118,794	33,967,193	-2.53%	3.39%
	Refined products	989,946	1,083,774	1,055,956	-8.66%	2.63%
	Other liquid bulk	10,986	5,735	2,303	91.56%	149.02%
Total dry bulk:		**1,720,095**	**1,634,998**	**1,541,324**	**5.20%**	**6.08%**
	Minerals	500,324	715,113	743,214	-30.04%	-3.78%
	Coals	616,426	644,104	568,623	-4.30%	13.27%
	Cereals and oil seeds	105,181	102,138	81,437	2.98%	25.42%
	Other dry bulk	498,164	173,643	148,050	186.89%	17.29%
Various goods in terms of total items:		**11,288,244**	**9,790,887**	**7,826,546**	**15.29%**	**25.10%**
OVERALL TOTAL		**48,237,977**	**47,634,188**	**44,393,322**	**1.27%**	**7.30%**
Total (excluding energy products)		*12,402,899*	*10,787,516*	*8,801,550*	*14.97%*	*22.56%*
Container handling:	TEUs	393,186	281,643	276,957	39.60%	1.69%
	Tonnes	4,644,396	3,093,692	2,865,660	50.12%	7.96%
	Ferry / Ro-Ro					
	Trucks	223,716	213,334	181,719	4.87%	17.40%
	Tonnes	5,817,998	5,648,502	4,783,957	3.00%	18.07%
Standard ships	Tonnes General cargo	1,610,806	1,418,467	840,851	13.56%	68.69%
Passengers (N.)		56,973	67,035	71,964	-15.01%	-6.85%
	of which: cruise-goers in transit	9,384	13,318	3,530	-29.54%	277.28%
	of which: cruise-goers embarking/disembarking	18,799	2,014	2,903	833.42%	-30.62%
Ship handling (N)		3,982	3,755	3,435	6.05%	9.32%

TABLE 1 - SOURCE: Elaborations on Trieste Port Authority data (http://www.port.trieste.it)

Handling in TEUs (Dock VII)

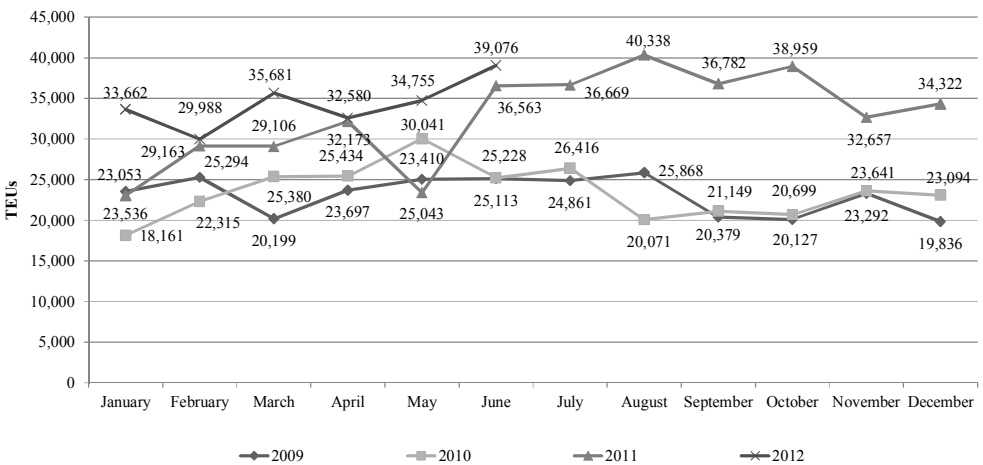


CHART 1 - SOURCE: Elaborations on TMT data (http://www.trieste-marine-terminal.com)

The share commanded by Ro-Ro activity is interesting, at 5.6 million tonnes, or 6.94% of the national total, with Trieste ranking eighth behind Livorno, Genoa, Olbia, Messina-Milazzo, Palermo-Termini, Naples, and Salerno. As regards containers, the 2010 figure places Trieste in 17th position in terms of overall handling, with a 2.83% share of the total (Table 2).

Cargo traffic in the main Italian ports

Port	Liquid bulk (k tonnes)	Dry bulk (k tonnes)	Various goods (containers k tonnes)	Ro-Ro (k tonnes)	Other various goods (k tonnes)	Total various goods (k tonnes)	Total (k tonnes)	TEUs	PAX
Genoa	19,696.71	4,608.09	17,655.78	8,058.55	683,219	26,397.54	50,702.34	1,758.858	3,639.975
Trieste	36,209.89	1,635.49	3,021.73	5,648.50	902,14	9,572.38	47,417.76	277,058	62,579
Cagliari-Sarroch	25,716.24	385,98	7,117.96	2,596.70	56,585	9,771.24	35,873.46	629,340	507,612
Taranto	6,572.48	18,138.11	3,749.73	0	6,388.52	10,138.25	34,848.84	581,936	0
Gioia Tauro	523,99	19.35	29,684.89	172,22		29,857.11	30,400.45	2,852.264	
Livorno	9,280.27	843,538	7,332.27	10,379.41	2,463.27	20,174.95	30,298.75	628,489	3,374.768
Augusta	28,454.72	960,077	0	0	0	0	29,414,80	78	0
Venice	11,928,85	6,425,70	3,957,50	1,786,80	2,290,91	8,035,21	26,389.76	393,913	2,058.815
Messina-Milazzo	16,382.20	91,052	0	6,595.18	0	6,595.18	23,068.44	0	8,578.681
Naples	5,551.90	4,419.30	5,883.39	6,068.78	0	11,952.18	21,923.38	534,694	7,365.397
Other ports	3,1132,076	3,8104,419	22,485,732	40,098,454	13,128,348	75,712,507	144,949		
TOTAL	191,449.3	75,631.09	100,888.9	81,404.59	25,912.99	208,206.5	475,286.9	9,773.064	47,156.63

TABLE 2 - SOURCE: Assoporti, 2010 data

Services are operated from the port to the main Mediterranean destinations, as well as to the Far East, thanks to new direct links, mostly addressed to container shipping, which attract vessels of medium-large size to the North Adriatic Sea. More in detail, CMA–CGM and Maersk operate a direct weekly service to the Far East, using ships with a capacity of 6200–6500 TEUs on the "Trieste-Koper-Rijeka-Trieste-Port Said-Jeddah-Port Kelang-Singapore-Shanghai-Busan-Chiwan-Hong Kong-Tanjung Pelepas-Port Kelang-Port Said-Trieste" route. Starting in February 2011, Trieste has again become a main port of call (after being temporarily replaced by Koper) and may therefore count on two weekly stops for the unloading and loading of goods.

A second direct service to the Far East is operated by Green Alliance and New World Alliance companies (Hanjin, Yang Ming, Hyundai and UASC), with vessels ranging between 5000 and 5200 TEUs on the "Trieste-Taranto-Colombo-Tanjung Pelepas-Kahosiung-Hong Kong-Yantian-Shanghai-Ningbo-(USA WC)-Tokyo-Osaka-Pusan-Qingdao-Shanghai-Ningbo-Kahosiung-Hong Kong-Yantian-Tanjung Pelepas-Colombo-Ashdod-Alexandria-Taranto-Koper-Rijeka-Trieste" route (TMT, 2012).

Services to Mediterranean ports are also operated, addressed to infra-Med traffic and hub ports on world routes.

MSC in particular runs services to Israel, Turkey, and Egypt, with stops in the Adriatic Sea and in ports such as Haifa and Ashdod in Israel, Mersin, Iskenderun, Istanbul in Turkey, Beirut in Lebanon, and Alexandria in Egypt. As regards the hub ports of the Mediterranean, Trieste has services linking it with Piraeus, Gioia Tauro, and Malta.

Therefore, the port of Trieste offers a mix of the new services currently characterising traffic in the Mediterranean. Rather than prevalently feeder-type services addressed to the major ports of the Mediterranean, based on the hub and spoke logic that was dominant until a few years ago, direct services are now operated to distant destinations, such as the Far East, as well as other direct services within the Mediterranean area. The latter are aimed both at establishing direct links with different areas of the Mediterranean (e.g. Israel, Turkey, Egypt), and at offering actual feeder services, connecting the Trieste port with hub ports (Piraeus, Malta, Gioia Tauro), from which traffic flows then reach other destinations in the Mediterranean or beyond.

As regards the land transport links operated from the port of Trieste, in addition to the already mentioned punctual and linear infrastructural endowment of the regional system, i.e. vehicle ports and interports, and the motorway and rail networks it has access to, other logistics services are offered, and deserve a mention. Specifically, rail links are in place today with the main intermodal nodes in Austria, Germany, Hungary, and Italy (for what concerns domestic destinations).

Rail and intermodal links (Società Alpe Adria)

Country	Route	Frequency
Austria	Villach South – Trieste Graz South – Trieste Salzburg Hbf CCT – Trieste Salzburg Hauptbahnhof – Trieste (Ro/Mo) Linz Stadthafen – Trieste Wien N. W. Bahnhof – Trieste (Links with Prague, Brno, Bratislava)	4 trains per week
Germania	Munich Riem – Trieste (Links with con Ludwigshafen, Koln, Duisburg, Hamburg, Leipzig, Berlin, Rostock) Ulm Beimerstetten – Trieste	5 trains per week 1 train per week
Hungary	Budapest Bilk – Trieste	1 train per week
Italy	Bari Giovinazzo – Trieste Padua Interport – Trieste Milan marshalling yard – Trieste Bologna Interport – Trieste Rubiera Modena – Trieste	1 train per week 4 trains per week 1 train per week As needed

TABLE 3 - SOURCE: Società Alpe Adria S.p.A. (http://www.alpeadria.com), data as at May 2012

4. Growth prospects and priority interventions

Starting in the second half of 2008, direct LCS services in the north-eastern section of the North Adriatic Sea have changed significantly (Table 4).

The most significant element to highlight is the fast pace of growth in the average capacity of ships, in step with intensifying trade activity: in just a few years, from 2005 to 2010, the average capacity per ship in TEUs transported along the North Adriatic – Far East route increased from 4,000 to 7,000 TEUs, while overall annual commercial capacity rose from 300,000 to 500,000 TEUs (SoNoRa, 2012).

According to the leading shipping industry analysts, an evolution of the Europe-Far East/Southern Asia-Europe distribution system of maritime traffic is taking place; the

traditional model based on two transhipment platforms located in the Central Mediterranean and in the Northern Range, is being abandoned to the advantage of a new, more articulate and complex setup, revolving around several specialised regional clusters, served by one or more large ports, in which direct transport combines with marginal transhipment activities.

Direct North Adriatic – Far East Services. Diachronic comparisons

Year	Operator / Alliance / line	Weekly stops	No. of vessels	Average capacity per nave (TEUs)	Total capacity of the vessels used (TEUs)	Annual commercial capacity (TEUs)	Months of operation
2008	Evergreen Lines (Evergeen – Italia Marittima)	1	8	4,600	36,800	268,640	12
	MSC - Mediterranean Shipping Company	1	7	6,500	45,500	81,900	3
	Total	1.25	15	5,487	82,300	35,0540	
2009	Evergreen Lines (Evergeen - Italia Marittima)	1	8	4,600	36,800	88,320	4
	Maersk - CMA/CGM	1	8	6,000	48,000	172,800	6
	MSC - Mediterranean Shipping Company	1	8	6,500	52,000	187,200	6
	Total	1.33	24	5,700	136,800	448,320	
2010-2011	Maersk - CMA/CGM	1	8	6,500	52,000	374,400	12
	Hanjin - Hyundai - Yang Ming - UASC	1	8	4,850	38,800	162,960	7

TABLE 4 - SOURCE: SoNoRa report, 2012

One of the most important advantages deriving from the new setup of ocean navigation services, carried out with LCS and VLCS ships, directly involving the ports of the Black Sea, of the North Adriatic Sea, and of the North Tyrrhenian, is the reduction of road traffic in Central Europe, and in particular in the regions beyond the Alps: this is a direct consequence of the possibility, offered by the new organisation of maritime traffic, to establish new East-West/South-North intermodal connections between base ports and inland multimodal terminals, limiting road transport to the "last mile" of the logistics chain.

Several projects have been drafted for the development of the port of Trieste, geared to solving its present structural limitations, with particular reference to Ro-Ro traffic, which has increased significantly in recent years and must do at present with seriously inadequate spaces and facilities.

The Trieste Port Authority is planning a number of infrastructural interventions, aimed at redesigning the layout of the port. The General Port Development Plan provides for a gradual "shifting of the barycentre of port activities southwards, and a significant expansion of the areas dedicated to these activities", within the more general framework of a reorganisation of the spaces devoted to the various forms of transport, with particular focus on the areas servicing the wharfs.

The construction of a general cargo terminal has been planned, with berths for medium-large vessels, which may also be achieved by merging/integrating the existing

Docks V and VI. An extension/doubling of Dock VII is also envisaged, to increase its capacity to one million TEUs, as is also the construction of a new container terminal, Dock VIII, which would significantly step up overall offer, with a surface of 90 hectares and deep berth dept (up to 18 metres).

A new Ro-Ro terminal is planned in the southern part of the port, capable of servicing over four large Ro-Ro ships simultaneously, with ample waiting areas for vehicles, as well as excellent rail and road access facilities. The Plan also provides for the upgrading of the passenger terminals, by means of the extension of the dedicated dock, that will allow the mooring of new, large ships of over 300 metres in length, and the renovation of the receptive facilities of the passenger maritime station, in view of a revamping of Trieste as a tourist destination.

One of the Trieste Port Authority's aims is also the establishment of the so-called "logistics platform", which should take shape as an up-to-date and efficient multipurpose terminal; this infrastructure, highlighted as a priority for the development of the port, recently received (May 2012) a financing of 30 billion euros from CIPE, with which to initiate procedures for the construction of the terminal and for the concession of its management.

In the future, the platform should represent the base to which to attach Dock VIII, which would result in the port of Trieste's container handling capacity increasing to over three million TEUs in the 2030s. However, this objective implies the realisation of the Mediterranean Corridor (formerly Corridor V), as part of the Core Network of the EU's TEN-T. In any case, just a few interventions implying relatively small financial commitments, would allow the current network to handle traffic of up to between one and 1.2 million containers.

As regards rail transport, the issues at play are not solely infrastructural, as in the present phase the organisational setup of the services offered should also be taken into account: in fact, this should be a priority, with the involvement of dynamic and efficient companies, committed to offering cargo services, attracted by a true opening up of the market.

The port of Trieste shares with other ports of the North Adriatic Sea an ideal position from which to address vast market areas, located in the Po valley and beyond the Alps; an additional factor of strength for the port are its berth depths, of up to 18 metres, the deepest in all the Adriatic Sea. This allows Trieste to attract large container ships with no need for specific structural interventions.

A third factor of strength for Trieste is the direct link with the Pontebbana railway line, the most direct and convenient terminal section of the Adriatic-Baltic corridor.

As regards the port of Trieste's weaknesses, on the other hand, it should first of all be said that it shares the general shortcomings that afflict the Italian port system as a whole, marring its competitiveness at the international level: Law 84/94 has improved the situation in terms of opening up the market of the activities carried out within ports, but has done little in opening up the port market in the sense of an external projection. The multiple proposals made to change the Law mentioned above only marginally tackle the true problems of the Italian port system, and should the Law be passed in its present form it would in any case fail to create the necessary conditions to restore the Italian port system to competitiveness within the international context.

More in detail, the Trieste port is constrained by a lack of operational areas, which hinders an effective organisation of port activities; as a result, the cost of goods handling in Trieste is high compared to competing ports, especially those located in Slovenia and Croatia, which can take advantage of cheaper labour. Another weakness is the quality of the rail services, which should be adequately enhanced in view of the facility's relaunch. A further problem is the inadequate organisation of services, not only customs services, that is necessary to make the transit of goods more fluid; this is an old problem, and not specific to Trieste, as it affects the entire Italian port system.

A particularly critical aspect is the capacity of the port, as mentioned above, which currently amounts to a theoretical 600,000 TEUs.

Railway infrastructures inside the port also have their limitation: at present it is not possible to assemble train-blocks of 750 metres in length, due to the layout and to the shape of the tunnel connecting the New Free Port Area and the rail network.

A limit is also the presence of obsolete structures (buildings) in terms of their use for modern port activities. This problem amplifies the lack of inland spaces, that are important for modern port handling, which increasingly requires extensive and unobstructed areas. In this sense, some areas not directly linked with the Trieste port could be used (for instance the Fernetti terminal) the capacity of which, however, is also reaching saturation point.

The area also presents criticalities tied to competition for the use of the soil. The Old Port, mentioned above, is at the centre of debate on whether it should be dedicated to port functions, in truth very limited at present, or to urban use.

The port of Trieste is at the heart of one of the largest polluted Sites of National Interest (SIN), which embraces a sea component and an inland area. Projects are being drafted for the reclaiming of an inland part of this site in direct proximity with the shore, with the aim of creating a new Ro-Ro terminal capable of better absorbing heavy vehicle flows, and of freeing the city from vehicle traffic tied to port activities.

As regards environmental issues, the Ferriera di Servola steel mill has also been at the centre of debate for years, for environmental sustainability and security concerns, and its conversion should result in the creation of a logistics platform aimed ad aiding port functionality.

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The research investigates the economic and strategic aspects of the Italian maritime transport, which SRM considers as one of the driving sectors of the country's growth.

The work starts out by analysing the sector both at national and international level, providing data and statistics on the generation of sea traffic, on the abundance of the fleet, on the sector development areas and on the strengths and weaknesses of maritime transport, without neglecting aspects related to the presence of strong, insidious, foreign competitors both among ship owners and in terms of logistic and port installations.

A specific section is dedicated to the analysis of the Med Area, with particular reference to North Africa, where new opportunities will be developed in the next few years for our companies and infrastructure. The survey continues focusing on Italy's maritime commercial interexchange relations, with a detailed description of the "target" countries and the most dynamic areas where the industry is insisting. The research shows that Italian shipping could be more appreciated if the regulatory and bureaucratic constraints that make it difficult to build infrastructure and are burdensome for companies wishing to invest, not only to expand their business, were removed. The innovation and internationalisation of the manufacturing system are two possible paths to follow in order to stimulate our sea system which, together with the resumption of investment in port infrastructure, can be the factors for the crisis exit strategy; all this with a comprehensive vision.

Three focuses are presented to provide significant case studies to the reader wishing to penetrate, in a way by no means exhaustive, specific areas which are considered strategic for the country. They are dedicated to the maritime ship-owner cluster of the Campania Region and to port of Genoa and Trieste, three "engines" of our sea economy.

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